Welcome to the 2016 Joint Annual Meeting!

The American Society of Animal Science is excited to be meeting jointly with the American Dairy Science Association, the Canadian Society of Animal Science and the Western Section of the American Society of Animal Science.

Around 2,000 abstracts were submitted, and approximately 1,800 will be presented. Prior to the start of the JAM, the 5th Grazing Livestock Nutrition Conference will take place at the Canyons Resort in Park City with a scientific program containing over 40 abstract presentations. At the conclusion of JAM, the 35th International Society for Animal Genetics Conference will commence at the Hilton Salt Lake City Center. Around 400 abstracts were submitted to this meeting and over 360 abstracts will be presented.

JAM, combined with these two conferences, will create the most comprehensive two weeks in animal science meeting history.

Graduate student oral and poster competitions, as well as Student Affiliate Division competitions and activities are featured throughout the program. These activities provide an excellent way for students to highlight their scientific achievements and to network with other students and professionals. I encourage you to sit in on these competitions. You will be impressed by the quality of papers and the information presented by our students.

It has been an honor to serve as the JAM Program Chair for 2016; however, our program committees do the real work of organizing the meeting. These committees develop the ideas for the symposia, review the abstracts, and construct the oral and poster sessions.

The ASAS and ADSA staff do a fantastic job with the logistics of the meeting and making everything run smoothly. If it was not for their hard work and dedication, none of this meeting would be possible. Please spare a moment to let the staff know what you think of the meeting.

JAM 2016 promises to be a meeting with a great scientific program and plenty of time for networking.

I look forward to seeing you in Salt Lake City!

Dr. Shawn Archibeque, JAM Program Chair
On behalf of the American Society of Animal Science and the American Dairy Science Association, we welcome you to Salt Lake City and JAM 2016.

This year’s meeting begins on Tuesday, July 19, and runs through Saturday, July 23. Many opportunities exist for interacting among society members, starting with the Opening Session on Tuesday, July 19, when five member nominated speakers will share their stories and passion for animal science in a new series called AnimalX. Stylized after the well-known Ted-Talks, each AnimalX presentation offers a unique perspective on animal agriculture. AnimalX spotlights can be found scattered throughout the program.

The Opening Session will be followed by a BBQ (page 10) for all attendees. Other special pre-meeting events include the ASN-ASAS Preconference: Gut Microbiota, Diet and Health and the ASN Poster Competition.

Over 50 symposia are scheduled that cross many species, disciplines and societal topics of importance to food and companion animal production.

Attendees are encouraged to take full advantage of this great opportunity to share ideas across species and societies, visit with each other in person, and make new acquaintances.

We are grateful to the many people involved in making this meeting a success, starting with our sponsors. Their support is essential to the quality program that makes JAM unlike any other meeting. A list of sponsors of this year’s meeting is available in this program book. Please take time to thank them during the meeting. The program committee has worked long and hard to organize an excellent program. Our thanks to the Overall Program Committee of Shawn Archibeque (chair), Barry Bradford, Connie Larson, Ignacio Ipharraguerre, Cathleen Williams, Filippo Miglior, Jack Whittier and Clare Gill for their efforts in bringing forth this outstanding scientific program. We also thank the many others who contributed to this huge undertaking, including the staffs of ASAS and ADSA.

Finally, thank you, the attendees, for participating in JAM 2016 and making it a grand success!

Dr. Michael Looper, ASAS President  
Dr. Susan Duncan, ADSA President
Welcome to the 2016 Joint Annual Meeting!

Dear CSAS Members and Participants,

The Canadian Society of Animal Science is excited to be meeting jointly with the American Society of Animal Science, the American Dairy Science Association, and the Western Section of the American Society of Animal Science.

It gives me great pleasure to welcome you to the Joint Annual Meeting in Salt Lake City. With over 3,250 participants from over 35 countries, this truly embodies an unparalleled global event of the brightest minds in animal science and agriculture.

This meeting provides an unequalled opportunity to see old friends, meet new ones, learn about CSAS’s recent activities and advances in the animal science industry, and participate in discussions with experts from around the globe about some of the most important issues related to animal science. We are honoured to count you among the conference participants.

Another year has passed by with lightning speed; however, I invite all CSAS members to our 2016 Annual General Meeting and Lunch, July 21 from 12:30-14:00 at the Salt Palace Convention Center in Salt Lake City. During our AGM, I will present to you the most recent updates related to the work of your executive team, inform you of a number of achievements, as well as host a discussion on challenges confronting our society.

I look forward to joining you in attending many exciting presentations including the student competitions, scientific discussions, CSAS symposium, and our CSAS awards night where we recognize and celebrate outstanding members of our society.

Please enjoy the conference and take advantage of the many opportunities to learn, share, and network in Salt Lake City.

Respectfully yours,

Dr. Tim Reuter
CSAS President
The Western Section of the American Society of Animal Science (WSASAS) is excited to be part of JAM, and meeting jointly with the American Society of Animal Science (ASAS), American Society of Dairy Science (ADSA) and the Canadian Society of Animal Science (CSAS). We would like to welcome everyone to Salt Lake City, UT and hope that you enjoy the joint programming this year.

It is always exciting to join our programming with the national programming; thus, I would encourage everyone to take full advantage of the WSASAS activities. However, there will be some programs that are exclusive to WSASAS. One of the strengths of WSASAS is our student members and they will be highlighted in three events. First, 19 graduate students will compete in our graduate student paper competition representing nine different institutions on Wednesday. Second, make plans to attend the undergraduate poster competition on Thursday morning. Third, the Young Scholar Recognition program will highlight the accomplishments of two M.S. and two Ph.D. students.

Although the WSASAS sponsored ruminant nutrition symposium will be a part of the Grazing Livestock Nutrition Conference that will precede JAM, there are other symposia to participate in covering broad areas by species, discipline and societies. We encourage everyone to take advantage of this opportunity to learn about cutting edge research, emerging technologies, and hot topics in animal science.

We are grateful to all those involved in organizing this tremendous event and making JAM the outstanding conference it has grown to be. We encourage everyone to look at the list of sponsors in the program and thank them when you see representative(s) throughout the meeting.

The WSASAS would like to encourage everyone to make the most of this opportunity to network, make new friends, and visit with old friends. Events, such as this, are what allow us to learn from each other and find solutions to help solve those issues facing animal agriculture. Welcome to Salt Lake City and enjoy the conference.

Dr. Micheal Salisbury
WSASAS President
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**Important Message**

In the event that protestors interrupt the meeting, please ignore them. Their goal is to attract attention, any attention you give them will only help their cause. Convention staff have a plan to handle these situations, and they depend on attendee cooperation. If members of the media approach you for an interview, please politely decline and direct them to the convention's media room, where spokespersons will be available.

Thank you for your cooperation.
Visit the newly renovated
ASAS Animal Science Image Gallery
animalimagegallery.org

This site is designed to provide images, animations, and short video for classroom and outreach learning. To supplement the visual information, each file has a description and metadata including the origins and ownership for the image. Downloading any image within the gallery is free for ASAS members and only $5 per image for non-members.

Each file in the Gallery has had at least two peer reviews to optimize the image and its metadata, and to ensure that the information is sufficient and accurate.

Submitting an image to the gallery is easy. There is no submission fee for ASAS members and only a $25 fee (per image) for non-members.
**Schedule of Events**

The 2016 ASAS-ADSA-CSAS-WSASAS JAM will be held July 19 – 24 (Tuesday through Sunday). The Opening Session will be Tuesday evening, July 19; scientific sessions will begin Wednesday morning, July 20, and run through noon on Saturday, July 23.

**Location**

The meeting will be held at the Salt Palace Convention Center and area hotels. The convention center is ideally located within walking distance of hotels, shopping and dining.

**Opening Night Activities**

We will kick everything off with a “Meet and Greet” at 4:30 pm in the South Foyer of the convention center. Join us for drinks (cash bar) and light snacks. The “Meet and Greet” will be followed by the Opening Session (5:30 pm in Grand Ballroom E-J). The 2016 opening session will feature a series of TED-Style Talks.

Immediately following the Opening Session, we invite everyone to join us at This is the Place Heritage Park for the JAM Opening BBQ. We will have games for the kids, great food, as well as the Big Scoop and the Battle of the Brats competitions.

**Program Format for 2016**

Poster sessions (Wednesday – Friday).............. 7:15 am – 8:15 am, 8:15 am – 9:15 am, 1:00 pm – 2:00 pm, 5:00 pm – 6:00 pm

Scientific sessions ............................................... 9:30 am – 12:30 pm

Lunch breaks .......................................................12:30 pm – 2:00 pm

Scientific sessions .................................................2:00 pm – 5:00 pm

Poster sessions (Saturday)......7:15 am – 8:15 am, 8:15 am – 9:15 am

**Registration Hours**

Registration is located in the Exhibit Hall A/B area on Level 2 in the lower level of Salt Palace Convention Center. Registration hours for the 2016 JAM, including special symposia and other events, are as follows:

Monday, July 18 .......... (pre-registered only), 1:00 pm – 5:00 pm

Tuesday, July 19................................. 7:00 am – 6:00 pm

Wednesday, July 20.......................... 6:30 am – 5:15 pm

Thursday, July 21............................... 6:30 am – 5:15 pm

Friday, July 22................................. 6:30 am – 5:15 pm

Saturday, July 23.............................. 7:15 am – 12:00 pm

**Media Check-In & Media Room**

A media room will be available in room 150 D of the convention center throughout the meeting to provide a space for media representatives to work. Meeting press releases will be available there. Complimentary registration is available for members of the media. For more information, please contact: asas@asas.org.

**Speaker Ready Room**

The Speaker Ready Room is located in 250 D of the convention center. This room will be available for speakers from 7:00 am to 5:00 pm on each day of the meeting.

**Hospitality Lounge**

A hospitality lounge will be located in the Exhibit Hall. This lounge will offer attendees an area to relax and network. It also serves as a great meeting location when departing the convention center as a group.

**Business Center**

The Business Center is your office away from the office! They are an on-site, full service print, copy and shipping center located inside the convention center on the north end of the upper concourse. For more information, contact the Business Center at (385) 468-2228 or businesscenter@saltpalace.com.

**Presentation Information**

**Oral and Invited Speakers**

Oral sessions will begin at 9:30 am on Wednesday and Thursday, 10:30 am on Friday, and 8:30 am on Saturday. Meeting rooms will be equipped for electronic presentations and pre-loaded sessions.

**Onsite Upload Information**

Onsite presentation upload will be available. Files can be delivered to the Pre-Load Room (251A) at the convention center. Presentations must be uploaded by 5:00 pm on the day before your scheduled presentation. Files will not be accepted via e-mail. No presentations will be loaded while the session is in progress or between presentations.
Poster Presentations

We have dedicated 4, one-hour blocks each day on Wednesday – Friday and 2 one-hour blocks on Saturday for poster presentations. The "open poster" sessions will be from 7:15 to 8:15 am Wednesday, Thursday, and Friday. Each poster presentation will be available for public viewing for the entire day, with the presenting authors present during the open posters time (7:15 – 8:15 am). The poster presentations space will be located in the Exhibit Hall. We are bringing ePosters to JAM in 2016. All posters will be presented as ePosters. This new format offers some new and exciting options for poster presenters and attendees. Most notably, all posters will be on display for the duration of the meeting and available to all attendees to view at their leisure. This new technology is less expensive for presenters than printed posters and is easily transportable. Some features of the ePosters include:

- ePosters offer the option to have multiple pages per poster.
- Videos, animations, graphs and images can be embedded into the poster.
- Graphs and images can be expanded to full screen view with a single click.

The Exhibit Hall will open at 6:30 am, Wednesday through Friday.

Locating the Correct Poster Board

Find the posters you want to view in the back of the program and identify the screen number (second number to the left of the abstract title). Then locate the corresponding screen in the back of the Exhibit Hall. During Poster Sessions only the poster scheduled for presentation will be available for viewing. At all other times, all posters presented throughout the week will be available for viewing on their assigned screens. E-poster technicians are available on-site if you need help finding a poster.

ARPAS Continuing Education Units

The 2016 Joint Annual Meeting has been approved for up to 21 continuing education units (CEU) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. Check the schedule of events for times and location of the ARPAS exams.

Job Resource Center

The ASAS-ADSA-CSAS-WSASAS Job Resource Center is located in the exhibit hall. Job announcements and CVs will be organized into the following categories for posting: Animal Behavior and Well-Being; Animal Health; Animal Breeding; Companion Animals; Extension; Food Safety; Food Science; Forages and Pastures; Genetics; Growth and Development; International Animal Agriculture; Lactation; Meat Science and Muscle Biology; Nonruminant Nutrition; Pharmacology and Toxicology; Physiology and Endocrinology; Production and Management; Ruminant Nutrition; and Teaching.

Cyber Café

Keep in touch with work, family and friends at the cyber café. Located in the Exhibit Hall, the cyber café is available to all meeting attendees. The cyber café will also have a computer with a printer for limited printing during the meeting.

JAM 2016 App and Personal Scheduler

There are two ways to keep informed and organized at JAM 2016. First, if you have not already downloaded the JAM App, please look for signage at the meeting to show you how to download. If allowed, the App will push all scheduling updates directly to your mobile devices. In addition to the JAM 2016 App is the Personal Scheduler. Find the Personal Scheduler at https://event.crowdcompass.com/2016jam.

Notice to Attendees

Use of cameras, video cameras, and cell phones (for calls or as cameras) is prohibited during oral and poster presentations to minimize disruption and unauthorized dissemination of data. Anyone found in violation of this policy will be asked to leave the session.

Transportation in Salt Lake City

Public transportation to and from the Salt Lake City International Airport is provided by the Utah Transit Authority (UTA). The TRAX/light rail Green Line leaves the airport every 15 minutes on weekdays and every 20 minutes on weekends. The TRAX stop is located at the south end of Terminal One. To locate the TRAX stop, visit our Airport Terminal Map. One-way fare for the bus and train is $2.50.

Salt Lake City Sightseeing Options

From the Salt Lake City Convention and Visitors Bureau:

It is not just hotels that are within easy distance of the convention center. The downtown convention district abounds with restaurants, nightlife, and shopping. The convention center is next door to the City Creek Center, Salt Lake’s newest shopping destination, and a short walk from the Gateway. If you prefer not to walk, six Trax stops (all within the “free fare zone”) provide quick transportation to destinations within the downtown area, or as far away as the University of Utah, South Valley, West Valley, or the Airport.

How much have you learned in your undergraduate program?
How does your knowledge compare to other students at your school?
How does it compare with students regionally?
How does it compare nationally?

Participate in the Animal Science Academic Quadrathlon and find out!!
NEW IN 2016

New
- ePosterboards for all Poster Presentations
- TED-Style Talks during the Opening Session

Returning
- A meeting theme: “Animals and Science: Big Solutions for Grand Challenges”
- Enhanced industry involvement in sessions
- Reception before the Opening Session
- Panel discussions during lunch
- Opening BBQ
- Family Fun Day

Returning to our Roots:
We are excited to change the format of our opening night. Following a reception and a brief opening session, we will bus participants to an off-site BBQ. Years ago, the BBQ was a standing event at ASAS meetings and was met with unmitigated success and record attendance in 2014. Therefore, we are excited to bring the BBQ back again in 2016. The BBQ will also include our other popular events, the Big Scoop and Battle of the Brats Competitions. Additionally, we are adding back snacks throughout the day.

JAM EVENTS

Opening Night Activities
Tuesday, July 19 • 4:30 – 9:30 pm

Meet & Greet
4:30 – 5:30 pm
Salt Palace Convention Center, South Foyer
Before the opening session, come catch up with old friends and make new ones! Light snacks and a cash bar will be available. Pre-registered attendees may pick up their packets outside of the ballroom during this time.

Opening Session
5:30 – 6:15 pm
Salt Palace Convention Center, Grand Ballroom E-J
Join us as we kick off the 2016 JAM at the opening session with a series of TED-Style Talks about animal science and animal agriculture.

Opening BBQ, Big Scoop Competition, and Battle of the Brats
6:45 – 9:30 pm
This is the Place Heritage Park
Returning this year, we will have a BBQ! After the opening session, head over to the This is the Place historic village. This is the Place Heritage Park is the place for summer fun! And you don’t have to like history to love the Park! There is something for every age to do. Step back in time and see the West as it was in the early settlement of Utah. Take a train tour of the village. “Set sail” on the Ship Brooklyn, a one-sixth replica of the original that tells the story of the expedition of pioneers who sailed from New York Harbor over 24,000 miles in search of a new home in the West.

In addition to the great food and fun for all ages, join us for the Big Scoop and Battle of the Brats Competitions! Buses from the Convention Center to the BBQ will be available from 6:30 to 6:45 pm. Buses will stage at 6:15 pm at the South Plaza Shuttle Entrance Bus Loading Area on 200 South Street, for departure 6:30 to 6:45 pm.

Spouse Event 1: Olympic Park tour and afternoon exploring downtown Park City
Wednesday, July 20 • 9:30 am – 4:00 pm
We will start the morning off with a guided bus tour of the Olympic Park followed by exploring, shopping and museum visits in historic downtown Park City.

Family Fun Day: Hogle Zoo
Thursday, July 21 • 9:30 am – 4:00 pm
We will depart by bus for the zoo. The Hogle Zoo has something for everyone! With hundreds of species to visit, the splendor of the animal kingdom is yours to behold.

JAM Ice Cream Social and Celebration of Dairy Award Winners, sponsored by Utah State University and Dairy Science Departments.
Thursday, July 21 • 8:15 – 9:30 pm
Salt Palace Convention Center, North Foyer
All meeting participants, families, friends, and award donors are invited to join us for the always-popular ice cream social. For the first time this year, the Ice Cream Social is being held specifically to recognize all of the dairy science award winners. Please join our award winners to celebrate!
**Dr. Shawn Archibeque**

**Animal Science Comes From Many Roots—We Must Care for All of Them**

Many individuals involved in agriculture do not fit the historical demographic of animal sciences. Dr. Archibeque will discuss his own family’s connection to agriculture, and how, within a span of three generations, a family of Latino field workers went from only finishing the second grade to discussing the need to embrace diversity and inclusion in the animal sciences.

Dr. Archibeque is Associate Professor of Animal Sciences at Colorado State University.

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**Spouse Event 2: Thanksgiving Point Gardens**

Friday, July 22 • 9:30 am – 4:30 pm

We will start the day departing for the gardens by bus. The gardens are an oasis in the desert, featuring 55-acres of stately gardens, grand lawns, as well as the largest manmade waterfall in the Western Hemisphere.

**ASAS Events**

**ASAS Undergraduate AQ**

Monday, July 18 • All Day
Tuesday, July 19 • All Day

Utah State University, Logan, Utah

ASAS is excited to offer our four regional championship team undergraduates the chance to compete for the National Academic Quadrathlon (AQ) title. The AQ has been an integral part of ASAS history, and we are excited to use it as a platform to integrate more undergraduate involvement at our meetings. The lab practicum, written exam, quiz bowl and oral presentations will be held early in the week. A special presentation will take place immediately before the ASAS awards on Wednesday night. Please come out and support our undergraduates.

**ASAS Undergraduate Lunch and Learn**

Wednesday, July 20 • 12:30 – 2:00 pm

Hilton Salt Lake City Center, Alpine Ballroom

The ASAS Undergraduate Student Lunch and Learn is an annual event for all undergraduate attendees. The Lunch and Learn is following a common theme for not only JAM but also all student educational events from the meeting this past year, “Branding Yourself.” The lunch and learn will consist of a presentation from Dr. Todd Armstrong. The overarching topic for the lunch and learn will be on “elevator speeches” and on how to separate yourself from the group all while enjoying a great lunch and meeting fellow students from all over the country and the world.

**ASAS President’s Picks Posters**

Salt Palace Convention Center, Exhibit Hall

New to JAM 2016: ASAS President’s Picks Posters will be available for viewing all week. Any ePoster Dr. Looper thinks is new and exciting will have a little blue ribbon icon next to its title on the ePoster monitor home screens.

**ASAS Awards Ceremony**

Wednesday, July 20 • 7:15 – 8:45 pm

Hilton Salt Lake City Center, Grand Ballroom

All meeting participants, families and friends are welcome to attend the ASAS Awards Ceremony. Please join us at this special event to recognize and congratulate the 2016 ASAS award winners. The 2016 Awards Celebration follows immediately after the awards ceremony.

**ASAS Awards Celebration**

Wednesday, July 20 • 8:45 pm – 12:00 am

Hilton Salt Lake City Center, Grand Ballroom Foyer

Come and join ASAS after our awards ceremony to celebrate and congratulate all of the 2016 ASAS award winners. ASAS and sponsors welcome you to this exciting reception. We will have food and a cash bar while you interact with award winners and colleagues.

**ASAS/WSASAS Graduate Student Mixer**

Wednesday, July 20 • 9:00 pm

The Twist

The ASAS graduate student mixer will be held at the Twist located just 4 blocks from the convention center. One unique feature to this year’s mixer is that the Western Section mixer will be held at the same location as the National mixer. Western Section Graduates will meet at 8:00 pm for WSASAS Social Hour. The combined mixer starts at 9:00 pm. This location will be a lot of fun with good food and drink and a great place to catch up with old friends and make new ones.
Dr. Todd Armstrong

OneHealth: The Need for Alternatives to Protect the Health of Animals, and Ultimately People, Has Never Been Greater

Today, approximately 20 percent of livestock around the world are lost to disease, a significant source of food and resource waste. We must approach this challenge using science-based actions, decisions, practices and technologies to continue gains in efficiency and productivity, cut food loss and waste, and minimize environmental and resource impacts.

Dr. Armstrong is Senior Director, Global Market Access for Elanco Animal Health.
Animal Science Image Gallery Launch Party  
Thursday, July 21 • 5:15 – 6:15 pm  
Salt Palace Convention Center 251 D  
Come join ASAS for the launch of the new and vastly improved Animal Science Image Gallery! This new site is designed to provide images and video for classroom and outreach learning while offering a friendly browsing experience utilizing the latest web design trends. The Polaroid gallery is a fun and creative way to show images. Images can be viewed full-size with a click. To supplement the visual information, each file has a description and metadata including the origins and ownership for the image. The site is searchable via keywords, or you may browse by subject. Come see how you can submit your images for publication in the Gallery!

ADSA EVENTS

ADSA Student Educational Tour  
Monday, July 18 • 11:45 am – 6:00 pm  
Salt Lake Plaza Hotel Lobby  
Departing from the lobby of the student hotel, the Salt Lake Plaza, we will travel via motor coach to Bateman’s Mosida Farms in Elberta. Owned and operated by the Bateman family, it is one of Utah’s largest farms and has been touted as a model of efficiency, animal care and high quality milk. Next, we will depart for Utah Olympic Park, one of the venues for the 2002 XIX Olympic Winter Games. Today it is an active Olympic training site, home to six Nordic Ski Jumps, 1,335-meter sliding track with five start areas, freestyle aerials winter training and competition hill, a 750,000-gallon training pool, and a Winter Sports Center with a Ski Museum and 2002 Olympic Winter Games Museum. Ticket price includes transportation and refreshments.

ADSA Graduate Student Division Workshop: Applying for Jobs  
Tuesday, July 19 • 1:00 – 3:00 pm  
Salt Palace Convention Center, 151 B/C  
Join other dairy science graduate students as Dr. Leon Spicer and Dr. Al Kertz provide practical insight on separating yourself from the rest when it comes time to apply for jobs. Drs. Spicer and Kertz will cover topics from interview do’s and don’ts to the differences between CV and resume writing and much more. There will also be ample time for professional and social networking throughout the workshop. A $5 registration is required.

ADSA Graduate Student Division Business Meeting and Open Forum  
Tuesday, July 19 • 3:15 – 4:00 pm  
Salt Palace Convention Center, 151 B/C  
In addition to greeting the incoming GSD officer team, attend this meeting to voice your ideas and opinions about ADSA graduate student activities. Learn about our upcoming events and enjoy conversations with your fellow dairy science graduate students.

ADSA Undergraduate Student Midday Mixer  
Tuesday, July 19 • 11:00 am – 12:00 pm  
Salt Palace Convention Center, 254 B  
Join your fellow dairy clubs and get to know your 2016-2017 Student Affiliate Division (SAD) Officer candidates. Ticket price includes lunch. Note: Registration is limited to ADSA undergraduate student members and advisors.

MS. MELISSA BREWER

Communicating Science in a Sound Bite Society

In her communications role with the Certified Angus Beef® brand, Melissa brings the science of animal agriculture to consumers, transforming science facts into messages that resonate with consumers. Melissa will equip you with strategies for sharing challenging concepts in consumer-friendly sound bites, posts and Tweets.

Ms. Brewer is Director of Communications for the Certified Angus Beef® brand.
**Large Dairy Herd Management (LDHM) e-Book and Conference Update**

Tuesday, July 19 • 4:00 – 5:00 pm  
Salt Palace Convention Center, 150 B/C

The ADSA® Foundation is in the midst of developing and publishing the Third Edition of Large Dairy Herd Management as an e-Book. The new comprehensive international reference is targeted for practicing dairy management professionals, progressive farmers, and upper division university students studying dairy science and management. It is written in a practical application style, yet reflects the scientific rigor of the *Journal of Dairy Science*. The LDHM Conference was held last May.

This session is follow-up to that conference to provide an update about the e-Book content and progress towards publication. The completely new content, designed to allow for convenient updating, will be sold at ADSA member, non-member, and student rates. Release is anticipated in Spring 2017.

You can partner with the ADSA Foundation. Nonprofit organizations, companies, and individuals are invited to join as co-sponsors of the e-Book at any time. For information about sponsorship and the long-lasting worldwide recognition, please contact the ADSA Foundation at LargeDairyHerdManagement@adsa.org.

**Dairy Quiz Bowl Final Round**

Tuesday, July 19 • 4:30 – 5:00 pm  
Salt Palace Convention Center, 251 D

University teams from across North America will compete in the ADSA-SAD Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division (SAD) invites you to join them for the excitement of the final round of competition as the top two schools go head to head for the title of 2016 Dairy Quiz Bowl Champion.

**ADSA Undergraduate Student Poster and Paper Competitions**

Wednesday, July 20 • 3:15 – 4:00 pm  
Salt Palace Convention Center, Exhibit Hall

Support the future of ADSA - plan time in your schedule to visit the undergraduate posters on Wednesday morning or the oral presentations on Wednesday afternoon. See the Scientific Program for complete details.

**ADSA Graduate Student Division Career Insights Luncheon**

Wednesday, July 20 • 12:30 – 2:00 pm  
Salt Palace Convention Center, Grand Ballroom E

This roundtable career development event will provide dairy science graduate students the opportunity to interact with career professionals from industry, academia, and government agencies. This event is intended to give attendees an informal environment in which to inquire about each professional's personal journey and the challenges they encountered along the way. This is also an excellent context network with likeminded professionals and graduate students. A $10 registration fee is required and a boxed lunch will be provided.

**ADSA Undergraduate Student Mixer**

Wednesday, July 20 • 6:00 pm  
Salt Lake Plaza Hotel Poolside

With the hard work behind you, tonight is the night for fun. Celebrate the week with your fellow undergraduates. Ticket price includes pizza and sodas.

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**DR. LARRY REYNOLDS**

**Importance of Animals in Agricultural Sustainability and Food Security**

Dr. Reynolds is passionate about sharing the role of food-producing animals in food security and the scientific, socioeconomic, and health implications for humans. He is deeply involved in national and international efforts to highlight the importance of funding for livestock research and its critical role in food security and agricultural sustainability.

Dr. Reynolds is University Distinguished Professor of Animal Sciences and Director of the Center for Nutrition and Pregnancy at North Dakota State University.
**ADSA Undergraduate Student Symposium - Telling Our Dairy Story**

Thursday, July 21 • 9:30 – 11:00 am
Salt Palace Convention Center, Grand Ballroom E

Presented by Dairy Management, Inc., this session will look at how social media can be used to help tell dairy’s story to the public. What is being done now? What tools and tips might they use? How can the students contribute and use their knowledge and experience to communicate through social media? Students will be involved and challenged.

**ADSA Undergraduate Student Awards Luncheon**

Thursday, July 21 • 11:45 am – 2:00 pm
Salt Palace Convention Center, Grand Ballroom G

Plan to attend this year’s Student Affiliate Division (SAD) Awards Luncheon. The afternoon will be capped with the presentation of student awards and announcement of new SAD officers. Both students and professionals are encouraged to attend. This is a wonderful chance to get to know the next generation of the dairy industry.

**ADSA Student Three-Minute Thesis Challenge**

Thursday, July 21 • 3:00 – 4:30 pm
Salt Palace Convention Center, 250 F

ADSA Graduate Student and Student Affiliate Division members are encouraged to take part in the return of the Three-Minute Thesis Challenge. This event will test the competitor’s ability to quickly and concisely convey their research in a way that is understandable to all. Competition will be limited to five graduate and five undergraduate students selected by a panel of judges based upon strength of CV and a 100 word abstract describing the presentation. Everyone is invited to attend the Challenge to watch these students compete for cash prizes and present their research in a fun and exciting way!

**DR. GARTH SASSER**

From Molecule to Meadow

Dr. Sasser’s extensive research in the field of bovine reproductive physiology led to the discovery of pregnancy specific protein B’s, which are aspartic acid proteases, and the development of the BioPRYN cattle pregnancy tests sold globally. He will share the story of the quest to better understand the physiological signals of the pregnant cow and the milestones that led to the development and worldwide use of assays for pregnancy-specific proteins in cattle, sheep, goats, and wildlife.

Dr. Sasser is Professor Emeritus at the University of Idaho and Founder of BioTracking Inc.

**ADSA Awards Program**

Thursday, July 21 • 5:30 – 6:30 pm
Salt Lake City Marriott Downtown, Salon D/E/F

All meeting participants, families, and friends are welcome to attend the 2016 ADSA awards program. Please join us at this special event to recognize and congratulate the 2016 award winners.

**ADSA Graduate Student Division Mixer**

Thursday, July 21 • 9:00 pm – 12:00 am
Keys on Main

Enjoy a fun night of entertainment and networking with your fellow dairy science graduate students. Keys on Main is a short walk from the Salt Palace Convention Center and features dueling pianos playing the most popular hits guaranteed to have you singing along! Attend and compete the interactive mixer for your chance to win free drink tickets and other exciting prizes!
CSAS EVENTS

CSAS Executive Committee Meeting
Tuesday, July 19 • 8:00 am - 12:00 pm
Salt Palace Convention Center, 151 D

CSAS Annual General Meeting and Lunch
Thursday, July 21 • 12:30 – 2:00 pm
Salt Palace Convention Center, 251 E/F
Discussions will include the most recent updates related to the work of your executive team, achievements of the year, and challenges confronting our society. All CSAS members are invited to attend and share their views.

CSAS Awards Banquet
Friday, July 22 • 6:00 – 10:00 pm
Hotel Monaco, Paris Ballroom
During the banquet we will recognize and celebrate outstanding professional and student members of our society. You are all invited to join in the celebration of great achievements. Come and cheer your colleagues on! Student dinners at this event are partly sponsored by the Canadian Science Publishers.

CSAS Graduate Student Poster Competition
The CSAS Graduate Student Poster Competition will take place in the Exhibit Hall on Wednesday, July 20 from 7:15 am to 8:15 am. These posters will be available for viewing the remainder of the week.

CSAS Graduate Student Oral Competition
In addition to the poster competition, CSAS Graduate students will also participate in an oral competition in Room 251 B on Wednesday, July 20 starting at 9:30 am.

CSAS Symposium
All meeting participants are invited to attend a special CSAS sponsored symposium on reducing the use of antibiotics in livestock production. This symposium starts at 2:00 pm on Friday, July 22 in room 155 A.

CSAS Member Mixer
Friday, July 22 • 10:00 pm – 12:00 am
Hotel Monaco, Paris Ballroom
The CSAS Members Mixer event is a great opportunity to chat, exchange with colleagues and students and forge future partnerships. Meet and share with us! All CSAS members are encouraged to attend. This event is sponsored by your society and the Canadian Science Publishers!

WSASAS EVENTS

WSASAS Graduate Competition Papers
Wednesday, July 20 • All Day
Salt Palace Convention Center, 258/259
Come watch as WSASAS Graduate Students compete. See the Scientific Program for the detailed schedule.

ASAS/WSASAS Graduate Student Lunch and Learn
Thursday, July 21 • 12:00 – 2:00 pm
Hilton Salt Lake City Center, Alpine Ballroom East
The ASAS Graduate Student Lunch and Learn is being co-hosted this year by the ASAS National Graduate Directors and the WSASAS Graduate Directors. The Lunch and Learn is following a common theme for not only JAM but also all graduate educational event from ASAS section meetings this past year, “Branding Yourself.” Mark Branine, Mike Day, and Kristen Hales will be available to provide advice and answer any questions about pursuing their specific careers paths. This will be a great opportunity for students to explore employment opportunities within Animal Science and listen to advice from successful professionals in a variety of areas.

ASAS/WSASAS Graduate Student Mixer
Wednesday, July 20 • 8:00 pm
The Twist
The ASAS graduate student mixer will be held at The Twist located just 4 blocks from the convention center. One unique feature to this year’s mixer is that the Western Section mixer will be held at the same location as the National mixer. Western Section Graduates will meet at 8:00 pm for WSASAS Social Hour. The combined mixer starts at 9:00 pm. This location will be a lot of fun with good food and drink and a great place to catch up with old friends and make new ones.

WSASAS Undergraduate Poster Competition
The WSASAS Undergraduate Poster Competition will take place in the Exhibit Hall on Wednesday from 7:15 am to 8:15 am. These posters will be available for viewing the remainder of the week.

WSASAS Awards Banquet
Thursday, July 21 • 6:30 – 9:00 pm
Joseph Smith Memorial Building – Empire Room

WSASAS Business Meeting
Friday, July 22 • 7:45 – 9:15 am
Salt Palace Convention Center, 155A
Grazing Livestock Nutrition Conference (GLNC)
The theme of the 5th GLNC is “Enhancing Management, Production, and Sustainability of Grazing Ruminants in Extensive Landscapes.” The goal of GLNC is to create a platform for information exchange regarding grazing livestock nutrition and enhancing livestock production within sustainable grazing. GLNC will take place in beautiful Park City, located just 30 minutes outside Salt Lake City.

ASAS-ASN Preconference
Salt Lake Convention Center, Grand Ballroom B/D
The ASAS-ASN Joint Preconference Symposium begins at 8:15 on Tuesday morning and will focus on gut microbiota, diet and health. Invited talks include:

- Modulation of the gut microbiota – An ecological perspective. Jens Walter, University of Alberta, Edmonton, AB, Canada
- Effects of early antibiotic exposure on host metabolism. Laura M Cox, Harvard Medical School and Brigham and Women’s Hospital, Boston, MA; New York University Langone Medical Center, New York, NY

International Society for Animal Genetics
ISAG is devoted to the study of the immunogenetics, molecular genetics and functional genomics of economically important and domesticated animal species. There is an outstanding scientific program planned that will blend plenary sessions, posters, and workshops of interest to animal geneticists from around the world.

The conference will follow the 2016 ASAS-ADSA-CSAS-WSASAS Joint Annual meeting (July 19-23, 2016) at the Hilton Salt Lake City Center on July 23 through July 27, 2016.

Functional Annotation of Animal Genomes (FAANG)
ASAS-ISAG Joint Symposium begins at 8:30 on Saturday morning. During lunch ePosters from ISAG and the genetics sessions at JAM will be available for viewing. Invited talks include:

- Causal inference of molecular networks integrating multi-omics data. F. Peñagaricano, University of Florida, Gainesville
- Impact of gut microbiota on brain and behavior. John F. Cryan, University College Cork, Cork, Ireland
- The human milk microbiome and oligosaccharides - What’s normal and so what? Michelle K McGuire, Washington State University, Pullman, WA
- Dietary fiber and starch, digestive physiology, and metabolic health. Ruard T. Zijlstra, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada
- Methane matters: From blue tinged moos, to boozy roos, and for the health of humans too. Mark Morrison, University of Queensland Diamantina Institute, Brisbane, Australia
- Sub-acute ruminal acidosis (SARA): A tale of two microorganisms. Robert J Wallace, Rowett Institute of Nutrition and Health, Aberdeen, United Kingdom
- Dietary manipulation of canine and feline gut microbiome. Kelly S Swanson, Department of Animal Sciences, University of Illinois at Urbana-Champaign
- Genotypes to phenotypes: Lessons from functional variation in the human genome and transcriptome. B. E. Stranger, Section of Genetic Medicine, Department of Medicine, Institute of Genomics and Systems Biology, Center for Data Intensive Sciences, University of Chicago, Chicago, IL
- Recurrent chimeric transcripts in human and mouse. S. Djebali, GenPhySE, INRA, Castanet-Tolosan, France, Universitat Pompeu Fabra (UPF), Barcelona, Spain, Bioinformatics and Genomics Programme, Centre for Genomic Regulation (CRG), Barcelona, Spain
- Improving genomic selection across breeds and across generations with functional annotation. B. Hayes, Department of Economic Development, Melbourne, Australia
- Integrating dynamic omics responses for universal personalized medicine. G. I. Mias, Michigan State University, East Lansing
- A review of sequencing and assembly methods that enhance computational use. W. C. Warren, McDonnell Genome Institute, Washington University School of Medicine, St Louis, MO
**ADSA Award Donors**

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American Dairy Science Association
American Dairy Science Association Foundation
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Purina Animal Nutrition, LLC
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**ASAS Award Donors**

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**CSAS Award Donors**

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Dairy Farmers of Canada
Elanco Animal Health Canada
Eli Lilly Canada
Masterfeeds
Trouw Nutrition

**WSASAS Award Donors**

Elanco Animal Health Canada
Western Section, American Society of Animal Science
Zinpro Corporation
Exhibit Schedule

Tuesday, July 19 ......................... Exhibit set-up ................................... 10:00 am – 6:00 pm
Wednesday, July 20 .................. Exhibits open ................................... 8:00 am – 6:00 pm
Thursday, July 21 ...................... Exhibits open ................................... 8:00 am – 6:00 pm
Friday, July 22 ......................... Exhibits open ................................... 8:00 am – 2:00 pm
Friday, July 22 ......................... Exhibit dismantle ............................... 2:00 pm – 6:00 pm

In consideration of attendees, exhibitors will be prohibited from beginning to dismantle before 2:00 pm on Friday July 22.
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**AAALAC International**  
5283 Corporate Dr Ste 203  
Frederick, MD  21703  
www.aaalac.org  
Booth: 508  
AAALAC International promotes the humane treatment of animals in agricultural and biomedical science, research and education through voluntary assessment, accreditation and education programs. More than 950 institutions in 41 countries have earned AAALAC accreditation, demonstrating their commitment to responsible animal care and use.

**Adifo NV**  
Industrielaan 11b  
Maldegem, Belgium 9990  
www.adifo.be  
Booth: 421  
Adifo, your software specialist for the feed and food industry. Adifo develops and services software solutions for the feed and food industry. Launching new products, exploring niche markets, reducing costs, optimizing resource efficiency and handling the loss of essential business knowledge. Anticipate such challenges by using software tools that automate your processes. Tools that directly contribute to your business goals. Choose the innovative recipe and nutrition software by Adifo.

**Adisseo**  
4400 North Point Pkwy Ste 275  
Alpharetta, GA 30022  
www.adisseo.com  
Booth: 308  
Adisseo is a world leader in the production of additives and nutritional solutions for animal feed.

**ADSA-GSD**  
1800 S Oak Ste 100  
Champaign, IL 61820  
www.adsa.org/Membership/Students/GraduateStudentDivision.aspx  
Booth: 419  
The American Dairy Science Association (ADSA) Graduate Student Division (GSD) was founded in 2011 to meet a growing demand of dairy science graduate students. Today we continue to offer informational and educational meetings, webinars, and workshops; as well as provide expansive networking opportunities and increase the overall graduate student experience!

**ADSA-SAD**  
1800 S Oak Ste 100  
Champaign, IL 61820  
www.adsa.org/Membership/StudentResources/StudentAffiliateDivision.aspx  
Booth: 417  
The Student Affiliate Division (SAD) of the American Dairy Science Association (ADSA) consists of Student Affiliate chapters across the country. The chapters are local clubs organized at colleges and universities offering courses that pertain to the production of dairy cattle and dairy foods. SAD aims to provide a channel of communication for the exchange of information among the various member chapters and ADSA; to acquaint students with ADSA, its scope, purpose and program; and to develop leadership and promote scholastic achievement among students interested in the dairy industry.

**AG Processing Inc.**  
12700 W Dodge Rd  
Omaha, NE 68154  
www.agp.com  
Booth: 718  
AminoPlus® is the number one volume bypass protein soybean meal dairy supplement in United States. The patented AminoPlus process utilizes soybean meal to provide high: amino acid quality, rumen bypass and intestinal digestibility without the addition of chemicals or non-soybean components. Learn about the benefits of AminoPlus and AGP’s fourth major expansion of AminoPlus processing capacity at AGP – Dawson.

**Agarwal Group of Industries**  
15-1-52/1, Jagdish Nivas, Old Feekhanka  
HYDERABAD, India  500012  
agarwalindia.com/  
Booth: 819  

**Agri-King, Inc.**  
PO Box 208  
Fulton, IL 61252  
agriking.com  
Booth: 314  
Agri-King is an animal nutrition company committed to the success and profitability of livestock producers worldwide. Known for its precise feed analyses, highly fortified products, and knowledgeable staff, Agri-King strives to help livestock producers get the most out of each pound of feed and each head of livestock.
Established in 1906, ADSA is an international organization of educators, scientists, industry, and government representatives who are committed to advancing the dairy industry. All are keenly aware of the vital role the dairy sciences play in fulfilling the economic, nutritive, and health requirements of the world's population. Together, ADSA members have discovered new methods and technologies that have revolutionized the dairy industry.

American Society of Animal Science
PO Box 7410
Champaign, IL 61826
www.asas.org
Booth: 401
Established in 1908, ASAS is a professional organization for animal scientists designed to help members provide effective leadership through research, extension, teaching and services for the dynamic and rapidly changing livestock, companion animal, exotic animal, and food industries. Visit the ASAS booth for more information on:
- Journal of Animal Science (www.journalofanimalscience.org)
- Animal Frontiers (www.animalfrontiers.org)
- Natural Sciences Education
- AnimalSmart.org
- ASAS Foundation
- ASAS Membership
- ASAS Sections
- ASAS Public Policy

Angel Yeast Co., Ltd.
168 Chengdong Ave
Yichang, Hubei 443003, China
en.angelyeast.com/
Booth: 715
Angel Yeast Co., Ltd, founded in 1986, is a listed high-tech yeast company in China, which is specialized in the production of yeast and yeast derivatives. Angel Yeast has 10 international advanced production bases in China, Egypt and Russia. Our main products for animal nutrition:
- Yeast Cell Wall
- Soluble Yeast Cell Wall
- Mycotoxin Binder
- Selenium Yeast
- Active Feed Dry Yeast
- Active Feed Dry Yeast (ruminant)
- Yeast Glucan
- MOS
- Bacillus Subtilis
- GROPRO

ANKOM Technology
2052 O’Neil Rd
Macedon, NY 14502-8953
www.ankom.com
Booth: 803
ANKOM Technology produces analytical instrumentation for food and feed testing. We are best known for introducing Filter Bag Technology (FBT), which allows high volume, accurate analytical testing. Our systems are used in more than 93 countries worldwide. Ask about our products: ANKOM A2000 Fiber Analyzer, ANKOM Daisy II Incubator, ANKOM RF Gas Production Analyzer, and ANKOM XT15 Fat Extractor.

ARPAS
1800 S. Oak St Ste 100
Champaign, IL 61820
arpas.org/
Booth: 516

Balchem Corporation
52 Sunrise Park Rd
New Hampton, NY 10958
www.balchen.com
Booth: 808

Bar Diamond Inc.
PO Box 60
Parma, ID 83660
www.bardiamond.com
Booth: 520
Bar Diamond provides Rumen Cannulae and accessories to researchers worldwide. Let us know how we can help you.
Beijing Keepyoung Technology Co., Ltd
No. 6, YunXi 7th St, Economic Development Area, Mi Yun County
Beijing, China 101509
en.keepyoung.com.cn
Booth: 716
Beijing KeepYoung Technology Co., Ltd., which founded in 2001, is the first national high-tech enterprise that specializes in applied research, production and sales of plant extract in animal feed and cultivation by using the theory of traditional Chinese medicine and modern biopharmaceutical engineering technology in combination with the development process of animal nutrition and scientific cultivation. At present, nearly half of the top 20 feed companies in China are strengthening the partnership with us to get rid of the antibiotics that prevent disease and promote growth used in feed for pig, broiler chicken, duck, cow, fish and shrimp, etc., since our products are equal or superior to antibiotics in terms of survival rate of animal and productivity. The company is located in the production base in Miyun District of Beijing, which integrates R&D, production, test and office. Its laboratory covers over 2,000 square meters, while the workshop covers over 8,000 square meters. It also has a production line that yields 10,000 tons of plant extracts every year.

BIOMIN America
1842 Lockhill-Selma Rd., Ste 102
San Antonio, TX 78213
www.biomin.net
Booth: 505
We care for healthy animal nutrition. We at BIOMIN are dedicated to developing innovative and sustainable solutions that ensure our customers’ success through healthy and safe animal nutrition. The application of science and expertise is based on first understanding and appreciating our customer’s needs and concerns. This principle enables us to deliver solutions that support animal health, optimize performance and production efficiency.

Bruker Optics Inc.
19 Fortune Dr
Billerica, MA 01821
www.bruker.com/optics
Booth: 510
Save costs and improve quality by upgrading to the next generation of NIR analyzers. From control of feed ingredients to precise testing of proximates, these analyzers have also been used to monitor blending processes and optimize mill operation. They feature the lowest cost of ownership with a 10 year warranty on the permanently aligned Rock Solid TM Interferometer, eliminating time-consuming “instrument standardization” protocols. Samples can be measured in seconds without sample preparation.

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www.cabi.org
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CABI is a not-for-profit international organization that improves people's lives by providing information and applying scientific expertise to solve problems in the environment.

Cambridge University Press
1 Liberty Plaza, 165 Broadway
New York, NY 10006
www.cambridge.org/academic
Booth: 209

Canadian Science Publishing
65 Auriga Dr
Ottawa, ON K2E 7W6, Canada
wwwcdnsciencepub.com
Booth: 321
Canadian Science Publishing is the new publisher of the Canadian Journal of Animal Science (CJAS). Published since 1957, the CJAS is a quarterly journal that contains new research on all aspects of animal agriculture and animal products, including; breeding and genetics; cellular and molecular biology; growth and development; meat science; modelling animal systems; physiology and endocrinology; ruminant nutrition; non-ruminant nutrition; and welfare, behaviour, and management.

Central Life Sciences
1501 E Woodfield Rd Ste 200W
Schaumburg, IL 60173
www.central.com
Booth: 501
ClariFly® Larvicide is a feed supplement that prevents adult house flies, stable flies, face flies, and horn flies from developing in and emerging from the manure of treated cattle. Another effective fly control product, Altosid® IGR, is an insect growth regulator (IGR) that passes through the animal into its manure, where horn flies lay their eggs.

CEV Multimedia
1020 SE Loop 289
Lubbock, TX 79404
www.icevonline.com
Booth: 315
iCEV strives to meet the demand of collegiate instructors by providing a modern educational platform filled with streaming video and expert insight across numerous industries in Agriculture. The unrivaled visual exposure will enhance student learning and equip students with an extensive knowledge foundation to achieve ultimate success.
**Exhibit Directory**

**Chr. Hansen, Inc.**
9015 W Maple St
Milwaukee, WI 53214
www.chr-hansen.com/animal-health
Booth: 615

Chr. Hansen is committed to natural products and sustainable practices. Our products improve feed conversion ratios and feed utilization in production animals while increasing milk output per cow in dairy operations - all this without detrimental effect on the environment or on long-term product quality and consumer safety. We are actively exploring and participating in the quest to identify solutions that help farmers optimize output per land acre and minimize environmental bi-products.

**C-Lock Inc.**
2025 Samco Rd
Rapid City, SD 57702
www.c-lockinc.com
Booth: 221

We manufacture precision equipment for measuring and monitoring of animal health and performance.

**Cumberland Valley Analytical Services**
14515 Industry Dr
Hagerstown, MD 21742-2410
www.foragelab.com
Booth: 621

Cumberland Valley Analytical Services is a forage and feed testing laboratory providing services for the agriculture industry worldwide. CVAS is focused on traditional and innovative chemistry analysis of feed materials providing one of the broadest panels of services to the industry. We support not only the nutritional services industry, but the feed ingredient, agronomy and research communities as well.

**Dairy Records Management Systems**
NCSU, 313 Chapanoke Rd Ste 100
Raleigh, NC 27603
www.drms.org
Booth: 617

DRMS is improving the dairy industry with precise information, leading-edge products and superior service. While serving herds from Maine to California through 20 DHIAs, DRMS delivers strong value to every herd: small or large, Jerseys or Holsteins, technology-driven or traditional. Product offerings including PCDART, PocketDairy and a vast array of DHI reports, empower producers to use both their DHI and everyday data to make the most informed, cost-effective decisions possible.

**DASCOR, Inc.**
PO Box 5036
Oceanside, CA 92052-5036
www.dascor.com
Booth: 518

A world leader, DASCOR provides data loggers for ruminal research with over 500 units already in the field, which measure temperature, ORP/REDOX, pH, and battery voltage. Support software allows calibration and set-up for tests, and downloads the data into an Excel compatible file. DASCOR has improved the performance and long term reliability of both the loggers and sensors. pH sensors now have significantly extended life and reliability, repeatability demonstrated over multiple field trials.

**Diamond V**
2525 60th Ave SW
Cedar Rapids, IA 52404
www.diamondv.com
Booth: 700

Diamond V is a global nutritional health company conducting research in dairy and beef cattle, swine, poultry, and other species. Our natural, fermentation-based products support animal health, animal performance, and food safety worldwide. Our Embria Health Sciences subsidiary manufactures EpiCor® for research-proven immune support in humans. More than 70 years of science, innovation, technology, and quality have earned Diamond V the reputation of The Trusted Experts in Nutrition and Health®.

**Digi-Star**
W5527 Hwy 106
Fort Atkinson, WI 53538
www.digi-star.com
Booth: 211

The Dairy One Forage Lab excels in providing you with high quality analyses and customer service. As an international leader, our goal is to provide you with analytical services designed to meet the expanding demands of modern agriculture. New technology and traditional methods are combined to deliver fast, accurate results.
E.I. Medical Imaging
110 12th St SW, Unit 102
Loveland, CO 80537
www.eimedical.com
Booth: 309
E.I. Medical Imaging® is a world leader and the only US manufacturer of portable ultrasound solutions specifically engineered for veterinary use. For the past 30 years, the company’s core values have remained intact: putting the customer first and delivering solid, effective ultrasound solutions. EIMI provides the Ibex® portable ultrasound systems.

EAAP
Via G. Tomassetti 3 A/1
Roma, Italy 00161
www.eaap.org
Booth: 418
EAAP annually organizes the largest animal science meeting in Europe. This meeting is the perfect venue to create a network with qualified animal scientists. Over one thousand scientists have attended the EAAP annual meetings in the past years. EAAP produces the journal Animal, one of the highest ranked animal science magazines. EAAP has many other services and activities for its members: publishing scientific books, organizing specific and regional workshops and scientific meetings, coordinating international research projects, and defending positions of animal science and livestock industry at international level. Everyone is invited to become members of EAAP and benefit from belonging to the EAAP community.

Elsevier
1600 John F. Kennedy Blvd Ste 1700
Philadelphia, PA 19103
www.elsevier.com
Booth: 203
Elsevier is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, and deliver better care.

Evonik Corporation
1701 Barrett Lakes
Kennesaw, GA 30144
www.evonik.com
Booth: 717
Evonik Nutrition & Care GmbH, specifically its Animal Nutrition Business Line translates over 60 years of experience in manufacturing essential amino acids for animal nutrition into solutions that meet the evolving needs of its customers in over one hundred countries. As Evonik now expands its scope to innovative nutritional feed additive solutions beyond amino acids, customers can count on Evonik to take nutrient effectiveness ever further and keep delivering value along with consistent quality. Around the planet, Evonik products and services are and will continue to be key to producing healthy, affordable food with fewer natural resources and a smaller environmental footprint.

FASS
1800 S Oak St Ste 100
Champaign, IL 61820
www.fass.org
Booth: 317
FASS was formed to support the common agricultural interests and streamline administrative expenses of our clients while preserving their traditions and values. We specialize in providing a wide array of management services to small and medium-sized, not-for-profit associations.

Gasmet Technologies Inc.
956 A The Queensway
Toronto, ON M8Z 1P5, Canada
gasmet.com
Booth: 708
Gasmet’s rugged FTIR multi-gas analyzers provide exceptional analytical precision for researchers studying the reduction of enteric methane (CH4) and other greenhouse gas (GHG) emissions from ruminant livestock. The DX-series portable FTIR Gas Analyzers are light-weight and compact for easy field transport and our Calcmet Software provides an easy-to-use interface for researchers to view multiple gases in near real-time.
Global Agri-Trade Corporation
320 Global Shore Ste 350
Long Beach, CA 90802
globalagritrade.com
Booth: 703

Global Agri-Trade Corporation, a privately owned company located in Long Beach, California, is one of the largest importers of palm oil based animal nutrition products sold under brand names NURISOL and PALMIT 80®. The company has distribution centers in California, Washington, Texas, Florida, Georgia, and Maryland. Since 2003, the team of technical and trading experts at GATC has utilized its many decades of experience in the fats and oils industry to provide excellence in customer service and product quality to customers in U.S. and Canada.

GrowSafe Systems Ltd.
RR 1 Site 2 Box 29
Airdrie, AB T4B 2A3, Canada
growsafe.com
Booth: 821

GrowSafe’s engineers and scientists develop advanced data acquisition systems for livestock research and practical automation tools for livestock producers that maximize profitability and ensure animal health and well being.

Illumina, Inc.
W4628 Hall Rd
Rio, WI 92122
www.illumina.com/areas-of-interest/agrigenomics.html
Booth: 408

At Illumina, our goal is to apply innovative technologies for the analysis of genetic variation and function, making studies possible that were not even imaginable just a few years ago. It is mission critical for us to deliver innovative, flexible, and scalable solutions to meet the needs of our customers. Illumina’s innovative sequencing and array technologies are fueling groundbreaking advancements in life science research, agricultural and consumer genomics, and molecular diagnostics.

Infinite Trading, Inc.
1810 E Sahara Ave Ste 1482
Las Vegas, NV 89104
Booth: 714

Innovad
33 Eagle Dr
Rehoboth, DE 19971
www.innovad-global.be
Booth: 820

INNOVAD is a group and a brand that combines people’s long time experiences in the field of animal feed additives with an innovative approach and dedication to animal well-being and a healthy environment whilst securing the producer’s cost effectiveness. With its corporate headquarters and licensed state of the art production facilities close to the port of Antwerp in Belgium, INNOVAD is in a position to serve the global feed and animal industry. Fine products are produced with strict adherence to EU directives and regulations, and GMP certified.

Intermountain Farmers Association
1147 W 2100 S
Salt Lake City, UT 84130
www.intermountainfarmers.com
Booth: 215

Intermountain Farmers Association (IFA) was organized as a farmer’s co-op in 1923 as Utah Poultry Exchange by men with hard-working values and a vision for the future. Today, we proudly manufacture and provide superior feed products and nutritional services to the agricultural community and to those choosing a country living lifestyle. We are a major supporter of 4-H, FFA, and our own Young Producer Program. IFA operates 4 feed mills and 3 commodity operations in Utah as well as 24 IFA Country Stores and 7 Agronomy Centers in the Intermountain West.

IQ Technologies, Inc.
3524 Bear Hollow Way
Lehi, UT 84043
www.iqmassager.com/aboutmassagers
Booth: 318

IQ TECHNOLOGIES INC. is the premier leading worldwide distributor of TENS STIMULATORS with over 10 years experience! Our FDA class II cleared medical devices use electrical pulses for the stimulation of muscles. These portable and compact electrical TENS STIMULATORS are a breakthrough in the compact medical device industry. Our devices include an array of massage modes ranging from 6, 8, and 12. Each mode specifically designed to deal with all types of muscle aches and stress. SELLING WORLDWIDE! European CE Certificate approved, Canadian Health department approved and cleared by the FDA as a class II medical device.

We exhibited in the past in horses event and agriculture expo. In general, TENS/EMS is used on people but we find out that the device can be used and beneficial on animals.
Kemin Industries
600 E Court Avenue Ste A
Des Moines, IA 50310
www.kemin.com
Booth: 201
Kemin offers a range of nutritional solutions for raising healthy animals. We understand your need to raise healthy livestock that gives consumers the nutritional and health benefits they are looking for, while also returning a profit. Our products and services help you with nutrition, feed quality, gut health and risk management.

King Techina
PO Box 131455
Ann Arbor, MI 48105
www.kingtechina.com
Booth: 601
King Techina is specialized in developing and manufacturing microcapsulated feed additives. Through our ground breaking patented Intelligent Microcapsule (IM) technology, feed additives and medicines can be coated according to animal digestion system for higher feed efficiency, better animal health and growth performance.

Laboratoires Phodé
Z. I Albipole
Terssac 81150, France
www.phode.fr
Booth: 420
Laboratoires Phodé is a french original and innovative company designing unique sensory and functional ingredients for the feed market. Phodé research center is dedicated to better understanding the effects of olfactory molecules and vegetable extracts on emotions, behavior, better being and ultimately health of living beings. This expertise allows Phodé to create unique solutions targeting livestock performances with new cerebral approach.

Micronutrients
1550 Research Way
Indianapolis, IN 46231
www.micro.net
Booth: 101
IntelliBond trace minerals, manufactured by Micronutrients, represent a completely new category of trace mineral nutrition that can reduce trace mineral supplement costs while optimizing cattle health and productivity. Multiple research studies by well-known universities confirm the ability of IntelliBond trace minerals to significantly increase trace mineral absorption and utilization by your herd.

National Animal Nutrition Program
609 W.P. Garrigus Bldg
Lexington, KY 40546-0215
www.nanp.nrsp-9.org
Booth: 316
The National Animal Nutrition Program (NANP) serves as a forum to identify high-priority animal nutrition issues and provide an integrated and systemic approach to sharing, collecting, assembling, synthesizing, and disseminating science-based information, educational tools, and enabling technologies on animal nutrition that facilitate high-priority research among agricultural species, with emphasis on beef, dairy, swine, poultry, horses, small ruminants, and fish. The NANP is a research-support activity funded as a National Research Support Project (NRSP-9) with Hatch funds appropriated by the USDA National Institute of Food and Agriculture, and administered by the Experiment Station Committee on Organization and Policy and the State Agricultural Experiment Stations.

Neogen Corporation
4131 N 48th St
Lincoln, NE 68504
www.neogen.com/en/
Booth: 609
GeneSeek provides comprehensive research, product development and delivery solutions for the Life Science, Agribusiness, Pharmaceutical and Biotechnology industries. GeneSeek is the largest global provider of DNA testing for the agricultural biotechnology industry, providing critical genomic-based information to those focused on increasing agricultural outputs, and capabilities in place to provide ultra high-throughput solutions at low cost.

Novus International
20 Research Park Dr
St. Charles, MO 63304
Booth: 302
Novus is a leading developer of animal health and nutrition products for all species with worldwide headquarters in St. Charles, Missouri. Offering products based in science such as ALIMET® and MHA® methionine supplements, SANTOQUIN® and AGRADO® Plus antioxidants, MINTREX® and MAAC® chelated trace minerals, and CIBENZA® enzymes. Other notable Novus product lines include ZORIEN® SeY, SOLIS® and SPORULIN®. Novus works to improve animal performance, health and well-being globally.
Since it was established in 1947, Pancosma has been creating, developing, manufacturing and distributing a wide range of solutions for the feed industry worldwide. Founded in the Swiss city of Geneva, we are a provider of essential feed additive solutions, based on a unique approach based on three core values: commitment to cutting-edge scientific research, driving forward innovation and dedication to serving customers. Pancosma is present in 75 countries around the world.

Feedstuffs provides news and insight for the feed, grain and animal production industries. Its properties include a monthly magazine, guidebooks and priority reports, website, newsletters, technical references and the information resource that provides consumer and industry education information.

The leading technical resource and advocate for the poultry rendering industry, serving its members through research, education and promotional services.

Sable Systems is the worlds most trusted provider of tools and expertise for research in animal metabolism and behavioral sciences. Whether your focus is on livestock nutrition and diet or methane and CO2 emission studies, Sable's precise, reliable, high-resolution systems measure MR, RQ, temperature, and water vapor. Our systems are designed to reduce external disturbance for your animal and to maximize your ease of setup and operation in the lab or a field environment.

Silostop Ultimate Oxygen Barrier Film is recognized worldwide as the leading oxygen barrier film. Silostop specializes in silage protection systems. We help farmers and producers around the world to make the best possible silage, as well as reduce labour and recycling costs. Silostop has offices in the UK and the US, an international technical team of renowned silage experts and a global network of carefully selected distributors.

Soy Best High Bypass Soybean Meal with Gums is bypass protein for dairy cows. Manufactured by the mechanical process, it contains no chemical solvents and is all-natural. Soy Best includes fresh soy-gums with lecithin and phosphatidyl-choline. Now nutritionists and dairy producers can choose between Soy Best formulations: Original Soy Best with fresh soy gums and now Soy Best “L” - the only high-bypass soybean meal available with rumen-protected lysine fortification.

Dairy Nutrition Plus®, a family of quality products by Landus Cooperative®, brings together the company’s dairy nutrition offerings under a parent brand while re-energizing its well-known products, SoyPlus and SoyChlor. Landus Cooperative demonstrates a long-standing commitment to providing quality and consistency. The Dairy Nutrition Plus family of quality products showcases the ways in which Landus Cooperative offers more to feed mills, nutritionists and dairy producers.

Stuhr Enterprises, LLC is a global company based in Marshall, MN with manufacturing plants in IA and MO. The company is research and technology based with innovative manufacturing process applications.
**The National Academies Press**
500 5th Street NW
Washington, DC 20001
www.nap.edu
Booth: 319
The National Academies Press (NAP) is the publisher of reports from the National Academies of Sciences, Engineering, and Medicine. The NAP publishes more than 200 books a year on a wide range of topics in science, engineering, and medicine, including the Nutrient Requirements of Animals series.

**Udder Health Systems, Inc.**
4455 S Meridian Rd
Meridian, ID 83642
www.udderhealth.com
Booth: 705
Udder Health Systems provides animal health, milk quality and food safety testing and consulting for dairy farms, processors, and dairy manufactures. UHS makes a proprietary line of mastitis diagnostic products for veterinary diagnostic laboratories. Our professional staff of veterinary, microbiology and milk quality technical consultants regularly assist herd managers to protect their operations from expensive mastitis or milk quality threats with bacterial testing in milk, water and bedding.

**Unity Scientific**
117 Old State Rd
Brookfield, CT 06804
www.aphis.usda.gov/nahms
Booth: 400
Unity Scientific, formed by the merger of Westco Scientific Inc. and Unity Scientific, is a leading global provider of near infrared analysis instrumentation, automated wet chemistry analyzers and sample preparation apparatus all designed to make our customers’ analysis needs easier and more efficient. Unity Scientific offers the Forage Analyzer and Feed Analyzer, complete with ready to go calibrations for today’s livestock and dairy farms and suppliers.

**USDA-APHIS-VS, National Animal Health Monitoring System**
2150 Centre Avenue, Bldg B-2E7
Fort Collins, CO 80526
Booth: 711
National studies conducted by the National Animal Health Monitoring System (NAHMS) provide essential information on livestock and poultry health and management in the United States. Production types are studied at regular intervals, providing up-to-date information needed to monitor US animal health, support trade decisions, inform the public, and set policy.

**Vetagro, Inc.**
230 S Clark St #320
Chicago, IL 60604
www.vetagro.com/eng/
Booth: 416
Vetagro is a research-driven company specialized in microencapsulation of feed additive and nutrients for ruminants, swine and poultry since 1982. We are committed to innovation, quality, work safety and environmental care. Vetagro team invites you to visit Vetagro booth #416 to speak with our technical team to find out more about our microencapsulation technology and products.

**Veterinary Simulator Industries Ltd.**
1155 40 Ave NE
Calgary, AB T2E 6M9, Canada
www.vetsimulators.net
Booth: 414
Making the Best Simulators in the World! Veterinary Simulator Industries Ltd. creates animal simulators that allow veterinary students to become proficient in their diagnostic and practical skills without the need to endanger or cause unnecessary discomfort to live animals.
JAM 2016  ISAG 2016

1. The Salt Lake Plaza at Temple Square (Student Headquarters Hotel)
2. Radisson Hotel Salt Lake City Downtown
3. Salt Lake Marriott Downtown at City Creek (ADSA Headquarters Hotel)
4. Hotel Monaco (CSAS Headquarters Hotel)
5. Hilton Salt Lake City Center (ASAS and ISAG Headquarters Hotel)
Thank you to the 2016 Joint Annual Meeting Sponsors!

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- Illumina

### Platinum Level
- Biomin
- Elanco Animal Health
- European Association of Animal Science (EAAP)
- Pancosma
- Utah State University

### Gold Level
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- Diamond V
- Dairy Research Institute/Innovation Center for US Dairy
- Neogen Corporation
- Novus International, Inc.
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### Silver Level
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  - HJ Baker
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### Contributor Level
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A Special Thank You to our ASAS Event Sponsors (as of June 24)

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**ASAS Awards Celebration Sponsors**
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University of Illinois at Urbana-Champaign
University of Wisconsin-Madison
Washington State University

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Utah State University

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A Special Thank You to our ADSA Event Sponsors

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Bar Diamond
Lallemand Animal Nutrition
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Canadian Science Publishers

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- Archer Daniels Midland Company
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- Diamond V
- DuPont, Pioneer
- Elanco Animal Health
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- Kent Nutrition Group
- Lallemand Animal Nutrition
- Novus International Inc
- Qualitech, Inc
- Ralco Nutrition, Inc.
- Trouw Nutrition USA
- Zinpro Corporation
- Zoetis

#### ADSA
- Ag Processing Inc.
- Arm & Hammer Animal Nutrition
- BioZyme Incorporated
- Darling International Research
- Diamond V
- DuPont Pioneer
- Elanco Animal Health
- Global Agri-Trade Corporation
- Grande Cheese Company
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- Masters Choice
- Nutriad, Inc.
- Papillon Agricultural Company
- Quali Tech, Inc.
- Renaissance Nutrition Inc.
- Western Pacific Oils LLC
- Zinpro
- Zoetis
- Zook Nutrition & Management Inc.
Battle of the Brats and Big Scoop Competitions
6:45 – 9:30 pm • This is the Place Heritage Park

Battle of the Brats

University of Arizona
University of Arkansas
University of California-Davis
University of Florida
University of Illinois
University of Kentucky
Michigan State University
University of Nebraska

North Carolina State University
North Dakota State University
Oklahoma State University
Purdue University
Texas Tech University
Virginia Tech
West Texas A&M University
University of Wisconsin-Madison

Big Scoop Competition

University of Connecticut
University of Nebraska
Utah State University
Washington State University
2016 JAM Mobile App

Animals and Science: Big Solutions for Grand Challenges

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Go to www.asas.org/JAM2016 for download information.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Day</td>
<td>ASAS Academic Quadrathlon (AQ)</td>
<td>Utah State University, Logan, Utah</td>
</tr>
<tr>
<td>7:30 am−5:00 pm</td>
<td>ADSA Board of Directors Meeting</td>
<td>Salt Lake City Marriott Downtown, Deer Valley</td>
</tr>
<tr>
<td>8:00 am−9:00 am</td>
<td>ASAS Membership Committee Meeting</td>
<td>Hilton Salt Lake City Center, Topaz</td>
</tr>
<tr>
<td>9:30 am−5:30 pm</td>
<td>ASAS Board of Directors Meeting</td>
<td>Hilton Salt Lake City Center, Topaz</td>
</tr>
<tr>
<td>11:45 am−6:00 pm</td>
<td>ADSA Student Educational Tour: Bateman’s Mosida Farms and Utah Olympic Park</td>
<td>Salt Lake Plaza Hotel Lobby</td>
</tr>
<tr>
<td>1:00 pm−5:00 pm</td>
<td>Registration open (preregistered, badge, and material pick-up only)</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>6:00 pm−8:00 pm</td>
<td>ARPS Executive Committee Dinner</td>
<td>Off-site</td>
</tr>
<tr>
<td>7:00 pm</td>
<td>ADSA SAD Undergraduate Student Mixer</td>
<td>Salt Lake Plaza Hotel Lobby</td>
</tr>
</tbody>
</table>

**Tuesday, July 19**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Day</td>
<td>ASAS Academic Quadrathlon (AQ)</td>
<td>Utah State University, Logan, Utah</td>
</tr>
<tr>
<td>7:00 am−6:00 pm</td>
<td>Registration open</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>7:30 am−10:00 am</td>
<td>ADSA New Board Orientation</td>
<td>Salt Lake City Marriott Downtown, Cottonwood</td>
</tr>
<tr>
<td>8:00 am−12:00 pm</td>
<td>CSAS Executive Committee Meeting</td>
<td>Salt Palace Convention Center, 151 D</td>
</tr>
<tr>
<td>8:00 am−12:30 pm</td>
<td>ASAS Board of Directors Meeting</td>
<td>Hilton Salt Lake City Center, Topaz</td>
</tr>
<tr>
<td>8:00 am−5:00 pm</td>
<td>ARPAS Governing Council Meeting</td>
<td>Salt Lake City Marriott Downtown, Salons A/B</td>
</tr>
<tr>
<td>8:00 am−5:00 pm</td>
<td>American Society for Nutrition (ASN) and ASAS Symposium</td>
<td>Salt Palace Convention Center, Grand Ballroom B/D</td>
</tr>
<tr>
<td>10:00 am−6:00 pm</td>
<td>Exhibit Setup</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>9:00 am−10:00 am</td>
<td>ADSA Undergraduate Student Officers and Advisor Meeting</td>
<td>Salt Palace Convention Center, 257 B</td>
</tr>
<tr>
<td>10:00 am−11:00 am</td>
<td>ADSA Undergraduate Student Quiz Bowl Officials Meeting</td>
<td>Salt Palace Convention Center, 257 A</td>
</tr>
<tr>
<td>10:30 am−11:00 am</td>
<td>ADSA Undergraduate Student Quiz Bowl Seating Test</td>
<td>Salt Palace Convention Center, 254 B</td>
</tr>
<tr>
<td>11:00 am−12:00 pm</td>
<td>ADSA Undergraduate Student Midday Mixer</td>
<td>Salt Palace Convention Center, 254 B</td>
</tr>
<tr>
<td>12:00 pm−4:00 pm</td>
<td>ADSA Undergraduate Student Quiz Bowl Seating/ Preliminary Rounds</td>
<td>Salt Palace Convention Center, 250 F &amp; 251 D</td>
</tr>
<tr>
<td>12:00 pm−5:00 pm</td>
<td>Hospitality Lounge Open</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>12:00 pm−5:00 pm</td>
<td>ADSA JDS Editors and Journal Management Committee Lunch and Meeting</td>
<td>Salt Lake City Marriott Downtown, Deer Valley 1/2</td>
</tr>
<tr>
<td>1:00 pm−3:00 pm</td>
<td>ADSA Graduate Student Workshop: Applying for Jobs</td>
<td>Salt Palace Convention Center, 151 B/C</td>
</tr>
<tr>
<td>1:00 pm−3:00 pm</td>
<td>2016 Program Committee Meeting</td>
<td>Salt Palace Convention Center, 257 B</td>
</tr>
<tr>
<td>1:00 pm−4:00 pm</td>
<td>WSASAS Executive Board Meeting</td>
<td>Hilton Salt Lake City Center, Canyon B</td>
</tr>
<tr>
<td>2:00 pm−3:00 pm</td>
<td>ADSA Production Division Council Meeting</td>
<td>Salt Palace Convention Center, 252 A/B</td>
</tr>
<tr>
<td>2:00 pm−3:30 pm</td>
<td>ADSA Foundation Board of Trustees Meeting</td>
<td>Salt Lake City Marriott Downtown, Cottonwood</td>
</tr>
<tr>
<td>3:00 pm−4:00 pm</td>
<td>ADSA Production Division Nominating Committee</td>
<td>Salt Palace Convention Center, 252 A/B</td>
</tr>
<tr>
<td>3:15 pm−4:00 pm</td>
<td>ADSA Graduate Student Business Meeting</td>
<td>Salt Palace Convention Center, 151 B/C</td>
</tr>
<tr>
<td>4:00 pm−5:00 pm</td>
<td>Large Dairy Herd Management (LDHM) e-Book and Conference Update</td>
<td>Salt Palace Convention Center, 150 B/C</td>
</tr>
<tr>
<td>4:30 pm−5:00 pm</td>
<td>ADSA Undergraduate Student Quiz Bowl Final Round</td>
<td>Salt Palace Convention Center, 251 D</td>
</tr>
<tr>
<td>4:30 pm−5:30 pm</td>
<td>JAM Opening Session Meet &amp; Greet</td>
<td>Salt Palace Convention Center, South Foyer</td>
</tr>
<tr>
<td>5:00 pm−6:00 pm</td>
<td>ADSA Dairy Foods Division Council Meeting</td>
<td>Salt Palace Convention Center, 257 A</td>
</tr>
<tr>
<td>5:30 pm−6:15 pm</td>
<td>JAM Opening Session</td>
<td>Salt Palace Convention Center, Grand Ballroom E-J</td>
</tr>
<tr>
<td>6:45 pm−9:30 pm</td>
<td>JAM Opening BBQ</td>
<td>This is the Place Heritage Park</td>
</tr>
<tr>
<td>Time</td>
<td>Event</td>
<td>Location</td>
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<tr>
<td>All day</td>
<td>ASAS Undergraduate Academic Quadrathlon Fun Day</td>
<td>Park City</td>
</tr>
<tr>
<td>All day</td>
<td>WSASAS Graduate Competition Papers</td>
<td>Salt Palace Convention Center, 258/259</td>
</tr>
<tr>
<td>6:30 am–5:15 pm</td>
<td>Registration open</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>6:30 am–8:00 am</td>
<td>ADSA Dairy Specialist/Dairy Related Participants Breakfast</td>
<td>Salt Lake City Marriott Downtown, Salon A/B</td>
</tr>
<tr>
<td>7:15 am–8:15 am</td>
<td>Poster Presentations I</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>7:15 am–8:30 am</td>
<td>Turn in yearbooks and scrapbooks at SAD exhibit booth 417</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>8:00 am–5:00 pm</td>
<td>Exhibits open</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
</tr>
<tr>
<td>8:00 am–5:00 pm</td>
<td>Job Resource Center</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
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<tr>
<td>8:00 am–9:15 am</td>
<td>Poster Presentations II</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
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<td>8:15 am–9:15 am</td>
<td>ADSA Undergraduate Student Poster Presentations</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
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<tr>
<td>8:30 am–9:30 am</td>
<td>ADSA Undergraduate Student Judging of Yearbooks, Scrapbooks, Annual Reports at SAD exhibit booth</td>
<td>Salt Palace Convention Center, Exhibit Hall</td>
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<tr>
<td>8:30 am–9:30 am</td>
<td>ADSA Undergraduate Student Activities Symposium</td>
<td>Salt Palace Convention Center, 250 B</td>
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<td>9:30 am–5:00 pm</td>
<td>Scientific Sessions</td>
<td>Salt Palace Convention Center, 255A</td>
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<td>12:00 pm–1:30 pm</td>
<td>WSASAS Committee - Advising and Coordinating</td>
<td>Salt Palace Convention Center, 255B</td>
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<td>12:00 pm–1:30 pm</td>
<td>WSASAS Committee - Beef Symposium</td>
<td>Salt Palace Convention Center, 255C</td>
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<td>12:00 pm–1:30 pm</td>
<td>WSASAS Committee - Undergraduate Poster Competition</td>
<td>Salt Palace Convention Center, 255D</td>
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<td>12:00 pm–1:30 pm</td>
<td>WSASAS Committee - Graduate Paper Competition</td>
<td>Salt Palace Convention Center, 255E</td>
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<td>12:00 pm–1:30 pm</td>
<td>WSASAS Committee - Academic Quadrathlon</td>
<td>Salt Palace Convention Center, 255F</td>
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<td>12:00 pm–1:30 pm</td>
<td>WSASAS Committee - Young Scholars Recognition</td>
<td>Salt Palace Convention Center, 260 A/B</td>
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<td>12:30 pm–2:00 pm</td>
<td>ASAS Past Presidents’ Lunch</td>
<td>Hilton Salt Lake City Center, Canyon C</td>
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<tr>
<td>12:30 pm–2:00 pm</td>
<td>Undergraduate Lunch and Learn (sponsored by ASAS)</td>
<td>Salt Palace Convention Center, 250 C</td>
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<tr>
<td>12:30 pm–2:00 pm</td>
<td>ADSA Graduate Student Career Insights Luncheon</td>
<td>Salt Palace Convention Center, 155 D</td>
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<tr>
<td>12:30 pm–2:00 pm</td>
<td>ADSA Past Presidents’ Luncheon</td>
<td>Salt Palace Convention Center, 150 G</td>
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<td>1:00 pm–2:00 pm</td>
<td>Poster Presentations III</td>
<td>Hilton Salt Lake City Center, Canyon B</td>
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<td>2:00 pm–4:00 pm</td>
<td>ARPAS Exam</td>
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<td>2:00 pm–5:30 pm</td>
<td>Southern Branch ADSA Symposium and Business Meeting</td>
<td>Salt Palace Convention Center, 155 D</td>
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<td>5:00 pm–6:00 pm</td>
<td>Poster Presentations IV</td>
<td>Salt Lake City Marriott Downtown, Solitude</td>
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<td>5:00 pm–7:00 pm</td>
<td>Informal Calf Gathering</td>
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<td>5:30 pm–7:00 pm</td>
<td>ASAS Award Winners Dinner and Photo Session</td>
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<td>6:00 pm</td>
<td>ADSA Undergraduate Student Mixer</td>
<td>Salt Lake Plaza Hotel Poolside</td>
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<tr>
<td>7:15 pm–8:45 pm</td>
<td>ASAS Awards Program &amp; Undergraduate Academic Quadrathlon Special Presentation</td>
<td>Hilton Salt Lake City Center, Grand Ballroom</td>
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<tr>
<td>8:45 pm</td>
<td>ASAS Awards Celebration</td>
<td>Hilton Salt Lake City Center, Ballroom Foyer</td>
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<tr>
<td>8:30 pm–12:00 am</td>
<td>Iowa State Reception</td>
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<tr>
<td>9:00 pm</td>
<td>ASAS National &amp; WSASAS Graduate Student Mixer</td>
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**Thursday, July 21**

6:30 am–5:15 pm  Registration open  Salt Palace Convention Center, Exhibit Hall
6:30 am–8:00 am  JDS Editorial Board Breakfast/Meeting  Salt Lake City Marriott Downtown, Solitude
6:30 am–8:00 am  ADSA DF Division Milk Proteins and Enzyme Committee Breakfast  Salt Lake City Marriott Downtown, Cottonwood
6:30 am–8:00 am  Kentucky Breakfast  Hilton Salt Lake City Center, Alpine Ballroom East
6:30 am–8:00 am  University of Illinois Breakfast  Salt Lake City Marriott Downtown, Alpine Ballroom West
7:15 am–8:15 am  Poster Presentations V  Salt Lake City Marriott Downtown, Solitude
8:00 am–5:00 pm  Exhibits open  Salt Palace Convention Center, Exhibit Hall
8:00 am–5:00 pm  Job Resource Center open  Salt Palace Convention Center, Exhibit Hall
8:00 am–5:00 pm  Hospitality Lounge open  Salt Palace Convention Center, Exhibit Hall
8:00 am–9:00 am  Johne's - Bovine TB Interest Group  Hilton Salt Lake City Center, Topaz
8:15 am–9:15 am  Poster Presentations VI  Hilton Salt Lake City Center, Lobby
8:30 am–9:30 am  ADSA Undergraduate Student Business Meeting–Election of Officers  Salt Palace Convention Center, 250 B
9:00 am–10:30 am  ASAS Foundation Board of Trustees Meeting  Hilton Salt Lake City Center, Topaz
9:30 am–5:00 pm  Scientific Sessions  Salt Palace Convention Center
9:30 am–4:00 pm  Family Fun Day: Hogle Zoo  Hilton Salt Lake City Center, Lobby
9:30 am–11:00 am  ADSA Undergraduate Symposium: Telling Our Dairy Story  Salt Palace Convention Center, Grand Ballroom E
9:30 am–11:00 am  WSASAS Young Scholars Sessions  Salt Palace Convention Center, 155 C
10:00 am–11:00 am  Discover Conference Steering Committee Meeting  Salt Palace Convention Center, 250 B
10:30 am–12:30 pm  ARPAS Exam  Salt Palace Convention Center, 250 C
10:30 am–12:30 pm  ADSA Dairy Foods Division Business Meeting  Salt Palace Convention Center, 251 D
11:00 am–12:00 pm  ASAS/WSASAS Graduate Student Lunch and Learn  Salt Palace Convention Center, 251 E/F
11:30 am–12:30 pm  ADSA Undergraduate Student Business Meeting–Election of Officers  Salt Palace Convention Center, 250 B
11:30 am–12:30 pm  CSAS Annual General Meeting and Lunch  Salt Palace Convention Center, 250 C
12:00 pm–2:00 pm  ARPAS Business Meeting  Salt Palace Convention Center, 250 F
12:00 pm–2:00 pm  CSAS Annual General Meeting and Lunch  Salt Palace Convention Center, 251 A/B
12:30 pm–2:00 pm  ARPAS Exam  Salt Palace Convention Center, 251 E/F
12:30 pm–2:00 pm  ADSA DF Division Program Planning Lunch  Salt Lake City Marriott Downtown, Cottonwood
12:30 pm–2:00 pm  ADSA Production Division Business Meeting  Salt Palace Convention Center, 252 A/B
1:00 pm–2:00 pm  Poster Presentations VII  Salt Palace Convention Center, Exhibit Hall
2:00 pm–3:00 pm  ADSA Undergraduate Student Award and Club Photos  Salt Palace Convention Center, 250 B
2:00 pm–4:00 pm  ARPAS Exam  Salt Palace Convention Center, 250 C
2:00 pm–5:00 pm  ADSA Undergraduate Student Exhibits–Pick up yearbooks and scrapbooks in SAD Exhibit Booth 417  Salt Palace Convention Center, Exhibit Hall
2:30 pm–3:30 pm  ADSA Undergraduate Student Committee Meeting–Old and New Officers and Advisors  Salt Palace Convention Center, Ken Knight Boardroom
3:00 pm–4:30 pm  ADSA Graduate Student Three-Minute Thesis Challenge  Salt Palace Convention Center, 250 F
4:00 pm–5:00 pm  ASAS JAS/Animal Frontiers Editorial Meeting and Open Forum  Salt Palace Convention Center, 251 D
5:00 pm–6:00 pm  Poster Presentations VIII  Salt Palace Convention Center, Exhibit Hall
5:15 pm–6:15 pm  Image Gallery Launch Party  Salt Lake City Marriott Downtown, Salon D/E/F
5:30 pm–6:30 pm  ADSA Awards Program  Joseph Smith Memorial Building–Empire Room
6:30 pm–9:00 pm  WSASAS Awards Banquet  Salt Lake City Marriott Downtown, Salon A/B/C
6:30 pm–8:00 pm  ADSA Award Ceremony Participants Reception  Salt Palace Convention Center, Grand Ballroom North Foyer
8:15 pm–9:30 pm  JAM Ice Cream Social  Keys on Main
9:00 pm–12:00 am  ADSA Graduate Student Mixer
SCHEDULE OF EVENTS

Friday, July 22

6:30 am–5:15 pm    Registration open
7:15 am–8:15 am    Poster Presentations IX
7:45 am–9:15 am    WSASAS Business Meeting
8:00 am–2:00 pm    Exhibits open
8:00 am–5:00 pm    Job Resource Center open
8:00 am–5:00 pm    Hospitality Lounge open
8:00 am–9:00 am    ADSA Spokesperson Q&A at ADSA exhibit booth
8:15 am–9:15 am    Poster Presentations X
10:30 am–12:30 pm  ARPAS Exam
12:00 pm–2:00 pm    WSASAS Executive Board Post-Conference Meeting
12:30 pm–2:00 pm    Lunch Panel Discussion: [TOPIC]
12:30 pm–2:30 pm    ADSA Board of Directors Meeting
1:00 pm–2:00 pm    Poster Presentations XI
2:00 pm–4:00 pm    ARPAS Exam
2:00 pm–4:00 pm    NE ASAS/ADSA Business Meeting,
                   Reception and Awards
2:00 pm–5:00 pm    CSAS Symposium
2:00 pm–5:00 pm    Exhibits dismantle
2:30 pm–4:30 pm    ASAS Board of Directors Meeting
5:00 pm–6:00 pm    Poster Presentations XII
5:00 pm–7:00 pm    Companion Animal Reception
6:00 pm–10:00 pm   CSAS Awards Banquet
10:00 pm–12:00 am  CSAS Member Mixer

Saturday, July 23

7:15 am–12:00 pm   Registration open
7:15 am–8:15 am    Poster Presentations XIII
8:00 am–5:00 pm    Triennial Growth Symposium
8:15 am–9:15 am    Poster Presentations XIV
8:30 am–11:30 am   Scientific Sessions
### Abstract Numbers by Section (Topic Area)

#### ORAL AND SYMPOSIA PRESENTATIONS

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<tr>
<td>Meeting Today’s Animal Care Standards: Are You Ready?</td>
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<td>Robotic Dairying: Adapting Farm and Business Management</td>
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<td>ADSA-SAD (Student Affiliate Division) Undergraduate Student Oral Competition</td>
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<tr>
<td>ADSA-SAD (Student Affiliate Division) Undergraduate Student Oral Competition</td>
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<td>Strategies for Managing Heifers in the Southeast</td>
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<td>Metrics for On-Farm Animal Welfare Assessment – Current State and Future Needs</td>
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<td>Immunology and Gut Health</td>
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<td>Dairy Calves and General Health</td>
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<td>ARPAS Symposium</td>
<td>Understanding Inflammation and Inflammatory Biomarkers to Improve Animal Performance</td>
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<td>Cell Biology Symposium</td>
<td>Membrane Trafficking and Signal Transduction</td>
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<td>ASAS/ASN Joint Symposium: Gut, Microbiota, Diet and Health</td>
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<td>Improving Welfare of Beef Cattle</td>
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<td>Breeding and Genetics</td>
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<td>Genomic Evaluation I - Methods</td>
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<td>Selection for Health and Fertility</td>
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<td>Functional Annotation of Animal Genomes (FAANG) ASAS-ISAG Joint Symposium</td>
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<td>Companion Animal</td>
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<td>Fundamentals of Protein Nutrition</td>
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<td>Behavior and the Human-Animal Bond</td>
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<td><strong>Food Safety</strong></td>
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<td>The Spectrum of Food Safety Improvement in Foods of Animal Origin</td>
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<td><strong>Forages and Pastures</strong></td>
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<td>Urban Students in Animal Science and the Impact of Equine Programs</td>
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### Saturday, July 23

#### ALL DAY

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#### MORNING

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<td>Production, Management and Environment: Reproduction</td>
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<td>Physiology and Endocrinology: Metabolism, Health and Physiological Processes</td>
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<td>Ruminant Nutrition: Feed Additives II</td>
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divider
SYMPOSIA AND ORAL SESSIONS

ASAS/ASN Joint Symposium: Gut Microbiota, Diet and Health
Chair: Gretchen M. Hill, Michigan State University;
Teresa A. Davis, USDA-ARS Children’s Nutrition Research Center, Baylor College of Medicine
Sponsor: Biomin
8:15 AM - 4:30 PM
Grand Ballroom B/D

8:15 AM  Welcoming Remarks

8:20 AM  219  Modulation of the gut microbiota – An ecological perspective.
J. Walter*, University of Alberta, Edmonton, AB, Canada

9:05 AM  220  Effects of early antibiotic exposure on host metabolism.
L. M. Cox*, Harvard Medical School and Brigham and Women’s Hospital, Boston, MA; New York University Langone Medical Center, NY

9:50 AM  Break

10:05 AM  221  ASAS-EAAP Speaker: Impact of gut microbiota on brain and behavior.
J. F. Cryan*, University College Cork, Ireland

10:50 AM  222  The human milk microbiome and oligosaccharides - What’s normal and so what?
M. K. McGuire1 and M. A. McGuire2, 1Washington State University, Pullman 2University of Idaho, Moscow

11:35 AM  Lunch and Poster Competition: Sponsored by Lallemand

1:05 PM  223  Dietary fiber and starch, digestive physiology, and metabolic health.
R. T. Zijlstra*, J. M. Fouhse, T. Vasanthan, and M. G. Gänzle, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

1:50 PM  224  ASAS-AAPA Speaker: Methane matters: From blue tinged moos, to boozy roos, and for the health of humans too.
E. C. Hoedt1,2, P. O'Cuiv2, and M. Morrison3, 1University of Queensland, School of Chemistry and Molecular Biosciences, St Lucia, Australia, 2University of Queensland Diamantina Institute, Wooloongabba, Australia, 3University of Queensland Diamantina Institute, Brisbane, Australia

2:35 PM  225  ASAS-EAAP Speaker: Sub-acute ruminal acidosis (SARA): A tale of two microbiomes.
C. A. McCartney1, R. C. Cernar2, H. H. C. Koh-Tan3, H. J. Ferguson4, E. M. Strachan5, W. Thomson6, T. J. Snelling7, C. M. Harvey8, I. Andonovic9, C. Michie10, N. N. Jonsson11, G. W. Horgan12, and R. J. Wallace13, 1University of Aberdeen, United Kingdom, 2Chr. Hansen A/S, Hoersholm, Denmark, 3University of Glasgow, United Kingdom, 4Harbro Ltd, Turriff, United Kingdom, 5Strathclyde University, Glasgow, United Kingdom, 6BIOSS, Aberdeen, United Kingdom, 7Rowett Institute of Nutrition and Health, Aberdeen, United Kingdom

3:20 PM  226  Dietary manipulation of canine and feline gut microbiome.
K. S. Swanson*, University of Illinois at Urbana-Champaign

4:05 PM  Concluding Remarks
SYMPOSIA AND ORAL SESSIONS

Pancosma Symposium
Non-Nutrition: The Future of Nutrition?

Chair: Emma Wall, Pancosma;
Michael Steele, University of Alberta

Sponsor: Pancosma

9:00 AM - 5:30 PM
Grand Ballroom A

9:00 AM
Introductory Remarks

9:15 AM
1029
Why the intersection of microbiology and neurobiology matters to animal health: Microbial endocrinology as a means to examine the host-microbiota interface.
M. Lyte*, Iowa State University, Ames

9:45 AM
1030
The gut microbiome as a virtual endocrine organ: Implications for host physiology and behaviour.
G. Clarke*, University College Cork, Ireland

10:15 AM
1031
Threats to gut health in production animals.
J. Furness*, D. M. Bravo1, and J. J. Cottrell1, 1University of Melbourne, Parkville, Australia, 2Pancosma, Geneva, Switzerland, 3Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, Australia

10:45 AM
1032
ASAS-EAAP Speaker: The gut microbiome and its role in the development and function of newborn calf gastrointestinal tract.
N. Malmuthuge1, G. Liang1, P. J. Griebel2, and L. L. Guan*, 1University of Alberta, Edmonton, AB, Canada, 2Vaccine and Infectious Disease Organization, University of Saskatchewan, Saskatoon, SK, Canada

11:15 AM
1033
From pre- to post-weaning: The adaptations of the gastrointestinal tract of the young calf.
M. Steele*, S. J. Meule1, K. Wood2, and G. B. Penner3, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2INRA, Unité Mixte de Recherches sur les Herbivores, St Genès Champel, France, 3Department of Animal Biosciences, University of Guelph, ON, Canada, 4Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada

11:45 AM
Break

1:45 PM
1034
Metabolic effects of dietary pungent spices on the gut in animal models.
K. Srinivasan*, Department of Biochemistry and Nutrition, CSIR - Central Food Technological Research Institute, Mysore, India

2:15 PM
1035
Phytonutrients as non-nutritive feed additives to enhance growth and host immunity in broiler chickens.
H. Liljeholm1 and S. Oh2, 1USDA-ARS, Beltsville, MD, 2USDA, Beltsville, MD

2:45 PM
1036
Phytonutrients as additives in ruminants: The unexpected target organ.
J. Oh1, E. H. Wall2, D. M. Bravo3, and A. N. Hristov4, 1The Pennsylvania State University, University Park, 2Pancosma, Geneva, Switzerland

3:15 PM
1037
Non-nutrients in swine health and production.
Y. Liu*, University of California-Davis

3:45 PM
1038
ASAS-EAAP Speaker: Manipulation of gut morphology and gut immunity in swine using novel, naturally sustainable bioactives.
T. Sweeney1 and J. O’Doherty2, 1School of Veterinary Medicine, University College Dublin, Ireland, 2School of Agriculture and Food Science, University College Dublin, Ireland

4:15 PM
Concluding Remarks

4:30 PM
Discussion
### ADSA Production Division Graduate Student Oral Competition: MS

**Chair:** Gerd Bobe, Oregon State University  
**9:30 AM - 12:30 PM**  
**251 C**

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<td>9:30 AM</td>
<td>717</td>
<td>Rumen development in Holstein calves.</td>
<td>K. E. Mitchell*, University of California-Davis</td>
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<td>9:45 AM</td>
<td>718</td>
<td>Milk fat secretion in lactating dairy cattle is influenced by soybean particle size and fatty acid profile.</td>
<td>K. A. Weld* and L. E. Armentano, University of Wisconsin-Madison</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>720</td>
<td>Effects of feeding forage and concentrate, separately or as a TMR, on ruminal methane emission, fermentation characteristics, and total tract digestibility.</td>
<td>B. Rajaraman*, A. Selvaraj*, C. H. Lee*, and K. H. Kim*, 1Graduate School of International Agricultural Technology, Seoul National University, Pyeongchang, The Republic of Korea, 2Green Bio Science and Technology, Seoul National University, Pyeongchang, The Republic of Korea</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>723</td>
<td>Feed efficiency is associated with reproductive performance in dairy cows.</td>
<td>E. M. Bart*, M. D. Hantigan*, D. M. Spurlock*, M. J. VandeHaar*, and R. R. Cockrum*, 1Virginia Polytechnic Institute and State University, Blacksburg, 2Iowa State University, Ames, 3Michigan State University, East Lansing</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>725</td>
<td>Effect of 2,4-thiazolidinedione treatment in the inflammatory response to induced sub-clinical mastitis in dairy goats receiving adequate vitamin supplementation.</td>
<td>F. Rosa*, M. Moridi*, J. S. Osorio*, J. Lohakare*, S. Filley*, J. L. Belveal*, J. J. Bruton*, E. Trevisi*, C. Estill*, and M. Bionaz*, 1Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, 2University of Guelph, Rasht, Islamic Republic of Iran, 3University Cattolica del Sacro Cuore, Piacenza, Italy</td>
</tr>
<tr>
<td>11:45 AM</td>
<td>726</td>
<td>Effect of increasing milk feeding frequency of an elevated plane of nutrition on glucose and insulin kinetics in male Holstein calves both pre- and post-weaning.</td>
<td>J. A. R. MacPherson*, J. Haisan*, S. J. Meule*, S. J. Pletts*, and M. Steele*, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2UMR Herbivores, INRA, Vetagro Sup, Saint-Génès-Champanelle, France</td>
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<td>12:00 PM</td>
<td>727</td>
<td>Repeatability of residual feed intake across dietary forage concentration.</td>
<td>M. J. Carrasquillo-Mangual*, E. Liu, and M. J. VandeHaar, Michigan State University, East Lansing</td>
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### ADSA-ASAS Northeast Section Graduate Student Oral Competition

**Chair:** Kristen E. Govoni, University of Connecticut  
**Sponsor:** NE Section ADSA-ASAS  
**9:30 AM - 11:00 AM**  
**251 F**

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<td>9:30 AM</td>
<td>695</td>
<td>Survival and growth of Listeria monocytogenes on queso fresco cheese stored under modified atmospheres.</td>
<td>S. R. Barnes* and D. J. D’Amico, University of Connecticut, Storrs</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>696</td>
<td>The effects of poor maternal nutrition on dam and offspring inflammatory status throughout gestation.</td>
<td>A. K. Jones*, S. M. Pillai, M. L. Hoffman, K. K. McFadden, K. E. Govoni, S. A. Zinn, and S. A. Reed, Department of Animal Science, University of Connecticut, Storrs</td>
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10:00 AM 697  Effects of poor maternal nutrition during gestation on offspring prenatal muscle growth.
S. M. Pillai\(^{1}\), A. K. Jones, M. L. Hoffman, K. K. McFadden, S. A. Zinn, S. A. Reed, and K. E. Govoni, Department of Animal Science, University of Connecticut, Storrs

10:15 AM 698  Effects of citral and linalool on blood neutrophil toxicity and oxidative response in dairy cows.
C. M. Scholte\(^{1}\), Y. Qu\(^{1}\), M. Garcia\(^{1}\), T. H. Elsass\(^{1}\), D. Biswas\(^{1}\), and K. M. Moyes\(^{1}\), \(^{1}\)Department of Animal and Avian Sciences, University of Maryland, College Park, \(^{2}\)USDA-ARS, Beltsville, MD

10:30 AM 699  In vitro screening of the anthelmintic efficacy of birdsfoot trefoil commercial varieties and cultivars against ovine Haemonchus contortus.
C. Barone\(^{1}\), S. Ferguson\(^{1}\), A. Zajac\(^{2}\), R. Brown\(^{2}\), J. Reed\(^{2}\), C. Krueger\(^{1}\), and K. Petersson\(^{1}\), \(^{1}\)University of Rhode Island, Kingston, \(^{2}\)Virginia Polytechnic Institute and State University, Blacksburg, \(^{3}\)University of Wisconsin-Madison

**ADSA-Southern Section Graduate Student Oral Competition**

Chair: Peter D. Krawczel, University of Tennessee

9:30 AM - 10:30 PM

9:30 AM 760  The nutritional quality of winter crops for silage in monoculture or with legumes.
A. N. Brown\(^{1}\), G. Ferreira\(^{1}\), C. L. Teets\(^{1}\), W. E. Thomason\(^{1}\), and C. D. Teutsch\(^{2}\), \(^{1}\)Department of Dairy Science, Virginia Polytechnic Institute and State University, Blacksburg, \(^{2}\)Department of Crop and Soil Environmental Sciences, Virginia Polytechnic Institute and State University, Blacksburg

9:45 AM 761  Housing and demographic effects on somatic cell score in southeast United States dairies.
A. Stone\(^{1}\), C. Blakely\(^{1}\), K. Bochantin\(^{1}\), P. D. Krawczel\(^{2}\), M. Myers\(^{1}\), D. T. Nolan\(^{2}\), C. S. Petersson-Wolfe\(^{1}\), G. M. Pighetti\(^{1}\), S. Ward\(^{1}\), and J. M. Bewley\(^{1}\), \(^{1}\)University of Kentucky, Lexington, \(^{2}\)University of Tennessee, Knoxville, \(^{3}\)Virginia Polytechnic Institute and State University, Blacksburg, \(^{4}\)Mississippi State University, Mississippi State

10:00 AM 762  Feeding low crude protein diets in lactating dairy cows during summer months: Improvements in milk production and nitrogen utilization.
J. Kaufman\(^{1}\), K. Kassube, and A. G. Riis, The University of Tennessee, Knoxville

10:15 AM 763  Influence of a BRDC vaccine with a MLV or KV IBR component on estrous cycle parameters and anti-müllerian hormone concentration in nulliparous heifers.
C. L. Widener\(^{1}\), D. J. Hurley, W. M. Graves, A. H. Nelson, D. A. L. Lourenco, and J. F. Bohlen, University of Georgia, Athens

**ASAS Western Section Graduate Student Paper Competition**

Chair: Shanna L. Ivey, New Mexico State University

Sponsor: ASAS Western Section

9:30 AM - 3:30 PM

9:30 AM 1  Effects of maternal nutritional status on nutrient transporter expression in bovine utero-placental tissue on days 16 to 50 of gestation.
M. S. Crouse\(^{1}\), K. J. McLean\(^{1}\), M. R. Crosswhite\(^{2}\), N. Negrin Pereira\(^{1}\), A. K. Ward\(^{1}\), L. P. Reynolds\(^{1}\), C. R. Dahlen\(^{1}\), B. W. Neville\(^{2}\), P. P. Borowicz\(^{2}\), and J. S. Caton\(^{1}\), \(^{1}\)North Dakota State University, Fargo, \(^{2}\)North Dakota State University, Streeter

9:45 AM 2  Effects of dried distillers grains and lasalocid on feedlot lamb growth, carcass traits, nutrient digestibility, ruminal fluid volatile fatty acid concentrations, and ruminal hydrogen sulfide concentration.
A. R. Crane\(^{2,3}\), R. R. Redden\(^{3}\), K. C. Swanson\(^{3}\), B. M. Howard\(^{2}\), T. J. Frick\(^{2}\), K. R. Maddock-Carlin\(^{2}\), and C. S. Schauer\(^{3}\), \(^{1}\)Hettinger Research Extension Center, Hettinger, ND, \(^{2}\)North Dakota State University, Fargo, \(^{3}\)Texas A&M AgriLife Research and Extension Center, San Angelo

10:00 AM 3  Impacts of stocking density on growth and puberty attainment of replacement beef heifers.
K. M. Schubach\(^{1}\), R. F. Cooke\(^{1}\), A. P. Brandao\(^{2,3}\), K. Lippolis\(^{1}\), R. Marques\(^{1}\), M. T. Hinchliff\(^{1}\), and D. W. Bohnert\(^{4}\), \(^{1}\)Oregon State University-EOARC Burns, \(^{2}\)UNESP - FMVZ, Botucatu, Brazil
10:15 AM 4 Physiologic, health and production responses of dairy cows supplemented with an immunomodulatory feed ingredient during the transition period.
A. P. Brandao1,2, R. F. Cooke1, F. N. Correa1, M. B. Piccolo1, R. Gennari4, T. Leiva3, and J. L. M. Vasconcelos3, 1Oregon State University-EOARC Burns, 2UNESP - FMVZ, Botucatu, Brazil, 3Department of Animal Sciences, University of Florida, Gainesville, 4UNESP - FMVZ, Botucatu, FL, 3Sao Paulo State University, Botucatu, Brazil

10:30 AM 5 Bioavailability of supplemental ruminally-protected leucine in sheep.
J. G. Castro*, J. B. Alford, K. E. Quinn, F. A. Lopez, S. L. Pillmore, E. J. Scholljegerdes, and C. A. Loest, New Mexico State University, Las Cruces

10:45 AM 6 Key metabolic pathways associated with differences in weight maintenance and gain in mature cow skeletal and adipose tissue.
H. C. Cunningham†1, K. J. Austin1, K. M. Cammack1, H. C. Freetry2, and A. K. Lindholm-Perry3, 1Department of Animal Science, University of Wyoming, Laramie, 2USDA-ARS, US Meat Animal Research Center, Clay Center, NE

11:00 AM 7 Effects of grazing intensity and advancing season on chemical composition and in vitro organic matter disappearance in steers grazing mixed-grass prairie.
K. E. Chilcoat†, Animal Sciences Department, North Dakota State University, Fargo

11:15 AM 8 Altering the time of vaccination against respiratory pathogens to enhance vaccine efficacy, health, and performance of feedlot cattle.
K. Lippolis†1, R. F. Cooke1, K. M. Schubach1, A. P. Brandao1,2, R. Marques1, M. T. Hinchliff1, and D. W. Bohnert1, 1Oregon State University-EOARC Burns, 2UNESP - FMVZ, Botucatu, Brazil

11:30 AM 9 Evaluation of genetic structure across five US climate zones using prominent AI sires of two British Bos taurus breeds.
B. C. Krehbiel†1,2, M. G. Thomas1, H. D. Blackburn1, S. E. Speidel1, R. M. Enns1, and L. Keenan3, 1Department of Animal Sciences, Colorado State University, Fort Collins, 2National Animal Germplasm Program USDA-ARS, Fort Collins, CO, 3Red Angus Association of America, Denton, TX

11:45 AM 10 Effect of processing of supplemental corn on metabolizable protein of beef cows grazing winter wheat pasture.
C. S. Hebbert†1, M. A. Lopez-Baca1, L. Avendaño-Reyes1, U. Macias-Cruz1, and S. A. Soto-Navarro1, 1New Mexico State University, Las Cruces, 2Instituto de Ciencias Agrícolas, Universidad Autonoma de Baja California, Eijido Nuevo Leon, Baja California, Mexico

12:00 PM 11 Does adaptive grazing management influence dietary quality of yearlings during the grazing season on western Great Plains rangelands?
T. R. Plechaty†1, J. D. Scasta1, and J. D. Derner2, 1University of Wyoming, Laramie, 2USDA-ARS, Cheyenne, WY

12:15 PM 12 Long-term progesterone influence on feed efficiency, body composition, non-esterified fatty acids and metabolic hormones in mature Rambouillet ewes.
M. R. Herrygers†1, J. M. Thomson, K. A. Perz, P. J. Merta, M. Knerr, K. Metcalf, K. B. Herrygers, and J. G. Berardinelli, Montana State University, Bozeman

12:30 PM Break

2:00 PM 13 Health evaluation of immune-stimulated and hay-supplemented feedlot receiving calves as assessed by blood gas analysis.
E. R. Oosthuysen†1, M. Hubbert2, K. L. Samuelson1, E. J. Scholljegerdes1, G. C. Duff1, and C. A. Loest1, 1New Mexico State University, Las Cruces, 2Clayton Livestock Research Center, New Mexico State University, Clayton

2:15 PM 14 Effect of post-weaning heifer development system on average daily gain, pregnancy rates, and subsequent feed efficiency as a pregnant heifer.
S. A. Springman†1, H. R. Nielson, T. L. Meyer, and R. N. Funston, University of Nebraska, West Central Research and Extension Center, North Platte

2:30 PM 15 Comparison of timed insemination vs. modified estrus detection protocol in beef heifers.
B. T. Tibbitts†1, T. L. Meyer2, D. J. Kelly3, and R. N. Funston2, 1University of Nebraska-Lincoln, 2University of Nebraska, West Central Research and Extension Center, North Platte, 3Kelly Ranches, Sutherland, NE

2:45 PM 16 Performance and net energy in high and low RFI beef cattle.
K. C. Dykier† and R. D. Sainz, University of California-Davis

3:00 PM 18 Impact of maternal protein restriction in first-calf heifers during mid- to late- gestation on gene expression, feedlot performance, and carcass characteristics of progeny.
J. J. Kincheloe†1, M. J. Webb2, R. N. Funston2, K. R. Underwood3, M. G. Gonda2, A. D. Blair1, and K. C. Olson1, 1South Dakota State University, Rapid City, 2South Dakota State University, Brookings, 3University of Nebraska, West Central Research and Extension Center, North Platte
Big Data in Animal Science: 
Uses for Models, Statistics and Meta-Approaches 
Chair: Robin R. White, Virginia Polytechnic Institute and State University 
Sponsor: CDGKV 
9:30 AM - 2:00 PM 
155 C

9:30 AM 
Welcoming Remarks

9:40 AM 1293 
ASAS-EAAP Speaker: Modeling in animal science: An introduction to quantitative understanding and prediction. 
J. Dijkstra*, Animal Nutrition Group, Wageningen University, Netherlands

10:35 AM 1294 
Traditional versus structure-based model development strategies. 
L. O. Tedeschi*1, R. R. White2, C. F. Nicholson1, B. L. Turner3, M. A. Fonseca1, and M. D. Hanigan2, 1Texas A&M University, College Station, 2Virginia Polytechnic Institute and State University, Blacksburg, 3The Pennsylvania State University, University Park, 2Texas A&M University-Kingsville

11:25 AM 
Break

11:45 AM 1295 
Big data analysis techniques. 
N. St-Pierre*, The Ohio State University, Columbus

12:35 PM 
Break

1:15 PM 1296 
Evaluation of multilevel mixed effect models. 
E. Kebreab*, University of California-Davis

Breeding and Genetics: Genomic Evaluation I - Methods 
Chair: James E. Koltes, University of Arkansas 
9:30 AM - 12:30 PM 
Grand Ballroom I

9:30 AM 291 
APY inverse of genomic relationship matrix – Theory, analyses and questions. 
I. Misztal*, I. Pocrnic, D. Lourenco, and Y. Masuda, University of Georgia, Athens

9:45 AM 292 
Dimensionality of genomic information and APY inverse of genomic relationship matrix. 
I. Pocrnic*1, D. A. L. Lourenco1, Y. Masuda1, A. Legarra2, and I. Misztal1, 1University of Georgia, Athens, 2INRA, UMR 1388 GenPhySE, Castanet-Tolosan, France

10:00 AM 293 
Accounting for discovery bias in genomic prediction. 
R. M. Thallman*1, J. T. Parham1, L. A. Kuehn1, and J. P. Cassady1, 1USDA-ARS, US Meat Animal Research Center, Clay Center, NE, 2South Dakota State University, Brookings

10:15 AM 294 
Assessing genomic prediction accuracy for Holstein sires using bootstrap aggregation sampling and leave-one-out cross validation. 
A. Mikshowsky1, K. A. Weigel2, and D. Gianola1, 1University of Wisconsin-Madison, 2Department of Dairy Science University of Wisconsin-Madison

10:30 AM 295 
The impact of call rate on genotype accuracy. 
D. C. Purfield1, M. C. McClure2, and D. P. Berry1, 1Animal & Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland, 2Irish Cattle Breeding Federation, Bandon, Ireland, 3Teagasc, Moorepark, Fermoy, Co. Cork, Ireland

10:45 AM 296 
Strategy for incorporating newly discovered causative genetic variants into genomic evaluations. 
G. R. Wiggans*, P. M. VanRaden, D. M. Bickhart, and M. E. Tooker, Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

11:00 AM 
Break

11:15 AM 297 
High density marker panels, SNPs prioritizing and accuracy of genomic selection. 
L. Y. Chang1, S. Toghiani1, S. E. Aggrey2,3, and R. Rekaya1,2, 1Department of Animal and Dairy Science, University of Georgia, Athens, 2NutraGenomics Laboratory; Department of Poultry Science, University of Georgia, Athens, 1Institute of Bioinformatics, University of Georgia, Athens
Selection of sequence variants to improve dairy cattle genomic predictions.
M. E. Tooker<sup>1</sup>, P. M. VanRaden<sup>1</sup>, D. M. Bickhart<sup>1</sup>, and J. O’Connell<sup>1</sup>, <sup>1</sup>Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, <sup>2</sup>University of Maryland School of Medicine, Baltimore

Genomic prediction of crossbred performance.
B. Harlizius<sup>1</sup>, M. S. Lopes<sup>1</sup>, J. Vandenplas<sup>2</sup>, C. A. Sevillano<sup>2</sup>, and J. W. M. Bastiaansen<sup>1</sup>, <sup>1</sup>Topigs Norsvin Research Center, Beuningen, Netherlands, <sup>2</sup>Wageningen University, Netherlands, <sup>3</sup>Animal Breeding and Genomics Centre, Wageningen University, Netherlands

SNP filtering using FST and implications for Genome wide association and phenotype prediction.
S. Toghiani<sup>1</sup>, L. Y. Chang<sup>1</sup>, S. E. Aggrey<sup>2</sup><sup>3</sup>, and R. Rekaya<sup>1</sup>, <sup>1</sup>Department of Animal and Dairy Science, University of Georgia, Athens, <sup>2</sup>NutriGenomics Laboratory, Department of Poultry Science, University of Georgia, Athens, <sup>3</sup>Institute of Bioinformatics, University of Georgia, Athens

A combined coalescence forward in time simulator software for pedigreed populations undergoing selection for complex traits.
J. T. Howard<sup>1</sup>, F. Tiezzi<sup>1</sup>, J. E. Pryce<sup>2</sup>, and C. Maltecca<sup>1</sup>, <sup>1</sup>North Carolina State University, Raleigh, <sup>2</sup>Department of Economic Development, Jobs, Transport and Resources, Bundoora, Australia

CSAS Graduate Student Oral Competition I
Chair: Evaline Ibeagha-Awemu, Agriculture and Agri-Food Canada; Kees Plaizer, University of Manitoba
9:30 AM - 12:30 PM
251 B

Ensiling barley varieties selected for varied levels of in vitro NDF degradability.
N. G. Preston<sup>1</sup><sup>2</sup>, J. Nair<sup>1</sup>, P. Yu<sup>1</sup>, D. A. Christensen<sup>1</sup>, J. J. McKinnon<sup>1</sup>, and T. A. McAllister<sup>2</sup>, <sup>1</sup>University of Saskatchewan, Saskatoon, SK, Canada, <sup>2</sup>Lethbridge Research and Development Centre, Agriculture and Agri-food Canada, Lethbridge, AB, Canada, <sup>3</sup>Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada

Characterization of the variation in the daily excretion of faecal constituents and digestibility predictions in beef cattle fed feedlot diets using near infrared spectroscopy.
L. J. Jancewicz<sup>1</sup><sup>2</sup>, G. B. Penner<sup>1</sup>, M. L. Swift<sup>1</sup>, J. J. McKinnon<sup>1</sup>, C. L. Waldner<sup>2</sup>, and T. A. McAllister<sup>2</sup>, <sup>1</sup>Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, <sup>2</sup>Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, <sup>3</sup>Department of Large Animal Clinical Sciences, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, SK, Canada

Effect of energy substrate and days on feed on plasma insulin response in finishing beef heifers.
F. Joy<sup>1</sup>, K. M. Wood, and G. B. Penner, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada

Effect of digestible fiber content of barley silage on lactation performance and chewing activity of lactating dairy cows in comparison with corn silage.
B. Refaï<sup>1</sup><sup>2</sup>, D. A. Christensen<sup>1</sup>, J. J. McKinnon<sup>1</sup>, J. Nair<sup>1</sup>, A. D. Beattie<sup>1</sup>, T. A. McAllister<sup>2</sup>, W. Yang<sup>2</sup>, and P. Yu<sup>1</sup>, <sup>1</sup>Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, <sup>2</sup>Animal Production Department, Faculty of Agriculture, Zagazig University, Zagazig, Egypt, <sup>3</sup>University of Saskatchewan, Saskatoon, SK, Canada, <sup>4</sup>Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, <sup>5</sup>Department of Plant Sciences, College of Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, <sup>6</sup>Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, <sup>7</sup>Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

Daytime pasture vs. free-stall barn access: What do dairy cows with year-long outdoor experience prefer?
E. R. Shepley<sup>1</sup>, E. Vasseur<sup>2</sup>, and R. Bergeron<sup>1</sup>, <sup>1</sup>McGill University, Sainte-Anne-de-Bellevue, QC, Canada, <sup>2</sup>McGill University, Sainte-Anne-de-Bellevue, QC, Canada, <sup>3</sup>University of Guelph, ON, Canada

Can regular exercise and more comfortable stalls improve cleanliness and lameness in tie-stall dairy cows?
S. Palacio<sup>1</sup>, S. Adam<sup>2</sup>, R. Bergeron<sup>1</sup>, D. Pellerin<sup>1</sup>, A. M. de Passillé<sup>1</sup>, J. Rushen<sup>1</sup>, D. B. Haley<sup>1</sup>, T. J. DeVries<sup>1</sup>, and E. Vasseur<sup>1</sup>, <sup>1</sup>McGill University, Sainte-Anne-de-Bellevue, QC, Canada, <sup>2</sup>Valacta, Sainte-Anne-de-Bellevue, QC, Canada, <sup>3</sup>University of Guelph, ON, Canada, <sup>4</sup>University Laval, Quebec, QC, Canada, <sup>5</sup>Faculty of Land and Food Systems - University of British Columbia, Vancouver, BC, Canada, <sup>6</sup>Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, <sup>7</sup>Department of Animal Biosciences, University of Guelph, ON, Canada
11:00 AM 462  Saccharomyces cerevisiae boulardii improves acute phase response and phagocytosis during weaning in dairy calves. B. Fomenky1,2, J. Chiquette1, P. Y. Chouinard2, and E. M. Ibeagha-Awemu1, 1Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, 2Département des sciences animales, Université Laval, Québec, QC, Canada

11:15 AM 463  Effect of lipid supplementation and type of lipid on fatty acid composition of the ruminal epithelium and short-chain fatty acid transport. A. C. Verdugo1 and G. B. Penner, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada

11:30 AM 464  Degradation kinetics and bypassed nutrients of value added pellet products based on combination of new coproducts from bio-fuel/bio-oil processing, low grade of peas and lignosulfonate chemical compound at different levels for ruminants. V. Guevara1, D. A. Christensen, J. J. McKinnon, and P. Yu, Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada

11:45 AM 465  The different effects of ferrous glycine chelate and ferrous sulfate to intestinal porcine epithelial cells. Z. Zhuo1, College of Animal Science, Zhejiang University, Hangzhou, China

12:00 PM 466  The effect of SNPs in the promoter on expression of CYP2E1 gene and boar taint. H. E. Archer1, University of Guelph, ON, Canada

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**Dairy Foods Division Symposium:**
**Increasing Utilization of Dairy Co-Products**
Chair: Rohit Kapoor, National Dairy Council

9:30 AM - 12:30 PM
151 B/C

9:30 AM
Welcoming Remarks
B. Graves1 and R. Kapoor, Dairy Management Inc., Rosemont, IL

9:35 AM 573
Consumer demand, innovation and opportunity for co-products. B. Graves1 and R. Kapoor, Dairy Management Inc., Rosemont, IL

9:50 AM
International market opportunities and regulatory hurdles. USDEC.

10:15 AM 574
Permeate - use as a sodium replacer / flavor implications. M. Drake1, Southeast Dairy Foods Research Center, North Carolina State University, Raleigh

10:40 AM 575
Fractionating acid whey into value-added ingredients. K. E. Smith1, University of Wisconsin-Madison

11:05 AM
Break

11:10 AM 576
Demineralization of delactose permeate and acid whey. J. K. Amamcharla1, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan

11:35 AM 577
Advancements in drying lactose and acid whey. J. G. Ronckers1, Relco, Willmar, MN

12:00 PM 578
Lactose derivatives and GOS as prebiotic fibers. T. C. Schoenfuss1, University of Minnesota, Department of Food Science and Nutrition, St. Paul

12:25 PM
Concluding Remarks
Forages and Pastures I

Chair: Ken P. Coffey, University of Arkansas

9:30 AM - 12:30 PM
Grand Ballroom H

9:30 AM 627 A Bayesian approach to unmix diet composition.
N. Vargas Jurado\textsuperscript{1}, K. M. Eskridge, and R. M. Lewis, University of Nebraska-Lincoln

9:45 AM 628 Dry matter yields and nutritional composition of corn and sorghum for silage in Florida.
G. Ferreira\textsuperscript{1}, C. R. Staples\textsuperscript{2}, and J. D. Wad
\textsuperscript{2}, \textsuperscript{1}Virginia Polytechnic Institute and State University, Blacksburg, \textsuperscript{2}University of Florida, Gainesville

10:00 AM 629 Influence of plant population, maturity and ensiling time on fermentation profile, nitrogen fractions and starch digestibility in earlage.
L. F. Ferraretto\textsuperscript{1}, R. D. Shaver\textsuperscript{2}, J. G. Lauer\textsuperscript{2}, L. Brown\textsuperscript{2}, R. Lutz\textsuperscript{2}, J. Kennicker\textsuperscript{3}, R. Schmidt\textsuperscript{4}, and D. M. Taysom\textsuperscript{5},
\textsuperscript{1}University of Florida, Gainesville, \textsuperscript{2}University of Wisconsin-Madison, \textsuperscript{3}Monsanto, St Louis, MO, \textsuperscript{4}Lallemand Animal Nutrition, Milwaukee, WI, \textsuperscript{5}Dairyland Laboratories Inc, Arcadia, WI

10:15 AM 630 Replacing alfalfa silage with birdsfoot trefoil silage varying in tannin content in lactating cow diets.
U. C. Hymes Fecht\textsuperscript{1}, USDA-ARS Dairy Forage Research Center, Madison, WI

10:30 AM 631 Bacterial and fungal community structure of conventional and brown midrib corn hybrids ensiled with or without a combo inoculant at high dry matter concentrations.
J. J. Romero\textsuperscript{1,2}, Y. H. Joo\textsuperscript{3}, Y. Zhao\textsuperscript{4}, J. Park\textsuperscript{5}, M. A. Balseca-Paredes\textsuperscript{6}, E. Gutierrez-Rodriguez\textsuperscript{7}, and M. S. Castillo\textsuperscript{8}, \textsuperscript{1}Department of Crop Science, North Carolina State University, Raleigh, \textsuperscript{2}Animal and Veterinary Sciences, University of Maine, Orono, \textsuperscript{3}Division of Applied Life Science (BK21Plus, Instr. of Agri. & Life Sci.), Gyeongsang National University, Jinju, The Republic of Korea, \textsuperscript{4}Department of Animal Nutrition and Feed Science, China Agricultural University, Beijing, China, \textsuperscript{5}Department of Food, Bioprocessing, and Nutrition Sciences, North Carolina State University, Raleigh

10:45 AM 632 Bacterial and fungal community structure of oats ensiled with or without a combo inoculant.
J. J. Romero\textsuperscript{1,2}, Y. Zhao\textsuperscript{3}, M. A. Balseca-Paredes\textsuperscript{4}, Y. H. Joo\textsuperscript{5}, J. Park\textsuperscript{6}, E. Gutierrez-Rodriguez\textsuperscript{7}, and M. S. Castillo\textsuperscript{8}, \textsuperscript{1}Department of Crop Science, North Carolina State University, Raleigh, \textsuperscript{2}Animal and Veterinary Sciences, University of Maine, Orono, \textsuperscript{3}Department of Animal Nutrition and Feed Science, China Agricultural University, Beijing, China, \textsuperscript{4}Division of Applied Life Science (BK21Plus, Instr. of Agri. & Life Sci.), Gyeongsang National University, Jinju, The Republic of Korea, \textsuperscript{5}Department of Food, Bioprocessing, and Nutrition Sciences, North Carolina State University, Raleigh

11:00 AM Break

11:15 AM 633 Microbial count, fermentation, and aerobic stability of regular and brown midrib corn hybrids ensiled with or without a combo inoculant at high moisture concentrations.
J. J. Romero\textsuperscript{1,2}, J. Park\textsuperscript{3}, M. A. Balseca-Paredes\textsuperscript{4}, Y. Zhao\textsuperscript{5}, Y. H. Joo\textsuperscript{6}, A. Heitman\textsuperscript{7}, E. Gutierrez-Rodriguez\textsuperscript{8}, and M. S. Castillo\textsuperscript{9}, \textsuperscript{1}Department of Crop Science, North Carolina State University, Raleigh, \textsuperscript{2}Animal and Veterinary Sciences, University of Maine, Orono, \textsuperscript{3}Division of Applied Life Science (BK21Plus, Instr. of Agri. & Life Sci.), Gyeongsang National University, Jinju, The Republic of Korea, \textsuperscript{4}Department of Animal Nutrition and Feed Science, China Agricultural University, Beijing, China, \textsuperscript{5}Department of Food, Bioprocessing, and Nutrition Sciences, North Carolina State University, Raleigh

11:30 AM 634 Forage quality of two different pasture systems incorporating warm and cool season forages for grazing organic dairy cattle.
K. E. Ruh\textsuperscript{1,2}, B. J. Heins\textsuperscript{2}, and J. Paulson\textsuperscript{3}, \textsuperscript{1}University of Minnesota, Saint Paul, \textsuperscript{2}University of Minnesota West Central Research and Outreach Center, Morris, \textsuperscript{3}University of Minnesota Extension, Rochester

11:45 AM 635 Meta-analysis of the effect of homolactic and facultative heterolactic bacteria inoculation on silage quality: Aerobic stability and yeast, mold and clostridia counts.
A. S. Oliveira\textsuperscript{1}, Z. G. Weinberg\textsuperscript{2}, A. A. P. Cervantes\textsuperscript{3}, K. G. Arriola\textsuperscript{4}, I. M. Ogunade\textsuperscript{5}, Y. Jiang\textsuperscript{6}, D. Kim\textsuperscript{7}, M. C. M. Gonçalves\textsuperscript{8}, D. Vyas\textsuperscript{9}, and A. T. Adesogan\textsuperscript{10}, \textsuperscript{1}Universidad Federal de Mato Grosso - Sinop, Sinop, Brazil, \textsuperscript{2}Department of Food Quality and Safety, Agricultural Research Organization, The Volcani Center, Rishon Le Zion, Israel, \textsuperscript{3}UF/IFAS, Gainesville, FL, \textsuperscript{4}Instituto Federal Goiano, Rio Verde, Brazil

12:00 PM 636 Meta-analysis of the effect silage inoculation with homolactic or facultative heterolactic bacteria on the performance of dairy cows.
A. S. Oliveira\textsuperscript{1}, Z. G. Weinberg\textsuperscript{2}, A. A. P. Cervantes\textsuperscript{3}, K. G. Arriola\textsuperscript{4}, I. M. Ogunade\textsuperscript{5}, Y. Jiang\textsuperscript{6}, D. Kim\textsuperscript{7}, M. C. M. Gonçalves\textsuperscript{8}, D. Vyas\textsuperscript{9}, and A. T. Adesogan\textsuperscript{10}, \textsuperscript{1}Universidad Federal de Mato Grosso - Sinop, Sinop, Brazil, \textsuperscript{2}Department of Food Quality and Safety, Agricultural Research Organization, The Volcani Center, Rishon Le Zion, Israel, \textsuperscript{3}UF/IFAS, Gainesville, FL, \textsuperscript{4}Instituto Federal Goiano, Rio Verde, Brazil
### International Animal Agriculture Symposium: The Future of Pastoral Production Systems

Chair: Filippo Miglior, Centre for Genetic Improvement of Livestock, University of Guelph  
Sponsor: EAAP  
9:30 AM - 12:00 PM  
150 B/C

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Authors, Institutions</th>
</tr>
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<tbody>
<tr>
<td>9:30 AM</td>
<td>ASAS-EAAP Speaker: Contribution of pastoral systems to global food security and potential for sustainable intensification.</td>
<td>A. Mottet¹, F. Teillard, G. Cinardi, and G. Velasco Gil, Food and Agriculture Organization of the United Nations, Rome, Italy</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Opportunities for international research and development through the Feed the Future Innovation Lab for Livestock Systems.</td>
<td>A. T. Adesogan², UF/IFAS, Gainesville, FL</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Community-based breeding programs: A sustainable solution for livestock keepers?</td>
<td>M. Wurzinger³, A. Haile⁴, B. Risckowsky⁵, C. P. VanTassel⁶, T. S. Sonstegard⁷, O. Mwai⁸, and J. Stöllner⁹, ¹BOKU-University of Natural Resources and Life Sciences, Vienna, Austria, ²International Centre for Agricultural Research in the Dry areas, Addis Ahaba, Ethiopia, ³International Center for Agricultural Research in the Dry Areas, Addis Ababa, Ethiopia, ⁴Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, ⁵USDA-ARS, BFGL, Beltsville, MD, ⁶International Livestock Research Institute, Nairobi, Kenya, ⁷University of Natural Resources and Life Sciences, Vienna, Austria</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Innovative dissemination of small ruminant genetic improvement by a non-government institute in India.</td>
<td>C. Nimbkar² and P. Ghalsasi, Nimbkar Agricultural Research Institute, Phaltan, Dist. Satara, Maharashtra, India</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>Pastoral systems in the developing world: Trends, needs, and future scenarios.</td>
<td>D. L. Coppock¹, M. Fernandez-Gimenez², P. Hiernaux³, E. Huber-Sannwald⁴, C. Schoeder⁵, C. Valdivia⁶, J. T. Arredondo⁷, M. Jacobs⁸, C. Turin⁹, and M. Turner¹⁰, ¹Utah State University, Logan, ²Colorado State University, Fort Collins, ³Centre National de la Recherche Scientifique, Geosciences Environment Toulouse, Toulouse, France, ⁴Instituto Potosino de Investigacion Cientifica y Tecnologica, San Luis Potosi, Mexico, ⁵Oikos Services LLC, Fortine, MT, ⁶University of Missouri, Columbia, ⁷International Potato Center, Lima, Peru, ⁸University of Wisconsin-Madison</td>
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### Nonruminant Nutrition: Enzymes

Chair: K. M. Ajuwon, Purdue University  
Sponsor: JBS United, Dupont  
9:30 AM - 12:30 PM  
Grand Ballroom F

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<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Authors, Institutions</th>
</tr>
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<tbody>
<tr>
<td>9:30 AM</td>
<td>Effect of timing of post-weaning supplementation of xylanase on growth performance, nutrient digestibility and fecal microbial composition in weanling pigs.</td>
<td>H. Lu¹, H. Yan¹, H. Masey O’Neill², C. L. Bradley², M. Bedford², P. Wilcock², C. Nakatsu², O. Adeola², and K. M. Ajuwon², ³Purdue University, West Lafayette, IN, ⁴AB Vista Feed Ingredients, Marlborough, United Kingdom</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>Effect of xylanase and live yeast supplementation on growth performance and gut microflora diversity of growing pigs.</td>
<td>H. Lu¹, H. Yan¹, H. Masey O’Neill², C. L. Bradley², M. Bedford², P. Wilcock², C. Nakatsu², O. Adeola², and K. M. Ajuwon², ³Purdue University, West Lafayette, IN, ⁴AB Vista Feed Ingredients, Marlborough, United Kingdom</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Effects of dietary supplementation of β-mannanase on digesta viscosity and intestinal health of nursery pigs.</td>
<td>I. Park², Y. I. Kim, and S. W. Kim, North Carolina State University, Raleigh</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>Effects of xylanase and protease on gut health and growth performance of newly hatched broiler chickens.</td>
<td>M. P. Herchler³, L. Zheng, and S. W. Kim, North Carolina State University, Raleigh</td>
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<td>11:00 AM</td>
<td>Break</td>
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11:15 AM 933  Effect of supplemental enzyme on growth performance, digesta viscosity, apparent total tract digestibility of nutrients in nursery pigs.
U. P. Tiwari1, H. Chen2, S. W. Kim2, and R. Jha1, 1University of Hawaii at Manoa, Honolulu, 2North Carolina State University, Raleigh

11:30 AM 934  Effects of full fat or defatted rice bran and microbial xylanase on growth performance of weanling pigs.
G. A. Casas and H. H. Stein, University of Illinois at Urbana-Champaign

11:45 AM 935  Addition of optimal non-starch polysaccharides enzymes using in vitro method to a corn-soybean meal diet and a corn-miscellaneous meal diet for growing pigs.
L. Gao, L. Chen, R. Zhong, L. Zhang, and H. Zhang*, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China

12:00 PM 936  Growth performance, bone measurements, and P digestibility in nursery pigs fed diets supplemented with increasing levels of a new bacterial 6-phytase expressed in Pseudomonas fluorescens.

12:15 PM 937  Nutritive value of cold-pressed soybean cake with or without extrusion or supplementation of multi-carbohydrase for pigs.
T. A. Woyengo1, R. Patterson2, and C. L. Levesque1, 1South Dakota State University, Brookings, 2Canadian Biosystems, Calgary, AB, Canada

Physiology and Endocrinology: Reproductive Technologies and Fertility

Chair: Jeffrey S. Stevenson, Kansas State University
3:00 AM - 11:30 PM
151 G

9:30 AM 1127  Effects of OmniGen-AF on superovulation response and embryo quality in donor beef cows.
A. P. Snider1,2, M. R. Gellings1, S. A. Armstrong1, D. J. McLean2, and A. R. Menino1, 1Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, 2Phibro Animal Health Corporation, Quincy, IL

9:45 AM 1128  OmniGen-AF reduces basal plasma cortisol as well as cortisol release to adrenocorticotrophic hormone or corticotropin releasing hormone and vasopressin in lactating dairy cows under thermoneutral or acute heat stress conditions.
M. L. McBride1, N. C. Burdick Sanchez2, J. A. Carroll1, P. R. Broadway1, X. O. Ortiz1, J. L. Collier1, D. McLean4, J. D. Chapman1, H. G. Kattesh5, and R. J. Collier1, 1University of Arizona, Tucson, 2USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 3Texas Tech University, Wolfforth, 4Phibro Animal Health Corporation, Quincy, IL, 5Department of Animal Science, University of Tennessee, Knoxville

10:00 AM 1129  Reproductive performance with automated activity monitoring or a timed insemination program for first insemination in dairy cows.
J. Denis-Robichaud1, R. L. A. Cerri2, A. Jones-Bitton1, and S. J. LeBlanc1, 1Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, 2Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada

L. M. Mayo1 and M. C. Lucy, University of Missouri, Columbia,

10:30 AM 1131  The effects of aspirin on pregnancy rates and pregnancy specific protein B in lactating dairy cows during the summer.
J. A. Spencer1, K. G. Carnahan1, B. Shafi1, J. Dalton1, and A. Ahmadzadeh1, 1University of Idaho, Moscow, 2University of Idaho, Caldwell

10:45 AM 1132  Temporarily decreasing progesterone after timed artificial insemination decreased expression of ISG15 in blood leukocytes, serum PSPB concentrations, and embryo size in lactating Holstein cows.
P. D. Carvalho, C. E. Consentini, S. R. Weaver, R. V. Barletta, L. L. Hernandez, and P. M. Fricke*, Department of Dairy Science, University of Wisconsin-Madison

11:00 AM 1133  Effects for fertility of processing steps of a new technology platform for producing sexed sperm.
M. A. Faust*, J. Bethhausser, A. Storch, and S. Crego, ABS Global, Inc., De Forest, WI

11:15 AM 1134  Fertility and sex of calf results from a new commercial scale technology platform for producing sexed sperm.
M. A. Faust*, J. Bethausser, S. Crego, and A. Storch, ABS Global, Inc., De Forest, WI
Production, Management and the Environment: Environment
Chair: Vinicius R. Moreira, Louisiana State University
9:30 AM - 12:30 PM
151 E/F

9:30 AM 1196
Use of a novel continuous culture fermentor system for in vitro determination of enteric methane output from ruminants.
A. I. Roca-Fernandez*, S. L. Dillard, M. D. Rubano, R. J. Tillmann, and K. J. Soder, USDA-ARS, University Park, PA

9:45 AM 1197
Effect of introducing legumes containing condensed tannins in an orchardgrass diet on forage nutritive value and enteric methane output in continuous culture.
A. I. Roca-Fernandez*, S. L. Dillard, M. D. Rubano, C. J. Dell, and K. J. Soder, USDA-ARS, University Park, PA

10:00 AM 1198
Effect of summer annuals on ruminal fermentation and methane output in continuous culture.
S. L. Dillard*, A. I. Roca-Fernandez, A. N. Hafla, M. D. Rubano, A. F. Brito, and K. J. Soder, USDA-ARS, University Park, PA

10:15 AM 1199
Analysis and review of publicly available GreenFeed results.
S. Zimmerman* and P. R. Zimmerman, C-lock, Inc., Rapid City, SD

10:30 AM 1200
Evaluation of an enteric methane emissions measurement system for cattle.
E. M. Andreini1,2, M. S. Calvo-Lorenzo1,3, C. J. Richards1, J. E. White3, and S. E. Place1, Oklahoma State University, Stillwater, 2University of California-Davis 3Elanco Animal Health, Fayetteville, AR

10:45 AM 1201
Impact of corn or soybean in crops and lactating cow diets on estimated greenhouse gas emission from Wisconsin certified organic dairy farms.
D. Liang*, F. Sun, M. A. Wattiaux, V. Cabrera, and E. M. Silva, University of Wisconsin-Madison

11:00 AM 1202
Winter feeding systems and farm greenhouse gas emissions.
A. W. Alemu1, R. R. Doce2, A. C. Dick2, J. Basarab2, R. Kröbel1, K. Haugen-Kozyra2, and V. Baron2, 1Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Lacombe Research and Development Centre, Agriculture and Agri-Food Canada, Lacombe, AB, Canada, 3Lacombe Research Centre, Alberta Agriculture and Forestry, Lacombe, AB, Canada, 4Vresco Solutions, Calgary, AB, Canada

11:15 AM 1203
Grazing management and farm greenhouse gas emission intensity of beef production systems.
A. W. Alemu1, H. Janzen1, S. Little1, X. Hao1, D. Thompson1, V. Baron2, A. D. Iwaasa1, K. A. Beauchemin1, and R. Kröbel1, 1Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Lacombe Research and Development Centre, Agriculture and Agri-Food Canada, Lacombe, AB, Canada, 3Lacombe Research Centre, Agriculture and Agri-Food Canada, Lacombe, AB, Canada, 4Agriculture and Agri-Food Canada, Swift Current, SK, Canada

11:30 AM 1204
A life cycle assessment of a beef feedlot finishing ration supply chain in California.
S. J. Werth*, J. W. Oltjen, E. Kebreab, and F. M. Mitloehner, University of California-Davis

11:45 AM 1205
Estimating farm-gate ammonia emissions from Canadian beef production in 1981 as compared with 2011.
G. Legesse1, R. Kroebel1, A. Alemu1, K. H. Omins1, E. J. McGough1, K. A. Beauchemin1, and T. A. McAllister2, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

12:00 PM 1206
The effect of reduced crude protein, synthetic amino acid supplemented diets on nutrient excretion in wean to finish swine.
C. E. Vonderohe1, K. M. Mills1, M. D. Asmus1, E. R. Otto-Tice1, J. Ni1, C. V. Maxwel1, B. T. Richert1, and J. S. Radcliffe1, 1Purdue University, West Lafayette, IN, 2Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville

12:15 PM 1207
Oxalic acid production by Aspergillus niger when using whey permeate lactose as a carbon source.
K. M. Hilt*, J. H. Harrison2, and K. Bowers2, 1Washington State University, Pullman, 2Washington State University, Puyallup, 3Multiform Harvest Inc., Seattle, WA
## Ruminant Nutrition: Feed Additives I

**Chair:** Agustín G. Rius, *The University of Tennessee*

**Sponsor:** Ajinomoto

**9:30 AM - 12:30 PM**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Authors</th>
</tr>
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<tbody>
<tr>
<td>9:30 AM</td>
<td>Effect of rumen-protected <em>Capsicum oleoresin</em> on productivity and responses to a glucose tolerance test in lactating dairy cows.</td>
<td>J. Oh¹, M. Harper¹, F. Giallongo¹, E. H. Wall¹, D. M. Bravo⁴, and A. N. Hristov⁴; The Pennsylvania State University, University Park; &quot;Pancosma, Geneva, Switzerland.</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>Supplementation of β-mannanase (CTCZYME) to lactating dairy cattle diets improves feed conversion efficiency and somatic cell count.</td>
<td>E. Kebreab⁵, T. Tewoldebrhan⁵, R. Appuhamy⁵, M. Niu¹, S. Seo², S. Jeong³, and J. J. Lee⁴; University of California-Davis; &quot;Chungnam National University, Daejeon, The Republic of Korea; &quot;CTC Bio Inc, Seoul, The Republic of Korea.</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Effects of essential oils and exogenous enzyme in feedlot finishing cattle diets high in flint corn ground at different particle sizes.</td>
<td>M. A. P. Meschiatti¹, J. M. M. D. Moraes¹, T. S. Acedo², L. F. M. Tamassia², V. N. D. Gouvea², J. R. Dórea², and F. A. P. Santos³; USP, Sao Paulo, Brazil; DSM Nutritional Products SA, Sao Paulo, Brazil; &quot;University of Wisconsin-Madison; University of São Paulo, Piracicaba, Brazil.</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>The potential of a buffer (calcified marine algae) or plant extract (<em>Capsicum</em>) in combination with or to replace an ionophore (monensin) in lamb feedlot diets.</td>
<td>R. F. Gouws⁴, F. M. Hagg⁴, L. J. Erasmus⁴, R. H. van der Veen⁴, and D. E. Holm⁴; Department of Animal and Wildlife Science, University of Pretoria, Pretoria, South Africa; &quot;Allied Nutrition, Pretoria, South Africa; &quot;Department of Production Animal Studies, Faculty of Veterinary Science, University of Pretoria, Pretoria, South Africa.</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Health, milk yield and milk quality records evaluated in 787 dairy herds before and during OmniGen-AF supplementation to dry and lactating cows.</td>
<td>J. D. Chapman¹, S. S. Bascom¹, L. O. Elý¹, G. A. Holub¹, J. P. Jarrett¹, J. S. Lanier¹, D. Kirk¹, D. E. Nuzback¹, and T. J. Wistuba¹; &quot;Phibro Animal Health Corporation, Quincy, IL; University of Georgia, Athens.</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Effect of different inclusion rates of Fermenten on performance, carcass characteristics, and total tract digestibility of growing Angus crossbred steers.</td>
<td>M. E. Garcia-Ascolani¹, T. M. Schulmeister¹, M. Ruiz-Moreno¹, D. D. Henry¹, F. M. Ciriacio¹, G. M. Silva¹, P. L. P. Fontes¹, G. C. Lamb¹, and N. DiLorenzo¹; University of Florida, North Florida Research and Education Center, Marianna; &quot;UF/IFAS, Range Cattle Research and Education Center, Ona, FL.</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>A meta-analysis of lasalocid effects on rumen measures, beef and dairy performance, and carcass traits in cattle.</td>
<td>H. M. Golder⁷, T. Cowper⁷, and I. J. Lean⁷; &quot;Scibus, Camden, Australia; &quot;Zoets Australia Sydney Australia.</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>Close-up diet DCAD, urine pH, and total plasma calcium at calving on a commercial Jersey herd.</td>
<td>A. Valdecabres¹, D. Rolle, V. J. Ramírez, S. Rodríguez, and N. Silva-del-Rio; Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare.</td>
</tr>
<tr>
<td>11:45 AM</td>
<td>Effects of bismuth subsalicylate and calcium-ammonium nitrate on <em>in vitro</em> fermentation of bahiagrass hay with supplemental molasses.</td>
<td>D. D. Henry⁴, F. M. Ciriacio¹, R. C. Araujo², M. E. Garcia-Ascolani¹, P. L. P. Fontes³, N. Oosthuizen¹, C. D. Sanford¹, T. M. Schulmeister¹, M. Ruiz-Moreno¹, G. C. Lamb¹, and N. DiLorenzo¹; University of Florida, North Florida Research and Education Center, Marianna; GRASP Ind. &amp; Com. LTDA, Curitiba, Brazil.</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>The effect of a monensin controlled release capsule at prepartum on beta hydroxy butyrate, milk yield, fat, protein, postpartum diseases, rectal temperature, and body condition in Holstein cows.</td>
<td>P. Melendez⁵, A. Arevalo⁵, P. J. Pinedo⁶, and M. Duchens²; &quot;University of Missouri, Columbia; &quot;University of Chile, Santiago; &quot;Colorado State University, Fort Collins.</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>Effects of essential oils and exogenous enzyme in low starch diets for finishing feedlot cattle.</td>
<td>T. S. Acedo¹, L. F. M. Tamassia², C. S. Cortinhas², V. N. D. Gouvea², V. R. M. Couto³, and J. J. D. R. Fernandes³; DSM Nutritional Products SA, Sao Paulo, Brazil; &quot;Universidade Federal de Goiás, Goiânia, Brazil; &quot;UFG, Goiânia, Brazil.</td>
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Ruminant Nutrition: Metabolism

Chair: Jan C. Plaizier, University of Manitoba

9:30 AM - 12:30 PM

155 F

9:30 AM 1507
The effects of heat stress on protein metabolism in lactating Holstein cows.
S. Gao1, J. Guo1, S. Quan1, X. Nan1, L. H. Baumgard3, and D. Bu1,2,3, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2The Animal Physiology and Biochemistry Laboratory of the Ministry of Agriculture in Nanjing Agriculture University, Nanjing, China, 3Iowa State University, Ames, 4Hunan Co-Innovation Center of Animal Production Safety, CICAPS, Changsha, China, 5CAAS-ICRAF Joint Laboratory of Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China

9:45 AM 1508
The effect of fructose infusion on dry matter intake in dairy cattle.
R. Yair* and M. S. Allen, Michigan State University, East Lansing

10:00 AM 1509
Effects of maternal nutrient restriction and melatonin supplementation on vascularity in ovine maternal and fetal jejunum.
G. Jia*, North Dakota State University, Fargo

10:15 AM 1510
Production level of dairy cows affects the extent of diet-induced milk fat depression.
Y. Sun*, M. S. Allen, and A. L. Lock, Michigan State University, East Lansing

10:30 AM 1511
Effect of production level and parity on responses of milk fat to supplementation with 2-hydroxy-4-(methylthio)butanoate (HMTBa).
M. Baldin1, H. A. Tucker2, and K. J. Harvatine1, 1The Pennsylvania State University, University Park, 2Novus International Inc., St. Charles, MO

10:45 AM 1512
The timing of feed availability entrains the circadian rhythm of milk synthesis in dairy cattle.
I. J. Salfer*, J. Y. Ying, and K. J. Harvatine, The Pennsylvania State University, State College

11:00 AM 1513
Characterization of peripartum liver and skeletal muscle ceramide concentrations in lean and overweight Holstein dairy cows.
S. Saed Samii*, J. E. Rico, and J. W. McFadden, West Virginia University, Morgantown

11:15 AM 1514
Variation in rumen epithelial fatty acid metabolism and cholesterol homeostasis contributes to different responses to the high grain diet adaptation in beef cattle.
K. Zhao1,2, Y. Chen1, G. B. Penner1, M. Oba1, and L. L. Guan1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2College of Medicine, Xi’an Jiaotong University, Xi’an, China, 1Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada

11:30 AM 1515
Dose response effect of acetate on milk fat synthesis in lactating dairy cows.
N. L. Urrutia1, M. Baldin1, J. Y. Ying2, Y. Fan1,3, K. J. Harvatine*, and J. Carvalho1, 1The Pennsylvania State University, University Park, 2The Pennsylvania State University, State College, 3China Agricultural University, Beijing, China

11:45 AM 1516
Lipogenic gene network expression in mammary tissue in response to abomasal infusion of casein, glucose and acetate into feed-restricted lactating cows.
M. A. C. Danes1,2, F. Batistel3, G. A. Broderick4, M. A. Wattiaux2, and J. J. Loor1, 1Federal University of Lavras, Brazil, 2University of Wisconsin-Madison, 3University of Illinois at Urbana-Champaign, 4Broderick Nutrition & Research, LLC, Madison, WI

12:00 PM 1517
The effects of feeding increasing concentrations of corn oil on energy metabolism and nutrient balance in finishing beef steers.

12:15 PM 1518
Isolation and comparison of expression of novel glucose transporters, GLUT3 and GLUT14, in bovine uteroplacental tissues from days 16 to 50 of gestation.
Small Ruminant I
Chair: Travis R. Whitney, Texas A&M AgriLife Research
9:30 AM - 12:30 PM
150 E/F

9:30 AM
Introductory Remarks

9:35 AM 1672
Protein supplementation and herbage allowance for pregnant ewes grazing low-quality pasture.
C. H. E. C. Poli1,2, B. M. Paulino1, A. B. Moraes1, Z. M. S. Castilhos1, F. C. A. Silva1, N. M. Fajardo1, C. M. Pimentel1,
D. B. David3, E. B. Azevedo6, and J. J. Villalba2, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil,
2Utah State University, Logan, 3Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, 4Universidade
Brasília, Brasília, Brazil, 5Fundação Estadual de Pesquisa Agropecuária, São Gabriel, Brazil, 6Universidade Federal
do Pampa, Itaqui, Brazil

9:50 AM 1673
Food restriction in ewes during different pregnancy periods affects milk production and lamb growth.
C. H. E. C. Poli1,2, L. A. Sphor2, A. L. G. Monteiro3, J. F. Tontini2, C. Bremm4, P. C. F. Carvalho5, and J. J. Villalba1,
1Utah State University, Logan, 2Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, 3Fundação Estadual de Pesquisa Agropecuária, Porto Alegre, Brazil

10:05 AM 1674
Relationship between infrared thermography measures and feed efficiency in New Zealand sheep.
S. P. Miller1, S. Dowling2, J. C. Munro3, Y. R. Montanholi3, J. R. Webster2, and P. L. Johnson3, 1AgResearch,
Mosgiel, New Zealand, 2AgResearch, Hamilton, New Zealand, 3Department of Plant and Animal Sciences, Faculty of Agriculture, Dalhousie University, Truro, NS, Canada

10:20 AM 1675
Ground redberry juniper and urea in supplements fed to Rambouillet ewe lambs on growth, blood serum, and fecal N.
T. R. Whitney1 and J. P. Muir2, 1Texas A&M AgriLife Research, San Angelo, 2Texas A&M AgriLife Research, Stephenville

10:35 AM 1676
The relationship between body condition score and body weight, body linear measurements and real-time ultrasound body composition measurements in Alpine does prior to breeding and kidding.
F. R. B. Ribeiro1, B. Barcelos1, L. C. Nuti1, W. B. Foxworth1, S. K. Lewis1, Y. Jung1, S. Horner1, B. L. Jackson1, and G. R. Newton1, 1Prairie View A&M University, TX, 2School of Animal Science and Food Engineering, University of Sao Paulo, Pirassununga, Brazil

10:50 AM
Break

11:05 AM 1677
Effects of selection for high and low juniper-consuming goats on rumen fermentation characteristics.
W. C. Stewart1, T. R. Whitney2, E. J. Scolljegerdes3, D. F. Waldron4, J. W. Walker4, and J. M. B. Musser1, 1Montana State University, Bozeman, 2Texas A&M AgriLife Research, San Angelo, 3New Mexico State University, Las Cruces, 4Texas A&M AgriLife, San Angelo, 5Texas A&M, College Station

11:20 AM 1678
Ground redberry juniper and urea in DDGS-based supplements do not adversely affect ewe lamb rumen microbial communities.
S. L. Ishaq1, C. J. Yeoman1, and T. R. Whitney2, 1Montana State University, Bozeman, 2Texas A&M AgriLife Research, San Angelo

11:35 AM 1679
Fatty acid profile, sensory traits, and aromatic compounds of chops from lambs fed ground woody plants as roughage in feedlot finishing diets.
K. R. Wall1, C. R. Kerth1, T. R. Whitney2, S. B. Smith1, J. L. Glasscock1, and J. T. Sawyer4, 1Texas A&M University, College Station, 2Texas A&M AgriLife Research, San Angelo, 3Texas A&M AgriLife, San Angelo, 4Tarleton State University, Department of Animal Science and Veterinary Technology, Stephenville, TX

11:50 AM 1680
Feeding behavior of grazing lambs in a silvopastoral system.
F. de Oliveira Scarpino van Cleef1,2, T. Silva do Nascimento1, L. Ariel Tosi1, D. J. A. Santos1, and A. C. Ruggieri1,2, 1Sao Paulo State University, Jaboticabal, Brazil, 2CNPq, Brasilia, Brazil

12:05 PM 1681
Intake, digestibility and performance of hair sheep lambs fed with ammoniated cotton gin trash treated with exogenous fibrolytic enzymes.
D. G. Quadros1, Bahia State University, Barreiras, Brazil
Teaching Undergraduate and Graduate Education Symposium: Animal Science Education in the Current Environment

Chair: Antonio Faciola, University of Nevada

Sponsor: Elanco Animal Health

9:30 AM - 12:30 PM

155 B

9:30 AM Welcoming Remarks

9:35 AM Introduction to learning theories and implications for classroom design.
M. Clement*, Berry College, Mount Berry, GA

10:05 AM Beyond veterinary school: Helping animal science students explore other career opportunities.
J. A. Sterle*, H. D. Tyler*, and J. Daniel*, Iowa State University, Ames, Department of Animal Science, Berry College, Mount Berry, GA

10:35 AM A different approach in pedagogical model: Flipped classrooms.
M. G. Maquivar* and A. Ahmadzadeh*, Department of Animal Sciences, Washington State University, Pullman, University of Idaho, Moscow

11:05 AM Teaching evaluations and other alternatives to assess good teaching and learning.
K. G. Odde*, Kansas State University, Manhattan

11:35 AM Discussion

ARPAS Symposium
Understanding Inflammation and Inflammatory Biomarkers to Improve Animal Performance

Chair: Jeffrey M. DeFrain, Progressive Dairy Solutions, Inc.

Sponsor: ARPAS & Cytozyme

9:30 AM - 12:35 PM

Grand Ballroom C

9:30 AM Welcoming Remarks

9:35 AM Overview of the inflammatory response and its nutritional costs.
K. C. Klasing*, University of California-Davis

10:20 AM Ruminal microbes, microbial products, and systemic inflammation. Sponsored by Cytozyme.
T. G. Nagaraja*, Kansas State University, Manhattan

11:05 AM Usefulness (or not) of inflammatory biomarkers - The good, the bad and ugly.
C. Chase*, South Dakota State University, Brookings

11:50 AM Nutritional and management considerations in beef cattle experiencing stress-induced inflammation.
R. F. Cooke*, Oregon State University-EOARC Burns

ADSA-SAD (Student Affiliate Division)
Undergraduate Student Oral Competition: Dairy Foods

Chair: Cathleen C. Williams, Lousiana State University

11:00 AM - 12:00 PM

251 E

11:00 AM Milk is milk, isn’t it?
J. M. Madigan* and S. P. Washburn, North Carolina State University, Raleigh

11:15 AM Health benefits of Lactobacillus helveticus in dairy foods.
C. Kenny*, Louisiana State University, Baton Rouge
A2 Milk marketing and human health. 
J. Nystrom* and D. R. Winston, Virginia Polytechnic Institute and State University, Blacksburg

Ultrasonic separation of milk to select for fat globule size distribution. 
S. P. Ile* and D. R. Olver, The Pennsylvania State University, University Park

ADSA Dairy Foods Graduate Student Oral Competition 
Chair: Randy Brandsma, Schreiber Foods 
2:00 PM - 4:30 PM  
251 F

Anti-obesity and anti-diabetic properties of lactoferrin are independent of calorie intake. 
R. C. Zapata*, A. Pezeshki*, A. Singh*, and P. K. Chelikani*, 1University of Calgary, AB, Canada, 2Oklahoma State University

Effect of milk protein intake and casein:whey ratio in breakfast meals on postprandial glucose, satiety ratings and subsequent meal intake. 
B. Kung*, S. Pare*, A. J. Tucker*, G. H. Anderson*, A. J. Wright*, and H. D. Goff*, 1University of Guelph, ON, Canada, 2University of Toronto, ON, Canada

Evaluation of modified stainless steel surfaces targeted to reduce biofilm formation by common dairy related sporeformers. 
S. Jindal*, S. Anand*, J. K. Amamcharla*, and L. Metzger*, 1South Dakota State University, Brookings, 2Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan

Gelation properties of micellar casein concentrate when recombined with cream. 
Y. Lu*, D. J. McMahon, and A. H. Vollmer, Western Dairy Center, Utah State University, Logan

ADSA Production Division Graduate Student Oral Competition: PhD 
Chair: Gerd Bobe, Oregon State University 
2:00 PM - 5:15 PM  
251 C

Effects of supplementing rumen-protected methionine on lactational performance of Holstein dairy cows during early and mid-lactation. 
M. A. Fagundes*, S. A. Blaser*, S. Y. Yang*, J. S. Eun*, and J. O. Moon*, 1School of Veterinary Medicine, Utah State University, Logan, 2Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, 3CJ Cheil Jedang Research Institute of Biotechnology, Sowon, The Republic of Korea

Effect of dextrose and purified starch at two levels of rumen degradable protein on lactation performance and enteric methane emission in dairy cows. 
F. Sun*, M. J. Aguerre, and M. A. Wattiaux, University of Wisconsin-Madison

Influence of mixed cropping of corn and soybean with different seeding rates on forage yield, quality and nutrient yield grown under organic condition. 
I. P. Acharya*, X. Gu*, and D. P. Casper*, 1Dairy Science Department, South Dakota State University, Brookings, 2Department of Plant Science, South Dakota State University, Brookings
Association between circulating progesterone during the luteal phase and estrous activity detected by automated activity monitoring in dairy cattle.

J. Denis-Robichaud, S. J. LeBlanc, A. Jones-Bitton, and R. L. A. Cerri, Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada; Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada

Effect of prepurpum physical activity on behavior and immune competence of dairy cows.

R. A. Black, G. M. Pighetti, and P. D. Krawczel, University of Tennessee, Knoxville

Associations between preventive hoof trimming, activity and resting behaviors.

G. Stoddard and G. Cramer, University of Minnesota Twin-Cities, Saint Paul; Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, St. Paul

Enhanced pre-weaning nutrition increases mammary gland development without negatively affecting tissue composition in Holstein heifer calves.

A. J. Getiger, R. M. Akers, and C. L. M. Parsons, Virginia Polytechnic Institute and State University, Blacksburg

Effects of fuels derived from starch digestion on feeding behavior of cows in the postpartum period.

L. B. Gualdon-Duarte and M. S. Allen, Michigan State University, East Lansing


C. Strieder-Barboza, W. Raphae, S. E. Schmidt, A. L. Lock, L. M. Sordillo, and G. A. Contreras, Department of Large Animal Clinical Sciences, Michigan State University, East Lansing; Michigan State University, East Lansing

The effect of trace mineral source and fiber source on total-tract nutrient digestion.

M. J. Faulkner, K. R. Perryman, and W. P. Weiss, Department of Animal Sciences, OARDC, The Ohio State University, Wooster; Micronutrients Inc., Indianapolis, IN

Economic value of cooling dry cows across the United States.

F. C. Ferreira, A. De Vries, G. E. Dahl, and R. Gennari, Embrapa Gado de Leite, Juiz de Fora, Brazil; Department of Animal Sciences, University of Florida, Gainesville

Palmitic acid feeding increases hepatic ceramide accumulation and modulates expression of genes responsible for ceramide synthesis in mid-lactation dairy cows.

J. E. Rico, A. T. Mathews, and J. W. McFadden, West Virginia University, Morgantown

Assessment of performance, oxidative stress status, and plasma AA profiles in peripartal dairy cows supplemented with rumen-protected methionine or choline and with different liver functionality indices.

Z. Zhou, M. Vailati Riboni, E. Trevisi, D. N. Luchini, and J. J. Loor, University of Illinois at Urbana-Champaign; University Cattolica del Sacro Cuore, Piacenza, Italy; Adissee S.A.S., Alpharetta, GA

ADSA-SAD (Student Affiliate Division)
Undergraduate Student Oral Competition: Dairy Production

Chair: Cathleen C. Williams, Lousianna State University

2:00 PM - 5:00 PM

Gene therapy and the prevention of mastitis in dairy cattle.

K. Boudreaux, Louisiana State University, Baton Rouge

The importance of mastitis management practices in maintaining milk quality in the United States.

K. Bochantin and J. M. Bewley, University of Kentucky, Lexington

The impact of amount and quality of colostrum and subsequent transition milk on calf health and growth.

J. Hardy, K. M. Daniels, and D. R. Winston, Virginia Polytechnic Institute and State University, Blacksburg

A future for genomics in animal health through the Bovine Respiratory Disease Complex: Coordinated Agricultural Project.

S. J. Thomsen and J. F. Bohlen, University of Georgia, Athens

Breeding for strength may create frail cows.

A. N. Gabel and C. D. Dechow, The Pennsylvania State University, University Park

The links between uterine infection and infertility.

N. Walker, University of Florida, Gainesville
### ADVANCES IN BOVINE RESPIRATORY DISEASE

**Chair:** H. L. Neibergs, Washington State University  
**Sponsor:** USDA-NIFA  
2:00 PM - 5:00 PM  
Grand Ballroom C

<table>
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<th>Time</th>
<th>Session</th>
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| 2:00 PM| Genetic approaches to selection for resistance to bovine respiratory disease.  
J. E. Womack*, Texas A&M University, College Station |
| 2:20 PM| Differential gene expression in cattle challenged with single pathogens of the bovine respiratory disease complex.  
L. J. Gershwin1, A. Vaneenennaam1, J. F. Taylor', J. Kim1, R. L. Toaff-Rosenstein1, H. L. Neibergs6, and J. E. Womack6,  
1University of California-Davis, 2University of Missouri, Columbia, 3Department of Animal Sciences, Washington State University, Pullman |
| 2:40 PM| Genome-wide association study of bovine respiratory disease complex in US feedlot cattle.  
C. M. Seabury1, H. L. Neibergs6, J. F. Taylor1, J. E. Womack1, and T. Bovine Respiratory Disease Complex, 1College of Veterinary Medicine, Texas A&M University, College Station, 2Department of Animal Sciences, Washington State University, Pullman, 3Texas A&M University, College Station |
| 3:00 PM| Identification of causal variants underlying pathogen susceptibility and translation to genetic improvement.  
J. F. Taylor1, H. L. Neibergs6, C. M. Seabury1, A. Vaneenennaam1, J. E. Decker1, J. L. Hoff1, P. C. Tzioto6, T. Bovine Respiratory Disease Complex, J. E. Womack1, and R. D. Schnabel1, 1University of Missouri, Columbia, 2Department of Animal Sciences, Washington State University, Pullman, 3College of Veterinary Medicine, Texas A&M University, College Station, 4University of California-Davis, 5Division of Animal Sciences, University of Missouri, Columbia, 6Texas A&M University, College Station |
| 3:20 PM| Break                                                                 |
| 3:35 PM| Gene set enrichment analysis of bovine respiratory disease complex SNP data in feedlot cattle.  
M. Neupane1, J. F. Taylor2, C. M. Seabury1, J. E. Womack1, T. Bovine Respiratory Disease Complex, and H. L. Neibergs6, 1Department of Animal Sciences, Washington State University, Pullman, 2University of Missouri, Columbia, 3Texas A&M University, College Station |
Calculation of genomic predicted transmitting abilities for bovine respiratory disease complex in Holsteins.
C. P. VanTassell, G. Spangler, D. M. Bickhart, G. R. Wiggins, J. B. Cole, J. F. Taylor, H. L. Neibergs, C. M. Seabury, A. L. Van Eenennaam, J. E. Womack, and T. Bovine Respiratory Disease Complex. 1Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, 2USDA-ARS, Beltsville, MD, 3University of Missouri, Columbia, 4Department of Animal Sciences, Washington State University, Pullman 5College of Veterinary Medicine, Texas A&M University, College Station, 6University of California-Davis 7Texas A&M University, College Station

The value of genetic selection in reducing economic losses from bovine respiratory disease complex in beef cattle feedlots.
J. S. Neibergs and H. L. Neibergs, Washington State University, Pullman

How might genomic information get translated into industry outcomes?
A. L. Van Eenennaam, University of California-Davis

**Beef Species I**

Chair: David L. Fernandez, University of Arkansas - Pine Bluff

2:00 PM - 5:00 PM
150 B/C

Effects of rumen-protected PUFA supplementation to late-gestating beef cows on performance and physiological responses of the offspring.

Effects of injectable trace mineral supplementation on yearling bull growth, carcass characteristics, testicular development and semen quality attributes.
C. P. Blank, P. J. Gunn, D. Schrunk, S. Ensley, D. Madson, and S. L. Hansen, Iowa State University, Ames

Effect of alpha tocopherol acetate and ascorbic acid on performance, carcass traits, and incidence and severity of liver abscesses in finishing cattle.
H. C. Muller, C. L. Van Bibber-Krueger, and J. S. Drouillard, Kansas State University, Manhattan

Feed intake and production efficiency of beef cows.

Effects of concurrent selection for residual feed intake and average daily gain on fertility and longevity in black Angus beef females.
P. J. Gunn and G. R. Dahlke, Iowa State University, Ames

Efficacy of a novel intranasal Zn solution on health and growth performance of high risk, newly received stocker cattle.
M. M. Foster, E. B. Kegley, J. G. Powell, J. L. Reynolds, J. A. Hornsby, D. L. Galloway, J. J. Ball, and J. Zhao, Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville

Performance and net energy in High and Low RFI beef cattle on restricted intake.
K. C. Dykier and R. D. Sainz, University of California-Davis

Effects of the EPNIX beef program on feedlot performance in diets containing no Monensin or Tylosin.
V. B. Holder, J. S. Jennings, and R. S. Swingle, Alltech Inc, Nicholasville, KY, Texas A&M AgriLife Research and Extension Center, Amarillo, Cactus Feeders, Amarillo, TX

Natural dry matter intake fluctuation impacts performance, feeding behavior and rumen morphometrics of feedlot cattle: 10 years of data assessment.
G. D. Cruz, I. C. Pereira, D. D. Millen, M. D. Arrigoni, C. L. Martins, and C. F. Costa, Cargill Animal Nutrition, Elk River, MN, São Paulo State University (UNESP), Botucatu campus, Botucatu, Brazil, São Paulo State University (UNESP), Dracena campus, Dracena, Brazil
Breeding and Genetics: Selection for Improved Efficiency
Chair: Filippo Miglior, Centre for Genetic Improvement of Livestock, University of Guelph
2:00 PM - 5:00 PM
Grand Ballroom I

2:00 PM 390
Economic selection index coefficients for terminal traits in Beefmaster cattle.
K. P. Ochsner*1, R. M. Lewis1, M. D. MacNeil2, and M. L. Spangler1, 1University of Nebraska-Lincoln, 2Delta G, Miles City, MT

2:15 PM 391
Genomic regions associated with residual feed intake of divergently selected lines of Yorkshire pigs when fed a low energy, high fiber diet.
E. D. Mauch1, N. V. Serão2, J. M. Young3, J. F. Patience4, N. K. Gabler4, and J. C. M. Dekkers1, 1Department of Animal Science, Iowa State University, Ames, 2North Carolina State University, Raleigh, 3North Dakota State University, Fargo

2:30 PM 392
Genetic architecture of feed efficiency in mid-lactation Holstein dairy cows.
L. C. Hardie*1, M. J. VanDeHaar2, R. J. Tempelman3, K. A. Weigel4, L. E. Armentano5, G. R. Wiggans4, R. F. Veerkamp6, Y. de Haas6, M. P. Coffey7, E. E. Connor7, M. D. Hanigan7, C. R. Staples8, Z. Wang9, and D. M. Spurlock1, 1Iowa State University, Ames, 2Michigan State University, East Lansing, 3University of Wisconsin-Madison, 4Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, 5Animal Breeding and Genomics Centre, Wageningen University, Netherlands, 6SRUC, Edinburgh, United Kingdom, 7Virginia Polytechnic Institute and State University, Blacksburg, 8Department of Animal Sciences, University of Florida, Gainesville, 9University of Alberta, Edmonton, AB, Canada

2:45 PM 393
Analysis of genetic residual feed intake in Danish Holstein cows by covariance functions using random regression models.
C. Pfeiffer*, B. Li, P. Lovendahl, and J. Lassen, Department of Molecular Biology and Genetics AU Foulum/Aarhus University, Tjele, Denmark

3:00 PM 394
Greenhouse gas emission related traits differ in RFI divergent lactating dairy cows.
D. Hallemand1, G. Manafizad2, J. Basarab3, F. Miglior4, G. Plastow5, and Z. Wang1, 1Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Lacombe Research Centre, Alberta Agriculture and Forestry, Lacombe, AB, Canada, 3Canadian Dairy Network, Guelph, ON, Canada, 4Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada

3:15 PM 395
Genetic relationship between methane emissions and conformation traits in Danish Holstein cattle.
L. Zetouni1, M. Kargo2, and J. Lassen1, 1Aarhus University, Tjele, Denmark, 2SEGES, Aarhus N, Denmark

3:30 PM
Break

3:45 PM 396
Genetic variation of predicted milk fatty acids groups in Canadian Holsteins.
S. G. Narayana1, F. S. Schenkel1, A. Fleming1, A. Koeck1, F. Malchiiodi1, J. Jamrozik2, M. Sargolzaei1, M. Corredig1, B. Mallard2, A. Ali2, and F. Miglior1, 1Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada, 3Semex Alliance, Guelph, ON, Canada, 4University of Guelph, ON, Canada, 5Gay Lea Foods, Guelph, ON, Canada, 6Dept of Pathobiology, OVC, University of Guelph, ON, Canada, 7Dept of Mathematics and Statistics, University of Guelph, ON, Canada

4:00 PM 397
Genetic correlations between predicted milk fatty acids and milk production traits in Canadian Holsteins.
A. Fleming1, F. S. Schenkel1, A. Koeck1, F. Malchiiodi1, A. Ali2, B. Mallard4, M. Corredig1, and F. Miglior1, 1Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, 2Dept of Mathematics and Statistics, University of Guelph, ON, Canada, 3Valacta, Sainte-Anne-de-Bellevue, QC, Canada, 4Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

4:15 PM 398
Genetic associations between milk β-hydroxybutyrate and fatty acids in early first lactation of Canadian Holsteins.
A. Koeck1, J. Jamrozik2, A. Fleming1, F. S. Schenkel1, R. K. Moore4, D. M. Lefebvre4, D. F. Kelton4, and F. Miglior1, 1Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, 2Center for Genetic Improvement of Livestock, University of Guelph, ON, Canada, 3Canadian Dairy Network, Guelph, ON, Canada, 4Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada
4:30 PM 399  Relevance of mid-infrared spectroscopy predictions of milk fine composition and technological properties for selective breeding.
V. Bonfatti¹, D. Vicario², L. Degano², and P. Carnier¹, ¹Department Comparative Biomedicine and Food Science, University of Padova, Legnaro, Italy, ²National Simmental Cattle Breeders Association, ANAPRI, Udine, Italy

4:45 PM 400  Markers associated with metabolome, and microbiome measures in a grain and sugar challenge in dairy heifers. H. M. Golder¹, J. Thomson³, S. Denman¹, C. McSweeney³, and I. J. Lean¹, ¹Scibus, Camden, Australia, ²Montana State University, Bozeman, ³CSIRO Animal, Food and Health Services, Queensland Bioscience Precinct, St. Lucia, Australia

Cell Biology Symposium: Membrane Trafficking and Signal Transduction
Chair: James L. Klotz, USDA-ARS, Forage - Animal Production Research Unit
Sponsors: ASAS and Pancosma
2:00 PM - 5:00 PM

155 C

2:00 PM 189  Introduction - What is the relevance of this topic?
J. L. Klotz*, USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY

2:15 PM 190  SNAREs in exocytosis and membrane trafficking.
S. W. Whiteheart*, University of Kentucky, Lexington

3:00 PM 191  Signaling endosomes and epithelial morphogenesis.
C. D'Souza-Schorey*, University of Notre Dame, Notre Dame, IN

3:45 PM 192  Structural and signaling functions of sphingomyelinases during inflammation.
M. N. Nikolova-Karakashian*, University of Kentucky, Lexington

4:30 PM 193  Practical application of the basic aspects of membrane trafficking and receptor-mediated signaling on issues related to animal agriculture.
S. B. Smith*, Texas A&M University, College Station

Contemporary and Emerging Issues Symposium: Communicating Animal Sciences Effectively
Chair: Deb Hamernik, University of Nebraska-Lincoln; Kristen Johnson, Washington State University
Sponsor: Elanco Animal Health
2:00 PM - 5:15 PM

Grand Ballroom J

2:00 PM 452  Public perceptions of animal-sourced genetically modified food products.
W. K. Hallman*, C. L. Cuite, and X. K. Morin, Rutgers University, New Brunswick, NJ

2:30 PM 453  What is the science of science communication for, and why should animal scientists care?
D. Kahan*, Yale Law College, New Haven, CT

3:00 PM  Panel Discussion

3:30 PM 454  Cracking the code: Making complex information understandable.
A. Perry*, The Center for Food Integrity, Gladstone, MO

4:00 PM 455  Communicating animal science effectively.
D. R. Williams*, National Cattlemen's Beef Association, Centennial, CO

4:30 PM  Panel Discussion
CSAS Graduate Student Oral Competition II

Chair: Eveline Ibeagha-Awemu, Agriculture and Agri-Food Canada; Kees Plaizer, University of Manitoba

2:00 PM - 5:00 PM

251 B

2:00 PM 467 Nutritional evaluation of barley varieties grown for silage.

J. Nair1, D. A. Christensen2, P. Yu1, A. D. Beattie1, T. A. McAllister4, D. Damiran1, N. Preston1/4, L. Fuhr2, and J. J. McKinnon1, 1Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada, 3Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 4Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

2:15 PM 468 The repeatability of gonadotropin releasing hormone-induced release of luteinizing hormone and its association with fertility in dairy cattle.

M. Gobikrushanth1, P. A. Dutra1, C. A. Felton2, T. C. Bruinjé1, M. G. Colazo2, S. Butler1, and D. J. Ambrose1/2, 1Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada.

2:30 PM 469 Use of low-cost, non-nutritive adsorbents as intestinal binding agents to sequester the boar taint compound androstenone.

P. Park1, J. B. Mandell, C. F. M. de Lange, and J. Squires, Department of Animal Biosciences, University of Guelph, ON, Canada

2:45 PM 470 The effect of sorting wheat or barley, based on the predicted CP of individual seeds, on physical characteristics and in vitro dry matter digestibility.

K. Sahtout1, D. Beaulieu1, G. B. Penner2, and T. A. McAllister3, 1Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada, 3Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

3:00 PM 471 The effect of binding feed enzymes to spores of bacillus Subtlis and bacillus Coagulans on in Vitro NDF digestibility in ruminal batch cultures.

C. L. Rosser1/2, L. Jin1, K. A. Beauchemin1, M. Oba2, S. M. Cutting3, and T. W. Alexander1, 1Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 3School of Biological Sciences, Royal Holloway University of London, Egham, United Kingdom.

3:15 PM 472 Characterization of bovine nasopharyngeal lactic acid bacteria and their in vitro antimicrobial activities against the respiratory pathogen Mannheimia haemolytica.

S. Amat1/2, E. Timsit1, D. B. Holman2, and T. W. Alexander2, 1Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

3:30 PM 473 Severity and prevalence of ruminal acidosis during the diet transition for commercial feedlot cattle.

B. I. Wiese1, S. Hendrick3, J. J. McKinnon1, J. Campbell1, and G. B. Penner4, 1Department of Large Animal Clinical Sciences, University of Saskatchewan, Saskatoon, SK, Canada, 2Coaldale Veterinary Clinic, Coaldale, AB, Canada, 3Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 4University of Saskatchewan, Saskatoon, SK, Canada.

3:45 PM 474 Comparison of digestion and particle-associated bacteria after in situ incubation of different barley varieties in the rumen of cattle.

H. E. Yang1/2, C. A. Zotti2, J. J. McKinnon1, and T. A. McAllister3, 1Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

4:00 PM 475 Carbohydrate spectroscopic features of bio-oil co-products in relation to rumen degradation kinetics in ruminants.

X. Li1, W. Xu1, J. Yang1, Y. Zhang1, and P. Yu2, 1College of Animal Science and Technology, Northeast Agricultural University, Harbin, China, 2Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada.

4:15 PM 476 Low protein diets produce divergent effects on energy balance.

R. C. Zapata1, A. Pezeshki2, A. Singh1, N. J. Yee1, and P. K. Chelikani1, 1University of Calgary, AB, Canada, 2Oklahoma State University, Stillwater.
Dairy Foods Division: Innovations in Dairy Chemistry

Chair: Annie Bienvenue, US Dairy Export Council

2:00 PM - 5:00 PM

151 B/C

2:00 PM 558 Composition and antioxidant activity of full-fat cheese fortified with (+)-catechin, and recovery of (+)-catechin after simulated in vitro digestion.
A. Rashidinejad1, J. Birch2, and D. W. Everett3, 1Riddet Institute, Palmerston North, New Zealand, 2University of Otago, Dunedin, New Zealand, 3California Polytechnic State University, San Luis Obispo

2:15 PM 559 Prediction of fat globule particle size in homogenized milk using mid-FTIR.
D. M. Barbano1, L. di Marzo2, and P. Cree3, 1Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY, 2Delta Instruments, Drachten, Netherlands

2:30 PM 560 Impact of mid-FTIR homogenizer performance on repeatability and predicted values for major milk components.
D. M. Barbano and L. di Marzo2, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY

2:45 PM 561 Lipolysis effect on milk fat and protein analysis by infrared spectroscopy using filter and Fourier Transform Infrared (FTIR) methods.
R. M. Longo1, L. F. Ferreira1, F. D. A. C. Feijo1, R. S. Conrado2, M. E. R. Costa1, M. M. O. P. Cerqueira1,2, M. O. Leite1,2, and L. M. Fonseca1,2, 1Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil, 2Laboratory of Milk Quality/UFMG/FUNDEP, Belo Horizonte, Brazil, 3CNPq-Produtividade em Pesquisa, Brasilia, Brazil

3:00 PM 562 Complimentary calcium fractionation techniques to increase coproduct solids value and utilization.
R. Singh1, M. Molitor2, and J. A. Lucey1,2, 1University of Wisconsin-Madison, 2Wisconsin Center for Dairy Research, Madison, WI

3:15 PM 563 Impact of controlling the lactose to casein ratio of concentrated milks on the properties of cheddar cheese.
R. A. Ibáñez1, S. Govindasamy Lucey2, J. J. Jaeggi2, M. E. Johnson2, and J. A. Lucey2, 1University of Wisconsin-Madison, 2Wisconsin Center for Dairy Research, Madison, WI

3:30 PM Break

3:45 PM 564 Enhanced dairy membrane operations through control of deposit formation on membrane surfaces.
U. Kulozik*, Technical University of Munich, Freising-Weihenstephan, Germany

4:00 PM 565 Constant permeate flux microfiltration of liquid whey protein concentrate for the separation of whey proteins from fat.
S. L. Beckman1 and L. Metzger2, 1Midwest Dairy Foods Research Center, South Dakota State University, Brookings, 2South Dakota State University, Brookings

4:15 PM 566 Critical factors for evaluation of cheese yield performance and fat loss in large cheese factories.
D. M. Barbano and B. Margolies*, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY

4:30 PM 567 Kinetics studies of chemical reactions in conjugated linoleic acid (CLA) enriched milk treated with high-pressure sterilization.
S. I. Martinez-Monteagudo*, South Dakota State University, Brookings

4:45 PM 568 Impact of shear, heat and pH on the conformation, digestibility and antigenicity of lactoglobulin.
M. T. Rahaman, L. Ramchandran, and T. Vasiljevic*, Victoria University, Melbourne, Australia
Forages and Pastures Symposium:  
Greenhouse Gas Emissions in Pasture-Based Dairy and Beef Cattle Systems  
Chair: Kathy J. Soder, USDA-ARS  
2:00 PM - 5:00 PM  
Grand Ballroom H

2:00 PM  
 Welcoming Remarks

2:05 PM 686  
Comprehensive national assessment on the sustainability of beef production.  
C. A. Rotz*1 and K. R. Stackhouse2, 1USDA-ARS Pasture Systems and Watershed Management Research Unit, University Park, PA, 2National Cattlemen’s Beef Association, Centennial, CO

2:40 PM 687  
Screening for forages and foraging managements that reduce N excretion and CH\textsubscript{4} emissions while maintaining or increasing animal production.  
P. Gregorini*, P. C. Beukes, and A. J. Romera, Dairy NZ Ltd., Hamilton, New Zealand

3:15 PM 688  
Outcomes and future directions from the National Livestock Methane Program in Australia.  
T. M. Davison*, Meat and Livestock Australia, Brisbane, Australia

3:50 PM 689  
Greenhouse gas emissions and mitigation in the West African sub-region: Challenges and opportunities.  
C. Antwi*, Kwame Nkrumah University of Science & Technology, Kumasi, Ghana

4:25 PM 690  
Effects of native and tame grassland species reintroduction on carbon sequestration potential on the Canadian Prairies.  
A. D. Iwaasa*, B. McConkey, and H. Wang, Agriculture and Agri-Food Canada, Swift Current, SK, Canada

Nonruminant Nutrition Symposium: VFD  
Chair: Z. J. Rambo, Zinpro Corporation  
Sponsor: Zoetis  
2:00 PM - 5:00 PM  
Grand Ballroom F

2:00 PM  
Microbial colonisation, metabolism and immunity in the young piglet.  
M. Bailey, University of Bristol, School of Clinical Veterinary Science, Langford House, Langford, Bristol, UK

2:45 PM  
Intraluminal targeting of intestinal interleukin-10. A new strategy for controlling helminthic and protozoan diseases.  
M. Cook, Animal Sciences Department, University of Wisconsin-Madison

3:30 PM  
Early life adversity and lifetime gut function.  
Yihang Li, North Carolina State University

4:15 PM  
Post-weaning feed and water deprivation has long- and short-term implications on nursery pig growth performance and gastrointestinal dynamics and influences subsequent stress response.  
N. Horn, Purdue University
**Physiology and Endocrinology: Reproduction, Environment and Genetics**

Chair: Clay A. Lents, USDA-ARS, US Meat Animal Research Center

2:00 PM - 4:00 PM

**2:00 PM  1119**

Hepatic gluconeogenic enzymes are differentially altered by methyl-donors choline and methionine in bovine primary hepatocytes.

T. L. Chandler\(^1\), S. J. Bertics\(^1\), B. A. Barton\(^2\), and H. M. White\(^1\), \(^1\)Department of Dairy Science University of Wisconsin-Madison, \(^2\)Balchem Corporation, New Hampton, NY

**2:15 PM  1120**

Expression of the putative gonadotropin-inhibitory hormone receptor, NPFFR1, in the anterior pituitary gland of the gilt is affected by age and sexual maturation.


**2:30 PM  1121**

Role of focal adhesion molecules in maternal recognition of pregnancy in the mare.

K. Klothoa, L. Nault, A. Hess, G. J. Bouma, and J. E. Bruemmer\(^2\), Colorado State University, Fort Collins

**2:45 PM  1122**

Modification of embryonic resistance to heat shock in cattle by melatonin and genetic variation in HSPA1L.

M. S. Ortega\(^1\), N. A. D. S. Rocha Frigoni\(^2\), G. Z. Mingotti\(^2\), Z. Roth\(^1\), and P. J. Hansen\(^1\), \(^1\)Department of Animal Sciences, University of Florida, Gainesville, \(^2\)University of Sao Paulo State (UNESP), Araçatuba, Brazil, \(^3\)The Hebrew University, Rehovot, Israel

**3:00 PM  1123**

Transgenerational paternal influence on temperament and growth performance of crossbred beef calves.

R. C. Vann\(^1\), B. P. Littlejohn\(^2\), C. R. Long\(^1\), T. H. Welsh, Jr\(^1\), and R. D. Randel\(^1\), \(^1\)MAFES - Brown Loam Experiment Station, Mississippi State University, Raymond, \(^2\)Texas A&M AgriLife Research and Department of Animal Science, College Station, \(^3\)Texas A&M AgriLife Research, Texas A&M University System, Overton, \(^4\)USDA-ARS, Livestock Issues Research Unit, Lubbock, \(^5\)MAFES - Brown Loam Experiment Station, Mississippi State University, Raymond

**3:15 PM  1124**

DNA methylation is a possible basis of phenotypic alterations observed in suckling Brahman calves.

B. P. Littlejohn\(^1\), D. M. Price\(^1\), D. A. Neuendorff\(^2\), C. R. Long\(^2\), J. A. Carroll\(^3\), R. C. Vann\(^1\), T. H. Welsh, Jr\(^1\), and R. D. Randel\(^1\), \(^1\)Texas A&M AgriLife Research and Department of Animal Science, College Station, \(^2\)Texas A&M AgriLife Research, Texas A&M University System, Overton, \(^3\)USDA-ARS, Livestock Issues Research Unit, Lubbock, \(^4\)MAFES - Brown Loam Experiment Station, Mississippi State University, Raymond

**3:30 PM  1125**

Photoperiod manipulations during the dry period significantly impact mammary circadian clock in goats.

S. J. Mahjeesh\(^1\), A. Shamay\(^2\), K. Plaut\(^3\), C. Sebastian\(^4\), and T. M. Casey\(^5\), \(^1\)Department of Animal Sciences, The Robert H. Smith Faculty of Agriculture, Food and Environment, The Hebrew University, Rehovot, Israel, \(^2\)Institute of Animal Science, The Volcani Center, Rehovot, \(^3\)Department of Animal Science, Purdue University, West Lafayette, IN

**3:45 PM  1126**

Management and genetic components of fertility indicators in dairy cattle.

T. M. Goncalves\(^1\), D. Gonzalez-Pena\(^2\), H. Jeong\(^3\), P. J. Pinedo\(^4\), J. E. P. Santos\(^4\), G. M. Schuenemann\(^5\), G. J. M. Rosa\(^6\), R. O. Gilbert\(^7\), R. C. Bicalho\(^8\), R. Chebel\(^4\), K. N. Galvão\(^8\), C. M. Seabury\(^9\), W. W. Thatcher\(^10\), and S. L. Rodriguez Zas\(^1\), \(^1\)University of Illinois at Urbana-Champaign, \(^2\)Zoetis, Kalamazoo, MI, \(^3\)Colorado State University, Fort Collins, \(^4\)University of Florida, Gainesville, \(^5\)Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, \(^6\)University of Wisconsin - Madison, \(^7\)Cornell University College of Veterinary Medicine, Department of Clinical Sciences, Ithaca, NY, \(^8\)Cornell University, Ithaca, NY, \(^9\)Department of Large Animal Clinical Sciences; University of Florida, Gainesville, \(^10\)Texas A&M University, College Station, \(^11\)Department of Animal Sciences, University of Florida, Gainesville
Production, Management and the Environment: Stress

Chair: Felipe Cardoso, University of Illinois at Urbana-Champaign

2:00 PM - 5:00 PM

2:00 PM  1277  Milk metabolomics of dairy goats with mammary inflammation under heat stress conditions.
S. Love1, A. Salama1,2, N. Mehba1, and G. Caja1, 1Group of Ruminant Research, Universitat Autonoma de Barcelona, Bellaterra, Spain, 2Animal Production Research Institute, Dokki, Giza, Egypt

2:15 PM  1278  Winter climate variables and their effect on feed intake in Bos taurus bulls.
R. C. Pauling*, S. E. Speidel, M. G. Thomas, M. M. Culbertson, R. K. Peel, and R. M. Enns, Department of Animal Sciences, Colorado State University, Fort Collins

2:30 PM  1279  Maternal heat stress reduces body and organ growth in calves: Relationship to immune tissue development.
B. M. S. Ahmed1, U. Younas1, T. O. Asar1, A. P. A. Monteiro2, J. Hayen1, S. Tao2, and G. E. Dahl3, 1University of Florida, Gainesville, 2University of Georgia, Tifton, 3Department of Animal Sciences, University of Florida, Gainesville

2:45 PM  1280  Liver proteomic analysis of cows exposed to heat stress or cooling conditions during the dry period.
A. L. Skibiel*, M. Zachar2, Y. Levin1, B. C. do Amaral2, and G. E. Dahl3, 1Department of Animal Sciences, University of Florida, Gainesville, 2Institute of Animal Science, Volcani Center, Bet Dagan, Israel, 3The Nancy and Stephen Grand Israel National Center for Personalized Medicine, Weizmann Institute of Science, Rehovot, Israel, 4PMI Nutritional Additives, Shoreview, MN

3:00 PM  1281  A rumen bolus is a useful tool to monitor core body temperature in lactating dairy cows in a sub-tropical summer.
P. A. Gonzalez-Rivas*, M. Sullivan2, J. J. Cottrell1, B. J. Leury1, J. B. Gaughan2, and F. R. Dunshea1, 1Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, Australia, 2The University of Queensland, Gatton, Australia

3:15 PM  1282  Activity and rumination in an organic vs. a conventional grazing herd.
G. M. Pereira1,2, B. J. Heins2, and M. J. Endres1, 1University of Minnesota, St Paul, 2University of Minnesota West Central Research and Outreach Center, Morris

3:30 PM  1283  Understanding behavior patterns of cattle adaptation to heat stress.
G. Nogueira1, P. Ajmone-Marsan2, M. Milanesi2, L. Zavarezi, T. Sayuri Aguiar2, D. Sandre1, M. A. Maioli4, G. Ferreira1, G. Bispo1, S. Stabile1, S. Stabile1, R. Caputo1, C. Toyama2, J. F. Garcia2, and J. C. P. Lima1, 1UNESP- FMVA, Aracatuba, Brazil, 2Università Cattolica del Sacro Cuore, Piacenza, Italy, 3UNESP, Jaboticabal, Brazil, 4UNESP, Aracatuba, Brazil, 5UNESP- FMVA, Aracatuba-SP, Brazil, 6UNESP Univ Estadual Paulista, Araçatuba, Brazil

3:45 PM  1284  Plasma insulin and glucose concentrations of feedlot cattle during summer.
A. M. Lees1, S. T. Anderson2, V. Sejian3, and J. B. Gaughan1, 1The University of Queensland, Gatton, Australia, 2School of Biomedical Sciences, The University of Queensland, Gatton, Australia, 3ICAR-National Institute of Animal Nutrition and Physiology, Bangalore, India

4:00 PM  1285  Impact of heat stress on immune status of sheep.

4:15 PM  1286  Stocking rates and parasite load in yearling steers grazed season long in the Northern Great Plains.
F. A. Brummer1, G. L. Stokka2, B. Patton1, and C. Miller2, 1North Dakota State University, Central Grasslands Research Extension Center, Streeter, 2North Dakota State University, Fargo
Ruminant Nutrition:
Fats, Fatty Acids and Energy
Chair: Sara E. Place, Oklahoma State University
2:00 PM - 5:00 PM
155 F

2:00 PM 1306
Feeding steers extruded flaxseed and hay in a total mixed ration or sequentially can have substantial effects on beef fat polyunsaturated fatty acids and biohydrogenation intermediates.
P. Vahmani*, D. C. Rolland1, T. A. McAllister2, H. C. Block1, S. D. Proctor1, L. L. Guan1, N. Prieto1, J. L. Aalhus1, and M. E. R. Dugan1, 1Agriculture and Agri-Food Canada, Lacombe, AB, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3University of Alberta, Edmonton, AB, Canada

2:15 PM 1307
Fatty acid composition of intramuscular lipids from Nellore and Brangus bulls fed diets supplemented with cottonseed.
S. R. Medeiros*, G. D. Feijó1, M. Mele2, P. E. P. Barros3, C. T. Marino1, F. Ciucci2, M. N. Bonin4, and N. V. Verbisck1, 1Embrapa Beef Cattle, Campo Grande-MS, Brazil, 2University of Pisa, Pisa, Italy, 3Università Federal dos Vales do Jequitinhonha e Mucuri, Diamantina-MG, Brazil, 4Federal University of Mato Grosso do Sul, Campo Grande-MS, Brazil

2:30 PM 1308
Effects of dietary fat on fertility of dairy cattle: A meta analysis and meta-regression.
R. M. Rodney*1,2, P. Celi3, W. Scott2, I. J. Lean1,2, and K. Breinhild2, 1University of Sydney, Camden, Australia, 2Scibus, Camden, Australia, 3Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Parkville, Australia

2:45 PM 1309
Altering the ratio of palmitic, stearic and oleic acids in diets with or without whole cottonseed impacts production responses and energy partitioning of dairy cows.
J. de Souza*, C. L. Preseault, and A. L. Lock, Michigan State University, East Lansing

3:00 PM 1310
Effect of high-oleic acid whole, heated soybeans or extruded soybean meal on production performance, milk fatty acid composition, and enteric methane emission in dairy cows.
J. C. Lopes1, M. T. Harper1, F. Giallongo1, J. Oh1, L. G. Smith1, A. M. Ortega-Perez1, S. Dixon1, D. M. Kniffen1, R. A. Fabin2, and A. N. Hristov*, 1The Pennsylvania State University, University Park, 2Fabin Bros. Farms, Indiana, PA

3:15 PM 1311
Biohydrogenation kinetics of oleic, linoleic and alpha-linolenic acids in vivo.
M. Baldin*, J. G. de Souza1,2, N. L. Urrutia1, J. Y. Ying3, and K. J. Harvatine1, 1The Pennsylvania State University, State College, 2Federal University of Bahia, Salvador, Brazil

3:30 PM 1312
Production response, nutrient digestibility, and energy partitioning of post-peak dairy cows when palmitic acid-enriched supplements are included in diets: A meta-analysis and meta-regression.
J. de Souza*, R. J. Tempelman, M. S. Allen, and A. L. Lock, Michigan State University, East Lansing

3:45 PM 1313
Effect of potassium carbonate and soybean oil supplementation on rumen microbial population linked to lipid metabolism.
A. R. Alfonso-Avila*, J. Chiquette*, P. Y. Chouinard1, E. Charbonneau1, and R. Gervais1, 1Département des sciences animales, Université Laval, Quebec, QC, Canada, 2Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada

4:00 PM 1314
Abomasal infusions of linoleic and linolenic acid in lactating dairy cows differentially alter the fatty acid composition of plasma lipid fractions and immune cells.
S. E. Schmidt*, V. E. Ryman, C. L. Preseault, L. M. Sordillo, and A. L. Lock, Michigan State University, East Lansing

4:15 PM 1315
Effect of increasing doses of abomasally infused linseed oil on animal performance and oxidative stability of milk in Holstein dairy cows.
D. E. Rico*, R. Gervais, S. M. Peña-Cotino, C. Cohou, Y. Lebeuf, and P. Y. Chouinard, Département des sciences animales, Université Laval, Québec, QC, Canada

4:30 PM 1316
Palmitic acid feeding increases ceramide availability in association with increased milk yield, NEFA availability, and adipose tissue responsiveness to a glucose challenge.
J. E. Rico, A. T. Mathews, and J. W. McFadden*, West Virginia University, Morgantown

4:45 PM 1317
Effect of supplemental enriched palmitic acid in free fatty acid form vs calcium salts of palm fatty acids on production performance in early postpartum cows.
J. E. Nocek*, C. Wan*, and T. M. Londergan*, 1Overture Enterprises, LLC, Auburn, NY, 2Centriq, Seattle, WA
**Ruminant Nutrition: Feeds and Feeding**

Chair: Antonio Faciola, University of Nevada

Sponsor: H. J. Baker

2:00 PM - 5:00 PM

155 E

2:00 PM 1404

Effects of replacing soybean meal with canola meal or treated canola meal on ruminal digestion, and omasal nutrient flow in lactating dairy cows.

_E. Marostegan de Paula1*, M. A Camargo Danes2, N. E Lobos3, F. L. Drago4, G. J. Zanton5, G. A. Broderick6, and A. Faciola1, 1University of Nevada, Reno, 2Federal University of Lavras, Lavras, Brazil, 3Kemin Industries, Des Moines, IA, 4University of Sao Paulo, Piracicaba, Brazil, 5USDA-ARS, US Dairy Forage Research Center, Madison, WI, 6Broderick Nutrition & Research, LLC, Madison, WI

2:15 PM 1405

Growth performance of dairy heifers limit-fed distillers dried grains with ad libitum forage.

_A. K. Manthey* and J. L. Anderson, Dairy Science Department, South Dakota State University, Brookings

2:30 PM 1406

Effects of roughage inclusion and particle size on performance and rumination behavior of finishing beef steers.

_W. W. Gentry1*, C. P. Weiss1, C. M. Meredit1, C. L. Brauer1, F. T. McCollum1, N. A. Cole2, and J. S. Jennings1, 1Texas A&M AgriLife Research and Extension Center, Amarillo, 2USDA-ARS Conservation and Production Research Laboratory, Bushland, TX

2:45 PM 1407

Automation of statistical procedures to screen raw data and construct feed composition databases.

_H. Tran1,2*, A. Caprez1, P. J. Kononoff1, P. S. Miller1, and W. P. Weiss1, 1University of Nebraska-Lincoln, 2National Animal Nutrition Program, University of Kentucky, Lexington, 3Department of Animal Sciences, OARDC, The Ohio State University, Wooster

3:00 PM 1408

Effect of pelleting at different temperatures and times on nutrient supply of co-products form canola oil processing.

_X. Huang1, V. Guevara1, B. Refat2, and P. Yu2, 1Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, 2Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada

3:15 PM

3:30 PM 1409

Okara meal can completely replace soybean meal in diets of early to mid-lactation dairy cows.

_R. A. V. Santana1, A. F. Brito2, D. C. Moura1, C. P. Ghedini2, J. G. B. Galvão Jr.3, F. A. Barbosa4, A. S. Oliveira5, A. B. D. Pereira2, S. F. Reis2, J. A. Souza2, and K. A. Junwart2, 1Instituto Federal de Educação, Ciência e Tecnologia do Norte de Minas Gerais – Campus Arinos, Arinos, Brazil, 2University of New Hampshire, Durham, 3Universidade Federal de Mato Grosso, Cuiabá, Brazil, 4Instituto Federal de Educaacao, Ciencia e Tecnologia do Rio Grande do Norte, Ipangua U, Brazil, 5Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 6Instituto de Ciências Agrárias e Ambientais, Universidade Federal de Mato Grosso – Campus Sinop, Sinop, Brazil, 7Universidade Estadual do Sudoeste da Bahia, Itapetinga, Brazil

3:45 PM 1410

Effect of flax meal supplementation on oxidative stress and metabolic status of early lactation dairy cows infused with flax oil in the abomasum.

_J. Lapointe*, C. Roy, D. Beaumry, N. Bergeron, I. Blanchet, H. Petit, and M. F. Palin, Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada

4:00 PM 1411

The effect of by-product inclusion and concentrate feeding level on milk production and composition, pasture dry matter intake, body weight and body condition score of mid-late lactation spring calving grazing dairy cows.

_S. A. Condren1, S. J. Whelan2, T. M. Boland3, G. Rajauria1, S. Kirwan1, M. B. Lynch1, and K. M. Pierce1, 1School of Agriculture and Food Science, University College Dublin, Ireland, 2AHDB Dairy, Agriculture & Horticulture Development Board, Stoneleigh Park, Kenilworth, Warwickshire, United Kingdom

4:15 PM 1412

Evaluating the feeding value of field peas for growing and finishing cattle.

_H. L. Greenwell1*, K. H. Jenkins2, and J. C. MacDonald1, 1University of Nebraska-Lincoln, 2University of Nebraska, Scottsbluff

4:30 PM 1413

Cotton burrs as alternative roughage to adapt beef steers to steam-flaked corn-based finisher diet.

_L. A. Ovinge1, J. O. Sartori1, P. R. B. Campanelli1, B. J. M. Lemos2, B. C. Bernhard1, and D. Pettit1, 1Texas Tech University, Lubbock, 2Universidade Federal de Goiáis, Goiânia, Brazil

4:45 PM 1414

Temporal effects of ruminal propionate infusion on feeding behavior of Holstein cows in the postpartum period.

_G. Maldini1*, M. Allen, K. Kennedy, Michigan State University, East Lansing
Small Ruminant Symposium:  
Enhancing Small Ruminant Profitability  
Chair: Steven P. Hart, American Institute for Goat Research, Langston University  
2:00 PM - 5:00 PM  
150 E/F

**Introductory Remarks**

2:00 PM

**Profitability of small ruminant production systems.**  
G. W. Williams and D. P. Anderson, Texas A&M University, College Station

2:05 PM

**Contribution of hair sheep to small ruminant profitability.**  
J. Morgan, Round Mountain Consulting Service, Fayetteville, AR

2:55 PM

**Contribution of newer goat breeds to small ruminant profitability.**  
R. Browning, Jr. and M. L. Leite-Browning, 1Tennessee State University, Nashville, 2Alabama A&M University, Huntsville

3:25 PM

**Contribution of forage production systems to small ruminant profitability.**  
R. Ehrhardt, Michigan State University, East Lansing

Strategies for Managing Heifers in the Southeast  
Chair: Mary E. Sowerby, University of Florida  
2:00 PM - 5:00 PM  
155 D

**Influences of feeding and housing practices on the behavior and performance of dairy calves.**  
E. K. Miller-Cushon and T. J. DeVries, 1Department of Animal Sciences, University of Florida, Gainesville, 2Department of Animal Biosciences, University of Guelph, ON, Canada

2:30 PM

**Developing replacement heifers that get pregnant and maintain pregnancy.**  
K. G. Pohler, M. H. Pereira, S. Reese, and J. L. M. Vasconcelos, 1The University of Tennessee, Knoxville, 2UNESP - FMVZ, Botucatu, Brazil, 3Sao Paulo State University, Botucatu, Brazil

3:00 PM

**Benefits of fly control in dairy heifers.**  
S. C. Nickerson, University of Georgia, Athens

3:30 PM

**Economic trade-offs between replacement rates and improved genetics.**  
A. De Vries, Department of Animal Sciences, University of Florida, Gainesville

4:00 PM

**Panel discussion: Where should Southeastern calf/heifer nutrition research go from here?**

Teaching Undergraduate and Graduate Education  
Chair: Amin Ahmadzadeh, University of Idaho  
2:00 PM - 5:00 PM  
155 B

**Increase in demand for hands on instruction in animal science curriculum.**  
R. Woiwode, Colorado State University, Fort Collins

2:15 PM

**Adding a student-generated summary of main points to a lecture as a learning tool in an advanced nutrition course.**  
S. L. Hansen, Iowa State University, Ames

2:30 PM

**Teaching animal welfare via competitive judging contests.**  
C. B. Shivley, F. B. Garry, and T. Grandin, 1Colorado State University, Fort Collins, 2Colorado State University, College of Veterinary Medicine and Biomedical Sciences, Fort Collins
2:45 PM 1750 Integrated program for reducing bovine respiratory disease domplex (BRDC) in cattle, coordinated agricultural project (CAP): translation of multi-omics research results into teaching programs.
M. G. Thomas¹, R. M. Enns¹, R. Hagevoort², J. S. Neibergs³, A. L. Van Eenennaam⁴, H. L. Neibergs⁴, and J. E. Womack⁵, ¹Department of Animal Sciences, Colorado State University, Fort Collins, ²New Mexico State University, Dairy Extension, Clovis, ³Washington State University, Pullman, ⁴University of California-Davis, ⁵Texas A&M University, College Station

3:00 PM 1751 A novel approach to adviser training for relational skills.
A. L. Robinson and H. D. Tyler, Iowa State University, Ames

3:15 PM 1752 The effect of a real-world learning project on students’ knowledge retention: A comparative study.
L. M. White, New Mexico State University, Las Cruces

3:30 PM Break

3:45 PM 1753 Utilization of concept mapping as a tool to qualitatively assess knowledge of college seniors in a companion animal management course.
C. L. Morris, Iowa State University, Ames

4:00 PM 1754 Spanish for animal health and care: Towards a certificate program in field-specific Spanish.
S. Zeller¹, M. Velazquez-Castillo², and I. N. Roman-Muniz³, ¹INTO Colorado State University, Colorado State University, Fort Collins, ²Department of Foreign Languages and Literatures, Colorado State University, Fort Collins, ³Department of Animal Sciences, Colorado State University, Fort Collins

4:15 PM 1755 Characterization of students’ educational background and subsequent use of relevant teaching methods enhances student engagement and success in introductory animal science course.
J. Adcock¹, Q. S. Baptiste¹, and M. Knights¹, ¹Berea College, Berea, KY, ²West Virginia University, Morgantown

4:30 PM 1756 Impact of a global food security assignment on agricultural sciences students’ education and career interests.
K. Matthews and O. Bolden-Tiller, Tuskegee University, AL
# Poster Presentations
**Sponsor: SoyPlus/Soy Chlor**

## Poster Session I

7:15 AM - 8:15 AM  
Exhibit Hall A/B

### ASAS Undergraduate Student Poster Competition

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<td>198</td>
<td>Antimicrobial activity of tropical spice extracts against <em>Escherichia coli</em> O157:H7.</td>
<td>E. Olasoji(^1), I. M. Ogunade(^2), D. Kim(^3) and A. T. Adesogan(^4), (^1)Department of Food Science, University of Florida, Gainesville, (^2)Department of Animal Sciences, UF/IFAS, Gainesville, FL</td>
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<td>199</td>
<td>Effect of low and high-fat dry distillers grains supplementation on forage intake and digestibility in beef heifers.</td>
<td>E. L. Stephenson(^1), A. L. Jones(^2), J. S. Luther(^1) and A. E. Radunz(^3), (^1)University of Wisconsin-River Falls, (^3)University of Wisconsin-Madison</td>
</tr>
<tr>
<td>200</td>
<td>Nutritive and digestibility parameters of invasive grasses in Northwest Missouri.</td>
<td>F. C. Huneke(^*), M. H. Richardson, A. M. Snyder and J. D. Allen, Northwest Missouri State University, Maryville</td>
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<td>201</td>
<td>Poor maternal nutrition during gestation alters mesenchymal stem cell (MSC) metabolism in offspring.</td>
<td>N. H. Sereda(^1), S. M. Pillai(^1), M. L. Hoffman(^1), S. A. Zinn(^1), Y. K. Park(^2), J. Y. Lee(^2) and K. E. Govoni(^1), (^1)Department of Animal Science, University of Connecticut, Storrs, (^2)Department of Nutritional Sciences, University of Connecticut, Storrs</td>
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<td>202</td>
<td>The abundance of myosin heavy chain IIb mRNA in porcine <em>Longissimus dorsi</em> muscle was not affected by dietary lysine level.</td>
<td>M. B. Lewis(^*), S. F. Liao, T. Wang and J. M. Feugang, Mississippi State University, Mississippi State</td>
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<td>203</td>
<td>Identification of loci on chromosome 3 associated with susceptibility to bovine paratuberculosis using genotypes imputed to whole genome sequence in Holstein cows.</td>
<td>C. F. Pierce(^1), J. N. Kiser(^1), J. L. Hoff(^2), M. Neupane(^1), S. N. White(^1), J. F. Taylor(^2) and H. L. Neibergs(^1), (^1)Department of Animal Science, Washington State University, Pullman, (^2)University of Missouri, Columbia, (^3)USDA-ARS, Animal Disease Research Unit, Pullman, WA</td>
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<td>204</td>
<td>Effect of the total western diet via direct or ancestral exposure on estrous cycling in third generation offspring in mice.</td>
<td>K. Contreras(^*), J. Cuthbert(^1), S. Phatak(^1), D. Larson(^2) and A. Benninghoff(^1), (^1)Utah State University, Logan, (^2)USTAR Applied Nutrition Research, Logan, UT</td>
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<td>205</td>
<td>Maternal over-feeding during gestation alters islet size and number in the pancreas of 135 d old fetuses.</td>
<td>M. C. Wynn(^*), M. L. Hoffman, S. M. Pillai, A. K. Jones, K. K. McFadden, S. A. Reed, S. A. Zinn and K. E. Govoni, Department of Animal Science, University of Connecticut, Storrs</td>
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<td>206</td>
<td>Comparison of high definition Zenmuse X3 and X5 video cameras onboard unmanned aerial vehicles for future use in precision ranching.</td>
<td>C. F. Solecki(^*) and J. S. Church, Thompson Rivers University, Kamloops, BC, Canada</td>
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<td>207</td>
<td>Leucine supplementation increases mouse mammary cell proliferation in vitro.</td>
<td>M. M. McGuckin(^*), R. Manjarin and D. G. Peterson, California Polytechnic State University, San Luis Obispo</td>
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<td>208</td>
<td>Effects of maternal nutrition during gestation on placental steroid metabolizing enzyme activity in sheep.</td>
<td>K. J. McCarty(^*), M. P. T. Coleson(^1), S. M. Pillai(^2), M. L. Hoffman(^1), A. K. Jones(^1), K. E. Govoni(^2), S. A. Reed(^2), S. A. Zinn(^2) and C. O. Lemley(^1), (^1)Mississippi State University, Mississippi State, (^2)Department of Animal Science, University of Connecticut, Storrs</td>
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<tr>
<td>209</td>
<td>Relationship between antioxidants and residual feed intake in grazing heifers.</td>
<td>J. N. Kidrick(^*), E. Felton, K. S. Shaffer and K. M. Barnes, West Virginia University, Morgantown</td>
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<td>211</td>
<td>An exploratory observational study to quantify ante- and post-mortem complete blood count variables in fed beef cattle.</td>
<td>C. L. Rogers(^*), T. J. McEvers, J. T. Richeson, S. L. Roberts and T. E. Lawrence, West Texas A&amp;M University, Canyon</td>
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</table>
Body fat distribution is a determinant of pulmonary arterial and central venous pressures in feedlot cattle.
K. M. Freeman*, A. K. Gulick, B. C. Bernhard, R. J. Rathmann, J. O. Sarturi and J. M. Neary, Texas Tech University, Lubbock

The effects of lavender oil on stalled horses subjected to a stressor.
S. R. Adkins*, A. I. Apel, K. D. Vogel and D. N. Smarsh, University of Wisconsin-River Falls

FSH dependent and IGF-1 independent phosphorylation of β-catenin is similar in bovine and human granulosa cells.
C. R. Smith*, B. H. Aloqaily, C. A. Gifford, B. I. Gomez and J. A. Hernandez Gifford, Oklahoma State University, Stillwater

Receptor (chemosensory) transporter protein-4 expression and regulation in bovine granulosa cells.
C. N. Horsley*, B. H. Aloqaily, J. A. Hernandez Gifford and C. A. Gifford, Oklahoma State University, Stillwater

Protein expression and localization of receptor (chemosensory) transporter protein 4 in the endometrium during early pregnancy in sheep and cattle.
K. S. Wilson*, J. A. Hernandez Gifford, T. L. Orf and C. A. Gifford, 1Oklahoma State University, Stillwater, 2Department of Animal Science, The Pennsylvania State University, University Park

Follicle-stimulating hormone regulation of proenkephalin in granulosa cells.
A. D. Gallic*, B. I. Gomez, B. Couger, C. A. Gifford and J. A. Hernandez Gifford, Oklahoma State University, Stillwater

Optimization of probes and PCR conditions for the correlation between 4 genes and production of high citrate in milk.
V. A. Smith*, R. Manjarin1 and R. Jimenez-Flores2, 1California Polytechnic State University, San Luis Obispo, 2Dairy Products Technology Center, California Polytechnic State University, San Luis Obispo

Effect of high dietary canola meal inclusion in lactating sows on nutrient digestibility and sow and piglet performance.
D. E Velayudhan* and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada

Transcriptome analysis of the intestinal tissues of cattle suggests an association among host immune responses, lipid metabolism and the super-shedding of E. coli O157.
O. Wang*, T. A. McAllister*, G. Plastow1, B. Selinger1, K. Stanford5 and L. L. Guan6, 1University of Alberta, Edmonton, AB, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 4University of Lethbridge, AB, Canada, 5Alberta Agriculture and Forestry, Lethbridge, AB, Canada, 6Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

Determination of standardized total tract digestibility of phosphorus in flaxseed meal fed to finishing pigs without or with phytase supplementation.
J. W. Kim* and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada

The effects of partial replacement of barley starch with lactose on production and ruminal fermentation characteristics in dairy cows.
E. De Seram*, G. B. Penner1 and T. Mutsvangwa1, 1Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada

Potential to improve fiber digestion in the rumen of cattle through inoculation with bison rumen contents.
C. Griffith*, G. O. Ribeiro Jr2, V. Bremer1, M. Oba1, T. A. McAllister3 and K. A. Beauchemin4, 1University of Alberta, Edmonton, AB, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3Elanco Animal Health, Greenfield, IN, 4Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

CNCP fractions of value added pellet products based on combination of new co-products from bio-fuel/bio-oil processing, low grade of peas and lignosulfonate chemical compound at different levels for ruminants.
V. Guevara*, D. A. Christensen, J. J. McKinnon and P. Yu, Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 3Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

Comparison of barley silage with varying digestible fibre content to corn silage on rumen fermentation characteristics and microbial protein synthesis using RUSITEC technique.
B. Refat*, D. A. Christensen, J. J. McKinnon, J. Nair, A. D. Beattie, T. A. McAllister, W. Yang and P. Yu, 1Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Animal Production Department, Faculty of Agriculture, Zagazig University, Egypt, 3University of Saskatchewan, Saskatoon, SK, Canada, 4Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 5Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

CSAS Graduate Student Poster Competition

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CNCP fractions of value added pellet products based on combination of new co-products from bio-fuel/bio-oil processing, low grade of peas and lignosulfonate chemical compound at different levels for ruminants.
V. Guevara*, D. A. Christensen, J. J. McKinnon and P. Yu, Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 3Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

Comparison of barley silage with varying digestible fibre content to corn silage on rumen fermentation characteristics and microbial protein synthesis using RUSITEC technique.
B. Refat*, D. A. Christensen, J. J. McKinnon, J. Nair, A. D. Beattie, T. A. McAllister, W. Yang and P. Yu, 1Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Animal Production Department, Faculty of Agriculture, Zagazig University, Egypt, 3University of Saskatchewan, Saskatoon, SK, Canada, 4Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 5Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada
Phosphorus utilization on dairy farms in Manitoba.
V. P. Senaratne*, E. J. McGeough, K. H. Ominski and J. C. Plaizier, Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada

Effect of variety and level of inclusion of barley grown for silage on performance and carcass characteristics of growing and finishing beef steers.
J. Nair†1, D. A. Christensen2, P. Yu1, T. A. McAllister3, D. Damiran1 and J. J. McKinnon4, 1Department of Animal and Poultry Science, College of Agricultural and Biosources, University of Saskatchewan, Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada, 3Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 4Department of Animal and Poultry Science, College of Agricultural and Biosources, University of Saskatchewan, Saskatoon, SK, Canada, Saskatoon, SK, Canada

Development of a genetic marker panel for ketosis in dairy cattle.
V. Kroezen*1, F. Miglior1,2, F. S. Schenkel1 and J. Squires1, 1Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada

Taxonomic assessment of the rumen microbiome of bulls under backgrounding and finishing diets.
E. O’Hara1,2, M. Zhou1, S. M. Waters1, M. E. Walpole1, P. Gorka1, M. Woodbury1, G. B. Penner2 and L. L. Guan1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Teagasc Grange Animal & Bioscience Department, Dunsany, Co. Meath, Ireland

The transition cow: May the odds be ever in her favour.
Y. Schuermann*1, A. St-Yves1, N. Dicks1, R. C. Bohrer1, R. Mondadori2, G. Welsford1, V. Boyer1, M. Taibi1, V. Higginson1, S. Hartley1, E. Madogwe1, V. Bordignon1, B. Baurhoo1 and R. Duggavathi1, 1McGill University, Saint-Anne De Bellevue, QC, Canada, 2Federal University of Pelotas, Capão do Leão, Brazil

Effect of dietary wheat bran inclusion on nutrient digestibility in weaned pigs.
B. Koo*, M. M. Hossain and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada

Effect of steam flaking and seed type on carbohydrate molecular structure features associated with nutrient availability of legume seed in ruminants.
X. Li1,2, V. Racz1, B. Laarveld1, Y. Zhang2 and P. Yu1, 1Department of Animal and Poultry Science, College of Agricultural and Biosources, University of Saskatchewan, Saskatoon, SK, Canada, 2College of Animal Science and Technology, Northeast Agricultural University, Harbin, China

Dynamics of progesterone concentrations and insemination outcomes in dairy cows.
T. C. Bruinjé*1, M. Gobikrushanth1, R. C. Guimarães1 and D. J. Ambrose1,2, 1Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada

ADSA Dairy Foods Graduate Student Poster Competition

Unit operations before and during spray drying influence the flavor of milk protein concentrate and whole milk powder.
C. Park* and M. Drake, Southeast Dairy Foods Research Center, North Carolina State University, Raleigh

The effect of bleaching agents on the degradation of vitamins and carotenoids in WPC80.
M. A. Stout*1, C. Park2 and M. Drake2, 1North Carolina State University, Raleigh, 2Southeast Dairy Foods Research Center, North Carolina State University, Raleigh

Characterization of flavor and functional properties of liquid and dried WPC 80, WPI, MPC 85 and micellar casein concentrates.
B. Carter*1, H. Patel1, D. M. Barbano2 and M. Drake3, 1North Carolina State University, Raleigh, 2Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY, 3Southeast Dairy Foods Research Center, North Carolina State University, Raleigh

Effect of milk protein concentrate (MPC 80) quality on susceptibility to fouling during thermal processing.
G. Gandhi*1 and J. K. Amamcharla, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan

Use of fluorescence-based Amaltheys analyser for studying effect of pH and heat on whey protein interactions in reconstituted milk protein concentrate.
K. Sajith Babu*, Z. Liu and J. K. Amamcharla, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan
Use of ozonated water in removing Bacillus cereus biofilms from the dairy membranes.
R. Henderson\textsuperscript{1}, G. Gandhi\textsuperscript{1}, N. Sevart\textsuperscript{1}, S. Gragg\textsuperscript{2}, R. Phebus\textsuperscript{1} and J. K. Amamcharla\textsuperscript{1}, \textsuperscript{1}Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan, \textsuperscript{2}Food Sciences Institute, Department of Animal Sciences and Industry, Kansas State University, Olathe

Development of a benchtop method to polymerize lactose to soluble fiber.
A. F. Kuechel\textsuperscript{1} and T. C. Schoenfuss, University of Minnesota, Department of Food Science and Nutrition, St. Paul

Effect of micro-encapsulated iron salts on cheddar cheese divalent cation balance and composition.
A. Arce\textsuperscript{1} and Z. Ustunol, Michigan State University, East Lansing

**ADSA Production Division Graduate Student Poster Competition: MS**

Effect of intramammary infusion of chitosan hydrogels on bovine mammary gland involution after drying-off.
S. Lanctot\textsuperscript{1}, X. Zhao\textsuperscript{1}, P. Fastier\textsuperscript{1}, A. Taherian\textsuperscript{1}, B. Bisakowski\textsuperscript{1} and P. Lacasse\textsuperscript{1}, \textsuperscript{1}Department of Animal Science, McGill University, Montreal, QC, Canada, \textsuperscript{2}Research and Development Centre, St-Hyacinthe, QC, Canada, \textsuperscript{3}Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada

Mitigation of variability in feeding patterns between competitively-fed dairy cows through increased feed delivery frequency.
R. E. Crossley\textsuperscript{1}, A. Harlander and T. J. DeVries, Department of Animal Biosciences, University of Guelph, ON, Canada

Infusion of a serotonin precursor pre-partum induces dynamic glucose and fat metabolism gene expression in the livers of multiparous dairy cows during peripartum.
A. P. Prichard\textsuperscript{1}, S. R. Weaver\textsuperscript{1}, E. L. Endres\textsuperscript{1}, M. S. Akins\textsuperscript{1}, R. M. Bruckmaier\textsuperscript{4} and L. L. Hernandez\textsuperscript{2}, \textsuperscript{1}University of Wisconsin-Madison, \textsuperscript{2}Department of Dairy Science, University of Wisconsin-Madison, \textsuperscript{3}University of Wisconsin, Platteville, \textsuperscript{4}Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland

Sire performance and reproductive breeding values are associated with feed efficiency and growth in dairy heifers.
C. E. Owens\textsuperscript{1}, Virginia Polytechnic Institute and State University, Blacksburg

Dry matter intake, milk yield and milk composition of dairy cows fed corn silage from corn treated with various application times of foliar fungicide.
C. Kalebich\textsuperscript{1}, M. Weatherly\textsuperscript{1}, G. M. Fellows\textsuperscript{2} and P. Cardoso\textsuperscript{1}, \textsuperscript{1}University of Illinois at Urbana-Champaign, \textsuperscript{2}BASF Corporation, Research Triangle Park, NC

Identification of loci associated with fertility in US Holstein heifers.
E. Keuter\textsuperscript{1}, C. M. Seabury\textsuperscript{2}, M. Neupane\textsuperscript{1}, J. N. Kiser\textsuperscript{1}, J. Moraes\textsuperscript{2}, G. Burns\textsuperscript{3}, T. E. Spencer\textsuperscript{4} and H. L. Neibergs\textsuperscript{1}, \textsuperscript{1}Department of Animal Science, Washington State University, Pullman, \textsuperscript{2}Texas A&M University, College Station, \textsuperscript{3}Division of Animal Sciences, University of Missouri, Columbia

The effects of increased metabolizable protein and amino acid supplementation in fresh dairy cattle.
E. G. Carder\textsuperscript{1}, The Ohio State University-OARDC, Wooster

Effects of supplementing lactating dairy cow ration with sodium sesquicarbonate on reticulorumen pH, rumination, and dry matter intake.
M. L. Jones\textsuperscript{1}, J. D. Clark\textsuperscript{2}, N. A. Michael\textsuperscript{1} and J. M. Bewley\textsuperscript{1}, \textsuperscript{1}University of Kentucky, Lexington, \textsuperscript{2}Arm & Hammer Animal Nutrition, Princeton, NJ

Feeding low crude protein diets in lactating dairy cows during summer months: Improvements in energy metabolism.
J. Kaufman\textsuperscript{1}, K. Kassube, K. G. Pohler and A. G. Rius, University of Tennessee, Knoxville

**ASAS Western Section Undergraduate Student Poster Competition**

Development of an immunohistochemical technique to determine presence and localization of glucose transporter GLUT3 in bovine utero-placental tissues from days 16 to 50 of gestation.
J. Osei\textsuperscript{1}, M. S. Crouse, K. J. McLean, J. A. Flaten, P. P. Borowiec, L. P. Reynolds, J. S. Caton and C. R. Dahlen, Department of Animal Sciences, North Dakota State University, Fargo

Do ewes born with a male co-twin have greater longevity with lambing over time?
D. N. Grogan\textsuperscript{1}, J. A. Brown\textsuperscript{1} and J. B. Taylor\textsuperscript{1}, \textsuperscript{1}Wingate University, NC, \textsuperscript{2}USDA-ARS, Rangeland Sheep Production Efficiency Research, Dubois, ID

Effect of post-weaning brewers grain supplementation on growth and reproductive performance of angus and red angus heifers.
S. E. Butterfield\textsuperscript{1}, J. M. Wisniewski, D. A. Daley, S. P. Doyle and K. L. DeAtley, California State University, Chico
Growth performance and feed efficiency of commercial and half-blood lowline-angus steers in backgrounding and finishing phases.

Utilization of wet brewers grain as a winter feed supplement for beef cows grazing native annual grasslands.
K. N. Bohn1*, S. P. Doyle1, J. Davy2, D. K. Flavel3, N. Schweitzer1 and K. L. DeAtley1, 1California State University, Chico, 2University of California, Cooperative Extension Service, Red Bluff, 3University of California, Cooperative Extension Service, Browns Valley

Derivation of economic values for feedlot performance traits in commercial and lowline-influenced angus steers.
L. C. Huffaker*, K. L. DeAtley, J. N. Brimlow and S. P. Doyle, California State University, Chico

Nonruminant Nutrition: Enzymes

The effect of increasing *Buttiauxella phytase* dose on performance in piglets: Meta-analysis from 5 trial studies.
Y. Dersjant-Li, R. M. Bold and W. Li*, Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom

Effects of dietary β-mannanase supplementation with soy bean meal in the performances in weanling pigs.
B. Balasubramanian*, H. M. Yan, Y. M. Kim, J. K. Kim and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea

Effect of multi-enzyme component on growth performance, nutrient digestibility, carcass quality and gas emission in broilers.
D. H. Nguyen*, H. S. Kim, S. Kathannan, S. Shanmugam and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea

Efficacy of dietary supplementation of protease and xylanase in plant-based diets on growth performance and health of nursery pigs at 6 to 9 week of age.
I. Park*, H. Chen and S. W. Kim, North Carolina State University, Raleigh

Effects of microbial phytase on the apparent and standardized total tract digestibility of calcium in milk co-products fed to growing pigs.
Y. She*, D. Li* and H. H. Stein*, 1University of Illinois at Urbana-Champaign, Urbana, 2CAU, Beijing, China

Effect of different levels of zinc and phytase on growth performance in weanling pigs.
L. Blavi*, D. Solà-Oriol, S. M. Martín-Orue and J. F. Pérez, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autonoma de Barcelona, Bellaterra, Spain


Poster Session II

8:15 AM - 9:15 AM
Exhibit Hall A/B

ADSA Production Division Graduate Student Poster Competition: PhD

Elevation of circulating serotonin pre-partum decreases BHBA concentrations and improves energy status post-partum in multiparous dairy cows.
S. R. Weaver1, A. P. Prichard1, E. L. Endres1, M. S. Akins2, R. M. Bruckmaier3 and L. L. Hernandez3, 1Department of Dairy Science, University of Wisconsin-Madison, 2University of Wisconsin-Madison 3University of Wisconsin, Platteville, 4Veterinary Physiology, Vetuisse Faculty University of Bern, Switzerland

Temporal effects of ruminal propionate infusion on feeding behavior of Holstein cows in the postpartum period.
G. Maldini12, M. S. Allen1 and K. M. Kennedy1, 1Michigan State University, East Lansing, 2CAPES Foundation, Brasilia, Brazil

Forage yield, nutrient composition and grain yield of corn and soybeans when intercropped at different seeding rates grown under organic conditions.
I. P. Acharya1, X. Gu2, S. Acharya1, P. Poudel1 and D. P. Casper1, 1Dairy Science Department, South Dakota State University, Brookings, 2Department of Plant Science, South Dakota State University, Brookings
Refinement of the DST locus associated with bovine respiratory disease complex in Holstein calves.
M. Neupane\textsuperscript{1,2}, J. L. Hoff\textsuperscript{2}, J. F. Taylor\textsuperscript{2}, C. M. Seabury\textsuperscript{3}, J. E. Womack\textsuperscript{3}, T. Bovine Respiratory Disease Complex\textsuperscript{4} and H. L. Neibergs\textsuperscript{3}, \textsuperscript{1}Department of Animal Sciences, Washington State University, Pullman, \textsuperscript{2}University of Missouri, Columbia, \textsuperscript{3}Texas A&M University, College Station

Meta-analysis of factors influencing new intramammary infection rate in natural exposure teat dip efficacy trials.
B. D. Enger\textsuperscript{4}, R. R. White\textsuperscript{1}, S. C. Nickerson\textsuperscript{2} and L. K. Fox\textsuperscript{3}, \textsuperscript{1}Virginia Polytechnic Institute and State University, Blacksburg, \textsuperscript{2}University of Georgia, Athens, \textsuperscript{3}Washington State University, Pullman

Diet starch content and fermentability affects feed intake and milk yield of cows in the postpartum period.
R. I. Albornoz\textsuperscript{3} and M. S. Allen, Michigan State University, East Lansing

Meta-analysis of post-ruminal microbial nitrogen flows in dairy cattle.
Y. Roman-Garcia\textsuperscript{1,2}, R. R. White\textsuperscript{2} and J. L. Firkins\textsuperscript{3}, \textsuperscript{1}The Ohio State University, Columbus, \textsuperscript{2}Virginia Polytechnic Institute and State University, Blacksburg

Milk yield genotype affects hepatic expression of innate immune genes when challenged with lipopolysaccharide (LPS).
G. T. Cousillas\textsuperscript{1}, W. J. Weber\textsuperscript{1}, B. Walcheck\textsuperscript{1}, R. Chebel\textsuperscript{1}, D. E. Kerr\textsuperscript{2}, T. H. Elsasser\textsuperscript{3} and B. A. Crooker\textsuperscript{4}, \textsuperscript{1}University of Minnesota, Saint Paul, \textsuperscript{2}University of Vermont, Burlington, \textsuperscript{3}USDA-ARS, Beltsville, MD

Effects of feeding different forms of polyunsaturated fatty acids on performance, plasma metabolites and milk fatty acid composition of dairy cows.
L. D. P. Sinedino\textsuperscript{1}, R. R. C. Mello\textsuperscript{2}, C. Lopera\textsuperscript{1}, A. Vieira Neto\textsuperscript{1}, M. G. Zenobi\textsuperscript{3}, E. Block\textsuperscript{1}, C. L. Presecual\textsuperscript{1}, A. L. Lock\textsuperscript{1}, C. R. Staples\textsuperscript{1}, W. W. Thatcher\textsuperscript{1} and J. E. P. Santos\textsuperscript{1}, \textsuperscript{1}University of Florida, Gainesville, \textsuperscript{2}Federal Rural University of Rio de Janeiro, Seropedica, Brazil, \textsuperscript{3}Arm & Hammer Animal Nutrition, Princeton, NJ, \textsuperscript{4}Michigan State University, East Lansing

Rumen-protected methyl donors during the transition period: Circulating plasma amino acids in response to supplemental rumen-protected methionine or choline.
Z. Zhou\textsuperscript{1}, M. Vailati Riboni\textsuperscript{1}, D. N. Luchini\textsuperscript{2} and J. J. Loor\textsuperscript{3}, \textsuperscript{1}University of Illinois at Urbana-Champaign, \textsuperscript{2}Adisseo S.A.S., Alpharetta, GA

Teaching Undergraduate and Graduate Education I

Student perspectives on agricultural study abroad programs.
M. M. Beverly\textsuperscript{1}, S. F. Kelley, P. Urso, M. J. Anderson, J. L. Leatherwood and K. J. Stutts, Sam Houston State University, Huntsville, TX

Curriculum development for animal disaster planning.
K. Franks, S. F. Kelley\textsuperscript{3} and M. M. Beverly, Sam Houston State University, Huntsville, TX

Student assessment of curriculum efficacy in a beef systems management course.
C. E. Andresen\textsuperscript{1}, E. L. Lundy, D. D. Loy and P. J. Gunn, Department of Animal Science, Iowa State University, Ames

International Animal Agriculture

Carcass quality of guinea pigs: Age effects on weights, yields and linear carcass measurements.
R. Remache\textsuperscript{1}, J. Palma\textsuperscript{1}, C. Hernández\textsuperscript{2}, J. Barba\textsuperscript{1}, V. Inca Guerrero\textsuperscript{1}, E. Ureña\textsuperscript{1}, D. Yumisaca\textsuperscript{2}, A. J. Morales-delNuez\textsuperscript{2} and D. Sánchez Macías\textsuperscript{1}, Facultad de Ciencias Pecuarias, Escuela Superior Politécnica de Chimborazo, Riobamba, Ecuador

Effect of age on the regional composition of fattening guinea pig carcasses.
R. Remache\textsuperscript{1}, V. Inca Guerrero\textsuperscript{1}, J. Barba\textsuperscript{1}, C. Hernández\textsuperscript{2}, J. Palma\textsuperscript{1}, M. Tenelema\textsuperscript{2}, J. Espinoza\textsuperscript{2}, A. J. Morales-delNuez\textsuperscript{2} and D. Sánchez Macías\textsuperscript{1}, Facultad de Ciencias Pecuarias, Escuela Superior Politécnica de Chimborazo, Riobamba, Ecuador

Inulin and flavomicine as growth promoters in rabbit diets: Effects on animal performance, cecum’s crypts depth and serum-bone macrominerals (Ca, P, Mg).
M. E. Juárez Silva, M. Cuchillo Hilario\textsuperscript{1}, I. Torres Acosta, E. L. Villarreal Delgado and R. M. Castillo Domínguez, National Institute of Medical Science and Nutrition Salvador Zubiran, Mexico City, Mexico

Increased body condition during lactation increases milk production and pre-weaning growth of Bali cattle.
D. Dahlanuddin\textsuperscript{1}, M. Supriyadi\textsuperscript{2}, T. S. Panjaitan\textsuperscript{2}, D. P. Poppi\textsuperscript{3} and S. P. Quigley\textsuperscript{3}, \textsuperscript{1}Faculty of Animal Science, University of Mataram, NTB, Indonesia, \textsuperscript{2}Assessment Institute for Agricultural Technology, Narmada, NTB, Indonesia, \textsuperscript{3}School of Agriculture and Food Sciences, The University of Queensland, Gatton, Qld, Australia

International Animal Agriculture

Inulin and flavomicine as growth promoters in rabbit diets: Effects on animal performance, cecum’s crypts depth and serum-bone macrominerals (Ca, P, Mg).
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Alpaca and lama fiber quality comparison in Ecuadorian Andes.

Fiber alpaca quality in Ecuadorian Andes.

Guinea pig carcass quality: Traditional diet vs. high quality diet.

Do buffaloes have better milk fat profile than cows? Where does the evidence stand in 2016?
G. Bilal* and M. Moaeen-ud-Din, PMAS-Arid Agriculture University, Rawalpindi, Pakistan

Forages and Pastures I

Screening of microorganism and effects of different bacterial additives on fermentation quality of rye silage harvested at dough stage.
S. S. Lee1, Y. H. Joo1, H. J. Lee1, J. W. Jang1, O. K. Han1, J. H. Kim2 and S. C. Kim2, 1Division of Applied Life Science (BK21Plus, Institute of Agriculture & Life Science), Gyeongsang National University, Jinju, The Republic of Korea, 2Department of Animal Science, Gyeongsang National University, Jinju, The Republic of Korea

Effects of cow and bag type on the undigested neutral detergent fiber after 240 hours in situ incubation.
H. Yang1, Y. Yan2, D. J. Undersander3 and D. K. Combs4, 1College of Animal Science and Technology, China Agricultural University, Beijing, China, 2College of Animal Science and Technology, Sichuang Agriculture University, Chengdu, China, 3Department of Agronomy, University of Wisconsin-Madison, 4Department of Dairy Science University of Wisconsin-Madison

Immunodetection of the Cry toxin in leaves of transgenic maize hybrids.
G. Balieiro Neto1, A. W.P. Freitas1, R. Botelho Ferraz Branco1, K. Maria Roncato Duarte1, F. Porto Pela1 and M. D. Baruffi2, 1Sao Paulo State Agency Agribusiness Technology, Ribeirao Preto, Brazil, 2University of São Paulo, Ribeirão Preto, Brazil

Effect of canopy height on the nutritive value of elephant grass silage.
E. B. Alves, I. L. De Oliveira, J. R. Gervasio, M. S. Bastos, S. M. Da Silva, J. O. Gusmao, L. M. Lima and T. F. Bernardes*, Federal University of Lavras, Brazil

Compost inclusion level in soil on chemical composition and in vitro dry matter digestibility of native and improved cactus forage varieties.
J. A. Santos-Haliscak1, J. Kawas1, H. Fimbres-Durazo1, G. Moreno-Degollado1, R. E. Vázquez-Alvarado1, E. Olivares-Sáenz1 and H. Andreade-Montemayor2, 1Universidad Autonoma de Nuevo Leon, San Nicolas de los Garza, Mexico, 2Universidad Autónoma de Querétaro, Mexico

Neutral detergent fiber digestibility of diets supplemented with soy hulls, corn stover, or alkali-ethanol treated stover in lactating dairy cows.
D. M. Donnelly1, L. C. de Resende2 and D. K. Combs1, 1Department of Dairy Science, University of Wisconsin-Madison, 2University of Wisconsin-Madison

Yield and nutritive value of photoperiod-sensitive sorghum and sorghum-sudangrass in central Wisconsin.
E. Remick1, H. Sa1, W. K. Coblenz2 and M. Akins1, 1University of Wisconsin-Madison, 2US Dairy Forage Research Center, Marshfield

Cutting interval and water application influence Sesirca Lespedeza yields and condensed tannin content.
L. C. Nui1, J. P. Mut1, E. A. Duffus1, Y. Jung1, A. A. James1, N. M. Cherry1 and G. R. Newton1, 1Prairie View A&M University, TX, 2Tarleton State University, Stephenville, TX, 3Texas A&M AgriLife Research, Stephenville
A comparison of in vitro rumen digestibility and fermentation indices of tannin rich chestnut meal.

Inoculant effects on bermudagrass silage nutritive value and fermentation characteristics.
E. C. Freitas1, J. M. D. Sanchez2, F. A. Kuhawara3, U. Cecato4, J. M. B. Vendramini2 and A. Aguiar1, 1DeLaval Manufacturing, Bannockburn, IL, 2UF/IFAS Range Cattle Research and Education Center, Ona, FL, 3University of Florida, Ona

The effect of a microbial inoculant at two application rates on the aerobic stability of high moisture corn.

Meta-analysis of the effect of homolactic and facultative heterolactic bacteria inoculation on silage quality: Dry matter recovery, chemical composition and in-vitro digestibility.
A. S. Oliveira1, Z. G. Weinberg2, A. A. P. Cervantes3, K. G. Arriola1, J. M. Ogunade4, Y. Jiang5, D. Kim6, M. C. M. Gonçalves7, D. Vyas8 and A. T. Adesogan9, 1Universidade Federal de Mato Grosso-Sinop, Brazil, 2Department of Food Quality and Safety, Agricultural Research Organization, The Volcani Center, Rishon Le Zion, Israel, 3Department of Animal Sciences, UF/IFAS, Gainesville, FL 4Instituto Federal Goiano, Rio Verde, Brazil

Percentages of alfalfa and grass in fresh and ensiled binary mixtures using near infrared reflectance spectroscopy: Developing a robust calibration.
E. Karayilanlia1, J. H. Cherney2, P. Sirois3, D. Kubinec4 and D. J. R. Cherney2, 1Suleyman Demirel University, Isparta, Turkey, 2Cornell University, Ithaca, NY, 3Dairy One, Ithaca, NY, 4Dairy One Forage Laboratory, Dairy One Cooperative, Inc., Ithaca, NY

Comparison of dry matter measurements between three hand-held near infrared units with oven drying at 60 degrees Celsius for 48 hours.
D. M. Donnelly1, H. Yang2 and D. K. Combs1, 1Department of Dairy Science, University of Wisconsin-Madison 2College of Animal Science and Technology, China Agriculture University, Beijing

Grazing intensities and season affect N2O emissions in a tropical pastureland.
A. S. Cardoso1, L. F. Brito1, E. R. Janusckiewicz1, E. S. Morgado2, R. P. Barbosa1, J. F. W. Koscheck1, R. A. Reis1 and A. C. Ruggieri1, 1Sao Paulo State University, Jaboticabal, Brazil, 2Universidade Federal de Uberlandia, Brazil

Impact of foliar spray on yield and chemical composition of alfalfa hay.
S. Acharya1 and D. P. Casper, Dairy Science Department, South Dakota State University, Brookings

Evaluation of in vitro gas production and energy available in low lignin alfalfa varieties.
K. P. Ortega1, G. Getachew, D. H. Putnam and E. J. DePeters, University of California-Davis


dates: 2016 conference information and scientific program

ADSA-SAD (Student Affiliate Division)
Undergraduate Student Poster Competition

Validation of a commercially available beta-hydroxybutyrate meter for assessing rumen development in dairy calves.
M. A. Richard1, C. C. Williams2, R. M. Orellana1, S. J. Blair1 and A. H. Dolejsiova2, 1Louisiana State University, Baton Rouge, 2Louisiana State University, AgCenter, Baton Rouge

The effect of the liquid nitrogen level on the temperature in a semen storage tank.
A. Hale1, A. Ahmadzadeh1, B. Shaﬁi1 and J. Dalton2, 1University of Idaho, Moscow, 2University of Idaho, Caldwell

Evaluating the effects of a sodium hypochlorite post milking teat disinfectant on teat condition using a split udder trial.
N. Lind1, University of Kentucky, Lexington

The effect of ergothioneine-containing mushroom powder (MP) on sensory acceptability and probiotic survivability in yogurt.
B. Blain, C. Boothroyd1, D. R. Roberts and E. Furumoto, The Pennsylvania State University, University Park
Effect of dietary energy source and level on rumen bacteria community in lactating dairy cows.
D. Bu¹,²,³, S. Li², Z. Yu², S. Gao³, L. Ma¹, X. Zhou and J. Wang¹, ¹State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, ²CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, ³Hunan Co-Innovation Center of Animal Production Safety, CICAPS, Changsha, China, ¹Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, ²The Ohio State University, Columbus

Effect of different microbial inoculants on fermentation characteristics of Miscanthus silage, and their rumen fermentation and digestibility.
J. Yang¹, C. Ryu¹, S. J. Shin¹, B. Choi¹, Y. Kim¹, M. Park¹, J. Heo², S. Cho¹ and N. J. Choi¹, ¹Chonbuk National University, Jeonju-si, The Republic of Korea, ²Microbial Institute for Fermentation Industry, Sunchang-gun, The Republic of Korea, ³CALS Co., Ltd., Seongnam-si, The Republic of Korea

The effects of varying undigested NDF and physically effective NDF content of fresh cow rations on dry matter intake, rumination, and milk yield in multiparous Holstein cows.
S. E. Williams¹, B. M. Leno¹, C. M. Ryan and T. R. Overton, Cornell University, Department of Animal Science, Ithaca, NY

Bacterial diversity in the feces of lambs fed purple prairie clover (Dalea purpurea Vent.) and alfalfa (Medicago Sativa).
Q. Huang¹,², D. Holman¹, T. W. Alexander¹, T. Hu¹, L. Jin¹, Z. Xu¹, T. A. McAllister¹, S. Acharya¹ and Y. Wang¹, ¹Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ²College of Animal Science and Technology, Northwest A&F University, Yangling, China

Comparisons of microbial populations found in the rumen and in a dual-flow continuous culture fermentation system using high-throughput 16S amplicon sequencing.
I. J. Salfer¹, H. E. Larson and M. D. Stern, University of Minnesota, St. Paul

Evaluation of in vitro and in situ starch digestibility assays.
S. E. Schuling¹, D. Schimek and B. Vander Wal, Hubbard Feeds Inc., Mankato, MN

Use of fecal starch as an indicator of starch digestibility and starter intake in pre-weaned dairy calves.
T. S. Dennis¹, W. Hi¹, F. X. Suarez-Mena², T. M. Hill¹, J. D. Quigley¹ and R. L. Schlotterbeck¹, ¹Provimi, Brookville, OH, ²Provimi North America, Brookville, OH

Expression and purification of a novel bacterial expansin from Bacillus subtilis that synergistically degrades cellulose with fibrolytic enzymes.
A. A. P. Cervantes¹, I. Muhammad², C. F. Gonzalez², D. Vyas³ and A. T. Adesogan¹, ¹Department of Animal Sciences, UF/IFAS, Gainesville, FL, ²University of Florida, Gainesville

Annual rhythms of milk, fat, and protein production in US dairy cattle.
I. J. Salfer¹, C. D. Dechow and K. J. Harvatine, The Pennsylvania State University, State College

Molecular physiology of rumen papillae following an acidosis challenge.
C. E. Kent-Dennis¹, J. A. Pasternak and G. B. Penner, University of Saskatchewan, Saskatoon, SK, Canada

Endocannabinoid network and proopiomelanocortin gene expression in peripartal bovine liver in response to rumen-protected methionine supplementation.
A. S. Alharthi¹, Z. Zhou¹, D. N. Luchini² and J. J. Loor¹, ¹University of Illinois at Urbana-Champaign, ²Adisseo S.A.S., Alpharetta, GA

Substrate utilization by Megasthaphera elsdenii strain NCIMB 41125.
A. M. Mobiglia¹, F. R. Camilo¹ and J. S. Drouillard², ¹CAPES Foundation, Ministry of Education of Brazil, Brasilia, Brazil, ²Kansas State University, Manhattan

16S rRNA bacterial sequences suggest dietary intervention can be used to change microbial community structure to reduce methane emission in Holstein dairy cattle.
W. Tom¹, J. V. Judy, P. J. Kononoff and S. C. Fernando, University of Nebraska-Lincoln
Inulin as prebiotic for Lactobacillus salivarius and Enterococcus faecium with probiotic potential in ruminants. D. Hernández-Sánchez¹, J. L. Gómez–Hernández¹, M. M. Crosby–Galván¹, A. M. Hernández-Anguiano¹, J. E. Ramírez-Bribiesca², E. Aranda–Ibáñez¹, S. S. González-Muñoz³ and R. Pinto-Ruiz¹, ¹Colegio de Postgraduados, Montecillo Texcoco, Mexico, ²Colegio de Postgraduados, Montecillo, Mexico, ³Colegio de Postgraduados, Montecillo Estado de Mexico, Mexico

Moisture content influences ensiling characteristics, in situ disappearance, and in vitro digestion characteristics of reconstituted corn grain. F. R. Camilo¹, A. M. Mobiglia¹, C. L. Van Bibber-Krueger², H. C. Muller², T. J. Ellerman², S. Katulski³ and J. S. Drouillard³, ¹CAPES Foundation, Ministry of Education of Brazil, Brasilia, ²Kansas State University, Manhattan

On the way to optimize the two stage Tilley and Terry technique for a more accurate in vitro assessment of rumen modifiers. A. Russow¹, A. Raffrenato, F. Chaucheyras-Durand⁶ and E. Chevaux², ¹Department of Animal Sciences, Stellenbosch University, South Africa, ²Lallemand SAS, Blagnac, France

Effect of feeding different flaxseed-based products on the rumen microbial community of dairy cows evaluated by high-throughput DNA sequencing. E. Castillo-Lopez¹, J. Moats¹, N. D. Aluthge², H. A. Ramirez Ramirez¹, T. A. McAllister⁴, C. L. Anderson², D. A. Christensen¹, T. Mutsvangwa¹, H. Lee-Rangel¹, G. B. Penner¹ and S. C. Fernando¹, ¹University of Saskatchewan, Saskatoon, SK, Canada, ²University of Nebraska-Lincoln, ³Iowa State University, Ames, ⁴Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ⁵Universidad Autonoma de San Luis Potosi, San Luis Potosi, Mexico

**Poster Session III**

1:00 PM - 2:00 PM
Exhibit Hall A/B

**Forages and Pasture II**

Influence of forage diversity on feeding behavior and diet digestibility in lambs. S. Lagrange² and J. J. Villalba¹, ¹INTA EEA, Bordenave, Argentina, ²Utah State University, Logan

Nutritive quality and forage yield of three brassica varieties for use in livestock grazing systems. S. L. Dillard¹, A. I. Roca-Fernandez, M. D. Rubano and K. J. Soder, USDA-ARS, University Park, PA

Effect of early intensive grazing of Kentucky bluegrass on animal performance. F. A. Brummer¹, B. Patton¹ and R. Limb¹, ¹North Dakota State University, Central Grasslands Research Extension Center, Streeter, ²North Dakota State University, Fargo

Frequency of feeding distillers dry grain with solubles as a supplement to beef cows grazing corn residue. S. M. Gross¹, B. W. Neville, F. A. Brummer and M. Undi, North Dakota State University Central Grasslands Research Extension Center, Streeter

Development of an automated system for measuring supplement intake of grazing animals. R. Reuter¹, S. Zimmerman² and M. Billars², ¹Oklahoma Agricultural Experiment Station, Stillwater, ²C-lock, Inc., Rapid City, SD

Sampling corn silage in bags from the sides. P. Turiello¹, M. Ruiz de Huidobro¹, H. Garcia¹, L. Forcone¹ and C. Celaye², ¹Facultad de Agronomía y Veterinaria, UNRC, Rio Cuarto, Argentina, ²Garay SRL, Recreo, Argentina

Survey of temporal variation in pasture mineral concentrations and total dietary mineral intake in pasture-based dairy herds. F. Curran¹, D. Wall¹, P. Lonergan¹ and S. Butler¹, ¹Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland, ²School of Agriculture and Food Science, University College Dublin, Ireland, ³Teagasc Crops, Environment and Land Use Programme, Johnstown Castle Co.Wexford, Ireland

Observations of forage yield and steer average daily gain when double cropped forage following crop harvest. K. M. Ulmer¹, R. G. Bondurant¹, J. L. Gramkow¹, G. W. Lesoing¹, M. E. Drewnoski¹ and J. C. MacDonald¹, ¹University of Nebraska-Lincoln, ²University of Nebraska, Auburn

Banana tree (Musa sapientum) forage in sexed Guinea pig (Cavia Porcellus) fattening. A. R. Sanchez¹, Universidad Tecnica de Quevedo, Ecuador
Effect of frame size and season on enteric methane (CH\textsubscript{4}) and carbon dioxide (CO\textsubscript{2}) emissions in Angus brood cows grazing native tall-grass prairie in central Oklahoma, USA.

J. P. S. Nee\textsuperscript{1}, K. E. Turner, P. H. Gowda and J. L. Steiner, USDA-ARS-PA-GRL, El Reno, OK

Grazing management: Milk production and composition of dairy cows grazing elephant grass.

C. D. A. Batalha, G. F. D. S. Congio, A. C. A. Krol, S. Crestani, M. B. Chiavegato, S. C. Da Silva and F. A. P. Santos\textsuperscript{1}, University of Sao Paulo, Piracicaba, Brazil

Performance and ruminal metabolism are not changed in lactating dairy cows offered spring available annual forage crops during a short-term grazing experiment.


Performance and ruminal metabolism in lactating dairy cows offered summer available annual forage crops during a short-term grazing experiment.


Fluctuation of soil carbon dioxide emission in agrosilvopastoral system managed with sheep.

F. O. Alari\textsuperscript{1}, A. C. Ruggieri\textsuperscript{2}, T. Silva do Nascimento, E. B. Malheiro, P. P. Spasiani, L. F. Brito, R. A. Reis and A. S. Cardoso, Sao Paulo State University, Jaboticabal, Brazil

Yield and quality evaluation of ensiled Johnsonsgass as a potential forage for beef cattle.

M. L. Bass\textsuperscript{1}, D. D. Harmon\textsuperscript{2}, J. M. Lourenço\textsuperscript{3}, D. Hancock\textsuperscript{4} and R. L. Stewart, Jr.\textsuperscript{5}, University of Georgia, Athens, \textsuperscript{1}Department of Crop and Soil Sciences, University of Georgia, Athens, \textsuperscript{2}Department of Animal and Dairy Science, University of Georgia, Athens, \textsuperscript{3}Department of Crop and Soil Environmental Sciences, Virginia Polytechnic Institute and State University, Blacksburg, \textsuperscript{4}Department of Animal and Dairy Science, University of Georgia, Athens, \textsuperscript{5}Department of Animal and Dairy Science, University of Georgia, Tifton

Evaluation of warm-season annual forages on forage production and stocking rate.

D. D. Harmon\textsuperscript{1}, M. L. Bass\textsuperscript{2}, J. M. Lourenço\textsuperscript{3}, C. D. Teutsch\textsuperscript{4}, J. R. Segers\textsuperscript{4}, A. M. Stelzleni\textsuperscript{2}, R. L. Stewart, Jr.\textsuperscript{5} and D. Hancock\textsuperscript{6}, Department of Crop and Soil Sciences, University of Georgia, Athens, \textsuperscript{1}Department of Animal and Dairy Science, University of Georgia, Athens, \textsuperscript{2}Department of Crop and Soil Environmental Sciences, Virginia Polytechnic Institute and State University, Blacksburg, \textsuperscript{3}Department of Animal and Dairy Science, University of Georgia, Athens, \textsuperscript{4}Department of Animal and Dairy Science, University of Georgia, Tifton

Microbiota attachment and structural components of Lolium perenne L. and Festuca arundinacea Schreb during in vitro fermentation.

H. A. Zavaleta-Mancera\textsuperscript{1}, D. Trujillo-Gutierrez\textsuperscript{2}, S. S. Gonzalez-Muñoz\textsuperscript{3}, M. Cobos-Peralta\textsuperscript{1}, J. E. Ramirez-Bribiesca\textsuperscript{4} and J. L. Bórquez-Gastelum\textsuperscript{1}, \textsuperscript{1}Colegio de Postgraduados, Montecillo Texcoco, Mexico, \textsuperscript{2}Colegio de Postgraduados, Montecillo Estado de Mexico, Mexico, \textsuperscript{3}Colegio de Postgraduados, Montecillo, Mexico, \textsuperscript{4}Universidad Autónoma del Estado de México, Toluca, Mexico

Correlation of fermentation characteristics with intake and digestibility of alfalfa silage in gestating ewes.

V. Niyigena\textsuperscript{1}, K. P. Coffey\textsuperscript{2}, W. K. Coblentz\textsuperscript{3}, A. N. Young\textsuperscript{1}, D. Philipp\textsuperscript{2}, H. L. Bartimus\textsuperscript{4} and R. T. Rhein\textsuperscript{1}, \textsuperscript{1}Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, \textsuperscript{2}University of Arkansas, Division of Agriculture, Fayetteville, \textsuperscript{3}US Dairy Forage Research Center, Marshfield, WI, \textsuperscript{4}Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO

Small Ruminant I

Effects of forage quality and breed on rumination time in goats.

S. N. LeShure\textsuperscript{1}, T. A. Gipson, A. L. Goetsch, R. Puchala and T. Sahlu, American Institute for Goat Research, Langston University, OK

Genome-wide association analysis of residual feed intake and milk yield in dairy goats.

C. B. Wasike\textsuperscript{1}, M. Rolff\textsuperscript{2}, N. C. D. Silva\textsuperscript{3}, R. Puchala\textsuperscript{4}, T. Sahlu\textsuperscript{1}, A. L. Goetsch\textsuperscript{1} and T. A. Gipson\textsuperscript{1}, American Institute for Goat Research, Langston University, OK, \textsuperscript{2}Oklahoma State University, Stillwater

Effect of Narasin on nutrient intake and digestibility in wethers fed high-forage diets.

D. M. Polizel\textsuperscript{1}, M. F. Westphalen\textsuperscript{1}, A. A. Misura\textsuperscript{1}, M. H. Santos\textsuperscript{1}, R. G. Silva\textsuperscript{1}, A. V. Bertoloni\textsuperscript{1}, G. B. Oliveira\textsuperscript{1}, M. V. C. Ferraz Junior\textsuperscript{1}, M. V. Biehl\textsuperscript{1}, I. Susin\textsuperscript{1} and A. V. Pires\textsuperscript{2}, \textsuperscript{1}FMVZ/University of Sao Paulo, Pirassununga, Brazil, \textsuperscript{2}ESALQ/University of Sao Paulo, Piracicaba, Brazil

Effects of different levels of zilpaterol hydrochloride on feedlot performance and carcass characteristics of hair-breed ram lambs.

J. Cayetano de Jesús\textsuperscript{1}, R. Rojo-Rubio\textsuperscript{2}, H. Lee-Rangel\textsuperscript{1}, L. Avendaño-Reyes\textsuperscript{1}, U. Macías-Cruz\textsuperscript{3}, A. Olmedo-Juarez\textsuperscript{4}, J. Vazquez-Armijos\textsuperscript{5} and S. Rebollar-Rebollar\textsuperscript{1}, \textsuperscript{1}Universidad Autonoma de San Luis Potosi, Mexico, \textsuperscript{2}Universidad Autonoma del Estado del Mexico, Temascaltepec, Mexico, \textsuperscript{3}Universidad Autonoma de San Luis Potosi, Mexico, \textsuperscript{4}Universidad Autonoma de Baja California, Mexicali, Mexico, \textsuperscript{5}Centro Nacional de Investigacion Disciplinaria en Parasitologia Veterinaria, INIFAP, Cuernavaca, Mexico
Performance of lambs fed high concentrate-diets with menonisin or narsin.
D. M. Polizel1, M. F. Westphalen2, R. G. Silva1, A. A. Misura4, M. H. Santos2, M. V. C. Ferraz Junior2, M. V. Biehl2, A. V. Pires3 and I. Sasim1, 1FMVZ/University of Sao Paulo, Pirassununga, Brazil, 2ESALQ/ University of Sao Paulo, Piracicaba, Brazil

Effects of high concentrations of crude glycerin on blood parameters of energy metabolism in finishing lambs.
E. H. C. B. van Cleef1,2, M. T. C. Almeida1,2, H. L. Perez1,2, V. B. Carvalho1, J. R. Paschoaloto1, E. S. Castro Filho1 and J. M. B. Ezequiel1, 1 São Paulo State University, Jaboticabal, Brazil, 2FAPESP, São Paulo, Brazil

Effect of diets rich in starch or digestible fiber on glucose metabolism of ewes and goats in mid lactation.
M. F. Lunes1, G. C. Bomboi1, M. Decandia1, G. Molle1, G. Gaspa1, A. S. Atzori1, L. S. Knupp1 and A. Cannas1, Dipartimento di Agraria, University of Sassari, Italy, 2Diapartmento di Medicina Veterinaria, University of Sassari, Italy, 3Diapartmento per la Ricerca nelle Produzioni Animali, Agris Sardegnia, Sassari, Italy, 4Departamento de Zootecnia, Universidade Federal de Viçosa, Brazil

Reproductive parameters of Dorper ewes in south Texas.
E. C. Taylor1, J. A. Reyes1, M. R. Garcia1 and R. Stanko2, 1Texas A&M University-Kingsville, 2Texas A&M University-Kingsville, Texas A&M AgriLife Research

Comparison of linear model and artificial neural network using antler beam diameter and beam length of white-tailed deer (Odocoileus virginianus).
S. O. Peters1, M. Sinecen1, G. R. Gallagher1, L. A. Pebworth2, J. S. Hatfield1 and K. Kizilkaya1, 1Department of Animal Science, Berry College, Mount Berry, GA, 2Adnan Menderes University, Aydın, Turkey, 3Berry College, Mount Berry, GA

Induction of sexual activity in Dorper ewes: Effect of two intramuscular doses of progesterone vs. progesterone vaginal sponges + eCG.
J. Z. Ordonez1, 2, O. Ángel-García1, E. Carrillo2, J. Luna-Drozco1, C. A. Meza-Herrera1, R. Rodríguez1 and F. G. Véliz-Deras1, 1Universidad Autonoma Agraria Antonio Narro, Torreon, Mexico, 2Instituto Tecnologico de Torreon, Torreon, Mexico, 3Centro de Bachillerato Tecnologico Agropecuario N. J. Torreon, Torreon, 4Universidad Autónoma Chapingo, Unidad Regional Universitaria de Zonas Áridas, Bermejillo, Durango, Mexico

Effect of supplementation with antioxidants in goats and their newborns evaluated during the transition period.
B. Barcelos1, F. R. B. Ribeiro1, S. K. Lewis2, W. B. Foxworth3, L. C. Nati1, G. R. Newton1, V. F. P. Rispoli1, L. B. Correa1 and A. Saran Netto1, 1School of Animal Science and Food Engineering, University of Sao Paulo, Pirassununga, Brazil, 2Prairie View A&M University TX, 3School of Veterinary Medicine and Animal Science, University of Sao Paulo, Brazil

Effects of feeding varying levels of deoiled distillers dried grains with solubles on fatty acid composition of subcutaneous adipose tissue in meat goats.
K. C. Camarero1, A. T. Sukumaran1, J. Scott2, N. Garung2, T. T. N. Dinh1 and D. D. Burnett1, 1Mississippi State University Department of Animal Sciences and Dairy Sciences, Mississippi State, 2Tuskegee University, AL

Dietary effects of grass hay and alfalfa hay on the digestive microbiome of the alpaca.
C. Carroll*, K. D. Olsen, J. M. Chaston and T. F. Robinson, Brigham Young University, Provo, UT

Sunflower and palm cake as supplemental fatty acid sources to feedlot lambs.
J. G. de Souza1,2, P. G. Cirqueira1, J. P. I. S. Monnerat3 and C. V. D. M. Ribeiro1, 1The Pennsylvania State University, University Park, 2Federal University of Bahia, Salvador, Brazil, 3Federal University of Pernambuco Rural, Recife, Brazil

Ground chevon as influenced by different concentrations of rosemary extracts.
M. Y. Muñoz1, J. H. Lee2, C. D. Santos1, X. Ma2, A. Discua*2 and B. Kouakou2, 1Universidad Nacional de Agricultura, Catacamas, Honduras, 2Fort Valley State University, GA

Post-emtrus GnRH administration does not improve fertility in Alpine goats in northern Mexico.
Z. Santos1, C. A. Meza-Herrera1, J. M. Guillon1, F. Arellano1, R. Rodriguez1 and F. G. Véliz-Deras1, 1 Universidad Autonoma Agraria Antonio Narro, Torreon, Mexico, 2Universidad Autónoma Chapingo, Unidad Regional Universitaria de Zonas Áridas, Bermejillo, Durango, Mexico

Quality of chevon chops as influenced by different packaging atmospheres.
C. D. Santos1, J. H. Lee2, M. Y. Muñoz1, A. Discua2, X. Ma2, D. Kafle1 and B. Kouakou2, 1 Universidad Nacional de Agricultura, Catacamas, Honduras, 2Fort Valley State University, GA

Reproductive performance of anovulatory goats stimulated by bucks previously exposed to estrogenized does.
J. M. Guillon1, 2, C. A. Meza-Herrera1, Z. Santos1 and F. G. Véliz-Deras1, 1 Universidad Autonoma Agraria Antonio Narro, Torreon, Mexico, 2Universidad Autónoma Chapingo, Unidad Regional Universitaria de Zonas Áridas, Bermejillo, Durango, Mexico

Effect of dried distillers grains on diet digestibility, body weight gain and carcass composition of lambs.
J. R. Bárcena-Gama1, K. R. Carzay-M–Leyva1, C. Sánchez del Real3, J. C. Escobar–Españ1, M. J. Rivas–Martinez1, E. A. Santillán–Gómez and S. S. González Muñoz1, 1Colegio de Postgraduados, Montecillo Texcoco, Mexico, 2Universidad Autónoma Chapingo, Chapingo, Mexico, 3Colegio de Postgraduados, Montecillo Estado de Mexico, Mexico
**Physiology and Endocrinology:**
Reproductive Technologies, Gametes, and Embryo Development

1135  38 A meta-analysis of the impacts of maternal weight and fetal sex on uterine blood flow and maternal heart rate in beef cows from mid- to late-gestation.
A. R. Tanner 1, M. L. Bauer 1, V. C. Kennedy 2, B. Mordhorst 1, L. E. Camacho 2, K. C. Swanson 1 and K. A. Vonnahme 1,
1 North Dakota State University, Fargo, 2University of Arizona, Tucson

1136  39 Validation of a chemical pregnancy test in dairy cows that uses whole blood, shortened incubation times, and visual readout.
L. M. Mayo 1, S. G. Moore 1, S. E. Poock 1, W. Silvia 2 and M. C. Lucy 1, 1University of Missouri, Columbia, 2University of Kentucky, Lexington

1137  40 Effects of parity and mid-gestation nutrient restriction on umbilical blood flow, fetal and placental measurements, and birth weight in sheep.
M. A. Vasquez 2, K. C. Swanson and K. A. Vonnahme, North Dakota State University, Fargo

1138  41 Comparing two ultrasound devices to determine antral follicle counts in dairy cows.
M. Gobikrushanth 1, D. J. Ambrose 3, 1Department of Agricultural and Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada, 3Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland

1139  42 The repeatability of antral follicle count and anti-Müllerian hormone concentration at two different postpartum stages in dairy cattle.
M. Gobikrushanth 1, P. A. Dutra 1, C. A. Felton 2, A. Ruíz-Sánchez 1, T. C. Bruinjé 1, M. G. Colazo 2, S. Butler 1 and D. J. Ambrose 1, 1Department of Agricultural and Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada, 3Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland

1140  43 Dairy cows with shorter ano-genital distance may be more fertile than those with longer ano-genital distance.
M. Gobikrushanth 1, T. C. Bruinjé 1, M. G. Colazo 2 and D. J. Ambrose 1, 1Department of Agricultural and Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada

1141  44 Pregnancy Associated Glycoprotein (PAG) concentrations in early gestation from dairy heifers undergoing embryo transfer.
S. Reese 1, M. H. Pereira 1, J. L. M. Vasconcelos 1 and K. G. Pohler 2, 1University of Tennessee, Knoxville, 2UNESP - FMUV, Botucatu, Brazil, 3Sao Paulo State University, Botucatu, Brazil, 4The University of Tennessee, Knoxville

1142  45 Protein kinase A directly phosphorylates GSK3β, and regulates beta-catenin via phosphorylation in granulosa cells.
B. H. Aloqaily 1, C. A. Gifford 1, B. I. Gomez 2 and J. A. Hernandez Gifford 1, 1Oklahoma State University, Stillwater, 2Department of Animal Science, Oklahoma State University, Stillwater

1143  46 Plasma anti-Müllerian hormone in dairy heifers and associations with reproductive performance in two reproductive programs for first artificial insemination.
T. V. Silva 1, J. E. P. Santos 2 and E. S. Ribeiro 3, 1Department of Animal Sciences, University of Florida, Gainesville, 2University of Florida, Gainesville, 3Department of Animal Biosciences, University of Guelph, ON, Canada

1144  47 Wingless-type mouse mammary tumor virus integration site (WNT) regulation of ovarian theca cells of cattle.
L. J. Spicer 1, Oklahoma State University, Stillwater

**Ruminant Nutrition: Feed Additives I**

1341  48 Application of *Pediococcus pentosaceus* and chitinase to high moisture alfalfa hay at baling: Effects on nutrient digestion and on growth performance of beef cattle.
L. Jin 1, E. Chevaux 1, T. A. McAllister 1 and Y. Wang 1, 1Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Lallemand SAS, Blagnac, France

1342  49 The impact of *Saccharomyces cerevisiae* and *Lactobacillus acidophilus* on colon histomorphology and gene expression in rumen and ileum tissues of young dairy calves.
B. Fomenky 1, J. Chiquette 1, P. Y. Chouinard 2 and É. M. Ibeagha-Awemu 1, 1Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, 2Département des Sciences Animales, Université Laval, Québec, QC, Canada

1343  50 Aflatoxin M1 levels reduction in milk after *Saccharomyces cerevisiae* or mannanoligosaccharides addition to aflatoxin B1 contaminated diet of dairy cows.
M. Aronovich 1, C. Perali 2, A. C. D. R. Rosa 1, A. A. Castagna 1 and E. Rodrigues 1, 1Pesagro-Rio, Niteroi, Brazil, 2Castelo Branco University, Rio de Janeiro, Brazil, 3Veterinary Microbiology/UFRJ, Rio de Janeiro, Brazil
Effects of a plant extract-based feed additive on feed intake, milk production and composition, rumen fermentation, digestibility, and nitrogen utilization in lactating dairy cows.

J. Oh¹, M. Harper, F. Giallongo, J. C. Lopes and A. N. Hristov, The Pennsylvania State University, University Park

Monensin and levels of narasin on rumen metabolism in lambs during adaptation to high-concentrate diets.

D. M. Polizel¹, S. S. Marques², M. F. Westphalen¹, M. H. Santos¹, M. V. C. Ferraz Junior¹, M. V. Biehl¹, R. G. Silva¹, I. Susin¹ and A. V. Pires¹,², IFMVZ/University of Sao Paulo, Pirassununga, Brazil, Ponta Grossa State University, Brazil, ESALQ/ University of Sao Paulo, Piracicaba, Brazil

Effect of narasin on rumen metabolism and dry matter intake in wethers fed high-forage diets.

D. M. Polize³¹, S. S. Marques², M. F. Westphalen¹, M. H. Santos¹, M. V. C. Ferraz Junior¹, M. V. Biehl¹, R. G. Silva¹, I. Susin¹ and A. V. Pires¹, IFMVZ/University of Sao Paulo, Pirassununga, Brazil, Ponta Grossa State University, Brazil, ESALQ/ University of Sao Paulo, Piracicaba, Brazil

Monensin and levels of narasin on rumen metabolism in lambs fed high-concentrate diets.

D. M. Polize³¹, S. S. Marques², M. F. Westphalen¹, M. H. Santos¹, M. V. C. Ferraz Junior¹, M. V. Biehl¹, R. G. Silva¹, I. Susin¹ and A. V. Pires¹, IFMVZ/University of Sao Paulo, Pirassununga, Brazil, Ponta Grossa State University, Brazil, ESALQ/ University of Sao Paulo, Piracicaba, Brazil

Daily supplementation with an active dry yeast improved feed efficiency in lactating dairy cows.

N. D. Walker¹ and W. V. Straalen¹, AB Vista Feed Ingredients, Marlborough, United Kingdom, Schothorst, Lelystad, Netherlands

Effect of saponite (EcoMix) on toxin binding capacity, ruminal fermentation, diet digestibility and growth of steers fed high concentrate diets.

N. A. Lancaster¹, D. Silva Antonelo², C. R. Muegge¹ and J. P. Schoonmaker¹, Purdue University, West Lafayette, IN, University of Sao Paulo, Pirassununga, Brazil

Use of aspergillus oryzae extract containing α-amylase activity in finishing diets for Nellore cattle.

C. F. Nascimento¹, L. L. Oliveira², W. D. C. Amancio², N. C. D. Silva¹, F. D. Santos⁵, P. H. Gonçalves¹, G. R. Siqueira¹ and F. D. D. Resende¹, UNESP - Univ Estadual Paulista, Jaboticabal, Brazil, UNIFEB, Barretos, Brazil, APTA - Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil

Inclusion of pelleted calcium hydroxide-treated corn stover in lactating Holstein cow diets: Effects on milk production and milk composition.

B. A. Casperson¹, A. E. Wertz-Lutz³ and S. S. Donkin¹, Purdue University, West Lafayette, IN, ADM Alliance Nutrition, Quincy, IL

Effect of different doses of a Bacillus-based probiotic on the in vitro digestibility of concentrates and forages.

C. A. Oliveira¹, D. O. Sousa¹, J. F. Penso¹, P. F. Menegucci¹ and L. F. P. Silva¹, University of Sao Paulo, Pirassununga, Brazil, Chr. Hansen, Valinhos, Brazil

Net choline absorption of abomasally infused choline and rumen-protected choline in the lactating dairy cow.

M. J. de Veth¹, V. M. Arteguita¹, S. R. Campagna¹, L. Hapiere¹, F. M. Harte¹ and C. L. Girard², BioNarus LLC, Cary, NC, University of Tennessee, Knoxville, Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, The Pennsylvania State University, University Park

Effect of Trigestamace on performance of lactating dairy cows.

M. M. Masiero¹, A. L. Kenny¹, R. L. Barnett¹, R. Morrison² and M. S. Kerley¹, University of Missouri, Columbia, R&D LifeSciences, Menomonie, WI

Effect of imprinted polymer based ergot-alkaloid absorbent on in vitro ruminal fermentation.

M. B. Kadupoge¹, Altech-University of Kentucky Nutrition Research Alliance, Lexington

Effects of ascothyllum nodosum meal and monensin on performance and iodine metabolism in lactating dairy cows.

S. F. Reis¹, A. F. Brito¹, C. P. Ghedini¹, D. C. Moura² and A. S. Oliveira³, University of New Hampshire, Durham, Universidade Federal de Mato Grosso, Cuiabá, Brazil, Instituto de Ciências Agrárias e Ambientais, Universidade Federal de Mato Grosso – Campus Sinop, Sinop, Brazil

Lactation performance and nutrient digestibility by dairy cows supplemented with calcium montmorillonite clay during an aflatoxin feeding challenge.

A. D. Thomas¹, C. Mak³, E. M. Jimenez¹, S. E. Elmore¹, L. Kinman¹, A. Romoser², R. B. Harvey³, T. Phillips² and H. A. Ramirez Ramirez¹, Iowa State University, Ames, Texas A&M University, College Station, Tarleton State University, Stephenville, TX, USDA, College Station, TX
Impact of a ferulic acid esterase producing lactobacilli on nutrient digestion of barley silage.
L. Jin, Y. Wang* and T. A. McAllister, Lethbridge Reserarch and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

Excretion of fumonisin B1 by dairy cows supplemented with calcium montmorillonite clay during a mycotoxin challenge.
E. M. Jimenez1, A. D. Thomas2, C. Maki3, S. E. Elmore4, R. B. Harvey4, T. Phillips4, L. A. Kinman1 and H. A. Ramírez Ramirez1, 1Tarleton State University, Stephenville, TX, 2Iowa State University, Ames, 3Texas A&M University, College Station, 4USDA, College Station, TX

**Poster Session IV**

**Forages and Pastures III**

5:00 PM - 6:00 PM
Exhibit Hall A/B

The physiological consequences of ingesting a toxic plant (*Diplotaxis tenuifolia*) and medicinal supplements influence subsequent foraging decisions by sheep.
F. H. Catanese1, J. J. Villalba*2 and R. A. Distel1, 1Universidad Nacional del Sur, Bahia Blanca, Argentina, 2Utah State University, Logan

Lining bunker wall with oxygen barrier film reduces nutrient losses of corn silages.
L. M. Lima, J. P. Dos Santos, J. L. De Oliveira, J. O. Gisnnao, M. S. Bastos, S. M. Da Silva, E. B. Alves, J. R. Gervasio and T. F. Bernardes*, Federal University of Lavras, Brazil

Effects of method and film storage time on the nutritive value of sugarcane for dairy cattle.
F. T. Fonseca1, L. M. Lima1, R. M. De Oliveira1, F. N. Domingues2 and T. F. Bernardes1, 1Federal University of Lavras, Brazil, 2Federal University of Para, Belem, Brazil

Bunk heating of rations containing corn silage with various inoculants, a stabilizer, or wet grain byproducts: A field survey.

The effect of *Lactobacillus brevis* and fibrolytic enzymes on fermentation of switchgrass silages.
J. Liu1, Y. Wang1, X. Wang1, Z. Cao1, S. Li1 and Z. Cui2, 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, 2Center of Biomass Engineering, College of Agriculture and Biotechnology, China Agricultural, Beijing, China

Effects of wrapping time delays on fermentation characteristics of baled alfalfa silages.
W. K. Coblenz1, K. P. Coffey2 and E. A. Chow1, 1US Dairy Forage Research Center, Marshfield, WI, 2University of Arkansas, Division of Agriculture, Fayetteville, 3Kuraray America, Inc., Pasadena, TX

Effects of wrapping time delays on the nutritive value of baled alfalfa silages.
W. K. Coblenz1, K. P. Coffey2 and E. A. Chow1, 1US Dairy Forage Research Center, Marshfield, WI, 2University of Arkansas, Division of Agriculture, Fayetteville, 3Kuraray America, Inc., Pasadena, TX

Effects of corn planting density and maturity on yield and nutritional quality of corn silage.
G. Ferreira* and C. L. Teets, Virginia Polytechnic Institute and State University, Blacksburg

Effect of homolactic bacteria inoculation and aerobic stress during ensiling on the nutritional and fiber digestibility characteristics of spring triticale.
L. C. Solórzano1, L. L. Solorzano2, A. A. Rodriguez1 and J. A. Teisberg1, 1University of Puerto Rico, Mayagüez, PR, 2Lankin, Fitchburg, WI, 3Nurealm, LLC, Hutisford, WI

Effect of homolactic bacteria inoculation and aerobic stress during ensiling on the fermentation characteristics, DM recovery and aerobic stability of spring triticale.
L. C. Solórzano1, L. L. Solorzano2, A. A. Rodriguez1 and J. A. Teisberg1, 1University of Puerto Rico, Mayagüez, PR, 2Lankin, Fitchburg, WI, 3Nurealm, LLC, Hutisford, WI

Effects of inoculant application on chemical composition, fermentation indices and microbial counts of corn silage.
S. S. Lee1, H. J. Lee1, Y. H. Joo1, D. H. V. Paradhipa1, I. H. Choi1, O. K. Han1 and S. C. Kim1, 1Division of Applied Life Science (BK21Plus, Insti. of Agri. & Life Sci.), Gyeongsang National University, Jinju, The Republic of Korea, 2Department of Companion Animal & Animal Resources Science, Joongbu University, Geumun, The Republic of Korea, 3National Institute of Crop Science, Rural Development Administration, Suwon, The Republic of Korea
Impact of temperature post-defrosting on fermentation of high-moisture corn.

The effect of two microbial inoculants on the aerobic stability of high moisture corn.

Investigating the relationship between corn silage fiber digestibility and rainfall, growing degree days and soil type.
S. A. Flis, T. P. Tylutki and P. Siros, Dairy One, Ithaca, NY, AMTS LLC, Cortland, NY

Forage yield and quality of four maize cultivars sown in single and double rows.
M. A. Ramirez, Universidad Nacional Autonoma de Mexico, FMVZ, Mexico City, Mexico

Evaluation of genetic diversity of Lactobacillus plantarum isolated from alfalfa silage using the BOX-PCR.
M. C. N. Agarussi, O. G. Pereira, K. G. Ribeiro, E. S. Leandro, V. P. Silva and R. A. Paula, Federal University of Vícosa, Brazil, Universidade Federal de Vícosa, Vícosa, Minas Gerais, Brazil

Volatile organic compounds in sugarcane silage treated with chemical and microbial additives.
L. L. Cardoso, K. G. Ribeiro, O. G. Pereira, M. I. Marcondes and K. Weiss, Universidade Federal de Vícosa, Minas Gerais, Brazil, Departamento de Zootecnia, Universidade Federal de Vícosa, Vícosa, Brazil, Humboldt University of Berlin, Germany

Meta-analysis of the effect of homolactic and facultative heterolactic bacteria inoculation on silage quality:
A. S. Oliveira, Z. G. Weinberg, A. A. P. Cervantes, K. G. Arriola, J. M. Ogunde, Y. Jiang, D. Kim, M. C. M. Gonçalves, D. Vyas and A. T. Adesogan, Universidade Federal de Mato Grosso - Sinop, Brazil, Department of Food Quality and Safety, Agricultural Research Organization, The Volcani Center, Rishon Le Zion, Israel, Department of Animal Sciences, UF/IFAS, Gainesville, FL, Department of Animal Sciences, University of Florida, Gainesville, Instituto Federal Goiano, Rio Verde, Brazil

The effects of air and heat stress on the aerobic stability of silage treated with a chemical additive.

Factors influencing estimates of energy used for activity by grazing meat goats.
M. E. Brassard, R. Puchala, T. A. Gipson and A. L. Goetsch, American Institute for Goat Research, Langston University, OK

The response to artificial infection with Haemonchus contortus and growth performance of sheep and goat progeny of selected parents in a central performance test.
Species and breed differences of small ruminants in response to experimental infection with *Haemonchus contortus* and growth performance in a centralized performance test.


Effects of adding water to total mixed ration on water consumption, nutrient digestibility, wool cortisol and blood indices in corriedale ewes under hot and humid conditions.

J. Ghassemi Nejad¹, K. Sung¹, B. Lee¹, J. Peng², J. Kim¹, S. Oh¹, B. Chemere² and B. Kim¹,¹, Department of Animal Life System, College of Animal Life Science, Kangwon National University, Chuncheon, South Korea, ²Kangwon National University, Chuncheon, The Republic of Korea

Effects of pasture access regimen on grazing behavior and energy utilization by Alpine goats.

A. Kel¹,², L. P. S. Ribeiro¹,², T. A. Gipson¹, R. Puchala¹ and A. L. Goetsch¹,¹, Department of Animal Production, National School of Agriculture, Meknes, Morocco, ²American Institute for Goat Research, Langston University, OK, ¹Department of Animal Science, Federal University of Bahia, Areia, Brazil

Energy and protein requirements of indigenous goats.

A. K. Almeida¹, K. T. Resende¹, I. A. M. A. Teixeira¹, S. D. A. Ribeiro¹, M. T. Rodrigues¹ and J. A. Garcia¹,¹, UNESCO, University Estadual Paulista, Department of Animal Science, Jaboticabal, SP, Brazil, ²Caprine, Espirito Santo do Pinhal, SP, Brazil, ³Universidade Federal de Vicsosa, Vicsosa, MG, Brazil

Nutrient content of crop residues selected by grazing goats.

J. Mendoza¹, L. Gaytan¹, M. Mellado², O. Angel¹ and I. Chavarria¹,¹, Autonomous Agrarian University Antonio Narro, Torreon, Coahuila, Mexico, ²Autonomous Agrarian University Antonio Narro, Saltillo, Coahuila, Mexico

Genomic evaluation and population structure of eleven Russian sheep breeds.

T. E. Deniskova¹, A. V. Dotsev¹, K. Wimmers², H. Reyer², V. R. Kharzinova¹,¹, E. A. Gladyr¹, G. Brem¹,³ and N. A. Zinovieva¹,¹,¹, L.K. Ernst Institute of Animal Husbandry, Moscow, Russian Federation, ²Genome Biology, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, ³Institute of Animal Breeding and Genetics, VMU, Vienna, Austria

Plate waste and artificial rearing of orphaned lambs versus ewe reared lambs.

A. DiPestina¹ and D. J. R. Cherney, Cornell University, Ithaca, NY

Effects of corn silage levels on methane emissions and blood metabolite concentrations of drying-off Xinong Saanen dairy goats.

P. Wang¹,², X. Xue², G. Ma¹ and J. Luo¹,¹, Alltech-NWAFU Animal Science Research Alliance, College of Animal Science and Technology, Northwest A&F University, Yangling, China, ²Alltech, Lexington, KY


A. Nudda¹, G. Battacone¹, P. Nicolassi², F. Correddu¹, G. Pulina¹ and P. Bonelli¹,¹, Dipartimento di Agraria, University of Sassari, Italy, ²Istituto Zooprofilattico Sperimentale della Sardegna, Sassari, Italy

Genetic parameter estimates for productivity of the Katahdin and Hampshire ewe and its components.

J. G. Pérez-Álvarez, F. A. Rodríguez-Almeida¹ and J. Domínguez-Viveros, Universidad Autónoma de Chihuahua, Mexico

Effects of protected methionine supplementation during dry period of seasonally synchronized goats on blood parameters and the subsequent lactation.

F. Piccioli-Cappelli, A. Minuti¹, M. Maiocchi, M. Mezzetti and E. Trevisi, Università Cattolica del Sacro Cuore, Piacenza, Italy

Responses of hair sheep breeds to high heat load index conditions.

D. Tadesse¹, R. Puchala, T. A. Gipson, Y. Tsukahara and A. L. Goetsch, American Institute for Goat Research, Langston University, OK

Prediction of daily concentration of milk and milk components from single-milking values.

M. Duplessis¹,², L. Fadili-Pacheco², R. Lacroix³, D. M. Lefebvre³, D. E. Santschi³ and D. Pellerin¹,¹, Valacta, Saint-Anne-de-Bellevue, QC, Canada, ²Département des Sciences Animales, Université Laval, Québec, QC, Canada, ³Université Laval, Quebec, QC, Canada

Sources of variation in dry matter content and particle size distribution in total mixed rations in dairy farms in Argentina.

P. Turiello¹, M. Ruiz de Huidobro², F. Bargo², A. Larriestra¹ and A. Relling¹,¹, Facultad de Agronomía y Veterinaria, UNRC, Rio Cuarto, Argentina, ²Facultad de Agronomía, UBA, Buenos Aires, Argentina, ¹Department of Animal Sciences, The Ohio State University, Wooster
Ruminant Nutrition: Growth, Young Stock and Calves I

Effects of duration of moderate increases in grain on bacterial diversity in the digestive tract of Holstein calves.  
S. Li¹, S. Moossavi², P. Azevedo¹, B. Schurmann², P. Gorka¹, G. B. Penner¹, J. C. Plaizier¹ and E. Khafipour¹,  
¹Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, ²Department of Medical  
Microbiology, University of Manitoba, Winnipeg, MB, Canada, ³University of Saskatchewan, Saskatoon, SK, Canada,  
⁴University of Agriculture, Krakow, Poland

Muscle protein metabolism of growing Holstein × Xy heifers.  
F. A. S. Silva¹, S. C. Valadares Filho², L. N. Remo³, S. A. Santos³, D. Zanetti³, L. A. Godoi³, M. V. C. Pacheco³, H.  
M. Alhadas⁴, P. P. Rotta⁴ and L. F. Costa e Silva⁵, ¹Universidade Federal de Viçosa, Brazil, ²Universidade Federal  
de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, ³Universidade Federal de Viçosa, Viçosa, Brazil,  
⁴Universidade Federal da Bahia, Salvador, Brazil, ⁵Colorado State University, Fort Collins

Effects of milk replacer feeding rate, egg yolk inclusion in milk replacer, and calf starter starch content on  
Holstein calf performance through 4 months of age.  
T. S. Dennis¹, T. M. Hill¹, J. D. Quigley¹, F. X. Suarez-Mena² and R. L. Schlotterbeck¹, ¹Provimi, Brookville, OH,  
²Provimi North America, Brookville, OH

Effects of mineral and vitamin supplementation to pasteurized whole milk diets on growth and health of  
preruminant Holstein bull calves.  
D. Wood¹, L. A. Krueger², M. Dehghan banadakya³, J. R. Stabel³, M. A. Engstrom³, D. C. Beitz⁴ and R. Blome¹,  
¹Animix, Janeau, WI, ²Agri-King, Inc., Fulton, IL, ³Department of Animal Science, Iowa State University, Ames,  
⁴Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, ⁵Infectious Bacterial  
Diseases Research Unit, National Animal Disease Center, USDA-ARS, Ames, IA, ⁶DSM Nutritional Products, LLC,  
Parsippany, NJ, ⁷Iowa State University, Ames

Effect of Axcelera-C on calf performance, intake, digestive development and immune function during the first 3  
months of life.  
M. Terré¹, F. Fabregas² and A. Bach³, ¹IRTA, Caldes de Montbui, Spain, ²Department of Ruminant Production, IRTA,  
Caldes de Montbui, Spain, ³CREA, Barcelona, Spain

Colostrum supplement feeding with a medium quality bovine colostrum: Passive immunity transfer, health and  
performance of dairy calves.  
M. R. De Paula, N. B. Rocha, E. Miqueo, F. L. M. Silva, T. Manzoni, S. Baldassini and C. M. M. Bittar⁴, University of  
Sao Paulo, Piracicaba, Brazil

Thermoregulation, performance and blood metabolites in calves fed different amounts of colostrum.  
F. L. M. Silva⁵, M. D. Silva, E. Miqueo, N. B. Rocha, T. Manzoni, M. G. Coelho and C. M. M. Bittar, University of Sao  
Paulo, Piracicaba, Brazil

The effects of supplementing a ruminally protected B-vitamin complex on pre-weaning growth and performance  
of Holstein heifer calves.  
K. M. Wood¹, E. Evans², C. L. Girard², H. Leclerc², L. Doepel² and G. B. Penner², ¹Department of Animal and Poultry  
Science, University of Saskatchewan, Saskatoon, SK, Canada, ²Technical Advisory Services, Bowmanville, ON,  
Canada, ³Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, ⁴Jefo Nutrition, St. Hyacinthe, QC, Canada,  
⁵University of Calgary, AB, Canada, ⁶University of Saskatchewan, Saskatoon, SK, Canada

RNASeq-based whole transcriptome analysis in jejunum of pre-weaned calves under different milk feeding  
regimens.  
H. M. Hammon¹, D. Frieten², C. Gerbert¹, C. Koch¹, G. Duse³, R. Weikard¹ and C. Kühn¹, ¹Leibniz Institute for Farm  
Animal Biology (FBN), Dummerstorf, Germany, ²University of Applied Sciences, Bingen, Germany, ³Educational and  
Research Centre for Animal Husbandry, Hofgut Neumuehle, Muenchweiler, Germany

Comparison of two calf rearing programs on the performance and cost benefit ratio.  
and Development Unit, Solla S.A., Medellin, Colombia
Ruminant Nutrition: Forages and Feeds I

Effects of feeding steers extruded flaxseed and hay together (TMR) or sequentially (non-TMR) on animal performance and erythrocyte vaccenic, rumenic and alpha-linolenic acid content.  
P. Vahmani1, D. C. Rolland1, T. A. McAllister2, H. C. Block3, S. D. Proctor4, L. L. Guan5, N. Prieto6, J. L. Aalhus7 and M. E. R. Dugan7, 1Agriculture and Agri-Food Canada, Lacombe, AB, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3University of Alberta, Edmonton, AB, Canada

Transcriptome responses to different forage allowance in the hypothalamus of grazing beef cows.  
A. I. Trujillo8, F. Peñaagaricano9, A. Casal10, J. Laporta11, P. Soc12 and M. Carriquiry13, 1Facultad de Agronomia, Universidad de la Republica, Montevideo, Uruguay, 2University of Florida, Gainesville, 3Department of Animal Sciences, University of Florida, Gainesville, 4Facultad de Agronomia. Universidad de la Republica, Paysandu, Uruguay

Effects of feeding alfalfa stemlage or wheat straw for dietary energy dilution on growth performance and sorting behaviors of Holstein dairy heifers.  

Effect of partially replacing barley grain with liquid whey permeate in diets for finishing lambs on DMI, average daily gain, and total tract digestibility.  
F. Joy20 and G. B. Penner, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada

Evaluation of the fermentation characteristics and glucosinolate content of cold-pressed or solvent-extracted carinata meal ensiled with corn forage.  
K. Rodriguez-Hernandez21, J. L. Anderson22, M. A. Berhow23 and A. Garcia24, 1Dairy Science Department, South Dakota State University, Brookings, 2CIRNOC-INIFAP, Matamoros, Mexico, 3USDA-ARS, NCAUR, Peoria, IL

Magnitude of difference in chemical and nutrient profiles, ruminal degradation kinetics, and intestinal digestion of three barley silages varieties in comparison with corn silage for dairy cattle.  
B. Refat25, W. Yang26, J. J. McKinnon27, J. Nair28, A. D. Beattie29, T. A. McAllister30, D. A. Christensen31 and P. Yu32, 1Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 2Animal Production Department, Faculty of Agriculture, Zagazig University, Zagazig, Egypt, 3Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 4Department of Plant Sciences, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada, 5University of Saskatchewan, Saskatoon, SK, Canada

Production of high quality and digestible forages to increase milk production and nutrient supply for lactating dairy cows.  
J. P. Pretz33, C. Ramsier34 and D. P. Casper35, 1Dairy Science Department, South Dakota State University, Brookings, 2USDA-ARS, National Agroforestry Research and Education Center, De Witt, IA

Increased forage NDF digestibility (in vitro or in situ) is positively related to DMI and milk yield both across and within forage type.  
D. Sousa36, M. J. VandeHaar and M. S. Allen, Michigan State University, East Lansing

Lactation performance, in situ degradability, and rumen fermentation of Holstein cows fed BMR-6 sorghum silage versus corn silage based diets.  
K. K. Gautam37, S. J. Trojan38, J. O. Sarturi39 and M. A. Ballou40, Texas Tech University, Lubbock

Factors affecting methane production from ruminal fermentation of fiber isolated from dried distillers grains and solubles.  
Chemical and energy profiles of value added pellet products based on combination of new co-products from bio-fuel/bio-oil processing, low grade of peas and lignosulfonate chemical compound at different levels for ruminants.

V. Guevara*, D. A. Christensen, J. J. McKinnon and P. Yu, Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada

Use of short season hybrids may enable greater use of corn silage in Western Canadian feedlot diets without decreasing animal performance.

G. E. Chibisa*1 and K. A. Beauchemin2, 1University of Idaho, Moscow, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

In vitro starch and neutral-detergent fiber degradability of corn silage hybrids.

M. T. Harper*1, G. Roth1, H. L. Wells1, C. Canale2, A. Gallo3, F. Masoero3 and A. N. Hristov4, 1The Pennsylvania State University, University Park, 2Cargill Animal Nutrition, Shippensburg, PA, 3Università Cattolica del Sacro Cuore, Piacenza, Italy
SYMPOSIA AND ORAL SESSIONS

ADSA Production Division Symposium: Robotic Dairying: Adapting Farm and Business Management

Chair: Leo L. Timms, Iowa State University
9:30 AM - 12:30 PM
Grand Ballroom J

9:30 AM 33 Changes in dairy farm management strategies with the adoption of robotic milking.
J. Rodenburg*, DairyLogix, Woodstock, ON, Canada

10:00 AM 34 Opportunities and challenges for herd health and reproduction with robotic milking.
S. J. LeBlanc*, Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

10:30 AM Break

10:45 AM 35 Nutritional approaches in robotic herds.
A. Bach1,2, M. Vidal1, and V. Cabrera3, 1ICREA, Barcelona, Spain, 2IRTA, Caldes de Montbui, Spain, 3University of Wisconsin-Madison

11:15 AM 36 Finances and returns for robotic dairies.
J. A. Salfer1, M. I. Endres2, W. Lazarus2, and K. Minegishi2, 1University of Minnesota, St. Cloud, 2University of Minnesota, St. Paul

11:45 AM Panel Discussion

Animal Behavior and Well-Being Symposium: Metrics for On-Farm Animal Welfare Assessment – Current State and Future Needs

Chair: Trevor J. DeVries, University of Guelph
Sponsor: Novus
9:30 AM - 12:30 PM
150 B/C

9:30 AM Introductory Remarks

9:40 AM 95 Poultry welfare assessments: Where do we go from here.
R. Blatchford*, University of California-Davis

10:20 AM 96 Metrics for beef cattle welfare.
D. Griffin*, Great Plains Veterinary Educational Center, Clay Center, NE

11:00 AM Break

11:10 AM 97 Optimizing outcome measures of welfare in dairy cattle assessment.
E. Vasseur*, McGill University, Sainte-Anne-de-Bellevue, QC, Canada

11:50 AM 98 The Common Swine Industry Audit: Future steps to assure positive on-farm animal welfare utilizing validated, repeatable and feasible animal-based measures.
M. Pairis-Garcia1 and C. J. Rademacher2, 1The Ohio State University, Columbus, 2Swine Medicine Education Center, Department of Vet Diagnostic & Production Animal Medicine, Ames, IA
Animal Health: Dairy Transition and Reproductive Health

Chair: Troy J. Wistuba, Phibro Animal Health Corporation
9:30 AM - 11:35 PM
155 D

9:30 AM
Introductory Remarks

9:35 AM 144
Effects of lactic acid bacteria on metritis prevalence and endometrium inflammation in dairy cows.
S. Genís1, R. L. A. Cerri2, A. Bach1,2, B. F. Silper3, J. Denis-Robichaud4, and A. Arís5, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 3ICREA, Barcelona, Spain, 4IRTA, Caldes de Montbui, Spain, 5Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

9:50 AM 145
Metritis severity score misclassification underpredicts consequence cost of disease.
M. M. McCarthy* and M. W. Overton, Elanco Animal Health, Greenfield, IN

10:05 AM 146
Subacute ruminal acidosis negatively affects conception rate in Holstein heifers.
H. Khalouei1, A. A. Alamouti2, A. Mohammadi-Sangcheshmeh3, N. Farzaneh1, J. C. Plaizier1, and E. Khafipour4, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 2Department of Animal and Poultry Sciences, Ahuraihan Campus, University of Tehran, Pakdasht, Tehran, Islamic Republic of Iran, 3Faculty of Veterinary Medicine, Ferdowsi University, Mashhad, Islamic Republic of Iran

10:20 AM 147
Evaluating milk fat to protein ratio and milk fat to lactose ratio as indicators for early lactation disease.
S. Paudyal*1,2, F. P. Maunsell3, C. A. Risco1, A. Donovan1, A. De Vries4, D. Manriquez1, and P. J. Pinedo1,5, 1Department of Animal Sciences, Colorado State University, Fort Collins, 2West Texas A&M, Canyon, 3College of Veterinary Medicine, University of Florida, Gainesville, 4Department of Animal Sciences, University of Florida, Gainesville, 5Texas A&M AgriLife Research, Amarillo

10:35 AM 148
Associations between multiple activity and physiological parameters around the time of disease diagnosis and calving in Holstein cows.
D. Manriquez1, F. P. Maunsell1, S. Paudyal1, A. Donovan1, A. De Vries1, and P. J. Pinedo1, 1Department of Animal Sciences, Colorado State University, Fort Collins, 2Department of Veterinary Medicine, University of Florida, Gainesville, 3Department of Animal Sciences, University of Florida, Gainesville, Texas A&M AgriLife Research, Amarillo

10:50 AM 149
DI/LC-MS/MS-based metabolomics identifies early predictive serum biomarkers for ketosis in dairy cows.
B. N. Ametaj1, G. Zhang1, E. Dervishi1, S. M. Dunn1, R. Manda1, and D. S. Wishart2, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2University of Alberta, Edmonton, AB, Canada

11:05 AM 150
Targeted metabolomics reveals multiple metabolite alterations in the urine of transition dairy cows preceding the incidence of lameness.
B. N. Ametaj1, G. Zhang1, E. Dervishi1, S. M. Dunn1, R. Manda1, and D. S. Wishart2, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2University of Alberta, Edmonton, AB, Canada

11:20 AM 151
Elevated serum amyloid A concentrations in the first days after calving are an early disease indicator in dairy cows.
G. Bobe1 and S. Walker2, 1Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, 2Oregon State University, Corvallis

ASAS Western Section Young Scholars

Chair: Michael Salisbury, Angelo State University
Sponsor: Zinpro
9:30 AM - 11:00 AM
155 C

9:30 AM 25
Effects of organic or inorganic Co, Cu, Mn, and Zn supplementation to late-gestating beef cows on productive and physiological responses of the offspring.
R. Marques1, R. F. Cooke1, M. C. Rodrigues1, B. I. Cappellozza1, R. R. Mills2, C. K. Larson1, P. Moriel1, and D. W. Bohnert2, 1Oregon State University-EOARC Burns, 2Oregon State University Extension Service, Pendleton, 3Zinpro Corporation, Eden Prairie, MN, 4UF/IFAS Range Cattle Research and Education Center, Ona, FL
10:00 AM 26  
Altered rumen microbial populations in response to high sulfate water in lambs.  
A. N. Abrams\textsuperscript{1}, C. J. Clarkson\textsuperscript{1}, K. J. Austin\textsuperscript{1}, M. Ellison\textsuperscript{1}, H. C. Cunningham\textsuperscript{1}, G. C. Conant\textsuperscript{2}, W. R. Lamber\textsuperscript{2}, T. M. Taxis\textsuperscript{2}, and K. M. Cammack\textsuperscript{2}, \textsuperscript{1}Department of Animal Science, University of Wyoming, Laramie, \textsuperscript{2}University of Missouri, Columbia

10:30 AM 27  
Immunological implications of pregnancy: A focus on inflammatory cytokines.  
S. Z. Prosser*\textsuperscript{1}, K. E. Quinn, and R. L. Ashley, New Mexico State University, Las Cruces

**Beef Cattle Nutrition Symposium:**  
**A Look at the Latest Beef Cattle NRC Recommendations**

Chair: Nathan M. Long, Clemson University  
Sponsor: NRC, ASAS & Zinpro

9:30 AM - 12:30 PM  
Grand Ballroom B/D

9:30 AM 1021  
Overview of the process and changes in the 8th Edition of the Nutrient Requirements of Beef Cattle.  
M. L. Galyean\textsuperscript{1}, Texas Tech University, Lubbock

9:45 AM 1022  
The 8th Revised Edition of the Nutrient Requirements of Beef Cattle: Maintenance and growth.  
J. S. Cator\textsuperscript{1}, C. R. Krehbiel\textsuperscript{1}, M. L. Galyean\textsuperscript{1}, and L. O. Tedeschi\textsuperscript{1}, \textsuperscript{1}Department of Animal Sciences, North Dakota State University, Fargo, \textsuperscript{2}Oklahoma State University, Stillwater, \textsuperscript{3}Texas Tech University, Lubbock, \textsuperscript{4}Texas A&M University, College Station

10:15 AM 1023  
The 8th Revised Edition of the Nutrient Requirements of Beef Cattle: Reproduction.  
R. P. Lemenager\textsuperscript{1}, J. S. Cator\textsuperscript{2}, M. L. Galyean\textsuperscript{1}, and L. O. Tedeschi\textsuperscript{1}, \textsuperscript{1}Department of Animal Sciences, North Dakota State University, Fargo, \textsuperscript{2}Texas Tech University, Lubbock, \textsuperscript{3}Texas A&M University, College Station

10:45 AM 1024  
The 8th Revised Edition of the Nutrient Requirements of Beef Cattle: Protein and metabolic modifiers.  
J. H. Eisemann\textsuperscript{1}, M. L. Galyean\textsuperscript{1}, K. A. Beauchemin\textsuperscript{1}, C. R. Krehbiel\textsuperscript{1}, and L. O. Tedeschi\textsuperscript{1}, \textsuperscript{1}North Carolina State University, Raleigh, \textsuperscript{2}Texas Tech University, Lubbock, \textsuperscript{3}Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, \textsuperscript{4}Oklahoma State University, Stillwater, \textsuperscript{5}Texas A&M University, College Station

11:15 AM 1025  
The 8th Revised Edition of the Nutrient Requirements of Beef Cattle: Minerals, vitamins, and water.  
T. E. Engle\textsuperscript{1}, J. S. Cator\textsuperscript{1}, M. L. Galyean\textsuperscript{1}, L. O. Tedeschi\textsuperscript{1}, N. A. Cole\textsuperscript{1}, C. R. Krehbiel\textsuperscript{1}, G. E. Erickson\textsuperscript{2}, K. A. Beauchemin\textsuperscript{1}, R. P. Lemenager\textsuperscript{3}, and J. H. Eisemann\textsuperscript{3}, \textsuperscript{1}Colorado State University, Fort Collins, \textsuperscript{2}Department of Animal Sciences, North Dakota State University, Fargo, \textsuperscript{3}Texas Tech University, Lubbock, \textsuperscript{4}Texas A&M University, College Station, \textsuperscript{5}USDA-ARS, Bushland, \textsuperscript{6}Oklahoma State University, Stillwater, \textsuperscript{7}University of Nebraska-Lincoln, \textsuperscript{8}Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, \textsuperscript{9}Texas A&M University, College Station

11:45 AM 1026  
The 8th Revised Edition of the Nutrient Requirements of Beef Cattle: Environmental issues.  
N. A. Cole\textsuperscript{1}, K. A. Beauchemin\textsuperscript{1}, G. E. Erickson\textsuperscript{1}, L. O. Tedeschi\textsuperscript{1}, and M. L. Galyean\textsuperscript{1}, \textsuperscript{1}USDA-ARS Conservation and Production Research Laboratory, Bushland, \textsuperscript{2}Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, \textsuperscript{3}University of Nebraska-Lincoln, \textsuperscript{4}Texas A&M University, College Station, \textsuperscript{5}Texas Tech University, Lubbock

12:15 PM 1027  
The 8th Revised Edition of the Nutrient Requirements of Beef Cattle: Byproducts and feed composition.  
K. A. Beauchemin\textsuperscript{1}, G. E. Erickson\textsuperscript{1}, H. Tran\textsuperscript{1}, J. S. Cator\textsuperscript{1}, N. A. Cole\textsuperscript{1}, J. H. Eisemann\textsuperscript{1}, T. E. Engle\textsuperscript{2}, M. L. Galyean\textsuperscript{2}, C. R. Krehbiel\textsuperscript{2}, R. P. Lemenager\textsuperscript{3}, and L. O. Tedeschi\textsuperscript{3}, \textsuperscript{1}Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, \textsuperscript{2}University of Nebraska-Lincoln, \textsuperscript{3}National Animal Nutrition Program, University of Kentucky, Lexington, \textsuperscript{4}Department of Animal Sciences, North Dakota State University, Fargo, \textsuperscript{5}USDA-ARS Conservation and Production Research Laboratory, Bushland, \textsuperscript{6}North Carolina State University, Raleigh, \textsuperscript{7}University of Nebraska-Lincoln, \textsuperscript{8}Texas Tech University, Lubbock, \textsuperscript{9}Oklahoma State University, Stillwater, \textsuperscript{10}Texas A&M University, College Station, \textsuperscript{11}Texas Tech University, Lubbock

12:45 PM 1028  
The 8th Revised Edition of the Nutrient Requirements of Beef Cattle: Development and evaluation of the mathematical model.  
L. O. Tedeschi\textsuperscript{1}, M. L. Galyean\textsuperscript{1}, K. A. Beauchemin\textsuperscript{1}, J. S. Cator\textsuperscript{1}, N. A. Cole\textsuperscript{1}, J. H. Eisemann\textsuperscript{1}, T. E. Engle\textsuperscript{2}, G. E. Erickson\textsuperscript{2}, C. R. Krehbiel\textsuperscript{2}, and R. P. Lemenager\textsuperscript{2}, \textsuperscript{1}Texas Tech University, Lubbock, \textsuperscript{2}Texas Tech University, Lubbock, \textsuperscript{3}Texas A&M University, College Station, \textsuperscript{4}Department of Animal Sciences, North Dakota State University, Fargo, \textsuperscript{5}USDA-ARS Conservation and Production Research Laboratory, Bushland, TX, \textsuperscript{6}North Carolina State University, Raleigh, \textsuperscript{7}Colorado State University, Fort Collins, \textsuperscript{8}University of Nebraska-Lincoln, \textsuperscript{9}Oklahoma State University, Stillwater, \textsuperscript{10}Texas A&M University, West Lafayette, IN

12:10 PM  
Panel Discussion
**Bioethics Symposium**

Chair: James W. Knight, Virginia Polytechnic Institution and State University  
Sponsor: Elanco Animal Health  
9:30 AM - 12:30 PM  
151 B/C

9:30 AM 280  
**How was that chicken raised? Ethics and deliberating conscientiously about animal welfare standards.**  
*R. X. Anthony*, University of Alaska Anchorage, Anchorage

10:15 AM 281  
**Farm animal welfare: Three essential ingredients from an international context.**  
*A. De Paula Vieira*, Positivo University, Curitiba, Brazil

11:00 AM  
**Break**

11:15 AM 282  
**Breaking down communication barriers to connect with stakeholders.**  
*R. Beck*, The Center for Food Integrity, Gladstone, MO

12:00 PM  
**Panel Discussion**

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**Breeding and Genetics: Genomic Evaluation II - Applications**

Chair: Ignacy Misztal, University of Georgia  
9:30 AM - 12:30 PM  
Grand Ballroom I

9:30 AM 302  
**Identifying and calling insertions, deletions, and single-base mutations efficiently from sequence data.**  
P. M. VanRaden1, D. M. Bickhart2, and J. R. O’Connell3,  
1Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD,  
2University of Maryland School of Medicine, Baltimore

9:45 AM 303  
**Issues in commercial application of single-step genomic BLUP for genetic evaluation in American Angus.**  
D. A. L. Lourenco1, S. Tsutara1, B. D. Fragomeni1, Y. Masuda1, I. Pocrnic1, I. Aguilar2, J. K. Bertrand3, D. W. Moser4,  
and I. Misztal5,  
1University of Georgia, Athens,  
2INIA, Las Brujas, Uruguay,  
3Angus Genetics Inc., St. Joseph, MO

10:00 AM 304  
**Single-step GBLUP using APY inverse for protein yield in US Holstein with a large number of genotyped animals.**  
Y. Masuda1, I. Misztal1, and P. M. VanRaden2,  
1University of Georgia, Athens,  
2Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

10:15 AM 305  
**Heteroskedastic extensions for genome-wide association studies.**  
Z. Ou1, R. J. Tempelman2, J. P. Steibel3,4, C. W. Ernst1, R. O. Bates1, C. Chen2, and N. M. Bello1,  
1Department of Statistics, Kansas State University, Manhattan,  
2Michigan State University, East Lansing,  
3Department of Animal Science, Michigan State University, East Lansing,  
4Department of Fisheries and Wildlife, Michigan State University, East Lansing

10:30 AM 306  
**Exploring the feasibility of using copy number variants as genetic markers through large-scale whole genome sequencing experiments.**  
D. M. Bickhart1, L. Xu1, J. L. Hutchison1, J. B. Cole1, D. J. Null1, S. G. Schroeder2, J. Song2, J. F. Garcia3, T.  
Sonstegard4, C. P. VanTassell5, R. D. Schnabel6, J. F. Taylor7, and G. E. Liu8,  
1Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD,  
2Department of Animal and Avian Sciences, University of Maryland, College Park,  
3Animal Improvement Programs Laboratory, USDA-ARS, Beltsville, MD,  
4UNESP Univ Estadual Paulista, Araçatuba, Brazil,  
5Recombinetics, Inc., St Paul, MN

10:45 AM 307  
**Use of marker × environment interaction whole genome regression model to incorporate genetic heterogeneity for residual feed intake, dry matter intake, net energy in milk, and metabolic body weight in dairy cattle.**  
C. Yao1, G. de los Campos2, M. J. VandeHaar3, D. M. Spurlock4, L. E. Armentano5, M. F. Coffey6, Y. de Haas6, R. F.  
Veerkamp7, C. R. Staples8, E. E. Connor9, Z. Wang9, R. J. Tempelman10, and K. A. Weigel11,  
1University of Wisconsin-Madison,  
2Animal Breeding and Genomics Centre, Wageningen University, Netherlands,  
3Department of Animal Sciences, University of Florida, Gainesville,  
4USDA-ARS, Animal Genomics and Improvement Laboratory, Beltsville, MD,  
5University of Alberta, Edmonton, AB, Canada

11:00 AM  
**Break**
11:15 AM 308  Imputation of medium density genotypes from custom low density genotype panel in sheep.
D. P. Berry², A. O’Brien³, S. Randles¹, K. McDermott¹, E. Wall¹, and N. McHugh¹, ¹Sheep Ireland, Bandon, ²Teagasc Moorepark, Fermoy, Ireland

11:30 AM 309  Systematic profiling of short tandem repeats in the cattle genome.
G. E. Liu⁴, L. Xu⁴, R. Haas³, J. Sun³, Y. Zhou¹, D. M. Bickhart³, J. Li³, J. Song³, T. Sonstegard³, C. P. VanTassell³, and H. Lewin³, ¹Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, ²University of Wisconsin-Platteville, ³South China Agricultural University, Guangzhou, China, ⁴Institute of Animal Science of Chinese Academy of Agricultural Sciences, Beijing, China, Beijing, China, ⁵University of Maryland, Animal Science and Avian, College Park, ⁶Recombionetics, Inc., St Paul, MN, ⁷University of California-Davis, Department of Evolution and Ecology, David

11:45 AM 310  Assessing genetic diversity in Canadian beef cattle populations using Illumina Bovine SNP50 chip.
M. K. Abo-Ismail¹,2, E. C. Akanno¹, R. Khorshidi¹, J. Crowley¹,3, L. Chen¹, B. K. Karisa¹, X. Li¹, Z. Wang¹, J. Basarab¹,4, C. Li¹,5, P. Stothard¹, and G. Plastow¹, ¹Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Animal and Poultry Production, Damanhour University, Damanhour, Egypt, ³Canadian Beef Breeds Council, Calgary, AB, Canada, ⁴Alberta Livestock and Meat Agency Ltd, Edmonton, AB, Canada, ⁵Lacombe Research Centre, Alberta Agriculture and Forestry, Lacombe, AB, Canada, ⁶Lacombe Research and Development Centre, Agriculture and Agri-Food Canada, Edmonton, AB, Canada

12:00 PM 311  Joint association analysis of additive and non-additive genomic effects for growth and carcass traits of beef cattle.
E. C. Akanno¹, M. K. Abo-Ismail¹,2, L. Chen¹, C. Li¹,3, J. Basarab¹,4, and G. Plastow¹, ¹Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Animal and Poultry Production, Damanhour University, Damanhour, Egypt, ³Lacombe Research and Development Centre, Agriculture and Agri-Food Canada, Edmonton, AB, Canada, ⁴Lacombe Research Centre, Alberta Agriculture and Forestry, Lacombe, AB, Canada

12:15 PM 312  Investigation of genomic imprinting through allelic expression analysis of mRNA in chicken embryonic brain and liver.
Z. Zhuo¹, S. J. Lamont², and B. Abasht¹, ¹Department of Animal and Food Sciences, University of Delaware, Newark, ²Department of Animal Science, Iowa State University, Ames

**Comparative Gut Physiology Symposium**

**Chair: Andrew P. Foote, USDA-ARS, US Meat Animal Research Center**

Sponsors: Novus, King Techina, Kemin, Pro Nutra Solutions

9:30 AM - 5:00 PM
Grand Ballroom A

9:30 AM  Introductory Remarks

9:45 AM  Diet, gut microbiome, brain and behavior.
J. Bienenstock³, McMaster Brain-Body Institute, Hamilton, ON, Canada

10:30 AM  Butyrate increases tight junction protein expression and enhances tight junction integrity in porcine IPEC-J2 cells stimulated with LPS.
H. Yan¹ and K. M. Ajayom², ¹Purdue University, West Lafayette, IN, ²Department of Animal Sciences, Purdue University, West Lafayette, IN

10:45 AM  Understanding host-microbiota interplay using nutrimetabonomics.
S. P. Claus¹, C. I. Le Roy¹, M. J. Woodward¹, and R. M. La Ragione², ¹The University of Reading, United Kingdom, ²University of Surrey, Guildford, United Kingdom

11:30 AM  Effects of dietary fibers on obesity related physiological parameters in C57BL/6 mice.
C. Liu, A. K. Singh, M. Stewart, J. H. Uyehara-Lock, and R. Jha³, University of Hawaii at Manoa, Honolulu

11:45 AM  The gut microbiome as a regulator of physiological, brain and behaviour: Implications for the treatment of stress-related disorders.
G. Clarke¹, T. F. O’Callaghan¹,2, P. Ross¹, and C. Stanton¹, ¹University College Cork, Ireland, ²Teagasc Food Research Centre, Cork, Ireland

12:30 PM  Break

2:00 PM  The microbiota-gut-brain axis: A key regulator of neural function across the lifespan.
J. F. Cryan¹, University College Cork, Ireland
Microbial modulation of the neonatal immune system: Lessons from infants and piglets.
S. M. Donovan1, M. Wang1, L. A. Davidson1, I. Ivanov2, and R. S. Chapkin2
1 University of Illinois at Urbana-Champaign, 2Texas A&M University, College Station

The growing importance of defining gut “health” in animal nutrition and health.
P. Celi1, A. J. Cowieson1, F. Fru-Njif2, A. M. Kluechter2, and V. Verlhac3
1 Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, Australia, 2DSM Nutritional Products, Kaiseraugst, Switzerland, 3DSM Nutritional Products, Village-Neuf, France

The microbiome and animal health.
G. B. Penner1, T. A. McAllister2, S. Li1, J. C. Plaizier2, E. Khafipour3, and L. L. Guan4
1 University of Saskatchewan, Saskatoon, SK, Canada, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada 3Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 4Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

In vitro fermentation characteristics of agricultural products and coproducts and its effect on the large intestinal microbiota of swine.
U. P. Tiwari1, S. Mattus1, K. Neupane5, and R. Jha1
1 University of Hawaii at Manoa, Honolulu, 2University of Hawaii, Leeward Community College, Pearl City

Analysis of the gut microbiome in beef cattle and its association with feed intake, growth, and efficiency.
P. R. Myer1, J. E. Wells2, T. P. L. Smith2, L. A. Kuehn2, and H. C. Freedly1
1 University of Tennessee Institute of Agriculture, Knoxville, 2USDA-ARS, US Meat Animal Research Center, Clay Center, NE

Forages and Pastures II

Chair: Karla H. Jenkins, University of Nebraska

9:30 AM - 12:30 PM
Grand Ballroom H

Influence of supplement type and monensin addition on utilization of low-quality, cool-season forage by beef cattle.
D. W. Bohnert1, M. C. Rodrigues1, M. C. Vieira1, K. C. Swanson2, S. J. Falck3, and R. F. Cooke1
1 Oregon State University-EOARC Burns, 2North Dakota State University, Fargo, 3USDA-ARS; EOARC Burns, OR

Methods to increase productivity of spring calving production systems in the Nebraska Sandhills.
D. Broadhead1, A. Stalker1, J. A. Musgrave2, and R. N. Funston2
1 University of Nebraska-Lincoln, North Platte, 2University of Nebraska-Lincoln

Performance of stocker cattle grazing ‘Tifton 85’ bermudagrass supplemented with dried distillers grains on per animal and per area bases: A 2-year summary.
W. B. Smith3, F. M. Rouquette1, J. L. Kerby1, L. O. Tedeschi2, J. L. Foster3, J. P. Banta1, K. C. McCuistion4, T. J. Machado5, and L. A. Redmon6
1 Texas A&M AgriLife Research, Overton, 2Texas A&M University, College Station, 3Texas A&M AgrilLife Research, Beeville, 4Texas A&M University, Kingsville

Monensin effects on early weaned beef calves grazing annual ryegrass pastures.
J. M. B. Vendramini1, P. Leite de Oliveira1, J. M. D. Sanchez1, J. Yarborough2, D. Perez1, J. Ralston1, and R. F. Cooke2
1 UF/IFAS, Range Cattle Research and Education Center, Ona, FL, 2Oregon State University-EOARC Burns

Reduced enteric methane emissions on legume vs. grass irrigated pastures.
J. W. MacAdam1, K. A. Beauchemin1, A. I. Bolletta1, and L. R. Pitcher1
1 Department of Plants, Soils, and Climate, Utah State University, Logan, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3National Institute of Agricultural Technology, Bordenave, Argentina, 4Utah State University, Logan

Milk production, rumination and body condition score of organic dairy cattle grazing two pasture systems incorporating warm and cool season forages.
K. E. Ruh1,2, B. J. Heins3, and J. Paulson1
1 University of Minnesota, Saint Paul, 2University of Minnesota West Central Research and Outreach Center, Morris, 3University of Minnesota Extension, Rochester

Evaluation of production, rumination, milk fatty acid profile, and profitability for organic dairy cattle fed sprouted barley fodder.
B. J. Heins1, J. Paulson2, and H. Chester-Jones1
1 University of Minnesota West Central Research and Outreach Center, Morris, 2University of Minnesota Extension, Rochester, 3University of Minnesota Southern Research and Outreach Center, Waseca

Break

Evaluation of production, rumination, milk fatty acid profile, and profitability for organic dairy cattle fed sprouted barley fodder.
B. J. Heins1, J. Paulson2, and H. Chester-Jones1
1 University of Minnesota West Central Research and Outreach Center, Morris, 2University of Minnesota Extension, Rochester, 3University of Minnesota Southern Research and Outreach Center, Waseca
11:30 AM 663  Effect of tillage and planting date of wheat pasture on forage production and calf performance.
P. A. Beck1, W. Galen2, T. Hess2, and D. S. Hubbell2, III, 1University of Arkansas SWREC, Hope, 2University of Arkansas, Fayetteville, 3University of Arkansas Livestock and Forestry Research Station, Batesville

11:45 AM 664  Impact of high-energy forages on grass-finished steer performance and carcass merit.
R. M. Martin1, J. E. Rowntree1, K. A. Cassida1, and D. Carmichael2, 1Michigan State University, East Lansing, 2Michigan State University AgBio Lake City Research Center, Lake City

12:00 PM 665  Effect of stocking rate on performance, diet selection and apparent total-tract digestibility among heifers grazing cover crops.
B. R. Brunsvig1, D. W. Brake, A. J. Smart, and E. E. Grings, South Dakota State University, Brookings

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**Genomics Symposium:**
**Translational Genomics to Improve Fertility of Animals**
Chair: Mark A. Miranda, USDA National Institute of Food and Agriculture
Sponsor: CDGKV Appreciation Club
9:30 AM - 11:30 AM
150 G

9:30 AM 691  Translational genomics for improving sow reproductive longevity.
D. C. Ciobanu1, S. D. Kachman1, S. Olson1, M. L. Spangler1, M. D. Trenhaile1, H. Wijesena1, P. S. Miller1, J. J. Riethoven1, C. A. Lents1, J. F. Thornton2, R. Massey3, and T. J. Safranski4, 1University of Nebraska-Lincoln, 2USDA-ARS, US Meat Animal Research Center, Clay Center, NE, 3University of Missouri, Columbia

10:00 AM 692  Detection and selection against early embryonic lethals in US beef breeds.
J. F. Taylor1, R. D. Schnabel1, B. Simpson1, J. E. Decker1, M. Rolf1, B. P. Kinghorn1, A. Van Eenennaam2, M. D. MacNeil3, D. S. Brown1, M. F. Smith1, and D. J. Patterson1, 1University of Missouri, Columbia, 2GeneSeek, a Neogen Company, Lincoln, NE, 3Ohio State University, Stillwater, 4University of New England, Armidale, Australia, 5University of California-Davis, 6Delta G, Miles City, MT

10:30 AM 693  Genomic selection for improved fertility of dairy cows with emphasis on cyclicity and pregnancy.
G. J. M. Rosa1, P. J. Pinedo2, J. E. P. Santos3, R. C. Bicalho4, G. Schuenemann5, R. Chebel6, K. N. Galvão7, R. O. Gilbert8, S. L. Rodriguez-Zas9, C. M. Seabury9, J. Fetrow9, and W. W. Thatcher9, 1University of Wisconsin-Madison, 2Colorado State University, Fort Collins, 3University of Florida, Gainesville, 4Cornell University, Ithaca, NY, 5The Ohio State University, Columbus, 6University of Minnesota, Saint Paul, 7Cornell University College of Veterinary Medicine, Department of Clinical Sciences, Ithaca, NY, 8University of Illinois at Urbana-Champaign, 9College of Veterinary Medicine, Texas A&M University, College Station, 10Department of Animal Sciences, University of Florida, Gainesville

11:00 AM 694  Improving fertility of dairy cattle using translational genomics.
T. E. Spencer1, H. L. Neibergs2, P. J. Hansen2, J. B. Cole2, J. Dalton2, D. A. Moore2, M. Chahine3, and A. De Vries4, 1Division of Animal Sciences, University of Missouri, Columbia, 2Department of Animal Sciences, Washington State University, Pullman, 3Department of Animal Sciences, University of Florida, Gainesville, 4Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, 5University of Idaho, Caldwell, 6Department of Veterinary Clinical Sciences, Washington State University, Pullman, 7Department of Animal and Veterinary Sciences, University of Idaho, Twin Falls

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**Horse Species Symposium:**
**Urban Students in Animal Science and the Impact of Equine Programs**
Chair: Fernanda Camargo, University of Kentucky
9:30 AM - 12:30 PM
155 A

9:30 AM 822  Making animal sciences relevant to the Urban student: Connecting to the real world.
J. J. Parrish1, University of Wisconsin-Madison

10:00 AM 823  Creating hands on learning opportunities for inexperienced equine students.
K. L. Vernon1, Clemson University, SC

10:30 AM 824  Beyond the lecture: Engaging equine science students inside and outside the classroom
C. J. Hammer1, Animal Sciences, North Dakota State University, Fargo
11:00 AM  824  Retaining urban students in animal science: The role of equine programs.  
J. A. Sterle* and H. D. Tyler, Iowa State University, Ames

11:15 AM  825  Prolonged head elevation causes mucosal IgA fluctuation in horses.  

11:30 AM  826  Effect of a square toe or perimeter fit horseshoe on quality of movement and gait kinematics of the western pleasure horse.  
P. Q. Underwood1, L. M. White1, K. W. Walter1, D. Hogue1, and L. K. Hirtz2, 1New Mexico State University, Las Cruces, 2Truman State University, Kirksville, MO

Meeting Today’s Animal Care Standards: Are You Ready?  
Chair: Gretchen M. Hill, Michigan State University  
Sponsor: AAALAC  
9:30 AM - 12:30 PM  
Grand Ballroom C

9:30 AM  28  New Ag Guide—What should we expect?.  
A. B. Webster*, Department of Poultry Science, University of Georgia, Athens

10:05 AM  29  How ag research and teaching differs from “rodent” studies in AAALAC international accreditation.  
J. J. McGlone*, Texas Tech University, Lubbock

10:40 AM  30  Getting along with your IACUC and helping them understand agricultural species research.  
J. Salak-Johnson*, University of Illinois at Urbana-Champaign

11:15 AM  31  Applying AAALAC international's peer review program to support agricultural research programs.  
J. Bradfield*, AAALAC International, Frederick, MD

11:50 AM  32  AAALAC international agricultural animal research program accreditation at Purdue University: “The good, the bad, and the ugly”.  
J. S. Radcliffe*, Purdue University, West Lafayette, IN

Nonruminant Nutrition: Feed Additives  
Chair: Josh Jendza, BASF Corporation  
9:30 AM - 12:30 PM  
Grand Ballroom F

9:30 AM  938  Influence of Acacia tortilis leaf meal-based diets on growth performance of pigs.  
M. Khanyile, S. P. Ndou, and M. Chimonyo*, University of KwaZulu-Natal, Pietermaritzburg, South Africa

9:45 AM  939  Different responses of Ross 308 and 708 broiler strains in growth performance and related properties to diet treatment with or without tributyrate glycerides.  
A. Bedford1, H. Yu1, M. Hernandez1, J. Squires2, S. Leeson2, Y. Hoot1, and J. Gong2, 1Agriculture and Agri-Food Canada, Guelph, ON, Canada, 2Department of Animal Biosciences, University of Guelph, ON, Canada

10:00 AM  940  Immunomodulatory effects of whole yeast cells and capsimum in weanling pigs challenged with pathogenic Escherichia coli.  
S. Wojnicki1, V. G. Perez2, and R. N. Dilger1, 1University of Illinois at Urbana-Champaign, 2ADM Animal Nutrition, Decatur, IL

10:15 AM  941  Comparing the effects of zinc oxide, milk hydrolysate, yeast β glucan and combination of milk hydrolysate / yeast β glucan on growth, gut microbiota and cytokine gene expression in weaning piglets.  
A. Mukhopadhyay*, J. V. O’Doherty2, N. Noronha1, M. T. Ryan1, and T. Sweeney3, 1School of Veterinary Medicine, University College Dublin, Ireland, 2School of Agriculture and Food Science, University College Dublin, Ireland, 3Food for Health Ireland, University College Dublin, Ireland

10:30 AM  942  Effects of a standardized blend of carvacrol, cinnamaldehyde and capsicum oleoresin on performance of growing finishing pigs using multiple trial analysis methodology.  
C. Oguey*, Pancosma, Geneva, Switzerland
Extracts of laminarin improve growth rate and small intestinal morphology in new born chicks, but does not influence Campylobacter colonisation.

A. Mukhopadhyya\textsuperscript{1}, S. Vigors\textsuperscript{1}, J. V. O’Doherty\textsuperscript{2}, H. Meridith\textsuperscript{1}, K. Thornton\textsuperscript{1}, and T. Sweeney\textsuperscript{1}, \textsuperscript{1}School of Veterinary Medicine, University College Dublin, Ireland, \textsuperscript{2}School of Agriculture and Food Science, University College Dublin, Ireland

11:00 AM

Break

11:15 AM

Effects of defatted microalgae on nutrient digestibility and retention in broiler chicks.

T. Sun\textsuperscript{1}, A. D. Magnuson\textsuperscript{1}, L. Tao\textsuperscript{1}, M. Burke\textsuperscript{1}, M. Barcus\textsuperscript{1}, and X. G. Lei\textsuperscript{1}, Cornell University, Ithaca, NY

11:30 AM

Defatted microalgae-mediated enrichment of N-3 polyunsaturated fatty acids in muscle of broiler chicks was not affected by supranutrition of vitamin E and(or) Se.

L. Tao\textsuperscript{1}, T. Sun\textsuperscript{1}, A. D. Magnuson\textsuperscript{1}, M. Burke\textsuperscript{1}, and X. G. Lei\textsuperscript{1}, Cornell University, Ithaca, NY

11:45 AM

Effect of supplementing milk during first 4 days postweaning on growth performance, energy digestibility, gut morphology, and severity of diarrhea for nursery pigs in a commercial farm.

J. Guo\textsuperscript{1}, J. Wang\textsuperscript{1}, J. M. Purvis\textsuperscript{2,3}, and S. W. Kim\textsuperscript{1}, \textsuperscript{1}North Carolina State University, Raleigh, \textsuperscript{2}N. G. Purvis Farm Inc., Robbins

12:00 PM

Effects of dietary lysophospholipid complex on apparent ileal digestibility and growth performance in nursery pigs.

L. Zheng\textsuperscript{1}, A. C. Weaver, and S. W. Kim, North Carolina State University, Raleigh

12:15 PM

Effects of dietary supplementation of phytobiotics on intestinal health and growth performance of nursery pigs.

I. Park\textsuperscript{1}, J. K. Lee, J. Wang, and S. W. Kim, North Carolina State University, Raleigh

**Physiology, Endocrinology and Extension Symposium: Enhancing Adoption of Reproductive Management Tools for Beef and Dairy Producers**

Chair: G. Cliff Lamb, University of Florida, North Florida Research and Education Center

9:30 AM - 12:30 PM

151 G

9:30 AM

History of the development of the Beef Reproduction Task Force (BRTF) and impacts of the BRTF on beef cattle reproductive management.

S. Johnson\textsuperscript{1}, R. F. Cooke\textsuperscript{1}, G. R. Dahlke\textsuperscript{1}, R. N. Funston\textsuperscript{1}, J. B. Hall\textsuperscript{1}, D. J. Kesler\textsuperscript{1}, G. C. Lamb\textsuperscript{1}, J. Lauderdale\textsuperscript{1}, D. J. Patterson\textsuperscript{1}, G. A. Perry\textsuperscript{1}, D. R. Strohbehn\textsuperscript{1}, and A. L. Van Eenennaam\textsuperscript{1}, \textsuperscript{1}Kansas State University, Colby, \textsuperscript{2}Oregon State University-EOARC Burns, \textsuperscript{3}Iowa State University, Ames, \textsuperscript{4}University of Nebraska, North Platte, \textsuperscript{5}University of Idaho Nancy M. Cummings Research, Extension Education Center, Carmen, \textsuperscript{6}University of Illinois at Urbana-Champaign, \textsuperscript{7}University of Florida, North Florida Research and Education Center, Marianna, \textsuperscript{8}Lauderdale Enterprises, Inc., Augusta, MI, \textsuperscript{9}University of Missouri, Columbia, \textsuperscript{10}Department of Animal Science, South Dakota State University, Brookings, \textsuperscript{11}University of California-Davis

10:00 AM

History of the development of the Dairy Cattle Reproduction Council (DCRC) and impacts of the DCRC on dairy cattle reproductive management.

M. C. Lucy\textsuperscript{1}, University of Missouri, Columbia

10:30 AM

Physiological and management advances enhancing adoption of applied reproductive management procedures in beef cattle.

D. J. Patterson\textsuperscript{1}, R. F. Cooke\textsuperscript{1}, G. R. Dahlke\textsuperscript{1}, R. N. Funston\textsuperscript{1}, J. B. Hall\textsuperscript{1}, G. C. Lamb\textsuperscript{1}, J. Lauderdale\textsuperscript{1}, G. A. Perry\textsuperscript{1}, and A. L. Van Eenennaam\textsuperscript{1}, \textsuperscript{1}University of Missouri, Columbia, \textsuperscript{2}Oregon State University-EOARC Burns, \textsuperscript{3}Iowa State University, Ames, \textsuperscript{4}University of Nebraska, North Platte, \textsuperscript{5}Department of Animal & Veterinary Sciences, University of Idaho Moscow \textsuperscript{6}University of Florida, North Florida Research and Education Center, Marianna, \textsuperscript{7}Lauderdale Enterprises, Inc., Augusta, MI, \textsuperscript{8}Department of Animal Science, South Dakota State University, Brookings, \textsuperscript{9}University of California-Davis

11:00 AM

Physiological and management advances enhancing adoption of applied reproductive management procedures in dairy cattle.

J. S. Stevenson\textsuperscript{1} and L. G. D. Mendonça, Kansas State University, Manhattan

11:30 AM

Impacts of temperament on reproductive performance of Bos indicus and B. taurus beef females.

R. F. Cooke\textsuperscript{1}, Oregon State University-EOARC Burns

12:00 PM

Estrus: Association with productive parameters and implications to fertility.

R. L. A. Cerri\textsuperscript{1}, B. F. Silper\textsuperscript{1}, T. A. Burnett\textsuperscript{1}, A. M. L. Madureira\textsuperscript{2}, J. L. M. Vasconcelos\textsuperscript{2}, and L. Polsky\textsuperscript{1}, \textsuperscript{1}Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, \textsuperscript{2}Sao Paulo State University, Botucatu, Brazil
**Production, Management and the Environment Symposium:**
Impacts of Livestock Production on Environmental Reactive Nitrogen

**Chair:** April B. Leytem, USDA-ARS

9:30 AM - 12:00 PM

151 E/F

9:30 AM 1287

**The world’s nitrogen cycle and human impacts.**
J. Ham*, Colorado State University, Fort Collins

10:00 AM 1288

**Reactive N emissions from beef cattle feedlots.**

10:20 AM 1289

**Reactive nitrogen losses from dairy production systems.**
A. B. Leytem¹ and C. A. Rotz², ¹USDA-ARS, Kimberly, ID, ²USDA-ARS Pasture Systems and Watershed Management Research Unit, University Park, PA

10:40 AM 1290

**Reactive N emissions from crops and pastures.**
C. Wagner-Riddle* and K. Congreves, University of Guelph, ON, Canada

11:00 AM 1291

**Measurement and mitigation of reactive nitrogen species from swine and poultry production facilities.**
W. Powers* and M. Capelart, Michigan State University, East Lansing

11:20 AM 1292

**Modeling atmospheric reactive nitrogen.**
J. O. Bash*, K. Foley*, J. T. Walker*, M. W. Shepard*, K. E. Cady-Pereira¹, S. Napelenok¹, D. K. Henze¹, and E. J. Cooter¹, ¹US EPA, Research Triangle, NC, ²Environmental Canada, Toronto, ON, Canada, ³Atmospheric and environmental Research Inc., Lexington, MA, ⁴University of Colorado, Boulder

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**Toxic Plants Symposium**

**Chair:** T. Zane Davis, USDA-ARS

Sponsor: USDA-ARS

9:30 AM - 12:30 PM

150 E/F

9:30 AM 766

**Is there a difference between exposures to one or two plant toxins?**
K. D. Welch*, USDA-ARS, Poisonous Plant Research Laboratory, Logan, UT

9:55 AM 1767

**Resistance to toxic plants: The right animal at the right time in the right pasture.**
B. T. Green¹, K. D. Welch¹, J. W. Keele², T. G. McDanel², and J. A. Pfister¹, ¹USDA-ARS, Poisonous Plant Research Laboratory, Logan, UT, ²USDA-ARS, US Meat Animal Research Center, Clay Center, NE

10:20 AM 1768

**Using divergent selection and genomics to uncover genetic variation underlying larkspur tolerance and susceptibility in cattle.**

10:45 AM

**Break**

11:10 AM 1769

**The relationship between swainsonine-containing plants and endophytic fungi.**
D. Cook¹, D. R. Gardner, and J. A. Pfister, USDA-ARS Poisonous Plant Research Laboratory, Logan, UT

11:35 AM 1770

**Alleviation and mitigation of fescue toxicosis.**
G. E. Aiken¹, USDA-ARS Forage-Animal Production Research Unit, Lexington, KY

12:00 PM 1771

**Effects of high selenium forages on reproduction in sheep.**
Z. Davis*, USDA-ARS, Logan, UT
Animal Health: Immunology and Gut Health

Chair: Michael A. Ballou, Texas Tech University; Nicole C. Burdick Sanchez, USDA-ARS, Livestock Issues Research Unit

2:00 PM - 5:00 PM
155 D

2:00 PM 172 Porcine intestinal explants as *ex vivo*/*in vitro* model to study gastrointestinal disease.
*N. Reisinger*, P. Fuhrmann, C. Emsenhuber, B. Grenier, E. Mayer, and G. Schatzmayr, BIOMIN Research Center, Tulln, Austria

*D. B. Jensen* and *A. R. Kristensen*, University of Copenhagen, Department of Large Animal Sciences, Frederiksberg, Denmark

2:30 PM 174 Heat stress increases gut permeability in pigs – application of a non-invasive assay.
*N. Reisinger*, S. Schaumberger, I. Dohnal, B. Doupovec, E. Mayer, and G. Schatzmayr, 1BIOMIN Research Center, Tulln, Austria, 2BIOMIN Holding GmbH, Getzersdorf, Austria

2:45 PM 175 The effect of various parameters measured at farrowing on subsequent pig performance.

3:00 PM 176 Environmental persistence of porcine epidemic diarrhea virus, porcine delta corona virus, and transmissible gastroenteritis in feed ingredients.
*M. P. Trudeau*, H. Verma, F. Sampedro, P. E. Urriola, G. C. Shurson, and S. M. Goyal, 1Department of Animal Science, University of Minnesota, St. Paul, 2Veterinary Population Medicine, University of Minnesota, St. Paul

3:15 PM 177 Bovine macrophage phenotype influences inflammatory response to lipopolysaccharide.
*W. Raphael* and G. A. Contreras, Michigan State University, East Lansing

3:30 PM 178 High immune response technology for use in commercial swine herds: A broad based approach to disease resistance.
*J. D. Schmied*, S. L. Cartwright, P. Rupa, and B. Mallard, 1University of Guelph, ON, Canada, 2Department of Animal Biosciences, Centre for Genetic Improvement of Livestock, University of Guelph, ON, Canada

3:45 PM 179 Immunomodulatory activities of polyphenol extract from Cowpea (*Vigna unguiculata*) on bovine polymorphonuclear neutrophils.
*S. Adjei-Fremah*, L. E. Jackai, K. Schimmel, and M. Worku, North Carolina Agricultural and Technical State University, Greensboro

4:00 PM 180 Prevalence of digital dermatitis in Canadian Holsteins classified as high, average or low antibody and cell-mediated immune responders.
*S. L. Cartwright*, F. Malchiodi, K. A. Thompson-Crispi, F. Miglior, and B. Mallard, 1University of Guelph, ON, Canada, 2Centre of Genetic Improvement of Livestock University of Guelph, ON, Canada, 3Trouw Nutrition Agresearch, Guelph, ON, Canada, 4Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada

4:15 PM 181 MiRNAseq of neutrophils during the transition period in cows with divergent metabolic phenotypes.
*M. A. Crookenden*, C. G. Walker, A. Heiser, J. J. Loor, K. M. Moyes, J. K. Kay, S. Meier, A. Murray, V. S. R. Dukkipati, M. D. Mitchell, and J. R. Roche, 1University of Illinois at Urbana-Champaign, 2Department of Animal and Avian Sciences, University of Maryland, College Park, 3Massey University, Palmerston North, New Zealand, 4AgResearch, Palmerston North, New Zealand, 5University of Queensland, Queensland, Australia
## Beef Species Symposium: Improving Welfare of Beef Cattle

**Chair:** Judson T. Vasconcelos, Merck & Co

**Sponsor:** Novus

**Time:** 2:00 PM - 5:00 PM  
**Location:** 150 B/C

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>2:00 PM</td>
<td>Welcoming Remarks</td>
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</tbody>
</table>
| 2:05 PM | Assessing and improving welfare in cow calf systems.  
* C. B. Tucker*, University of California-Davis |
| 2:35 PM | Best management practices for weaned calves for improved health and well-being.  
* C. R. Krehbiel*, B. K. Wilson, C. J. Richards, and D. L. Step, Oklahoma State University, Stillwater |
| 3:05 PM | Dairy cow culling – Best practices and industry trends.  
* J. Walker*, Dean Foods, Dallas, TX |
| 3:35 PM | Welfare assessments of low stress handling in finishing feedlot cattle.  
* K. S. Schwartzkopf-Genswein*, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada |
| 4:05 PM | Evolution of animal welfare at packing plants.  
* L. N. Edwards-Callaway*, JBS USA LLC, Greeley, CO |
| 4:35 PM | Panel Discussion                             |
| 4:50 PM | Concluding Remarks                           |

## Breeding and Genetics: Selection for Health and Fertility

**Chair:** Christian Maltecca, North Carolina State University

**Time:** 2:00 PM - 5:00 PM  
**Location:** Grand Ballroom I

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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| 2:00 PM | Genetic analysis of superovulation and embryo transfer traits in Holstein cattle.  
* K. L. Parker Gaddis*¹, S. Dikmen², J. B. Cole¹, and P. J. Hansen¹, ¹Department of Animal Sciences, University of Florida, Gainesville, ²Uludag University, Faculty of Veterinary Medicine, Department of Animal Science, Bursa, Turkey, ³Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD |
| 2:15 PM | Genetic correlations of hoof lesions and trimming status with feet and leg conformation traits in Canadian Holsteins.  
* F. Malchiardi*¹, A. M. Christen², D. F. Kelton¹, F. S. Schenkel¹, and F. Miglior¹,⁴ ¹Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, ²Valacta, Sainte-Anne-De-Bellevue, QC, Canada, ³Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, ⁴Canadian Dairy Network, Guelph, ON, Canada |
| 2:30 PM | Genetic parameters for number of embryos produced by superovulated donors as heifers or cows using an in vivo or in vitro technique.  
* C. Jaton*¹², A. Koeck¹, M. Sargolzaei¹², C. A. Price³, C. Baes¹, F. S. Schenkel¹, and F. Miglior¹,⁴ ¹Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, ²Semex Alliance, Guelph, ON, Canada, ³Faculté de médecine vétérinaire, Université de Montreal, St-Hyacinthe, QC, Canada, ⁴Canadian Dairy Network, Guelph, ON, Canada |
* K. Kaniyamattam¹, J. Block³, P. J. Hansen¹, and A. De Vries²⁴, ¹Department of Animal Sciences, University of Florida, Gainesville, ²OvaTech LLC, Gainesville, FL |
| 3:00 PM | Single step genomic prediction accuracies for lactation and reproduction traits in Yorkshire sows.  
* D. M. Thekkot²⁴, R. A. Kemp⁴, N. J. Boddicker², and G. Plastow⁴, ¹Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Genesus Inc, Lethbridge, AB, Canada, ³Livestock Genetec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada |
| 3:15 PM | Influence of first calving date on stayability in Bos indicus crossbred cows.  
* B. N. Engle⁴, C. A. Gill, J. O. Sanders, D. G. Riley, J. E. Sawyer, and A. D. Herring, Department of Animal Science, Texas A&M University, College Station |

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3:30 PM  
**Break**

3:45 PM 385  
**Use of a threshold animal model to estimate calving ease and stillbirth (Co)variance components for US Holsteins.**  
J. B. Cole1, D. J. Null1, and S. Tsuruta1,  
1Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD,  
2University of Georgia, Athens

4:00 PM 386  
**Genetic parameters for production traits and heifer pregnancy in Red Angus cattle.**  
R. J. Boldt1, S. E. Speidel1, M. G. Thomas1, L. Keenan1, and R. M. Enns1,  
1Department of Animal Sciences, Colorado State University, Fort Collins,  
2Red Angus Association of America, Denton, TX

4:15 PM 387  
**Daily rumination time in Italian Holstein cows: Heritability and correlation with milk production.**  
R. Moretti1, R. Bozzi1, C. Maltecca2, F. Tiezzi1, S. Chessa1, D. Bar1, and S. Biffani3,  
1University of Florence, Italy,  
2North Carolina State University, Raleigh,  
3Institute of Agricultural Biology & Biotechnology - CNR, Lodì, Italy,  
4SCR Europe, Gariga di Podenzano, Italy

4:30 PM 388  
**Relationship between linear type and fertility traits in Nguni cows.**  
T. J. Zindove1, K. A. Nephawe2, S. P. Ndou3, and M. Chimonyo3,  
1University of KwaZulu-Natal, Pietermaritzburg, South Africa,  
2Tshwane University of Technology, Pretoria, South Africa,  
3University of Manitoba, Winnipeg, MB, Canada

4:45 PM 389  
**Estimation of genetic parameters for birth to weaning traits in meat goats.**  
K. M. Andries1, F. Bebe1, A. McKay2, A. Bodrick1, and A. Hartell3,  
1University of Kentucky,  
2Kentucky State University, Frankfort

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**Development of a Hazard Analysis for Animal Food Performed for Compliance with the Federal Food Safety Modernization Act (AFIA/IFEEDE)**

Chair: R. S. Sellers, American Feed Industry Association  
Sponsor: AFIA  
2:00 PM - 5:00 PM  
Grand Ballroom B/D

2:00 PM  
**Introductory Remarks**  
Grand Ballroom B/D

2:20 PM  
**Requirements of the Hazard Analysis Section of the Animal Food Rules.**  
D. Edwards, Center for Veterinary Medicine, US Food and Drug Administration

2:50 PM  
**Review process and categories of hazards for animal food.**  
J. Evanson, Center for Animal Health and Food Safety, University of Minnesota

3:30 PM  
**Findings of the review process.**  
T. Goldsmith, Center for Animal Health and Food Safety, University of Minnesota

4:10 PM  
**Animal food hazards report and proposed use.**  
J. Evanson, T. Goldsmith, Center for Animal Health and Food Safety, University of Minnesota

4:30 PM  
**Discussion**

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**EAAP Symposium:**  
**Genomic Selection is Transforming Cattle Breeding**

Chair: Ignacy Misztal, University of Georgia  
Sponsor: EAAP  
2:00 PM - 5:00 PM  
Grand Ballroom J

2:00 PM 407  
**ASAS-EAAP Speaker: Genomic selection for methane emission.**  
Y. de Haas1, J. E. Pryce3, E. Wall1, S. McParland4, C. I. V. Manzanilla Pech1, G. Difford5, and J. Lassen5,  
1Animal Breeding and Genomics Centre, Wageningen UR Livestock Research, Netherlands,  
2Agribio, Department of Economic Development, Jobs, Transport and Resources and La Trobe University, Melbourne, Australia,  
3SRUC, Edinburgh, United Kingdom,  
4Teagasc, Moorepark, Fermoy, Co. Cork, Ireland,  
5Center of Quantitative Genetics and Genomics, Department of Molecular Biology and Genetics, Aarhus University, Foulum, Denmark

2:45 PM 408  
**ASAS-EAAP Speaker: How is genomics changing cattle breeding?.**  
D. Boichard1, V. Ducrocq1, P. Croiseau1, and S. Fritz1,2,  
1GABI, INRA, AgroParisTech, Université Paris Saclay, Jouy-en-Josas, France,  
2Allice, Paris, France
3:30 PM 409  ASAS-EAAP Speaker: Genomic prediction using imputed sequence data in dairy and dual purpose breeds. M. Erbe, M. Frischknecht, H. Pausch, R. Emmerling, T. H. Metzwieser, B. Gredler, B. Bapst, I. Consortium, K. U. Götz, and H. Simianer, 1Bavarian State Research Centre for Agriculture, Institute for Animal Breeding, Grub, Germany, 2Georg-August-University, Department of Animal Sciences, Animal Breeding and Genetics Group, Göttingen, Germany, 3Qualitas AG, Zug, Switzerland, 4Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences HAFL, Zollikofen, Switzerland, 5 Technische Universität München, Chair of Animal Breeding, Freising, Germany, 6Norwegian University of Life Sciences, Department of Animal and Aquacultural Sciences, Ås, Norway, 7Interbull Centre, Uppsala, Sweden

4:15 PM 410  ASAS-EAAP Speaker: Multi-breed genomic evaluations for 1 million beef cattle in Ireland. A. Cromie, R. Evans, F. Kearney, D. Berry, M. C. McClure, and J. McCarthy, 1Irish Cattle Breeding Federation, Bandon, Ireland, 2Irish Cattle Breeding Federation, Bandon, Co. Cork, Ireland, 3Teagasc, Moorepark Research Centre, Fermoy, Cork, Ireland, 4Irish Cattle Breeding Federation, Cork, Ireland

.Extension Education

**Chair: Joseph Dalton, University of Idaho**

2:00 PM - 4:00 PM

155 C

2:00 PM  579 [WS]  Survey of serum trace mineral concentrations in weaned Montana ram lambs. C. M. Page, M. Van Emon, S. Spear, T. W. Murphy, J. G. P. Bowman, and W. C. Stewart, 1Montana State University, Bozeman, 2University of Wisconsin-Madison

2:15 PM  580  Breakfast on the Farm event is an effective learning activity and improves consumer perceptions of dairy production. J. M. Smith and T. A. Ferris, 1University of Vermont, Burlington, VT, 2Michigan State University, East Lansing

2:30 PM  581  Breakfast on the Farm, an educational farm tour, improves consumer trust in animal care, food safety and modern conventional dairy production. T. A. Ferris, J. M. Smith, E. M. Richer, M. Welker, J. Stechschulte, M. A. Danckel, and A. E. Kuschel, 1Michigan State University, East Lansing, 2University of Vermont, Burlington, VT, 3The Ohio State University Extension, Wauseon, 4Michigan State University Extension, Alpena, 5Michigan State University Extension, Clinton Twp

2:45 PM  582  Creation, delivery, and assessment of the livestock education and certification for agricultural law enforcement extension program. C. Wickens, M. J. Hersom, R. G. Easterly III, E. Jennings, B. Myers, J. Shaffri, B. Stice, and J. Weir, 1University of Florida, Gainesville, 2Department of Animal Sciences, University of Florida, Gainesville

3:00 PM  583  Benchmark demographics of the Mississippi feeder calf board sale program. E. A. Caldwell, B. B. Karisch, J. M. Riley, and J. A. Parish, 1Mississippi State University, Mississippi State, 2Oklahoma State University, Stillwater, 3Mississippi State University, Prairie

3:15 PM  584  The show-me-select replacement heifer program: Adding value to beef herds in Missouri. J. W. C. Locke, J. M. Thomas, B. E. Bishop, J. M. Abel, S. E. Poock, D. S. Brown, J. E. Decker, and D. J. Patterson, University of Missouri, Columbia

3:30 PM  585  Perceived mastitis costs and milk quality management practices among Southeastern United States dairy producers. D. T. Nolan, C. Blakely, P. D. Krawczel, C. S. Petersson-Wolfe, G. M. Pighetti, A. Stone, S. Ward, and J. M. Bewley, 1University of Kentucky, Lexington, 2University of Tennessee, Knoxville, 3Virginia Polytechnic Institute and State University, Blacksburg, 4Mississippi State University, Mississippi State
Growth and Development Symposium:  
New -OMICS Technologies to Understanding the Biological Processes and Network Pathways Associated with Cattle Growth and Health

Chair: Gary J. Hausman, University of Georgia; Angela Canovas, University of Guelph

Sponsor: EAAP

2:00 PM - 5:00 PM
150 G

2:00 PM
Introductory Remarks

2:15 PM  783
Objective-oriented genomic relationship matrices.
A. Reverter*, CSIRO Agriculture, Brisbane, Australia

2:55 PM  784
Multi-omics data resources and use in genetic improvement of cattle growth and health.
M. G. Thomas*, S. J. Coleman, S. E. Speidel, and R. M. Enns, Department of Animal Sciences, Colorado State University, Fort Collins

3:35 PM
The new bovine reference assembly and its value for genomic research.
J. F. Medrano, University of California-Davis

4:15 PM
Metagenomics and transcriptomics associated with adiposity and feed efficiency in beef cattle.
L. Guan, University of Alberta, Canada

Horse Species Symposium:  
Nutrition and Immunology

Chair: Fernanda Camaro, University of Kentucky

2:00 PM - 4:30 PM
155 A

2:00 PM  815
Nutritional immunology for the geriatric horse.
A. A. Adams*, The Gluck Equine Research Center, University of Kentucky, Lexington

2:30 PM  816
Nutrition and immunity: General principles.
K. C. Klasing*, University of California-Davis

3:00 PM  817
Optimizing nutrition to improve immune function in horses.
L. K. Warren*, University of Florida, Gainesville

3:30 PM  818
Effect of selenium and vitamin E supplementation on blood glutathione peroxidase activity and selenium in moderately exercised horses.
E. Velázquez Cantón*, A. H. Ramírez Pérez, L. A. Zarco Quintero, R. Rosiles Martínez, and J. C. Ángeles Hernández, FMVZ-UNAM, Mexico

3:45 PM  819
Age-related changes in select fecal bacteria in foals.
M. B. Pyles*, A. L. Fowler1, V. Bill6, B. E. Harlow1,2, A. Crum1, S. H. Hayes1, M. D. Flythe1,2, and L. M. Lawrence1,
1University of Kentucky, Lexington, 2USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY

4:00 PM  820
Changes in equine hindgut fermentation and carbohydrate digestion in response to varying sources of nitrogen.
M. O. Lass1, J. S. Drouillard, J. M. Koubra, C. I. Vahl, Y. Wei, and T. L. Douthit, Kansas State University, Manhattan

4:15 PM  821
Effects of meal size and frequency on the equine cecal microbiota.
E. B. Venable1, S. S. Bland1, H. Holscher2, T. W. Liu1, and K. S. Swanson1, 1Southern Illinois University, Carbondale,
2University of Illinois at Urbana-Champaign
Livestock Water Symposium
Chair: John J. Wagner, Colorado State University
2:00 PM - 5:00 PM
Grand Ballroom H

2:00 PM 872 Understanding blue and green water for feed production in animal agriculture.
J. G. Warren*, Oklahoma State University, Stillwater

2:45 PM 873 Mineral balances including TMR, drinking water and assay minerals in the milk.
A. R. Castillo*, UC Cooperative Extension, Merced, CA

3:15 PM Break

3:30 PM 874 Water: The frequently neglected nutrient in growing and finishing diets.
J. J. Wagner* and T. E. Engle, Colorado State University, Fort Collins

4:00 PM 875 Simultaneous monitoring of water consumption in eight double pens as a tool for improving welfare and predicting diseases and unwanted behavioral changes in finisher pigs.
K. N. Dominiak1, L. J. Pedersen2, and A. R. Kristensen1, 1University of Copenhagen, Department of Large Animal Sciences, Frederiksberg, Denmark, 2Aarhus University, Department of Animal Science Behavior and Stress Biology, Denmark

4:15 PM 876 Growth and health performance of dairy calves drinking reverse osmosis water compared to municipal water.
N. D. Senevirathne*, J. L. Anderson, and M. Rovai, Dairy Science Department, South Dakota State University, Brookings

4:30 PM 877 Effect of protein supplementation on low-quality forage utilization and nitrogen balance by lambs drinking saline water.
J. I. Arroquy1, A. Lopez2, and A. Juarez Sequeira3, 1INTA - CONICET - UNSE, Santiago del Estero, Argentina, 2INTA EEA Santiago del Estero, Santiago del Estero, Argentina, 3CONICET-F AyA UNSE, Santiago del Estero, Argentina

Meat Science and Muscle Biology Symposium:
Science of Red Meat Consumption
Chair: Luigi Faucitano, Laval University
2:00 PM - 5:00 PM
155 B

2:00 PM Welcoming Remarks

2:05 PM 906 Beef’s role in a healthy diet.
J. N. Martin*, D. R. Woerner, R. Delmore, K. E. Belk, and J. D. Tatum, Colorado State University, Fort Collins

2:45 PM 907 How certain can we be about the association of meat consumption and cancer?
D. M. Klurfeld*, USDA-ARS, Beltsville, MD

3:25 PM 908 The role of red and processed meat in colorectal cancer development: A perspective.
S. De Smet*, Ghent University, Melle, Belgium

4:05 PM 909 Is there a role for meat in a plant-based diet?
M. A. Binnie*, Canadian Pork Council, London, ON, Canada

4:45 PM Panel Discussion
Nonruminant Nutrition: Feed Ingredients and Digestibility

Chair: Miguel Cervantes, University of Baja California

Sponsor: H. J. Baker

2:00 PM - 5:00 PM

Grand Ballroom F

2:00 PM 969  
Effects of high protein canola meal on digestibility of phosphorus and growth performance of weanling pigs. 
Y. She1, H. H. Salgado2, D. Li3, and H. H. Stein4, 1 University of Illinois at Urbana-Champaign, 2Laval University, Quebec City, QC, Canada, 3CAU, Beijing, China

2:15 PM 970  
Effect of heat stress on the apparent and standardized ileal digestibilities of amino acids in growing pigs. 
A. Morales5, M. Perez5, P. Castro5, N. O. Ibarra5, E. Avelar5, L. H. Baumgard6, and M. Cervantes5, 5ICA - Universidad Autonoma de Baja California, Mexicali, Mexico, 6Iowa State University, Ames

2:30 PM 971  
Effect of methionine sources and graded levels of sulfur amino acids on the growth performance of post-weaning piglets. 
F. Molist5, P. Buttin5, M. Bouwhuis5, and P. J. van der Aar5, 5Schoorl Feed Research, Lelystad, Netherlands, 5Novus International, Brussels, Belgium

2:45 PM 972  
Digestible calcium requirement for 100 to 130 kg pigs. 
L. A. Merriman5, C. L. Walk6, C. M. Parsons5, and H. H. Stein5, 5University of Illinois at Urbana-Champaign, 6AB Vista, Marlborough, United Kingdom

3:00 PM 973  
Effects of inclusion of canola meal in weanling pig diets containing different concentrations of energy. 
T. F. Pedersen5, Y. Liu5, and H. H. Stein5, 5Aarhus University, Denmark, 5University of California-Davis, 5University of Illinois at Urbana-Champaign

3:15 PM 974  
Effect of increasing concentrations of digestible calcium and digestible phosphorus on apparent total tract digestibility of calcium and phosphorus by pigs. 
J. C. González-Vega5, C. L. Walk2, M. R. Murphy5, and H. H. Stein5, 5University of Illinois at Urbana-Champaign, 2AB Vista, Marlborough, United Kingdom

3:30 PM  
Break

3:45 PM 975  
Trans-generational effect of feeding genetically modified mCry1Ac corn to laying hens and offspring on offspring growth and health. 
L. Chen*, R. Zhong, L. Zhang, L. Gao, and H. Zhang, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China

4:00 PM 976  
Effects of methionine or arginine supplementation and environmental temperature on performance, carcass traits and meat quality of finishing pigs. 
J. K. Htoo5, C. A. Garbossa2, H. Silveira2, L. G. Amaral2, N. A. Barbosa5, and V. S. Cantarelld, 5Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany, 2Federal University of Lavras, Brazil, 5Evonik Industries do Brazil, São Paulo, Brazil

4:15 PM 977  
A protective effect of IGF-activated plasma protein (CTCgrow) on lipopolysaccharide-induced intestinal dystrophy in rats. 
M. Kwak5, J. Kim1, J. M. Lee2, S. W. Jung2, and K. Y. Whang4, 1Korea University, Seoul, The Republic of Korea, 2CTC BIO, Seoul, The Republic of Korea

4:30 PM 978  
Effects of α-Galactosidase supplementation on the energy value of soybean meal and growth performance of weanling pigs. 
C. D. Espinosa5, University of the Philippines Los Baños, Laguna, Philippines; University of Illinois at Urbana-Champaign

4:45 PM 979  
Use of crystalline amino acids in meal feeding does not affect nitrogen retention in growing pigs compared to protein-bound amino acids. 
S. A. Lee* and B. G. Kim, Konkuk University, Seoul, The Republic of Korea
Physiology and Endocrinology: Nutrition, Reproduction and Metabolism in Dairy Cattle
Chair: Ronaldo L.A. Cerri, University of British Columbia
2:00 PM - 4:30 PM
151 G

2:00 PM 1100 Body condition score affects milk yield and energy balance of dairy cows after a short or no dry period.
A. van Knegal* and B. Kemp, Adaptation Physiology Group, Wageningen University, Netherlands

2:15 PM 1101 The effect of stocking rate and cow breed on resumption of cyclicity, blood indicators of energy status, uterine health and reproductive parameters in pasture-based dairy systems.
S. Leane*, P. Lonergan, J. Kenneally, and S. Butler, Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland, School of Agriculture and Food Science, University College Dublin, Ireland

2:30 PM 1102 Implications of acute or chronic pasture restriction on indicators of metabolic status in grass-based dairy cows.
F. Curran*, E. Kennedy, E. Lewis, P. Lonergan, S. Butler, Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland, School of Agriculture and Food Science, University College Dublin, Ireland

2:45 PM 1103 The effects of ketosis, feed restriction, and an endotoxin challenge on circulating serotonin (5-HT) in lactating dairy cows.

3:00 PM 1104 Transcriptome analysis reveals fundamental differences between liver of neonatal calves and transition dairy cows.
F. Batistel*, M. Vailati Riboni, A. Agrawal, and J. J. Loor, University of Illinois at Urbana-Champaign

J. Vilkki*, M. Fischer, I. Tapio, S. Alenjärvi, and J. J. Shingfield, Natural Resources Institute Finland, Jokioinen, Aberystwyth University, United Kingdom

3:45 PM 1106 Identification of effects of different forage source on metabolism and function of liver from dairy cows using systematic approaches.
H. Z. Sun*, H. Y. Li, D. Wang, L. L. Guan, and J. X. Liu, Institute of Dairy Science, Zhejiang University, Hangzhou, China, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

4:00 PM 1107 Early postpartum administration of sodium salicylate to multiparous dairy cattle is associated with alterations in feeding behavior up to 120 days in milk.
A. J. Carpenter*, C. M. Ylioja, and B. J. Bradford, Kansas State University, Manhattan

4:15 PM 1108 Proteomic analysis reveals increased abundance of inflammation-related proteins in adipose tissues from postpartum dairy cows treated with sodium salicylate.
M. Zachut*, R. Montgomery, Y. Levin, L. Mamedova, and B. J. Bradford, Institute of Animal Science, Volcani Center, Bet Dagan, Israel, Kansas State University, Manhattan, The Nancy and Stephen Grand Israel National Center for Personalized Medicine, Weizmann Institute of Science, Rehovot, Israel
**Production, Management and the Environment: Reproduction**

**Chair: Felipe Cardoso, University of Illinois**

2:00 PM - 5:00 PM  
151 E/F

2:00 PM 1253  
Evaluation of different synchronization and early pregnancy diagnosis methods in postpartum Holstein cows.  
A. H. Shahzad1*, A. Sattar2, I. Ahmad2, A. Y. Qamar2, and N. Ahmad2, 1University of Veterinary and Animal Sciences, Lahore, Pakistan, 2Department of Theriogenology, University of Veterinary and Animal Sciences, Lahore, Pakistan.

2:15 PM 1254  
**WS** Effects of octacosanol on non-seasonal spermatogenesis in ovine.  
J. W. Dickison1*, Angelo State University, San Angelo, TX

2:30 PM 1255  
**WS** Winter grazing or confinement feeding heifer development strategies differ in energetics as measured by 24 hour heart rate and activity.  
M. K. Petersen5, J. M. Muscha5, and A. J. Roberts5, 1USDA-ARS Fort Keogh Livestock and Range Research Laboratory, Miles City, MT, 2Fort Keogh Livestock & Range Research Laboratory, Miles City, MT

2:45 PM 1256  
**WS** Effects of dietary phytoestrogens on testicular growth and semen quality characteristics in developing Angus bulls.  
S. C. Yurrita1*, Angelo State University, San Angelo, TX

3:00 PM 1257  
Reproductive performance of lactating dairy cows managed for first service with the Double-Ovsynch or Presynch-Ovsynch protocol and different duration of the voluntary waiting period.  
M. L. Stangaferro1, R. Wijma, M. Masello, and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

3:15 PM 1258  
Estrus detection intensity and accuracy, and optimal timing of insemination with automated activity monitors for dairy cows.  
C. S. Leroy1, J. S. Walton1, and S. J. LeBlanc1*, 1University of Guelph, ON, Canada, 2Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

3:30 PM  
Break

3:45 PM 1259  
Beta-hydroxybutyrate concentration influences conception date in young beef cows in Tennessee.  
J. D. Hobbs1*, E. R. Cope1, S. R. Edwards1, Z. D. McFarlane1, and J. T. Mulliniks2, 1University of Tennessee, Knoxville, 2University of Tennessee, Crossville

4:00 PM 1260  
Heifer development using stockpiled, dormant native forages delays gain without altering reproductive performance.  
Z. D. McFarlane1*, J. D. Hobbs1, E. R. Cope1, R. L. Nave1, and J. T. Mulliniks2, 1University of Tennessee, Knoxville, 2University of Tennessee, Crossville

4:15 PM 1261  
Effect of pre- and postnatal trace mineral (TM) source on Angus and Brangus heifer growth and body composition.  
D. M. Price1*, M. M. O’Neil1, W. B. Watson III1, R. West1, D. O. Rae1, D. M. Irskić1, M. J. Hersom1, and J. V. Yelich1, 1Department of Animal Sciences, University of Florida, Gainesville, 2College of Veterinary Medicine, University of Florida, Gainesville

4:30 PM 1262  
Effect of pre- and postnatal trace mineral (TM) source on Angus and Brangus heifer growth and reproductive performance.  
D. M. Price1*, M. M. O’Neil1, W. B. Watson III1, R. West1, D. O. Rae1, D. M. Irskić1, M. J. Hersom1, and J. V. Yelich1, 1Department of Animal Sciences, University of Florida, Gainesville, 2College of Veterinary Medicine, University of Florida, Gainesville

4:45 PM 1263  
Impacts of zinc, manganese, and copper source on mature bull trace mineral status and spermatozoa characteristics.  
A. L. Zeceska1*, M. Van Emom1, R. C. Waterman1, B. Eik1, J. S. Heldr1, and T. W. Geary1, 1USDA-ARS Fort Keogh LARRL, Miles City, MT, 2Montana State University, Bozeman, 3Micronutrients, Indianapolis, IN
Ruminant Nutrition: Forages and Crop Residues
Chair: Ken P. Coffey, University of Arkansas
2:00 PM - 5:00 PM
155 F

2:00 PM 1415 Evaluation of five cool season grasses and alfalfa-grass mixtures.
J. Paulson1, D. Holen2, D. Nicola3, and B. J. Heins4, 1University of Minnesota Extension, Rochester, 2University of Arkansas, Morrilton, 3University of Minnesota, Morris, 4University of Minnesota West Central Research and Outreach Center, Morris

2:15 PM 1416 A novel BM3 corn silage hybrid with floury kernel genetics improves lactational performance and feed efficiency in Holstein cows.
E. M. Remick1, S. M. Fredin1, K. W. Cotanch1, H. M. Dann1, C. S. Ballard1, J. P. Brouillette2, and R. J. Grant3, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2Dow AgroSciences, Mycogen Seeds, Indianapolis, IN

2:30 PM 1417 Alternative forage crops modify the composition and content of bovine milk fatty acids.
L. M. Cersosimo1, R. Tacoma1, S. Greenwood1, K. Juntwait2, A. F. Brito2, and J. Kraft1, 1University of Vermont, Burlington, 2University of New Hampshire, Durham

2:45 PM 1418 Effects of post-ethanol extraction sorghum silage as an alternative forage in growing and finishing diets on steer performance, carcass characteristic and nutrient digestibility.
C. P. Blank1, D. D. Loy2, and S. L. Hansen1, 1Iowa State University, Ames, 2Department of Animal Science, Iowa State University, Ames

3:00 PM 1419 Effect of lactic acid bacterial inoculants on the fermentation parameters and aerobic stability of sorghum-sudangrass silage.
x. Li1,2, Y. Zhu3, D. Vyas1, and A. T. Adesogan1, UF/IFAS, Gainesville, FL, 2Institute of Grassland Science, China Agricultural University, Beijing

3:15 PM 1420 Effects of feeding triticale and wheat silages on feed intake, milk production and composition, and enteric methane production in lactating dairy cows.
M. T. Harper1, J. Oh, F. Giallongo, G. Roth, and A. N. Hristov, The Pennsylvania State University, University Park

3:30 PM 1421 Effects of feeding sorghum and oat silages on feed intake, milk production and composition, and enteric methane production in lactating dairy cows.
M. T. Harper1, J. Oh, F. Giallongo, J. C. Lopes, G. Roth, and A. N. Hristov, The Pennsylvania State University, University Park

3:45 PM 1422 Effect of harvest method on digestibility of corn residue.
T. M. King1, M. L. Jolly-Breithaupt1, J. L. Gramkow1, J. C. MacDonald1, and T. J. Klopfenstein1, University of Nebraska-Lincoln

4:00 PM 1423 Supplementing corn on alfalfa pasture to alter growth performance, carcass, and quality traits.
C. Gresel1, C. Campbell1, L. Duizer1, B. W. McBride1, I. B. Mandell1, and C. Lafreniere1, 1University of Guelph, ON, Canada, 2Department of Animal Biosciences, University of Guelph, ON, Canada, 3Universite du Quebec en Abitibi-Temiscamingue, Rouyn-Noranda, QC, Canada

4:15 PM 1424 Effect of harvest method and ammoniation on apparent digestibility and intake of baled corn residue in lambs.
A. C. Conway2, T. M. King1, M. L. Jolly-Breithaupt1, J. C. MacDonald1, T. J. Klopfenstein1, and M. E. Drewnoski1, University of Nebraska-Lincoln

4:30 PM 1425 Effects of growing system and silage type on feedlot growth performance, carcass characteristics, and nutrient digestibility of beef steers.
P. R. B. Campanili1, J. O. Sarturi1, S. J. Trojan1, M. A. Ballou1, B. J. M. Lemos2, L. A. Ovinge3, and J. B. G. Mayorquin1, 1Texas Tech University, Lubbock, 2Universidade Federal de Goiás, Goiânia, Brazil, 3Uamorano, Tegucigalpa, Honduras

4:45 PM 1426 Effects of feeding green chopped winter forages on digestibility, ruminal fermentation and blood parameters in beef steers.
T. M. Schulmeister1, M. Ruiz- Moreno, M. E. Garcia-Ascolani, F. M. Ciriaco1, D. D. Henry1, J. Benitez1, J. C. B. Dubeux Jr.1, G. C. Lamb2, and N. DiLorenzo3, University of Florida, North Florida Research and Education Center, Marianna
Ruminant Nutrition:
Ruminal Fermentation

Chair: Jenny S. Jennings, Texas A & M AgriLife Research and Extension Center
2:00 PM - 5:00 PM
155 E

2:00 PM 1605 Rumen fluid metabolomics analysis associated with feed efficiency on crossbred steers.
V. M. Artegoitia1, A. P. Foote2, R. M. Lewis1, and H. C. Freely1, 1University of Nebraska-Lincoln, 2USDA-ARS, US Meat Animal Research Center, Clay Center, NE.

2:15 PM 1606 Enrichment of cattle rumen with bison rumen contents improves N digestion.
G. O. Ribeiro Jr.1, D. B. Oss2, Z. He1, V. Bremer1, R. J. Forster1, W. Yang1, K. A. Beauchemin1, and T. A. McAllister1, 1Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Department of Zootecnia, Universidade Federal de Viçosa, Viçosa, Brazil, 3Elanco Animal Health, Greenfield, IN.

2:30 PM 1607 Effect of nitrate, monensin and the combination of additives on rumen fermentation using a semi-continuous culture system.
M. Capelari1, K. A. Johnson1, B. Latack1, J. Roth1, and W. Powers1, 1Michigan State University, East Lansing, 2Washington State University, Pullman.

2:45 PM 1608 Metagenomic census of predominant ureC genes of ureolytic bacteria in the rumen of dairy cows.
D. Jin1,2, D. Zhao1,2, N. Zheng1,2, D. Bi1, Y. Beckers3, and J. Wang4,5, 1Ministry of Agriculture-Milk Risk Assessment Laboratory, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China, 3Gembloux Agro-Bio Tech, University of Liège, Gembloux, Belgium, 4State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 5Ministry of Agriculture - Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 6Ministry of Agriculture Laboratory of Quality & Safety Risk Assessment for Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

3:00 PM 1609 Rumen bacterial communities continue to shift five weeks after switching diets from conserved forage to pasture.
M. L. Bainbridge1, L. K. Saldinger, J. W. Barlow, J. P. Alvez, J. Roman, and J. Kraft, University of Vermont, Burlington.

3:15 PM 1610 Metabolome and microbiome associations after a grain and sugar challenge.
H. M. Golder1,2, S. Denman3, C. McSweeney3, and I. J. Lean1,2, 1Scibus, Camden, Australia, 2University of Sydney, Camden, Australia, 3CSIRO Animal, Food and Health Services, Queensland Bioscience Precinct, St. Lucia, Australia.

3:30 PM 1611 Ruminal dosing with Megasphaera elsdenii and strain persistence are associated with milk fat depression in Holstein cows.
F. Cacite1 and P. J. Weimer2, 1Federal University of Mato Grosso, Cuiabá, Brazil, 2USDA-ARS, Madison, WI.

3:45 PM 1612 Potential for live yeast culture to enhance nitrate mitigation of methanogenesis in Jersey dairy cattle.
R. A. Meller1, J. M. Ashworth1, A. M. Gehman1, and J. L. Firkins1, 1The Ohio State University, Columbus, 2Alltech, Inc., Nicholasville, KY.

4:00 PM 1613 Inhibition of methanogenesis by nitrate, with or without defaunation, in continuous culture.
B. A. Wenner1, B. K. Wagner, Z. Yu, N. St. Pierre, and J. L. Firkins, The Ohio State University, Columbus.

4:15 PM 1614 Does weaning age affect the development of ruminal and fecal microbiomes in dairy calves?
S. J. Meale1, S. Li2, P. Agevedo1, H. Derakhshan1, J. C. Plaizier1, M. Steele1, and E. Khaïjpour1, 1UMR Herbivores, INRA, Vetagro Sup, Saint-Genou-Champagnole, France, 2Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 3Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

4:30 PM 1615 Analysis methods differ in recovery of microbial glycogen.
M. B. Hall1, U. S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

4:45 PM 1616 Utilization of lactose by mixed ruminal microbes is affected by nitrogen type and level, and differs from utilization of glucose.
M. B. Hall1, U. S. Dairy Forage Research Center, USDA-ARS, Madison, WI.
Small Ruminant II
Chair: Maristela Rovai, South Dakota State University
2:00 PM - 4:15 PM
150 E/F

2:00 PM  Introductory Remarks

2:05 PM  1718  In vitro efficacy of three novel compounds on development and survival of gastrointestinal nematode larvae in feces of sheep.
J. E. Miller1, V. Kelly2, and J. M. Burke3, 1Louisiana State University, Baton Rouge, 2Louisiana State University School of Veterinary Medicine, Baton Rouge, 3USDA-ARS, Booneville, AR

2:20 PM  1719  Recovery of fibroblast cells upto 65 days of postmortem storage of sheep ear skin at 4°C.
M. Singh* and X. Ma, Fort Valley State University, Fort Valley, GA

2:35 PM  1720  Morphometric measurements and body weight affected by breed, age and sex in Sindh goat breeds population of Pakistan.
M. Moaeen-ud-Din1, G. Bilal1, J. M. Reecy2, M. S. Khan3, and S. Razzaq4, 1PMAS-Arid Agriculture University, Rawalpindi, Pakistan, 2Iowa State University, Ames 3University of Agriculture, Faisalabad, Pakistan

2:50 PM  1721  Effects of supplementing olive pomace as a feed additive on weight gain in Capris aegagrus hircus.
P. Urso*, M. M. Beverly, S. F. Kelley, M. J. Anderson, J. L. Leatherwood, K. J. Stutts, and S. Nair, Sam Houston State University, Huntsville, TX

3:05 PM  1722  Genetic and non-genetic effects on performance traits in a US population of dairy sheep.
T. W. Murphy*, M. Baldin1, Y. M. Berger2, R. L. Burgett3, P. W. Holman3, and D. L. Thomas1, 1University of Wisconsin-Madison, 2The Pennsylvania State University, Department of Animal Science, University Park, 3University of Wisconsin-Madison, Spooner Agricultural Research Station, 4National Sheep Improvement Program, Ames, IA

3:20 PM  1723  Effects of high concentrations of crude glycerin on feed intake and ruminal parameters of sheep.
E. H. C. B. van Cleef1,2, M. T. C. Almeida1,2, E. S. Castro Filho1, I. Monsignati1, H. L. Perez1,2, and J. M. B. Ezequiel1, 1São Paulo State University, Jaboticabal, Brazil, 2FAPESP, São Paulo, Brazil

3:35 PM  1724  Serum anti-mullerian hormone as an indicator of fertility in Katahdin ewes.
M. Acharya*, J. M. Burke2, E. Smyth2, L. Ngere2,3, and R. W. Rorie1, 1Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, 2USDA-ARS, Booneville, AR, 3Oak Ridge Institute for Science and Education, Oak Ridge, TN

3:50 PM  1725  Fatty acid composition of different fat depots from hair and wool x hair crossbred lambs supplemented with highly digestible fiber containing agro-byproducts on pasture.
C. Tripp3, J. H. Lee1, S. Wildeus2, A. Discua1, and D. Kafle1, 1Fort Valley State University, GA, 2Virginia State University, Petersburg
**POSTER PRESENTATIONS**

**Sponsor: Innovad**

**Poster Session V**

7:15 AM - 8:15 AM
Exhibit Hall A/B

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**Comparative Gut Physiology**

438  1  **β-hydroxybutyrate and glucose concentrations in the blood of dairy calves.**  
F. X. Suarez-Mena*, W. Hu, T. S. Dennis, T. M. Hill, J. D. Quigley and R. L. Schlotterbeck, Provimi, Brookville, OH

439  2  **Comparison of intestinal goblet cell staining methods in turkey poults.**  
S. O. Osho*, T. Wang, N. L. Horn and O. Adeola, Department of Animal Sciences, Purdue University, West Lafayette, IN

440  3  **The development of a cecum-cannulated gnotobiotic piglet model to study the human gut microbiota.**  

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**Physiology and Endocrinology: Environment, Metabolism, and Physiology**

1039  4  **WS**  
**Influence of sampling location and pregnancy on composition of the microbiome associated with the reproductive tract of the ewe.**  
K. E. Smith*, A. L. Garza, C. Robinson, R. L. Ashley and S. L. Ivey, New Mexico State University, Las Cruces

1040  5  **Use of doppler ultrasound and infrared thermography to evaluate scrotal insulation in Bradford bulls.**  
F. A. Barca Jr1, C. Koetz Jr1, G. R. Pereira2, S. R. Menegassi2, F. Morotti2, J. O. Barcellos2, L. A. Claus2 and M. M. Seneda2, 1UNOPAR, Arapongas, Brazil, 2NESPRO/UFRGS - Federal University of Rio Grande do Sul, Porto Alegre, Brazil, 3UEL - Universidade Estadual de Londrina, Brazil

1041  6  **Diurnal vaginal temperature cycles of senepol and crossbred beef heifers with different hair coat types and colors under tropical conditions.**  
H. L. Sánchez-Rodríguez1, Z. Contreras-Correa1, K. Domenech-Pérez2, G. Rivera-Collazo2, A. Casas-Guérnica1 and G. Muñiz-Colón1, 1University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico, 2University of Nebraska-Lincoln

1042  7  **Associations between the environmental conditions and vaginal temperature in wild type and slick-haired Puerto Rican Holstein cows.**  
H. L. Sánchez-Rodríguez1, Z. Contreras-Correa1, M. Pagán-Morales2, J. Curbelo-Rodríguez2, A. Mesonero-Morales2, C. Cabrera-Cabrera2 and G. Muñiz-Colón1, 1University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico, 2Department of Animal Science, University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico, 3Universidad ISA, Santiago, Dominican Republic

1043  8  **Impact of heat stress and metabolic endotoxemia on porcine ovarian function.**  

1044  9  **Heat stress induces distinct lipidomic profile in differentiating porcine adipocytes.**  
H. Qu1 and K. M. Ajuwon2, 1Purdue University, West Lafayette, IN, 2Department of Animal Sciences, Purdue University, West Lafayette, IN

1045 10  **Impact of temperature fluctuations in cooled-fresh semen on fertility of lactating dairy cows.**  
A. H. Souza1, H. J. Bessoff2 and E. Danzeisen3, 1Ceva Animal Health, Libourne, France, 2Dairy Management Solutions, Tulare, CA, 3Global AG Alliance, Tulare, CA

1046 11  **Effects of a 48h feed withdrawal on intraperitoneal core body temperature in growing pigs.**  
J. S. Johnson4, N. M. Chapel5 and C. J. Byrd2, 4USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN, 5Purdue University, West Lafayette, IN

1047 12  **The effect of exercise on heat tolerance and first lactation in pregnant Holstein heifers.**  
J. Johnson*, P. L. Steichen and T. G. Rozell, Kansas State University, Manhattan
Effect of exercise on ovarian function in cycling gilts.
A. M. Mesa1, A. M. Adkin1, A. L. Dias2, D. Y. Kim3, P. J. Hansen4 and C. J. Mortensen5, 1Department of Animal Sciences, University of Florida, Gainesville, 2University of Alberta, Edmonton, AB, Canada, 3Gachon University, Gyeonggi-do, The Republic of Korea

The effect of exogenous glucose infusion on early embryonic development in lactating dairy cows.
S. Leane1,2, M. M. Herlihy3, N. Forde4, M. C. Lucy5, P. Lonergan6 and S. Butler7, 1Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland, 2School of Agriculture and Food Science, University College Dublin, Ireland, 3University of Leeds, United Kingdom, 4University of Missouri, Columbia

Influence of cattle temperament on blood serum fatty acid content.
T. Gardner1, J. F. Legako1, N. C. Burdick Sanchez2, P. R. Broadway3, J. A. Carroll4 and R. C. Vann5, 1Utah State University, Logan, 2Livestock Issues Research Unit, USDA-ARS, Lubbock, TX, 3MAFES-Brown Loam, Mississippi State University, Raymond

Effects of intramammary LPS infusions on inflammation and reproductive parameters of dairy cows.
M. P. T. Coleson1, E. J. Northrop2, J. J. J. Rich2, G. A. Perry3, C. G. Hart4, K. J. McCarty5 and C. O. Lemley6, 1Mississippi State University, Mississippi State, 2Department of Animal Science, South Dakota State University, Brookings

Relationships of calf vigor at birth with calf size and circulating metabolites in fall-born beef calves.
J. M. Larson1, B. L. Vander Ley2 and A. M. Meyer3, 1Division of Animal Sciences, University of Missouri, Columbia, 2Department of Veterinary Medicine and Surgery, University of Missouri, Columbia

Effect of pregnancy on steroid and eicosanoid metabolizing enzymes in bovine reproductive tissues.
C. C. Campos1, A. C. C. Fernandes2, J. Hartling3, M. Kaur4, R. M. Dos Santos5 and R. L. A. Cerri6, 1FAMEV-UFU, Uberlândia, Brazil, 2Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 3Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 4Universidade Federal de Uberlândia, Brazil

Nonruminant Nutrition: Feed Ingredients

Growth performance and toxic response of broilers fed diets containing unfermented or fermented cottonseed meal.
J. L. Xiong1, L. Y. Wu1, H. L. Zhou2, Z. J. Wang3, F. T. Meng4 and L. H. Miao5, 1Hubei Key Laboratory of Animal Nutrition and Feed Science, Wuhan Polytechnic University, Wuhan, China, 2XiYang Engineering Research Center of Animal Medicine, Xiangyang Vocational and Technical College, Xiangyang, China

Protein value of eight triticale genotypes for pigs based on standardized ileal amino acid digestibility.
E. J. P. Strang1, M. Eklund1, P. Rosenfelder1, J. K. Htoo2 and R. Mosenthin3, 1University of Hohenheim, Institute of Animal Science, Stuttgart, Germany, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany

Effect of metabolizable energy and sulfur amino acid levels on productive performance and economic return of laying hens.
C. Gallardo1 and E. Salvador2, 1University of São Paulo, Pirassununga, Brazil, 2National University of San Luis Gonzaga, Ica, Peru

Intestinal microbiota, microbial metabolites and carcass traits are changed in a pig model fed a high-fat/low-fiber or a low-fat/high-fiber diet.
S. N. Heinritz1, E. Weiss2, M. Eklund3, T. Aumiller4, S. Messner5, C. M. E. Heyer6, S. Bischoff7 and R. Mosenthin8, 1University of Hohenheim, Institute of Animal Science, Stuttgart, Germany, 2University of Hohenheim, Department of Nutritional Medicine, Stuttgart, Germany

Use of zinc oxide nanoparticles as growth promoter for weaning pigs.
N. C. Milani1, N. Y. Ikeda, M. Shardella and V. S. Miyada, Universidade de São Paulo, Piracicaba, Brazil

Effect of dietary flaxseed oil on growth performance, nutrient digestibility, blood profiles, and meat quality in pigs.
P. Y. Zhao1, T. S. Li, S. Shammugam, S. Kathannan, R. X. Lan and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea

The effect of three levels of unmilled rice on growth performance and digestive tract development in broilers and ducks.
C. P. Villemarette1, E. Lyons, B. Chang, E. Ferguson and F. M. LeMieux, McNeese State University, Lake Charles, LA
Influence of zinc-methionine complex supplementation on reproductive performance and immunity of gestating-lactating sows under hot weather condition.
J. M. Romo, J. A. Romo, R. Barajas*, H. R. Güémez, J. Enriquez and G. Silva, FMVZ-Universidad Autónoma de Sinaloa, Culiacán, Mexico

Japanese quail (Coturnix japonica) responses to low protein diets supplemented with crystalline lysine, methionine, and threonine.
C. R. Herrera Cortés1, H. Bernal Barragán1,1, F. Sánchez Dávila1, J. E. Hernández Quiroz1, M. A. Montemayor Abundiz1 and M. Cervantes Ramírez1, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Mexico, 2ICA - Universidad Autónoma de Baja California, Mexicali, Mexico

Bioavailability of D-methionine relative to L-methionine for nursery pigs using slope-ratio assay.
C. Kong*, J. Y. Ahn and B. G. Kim, Konkuk University, Seoul, The Republic of Korea

Energy value of bakery meal and peanut flour meal for broiler chickens determined using the regression method.
F. Zhang1 and O. Adeola2, 1Purdue University, West Lafayette, IN, 2Department of Animal Sciences, Purdue University, West Lafayette, IN

Kinetics of lipid peroxidation in fats and oils as affected by lipid source, heating temperature, and length of heating.
S. C. Lindblom1, G. C. Shurson2, J. Moser3 and B. J. Kerr4, 1Iowa State University, Ames, 2Department of Animal Science, University of Minnesota, St. Paul, 3USDA-ARS, Peoria, IL, 4USDA - ARS, Ames, IA

Effects of feeding dried cabbage leaf residues on broiler performance, ileal digestibility and total tract nutrient digestibility.
A. Mustafa, V. Higginson* and B. Baurhoo, McGill University, Saint-Anne De Bellevue, QC, Canada

Effect of type of fibrous sources in the phosphorus-free diet on the basal endogenous loss of phosphorus in growing pigs.
A. R. Son1 and B. G. Kim2, 1Konkuk University, Seoul, South Korea, 2Konkuk University, Seoul, The Republic of Korea

Effects of feeding dried broccoli floret residues on performance, ileal and total tract digestibility, and selected microbial population in broiler chickens.
A. Mustafa, B. Baurhoo and V. Higginson*, McGill University, Saint-Anne De Bellevue, QC, Canada

Effect of different levels of zinc and calcium on growth performance in weanling pigs.
L. Blavi*, D. Solà-Oriol, S. M. Martín-Orue and J. F. Pérez, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autonoma de Barcelona, Bellaterra, Spain

Evaluation of cold pressed soybean meal and pea protein as alternative amino acid sources in swine diets.
J. Koepke*, South Dakota State University, Brookings

The effects of feeding low trypsin inhibitor soybean meal to broilers on growth performance.
G. Hosotani*, B. Freitas, M. S. Kerley and M. C. Shannon, Division of Animal Sciences, University of Missouri, Columbia

Nutritive value of cold-pressed camelina cake with or without supplementation of multi-carbohydrase in pig diets.
T. A. Woyengo1, R. Patterson2 and C. L. Levesque1, 1South Dakota State University, Brookings, 2Canadian Biosystems, Calgary, AB, Canada

Optimization of alkali hydrolysis conditions to increase antioxidant availability in corn distillers grain.
A. Daramola* and B. Min, University of Maryland Eastern Shore, Princess Anne

Animal Health: Dairy Calves

Effects of climatic conditions before and after birth on growth rate of Holstein calves in a hot environment.
E. L. Lopez-Rodríguez1, A. Martínez2 and M. Mellado3, 1Universidad Autónoma Agraria Antonio Narro, Torreon, Mexico, 2Universidad Autónoma Agraria Antonio Narro, Saltillo, Mexico, 3Autonomous Agrarian University Antonio Narro, Saltillo, Coahuila, Mexico

The hidden cost of a hidden disease: Growth performance of calves as affected by bovine respiratory disease diagnosed using ultrasonography.
C. Tejero1* and A. Bach2,3, 1Rancho Las Nieves, Mallen, Spain, 2ICREA, Barcelona, Spain, 3IRTA, Caldes de Montbui, Spain

Serum and colostrum antibody titers in Holstein cows, and the relationship between these titers and serum antibody titers in their calves.
D. J. McLean*, J. D. Chapman1, A. Woolams2, D. J. Harley1 and L. O. Ely1, 1Phibro Animal Health Corp., Quincy, IL, 2Mississippi State University, Starkeville, 3University of Georgia, Athens
Evaluating pre-weaned calf housing and its impact on calf respiratory parameters on New York dairy farms.  
K. M. Morrill*, Cornell University, Ithaca, NY

Differential primary and secondary immune responses in calves fed heat-treated or unheated colostrum.  
S. L. Gelsinger* and A. J. Heinrichs, The Pennsylvania State University, University Park

The effect of novel antiseptic compounds on umbilical cord healing and infection rates in the first week of life in dairy calves.  
A. L. Robinson*, L. L. Timms, K. J. Stalder and H. D. Tyler, Iowa State University, Ames

Effects of OmiGen-AF and Provia 6086 on growth, leukocyte, and hematological variables of pre-weaned and immediately post-weaned Holstein calves.  

### Ruminant Nutrition: Protein, Amino Acids and Nitrogen I

Effects of different protein level and corn processing method on nitrogen metabolism in dairy cows and environmental pollution.  
G. R. Ghorbani*, H. Rafiee and M. Alikhani, Isfahan University of Technology, Isfahan, Iran

Relative availability for lactating dairy cattle of methionine from two sources of ruminally protected methionine.  
1Department of Animal Sciences and Industry, Kansas State University, Manhattan, 2USDA-ARS, U.S. Dairy Forage Research Center, Madison, WI, 3Novus International, Inc., St. Charles, MO, 4Kansas State University, Manhattan

Effects of rumen undegradable protein supplementation and ambient temperature on growth performance and blood metabolites in Korean cattle steers.  
H. J. Kang*, M. Y. Piao, H. J. Kim and M. Baik, Department of Agricultural Biotechnology, College of Agriculture and Life Sciences, Seoul National University, Seoul, The Republic of Korea

Guanidinoacetic acid as a precursor for creatine in steers.  
1Department of Animal Sciences and Industry, Kansas State University, Manhattan, 2Department of Clinical Sciences, Kansas State University, Manhattan, 3Department of Diagnostic Medicine/Pathobiology, Kansas State University, Manhattan

Total amino acid content variation for commercial TMR and relationship to crude protein.  
J. P. Goeser*, D. Sawyer* and G. A. Broderick*, 1University of Wisconsin-Madison, 2Rock River Laboratory, Inc, Watertown, WI, 3Broderick Nutrition & Research, LLC, Madison, WI

Impact of a rumen protected methionine prototype on dairy cow performance, milk composition, and milk casein.  
A. M. Barnard*, B. A. Barton*, C. A. Zimmerman*, R. S. Ordway* and T. F. Gressley*, 1University of Delaware, Newark, 2Balchem Corporation, New Hampton, NY

Effects of feeding canola meal or wheat dried distillers grains with solubles alone or in combination as the major protein sources on ruminal function and production in dairy cows.  
S. Abeysekara* and T. Mutsvangwa*, 1Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada

Relative bioavailability of L-carnitine delivered by ruminal or abomasal infusion or by encapsulation in dairy cattle.  
1Kansas State University, Manhattan, 2Department of Animal Sciences and Industry, Kansas State University, Manhattan, 3Lonza, Inc., Allendale, NJ

Comparison of three levels of a rumen-protected methionine product on performance of lactating dairy cows.  
A. M. Barnard*, B. A. Barton*, C. A. Zimmerman*, R. S. Ordway* and T. F. Gressley*, 1University of Delaware, Newark, 2Balchem Corporation, New Hampton, NY

Evaluation of Brassica carinata meal as a protein supplement for growing beef heifers.  
Effects of replacing soybean meal with canola meal or treated canola meal on nitrogen metabolism and total tract digestibility in lactating dairy cows.
E. Marostegan de Paula1, M. A Camargo Danes2, N. E Lobo3, G. I. Zanton4, G. A. Broderick5 and A. Faciola1,
1University of Nevada, Reno, 2Federal University of Lavras, Brazil, 3Kemin Industries, Des Moines, IA, 4USDA-ARS,
U.S. Dairy Forage Research Center, Madison, WI, 5Broderick Nutrition & Research, LLC, Madison, WI

Impact of different diet CP levels and RDP:RUP ratios on midlactation dairy cow performance: Dry matter intake, digestibility and nitrogen balance.
C. R. Guimarães1, S. G. Coelho1, A. M. Pedroso3, F. S. Machado1, M. M. Campos1, R. A. Azevedo1, L. C. Rezende1, T.
R. Tomich and L. R. Pereira3, 1Cargill Amidos, Uberlandia, Brazil, 2UFMG, B. Horizonte, Brazil, 3Cargill Premix &
Nutrition, Campinas, Brazil

Evaluation of protein supplementation in low to medium quality forage diets on intake and ruminal fermentation in steers.
J. R. Pukrop1,2, S. Bay5, J. S. Luther1, A. L. Jones4, J. T. Sylvester2 and A. E. Radunz5, 1University of
Wisconsin-River Falls, 2BioZyme, Inc., St. Joseph, MO, 3Department of Dairy Science, University of Wisconsin-
Madison, 4University of Wisconsin-Madison, 5University of Wisconsin-Madison

The effect of increasing concentrations of different methionine forms and 2-hydroxy-4-(methylthio) butanoic acid on hepatic oxidative status and genes controlling methionine metabolism and transmethylation flux.
Q. Zhang1, D. N. Luchini2 and H. M. White1, 1University of Wisconsin-Madison, 2Adisseo S.A.S., Alpharetta, GA

Heat stress alters glucose homeostasis, hepatic heat shock proteins and the immune system in lactating dairy cows.
S. Quan1,2, D. Bu1,2, Y. Guo1, S. Gao1 and L. H. Baumgard1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2The Animal Physiology and Biochemistry Laboratory of the Ministry of Agriculture in Nanjing Agriculture University, Nanjing, China, 3Hunan Co-Innovation Center of Animal Production Safety, CICAPS, Changsha, China, 4CAAS-ICRAF Joint Laboratory of Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 5Iowa State University, Ames

Ruminant Nutrition: Growth, Young Stock and Calves II

Effects of different forage combination on growth performance, ruminal fermentation, and digestibility of weaned calves.
Y. Zou1, X. Zou, Z. J. Cao, Y. Wang and S. L. 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

Use of the Brix refractometer to evaluate milk replacer solutions for calves.
H. K. Floren1, W. M. Sisco2, C. Crudo1 and D. A. Moore2, 1Washington State University, Pullman, 2Department of Veterinary Clinical Sciences, Washington State University, Pullman

Effect of corn wet distillers grains inclusion in growing diets on backgrounded cattle performance.
M. Arcieri1, P. Davies2, D. Méndez2, J. Elizalde3 and I. Ceconi2, 1Universidad Nacional de Córdoba, Córdoba,
Argentina, 2Instituto Nacional de Tecnología Agropecuaria, General Villegas, Argentina, 3Private consultant, Rosario, Argentina

Effects of Saccharomyces cerevisiae fermentation products on intestinal villi integrity in neonatal calves naturally infected with Cryptosporidium spp..
S. Vázquez Flores1, M. de Jesús Guerrero Carrillo1, M. F. Scott1, J. Hamann1, S. Barrera Almanza1, C. Guizar Bravo1, A. Patricia Baños Quintana1 and P. Jazmin Aranda Vargas1, 1ESIABA-Technológico de Monterrey-Campus Querétaro, Querétaro, Mexico, 2Facultad de Ciencias Naturales, Universidad Autónoma de Querétaro, Querétaro, Mexico, 3Diamond V, Cedar Rapids, IA

Evaluation of Brix refractometer to assess IgG concentration of first and second colostrum from Jersey cows.
D. Rolle, S. Rodríguez, A. Valldecabres and N. Silva-del-Rio1, Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare

Effects of lactose inclusion in calf starters on starter intake, growth performance and digestive organ development.
K. Inouchi1, A. Saegusa1, Y. Inabu1, T. Sugino1 and M. Oba1, 1ZEN-RAKU-REN, Nishi-shirakawa, Japan, 2ZEN-RAKU-REN, Fukushima, Japan, 3Hiroshima University, Higashi-hiroshima, Japan, 4University of Alberta, Edmonton, AB, Canada

Bioavailability of different sources of zinc using stable isotopes in male Holstein calves.
St. Charles, MO
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**Physiology and Endocrinology: Molecular Mechanisms and Genetics**

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<td>1076</td>
<td>Global gene expression in the endometrium of primiparous dairy cows during the early-luteal phase of the estrous cycle.</td>
<td>A. L. Astessiano Dickson¹, F. Peñagaricano², A. Meikle³ and M. Carriquiry⁴, ¹Facultad de Agronomía, Universidad de la Republica, Montevideo, Uruguay, ²University of Florida, Gainesville, ³Facultad de Veterinaria, Montevideo, Uruguay</td>
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<td>Influence of reproductive indicators and genetic parameters on lactation curves.</td>
<td>H. Jeong⁵, D. González-Pena², T. M. Gonçalves¹, P. J. Pinedo⁴, J. E. P. Santos⁵, G. M. Schuenemann⁶, G. J. M. Rosa⁷, R. O. Gilbert⁸, R. C. Bicalho⁹, R. ChebelⅨ, K. N. Galvão¹⁰, C. M. Seabury¹¹, W. W. Thatcher¹² and S. L. Rodríguez Zas¹³, ¹University of Illinois at Urbana-Champaign, ²Zoetis, Kalamazoo, MI, ³Colorado State University, Fort Collins, ⁴University of Florida, Gainesville, ⁵Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, ⁶University of Wisconsin-Madison, ⁷Cornell University, Ithaca, NY, ⁸Department of Large Animal Clinical Sciences; University of Florida, Gainesville, ⁹Texas A&amp;M University, College Station, ¹⁰Department of Animal Sciences, University of Florida, Gainesville</td>
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<td>1078</td>
<td>Hematocrit, milk yield and production related parameters comparisons between slick and wild type-haird Puerto Rican Holstein cows.</td>
<td>Z. Contreras-Correa¹, G. Muñiz-Colón¹, M. Pagán-Morales¹, A. Mesonero-Morales¹, J. Curbelo-Rodríguez¹ and H. L. Sánchez-Rodríguez¹, ¹University of Puerto Rico at Mayagüez, Mayagüez, Puerto Rico, ²Department of Animal Science, University of Puerto Rico, Mayaguez Campus, Mayaguez, Puerto Rico</td>
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<td>1079</td>
<td>Effect of milk yield genotype on hepatic metabolic gene expression and repeated lipopolysaccharide (LPS) administration.</td>
<td>G. T. Cousillas¹, W. J. Weber¹, B. Walcheck¹, R. Chebel¹, D. E. Kerr¹, T. H. Elsasser¹ and B. A. Crooker¹, ¹University of Minnesota, Saint Paul, ²University of Vermont, Burlington, ³USDA-ARS, Beltsville, MD</td>
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<td>1080</td>
<td>Milk yield genotype impacts expression of hepatic innate immune genes during the transition period in Holsteins.</td>
<td>G. T. Cousillas¹, W. J. Weber¹, B. Walcheck¹, D. E. Kerr¹, T. H. Elsasser¹ and B. A. Crooker¹, ¹University of Minnesota, Saint Paul, ²University of Vermont, Burlington, ³USDA-ARS, Beltsville, MD</td>
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<tr>
<td>1081</td>
<td>Effect of milk yield genotype on hepatic metabolic gene expression during the transition period.</td>
<td>G. T. Cousillas¹, W. J. Weber¹, B. Walcheck¹, D. E. Kerr¹, T. H. Elsasser¹ and B. A. Crooker¹, ¹University of Minnesota, Saint Paul, ²University of Vermont, Burlington, ³USDA-ARS, Beltsville, MD</td>
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<td>1082</td>
<td>Gene expression and secretion of chemerin in bovine mammary epithelial cells.</td>
<td>Y. Suzuki¹, S. Chiba¹, S. Haga¹ and S. Roh¹, ¹Lab of Animal Physiology, TOHOKU University, Sendai, Japan, ²NARO Institute of Livestock and Grassland Science, Nasushihara, Japan</td>
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<td>1083</td>
<td>Proteomic analysis reveals increased Nrf2-mediated oxidative stress response in adipose tissue of late pregnant dairy cows during summer heat stress.</td>
<td>M. Zachut¹, G. Kra¹, G. Friedlander² and Y. Levin¹, ¹Institute of Animal Science, Volcani Center, Bet Dagan, Israel, ²The Ilana and Pascal Mantoux Institute for Bioinformatics, Weizmann Institute of Science, Rehovot, Israel, ³The Nancy and Stephen Grand Israel National Center for Personalized Medicine, Weizmann Institute of Science, Rehovot, Israel</td>
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<td>1084</td>
<td>Cholesterol deficiency associated APOB mutation affects lipid metabolism in Holstein cattle.</td>
<td>J. J. Gross¹, A. C. Schwinn¹, F. Schmitz-Hsi¹, F. Menz¹, C. Drägemüller¹, C. Albrecht¹ and R. M. Bruckmaier¹, ¹Veterinary Physiology, Vetsuisse Faculty University of Bern, Switzerland, ²Swissinstitute, Switzerland, ³Institute of Genetics, Vetsuisse Faculty, University of Bern, Switzerland, ⁴Institute of Biochemistry and Molecular Medicine, University of Bern, Switzerland</td>
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<td>1085</td>
<td>Characterization of changes in temporal concentrations of fibroblast growth factor 21 (FGF21) before and after parturition in multiparous beef cows.</td>
<td>L. Prezotto¹, J. F. Thorson¹, J. Dafoe¹, M. R. Herriglers² and J. G. Berardinelli³, ¹Montana State University, Havre, ²Montana State University, Bozeman</td>
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<td>Effect of investigational kisspeptide/metastin analog, TAK-683, on luteinizing hormone secretion at different stages of the luteal phase in goats.</td>
<td>L. P. Rahaya¹, M. E. Behry², N. Endo³ and T. Tanaka⁴, ¹Tokyo University of Agriculture and Technology, Fuchu, Tokyo, Japan, ²United Graduate School of Veterinary Sciences, Gifu University, Gifu, Japan, ³Visiting Research Scientist from Egypt, Tokyo University of Agriculture and Technology, Fuchu, Tokyo, Japan</td>
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MAC-T cell as **in vitro** evaluation system for casein gene expression involving glucose level.

H. Y. Jeong1, Y. T. Hong2, H. S. Kang1, E. T. Kim1 and H. Song2, 1Dairy Science Division, National Institute of Animal Science, RDA, Cheonan-si, The Republic of Korea, 2Konkuk University, Seoul, The Republic of Korea

mRNA abundance of steroid hormone metabolizing enzymes (17ß-HSD isoforms and CYP19) in adipose tissue of dairy cows during the periparturient period.

A. Alizadeh1,2,3, H. Sadr1, J. Rehage4, S. Dünlicke5 and H. Sauerwein1, 1Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Germany, 2Department of Animal Science, Saveh Branch, Islamic Azad University, Saveh, Islamic Republic of Iran, 3Department of Embryology, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Islamic Republic of Iran, 4University for Veterinary Medicine, Foundation, Hannover, Germany, 5Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany

Mitochondrial biogenesis and DNA content in metabolically tissues of lactating cows with divergent milk production.

R. Weikard* and C. Kühn, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany

Lipopolysaccharide exposure in swine alters ovarian toll-like receptor 4 expression.


**Production, Management and the Environment: Environment**

Partial carbon footprint of milk and interaction between enteric methane and nitrous oxide emissions in grazing dairy farms: The case of Costa Rica.

M. A. Wattiaux1, J. P. Itamaguac-Uyaguari2, F. Casasola-Coto1, L. Guerra-Alarcón3 and A. Jenet4, 1University of Wisconsin-Madison, 2Universidad de Cuenca, Cuenca, Ecuador, 3Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Turrialba, Costa Rica, 4Université Laval, Québec, QC, Canada

Effects of dry and wet conditions during the pre-weaning phase on subsequent feedlot performance and carcass composition of beef cattle.

G. A. Gatson*, B. L. Vander Ley2, W. D. Busby3, P. J. Gann4 and A. M. Meyer5, 1Division of Animal Sciences, University of Missouri, Columbia, 2College of Veterinary Medicine, University of Missouri, Columbia, 3Tri-County Steer Carcass Futurity, Lewis, IA, 4Department of Animal Science, Iowa State University, Ames

Predicting manure volatile solid output of lactating dairy cows.

R. Appuhamy*, L. Morales1, C. Wagner-Riddle2, D. P. Casper3 and E. Kebreab*, 1University of California-Davis, 2University of Guelph, Guelph, ON, Canada, 3Dairy Science Department, South Dakota State University, Brookings

The effects of vermicomposting on gaseous emissions from dairy lagoon water.

E. Lai*, Y. Zhao, Y. Pan and F. M. Miltoehner, University of California-Davis

Trends in milk urea nitrogen, milk composition, and milk yield in dairy farms in the Northeast US

A. N. Hristov*, M. T. Harper1, J. Oh1, F. Giallongo1, J. C. Lopes1, G. Cudoc2, J. Clay1 and L. E. Chase3, 1The Pennsylvania State University, University Park, 2Dairy One Coop., Inc., Ithaca, NY, 3Dairy Records Management Systems, Raleigh, NC, 4Cornell University, Ithaca, NY

Effect of time and storage conditions on cow urine pH.

M. C. Lewis*, S. A. Armstrong, J. P. Jarrett and D. J. McLean, Phibro Animal Health Corporation, Quincy, IL

Farm gate environmental impacts of beef production in the Northern Plains and Midwest regions of the US

S. Asem-Hiablie, C. A. Rotz* and R. C. Stout, USDA-ARS Pasture Systems and Watershed Management Research Unit, University Park, PA

Effect of temperature on ammonia emissions from feedlot cattle manure.

K. M. Koenig* and S. M. McGinn, Agriculture and Agri-Food Canada, Lethbridge Research and Development Centre, Lethbridge, AB, Canada

A novel method for collecting gas produced from the **in vitro** ANKOM gas production system.

P. S. Alvarez Hess*, P. Giraldo1, R. O. Williams2, P. J. Moate3, K. A. Beauchemin4 and R. J. Eckard5, 1The University of Melbourne, Faculty of Veterinary and Agricultural Sciences, Melbourne, Australia, 2The Department of Economic Development, Jobs, Transport and Resources Ellinbank Research Centre, Ellinbank, Australia, 3Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada
Effect of baling or grazing of corn residue on the subsequent crop yields.
K. M. Ulmer\textsuperscript{1}, J. L. Cox\textsuperscript{2}, M. K. Rakkar\textsuperscript{1}, R. G. Bondurant\textsuperscript{1}, M. E. Drewnoski\textsuperscript{1}, J. C. MacDonald\textsuperscript{1}, H. Blanco-Canqui\textsuperscript{2} and R. J. Rasby\textsuperscript{1}, \textsuperscript{1}University of Nebraska-Lincoln, \textsuperscript{2}Department of Agronomy and Horticulture, University of Nebraska-Lincoln

Intake, milk production, and methane emission of dairy cows fed diets that differ in ruminal in vitro NDF digestibility.
M. J. Aguerre\textsuperscript{1}, M. J. Powell\textsuperscript{1}, A. R. Pelletier\textsuperscript{1} and M. A. Wattiaux\textsuperscript{1}, \textsuperscript{1}University of Wisconsin-Madison, \textsuperscript{2}USDA-ARS, US Dairy Forage Research Center, Madison, WI

Life cycle energy and greenhouse gas comparison of co-located organic and conventional dairy systems.
B. J. Heins\textsuperscript{1}, M. Reese, J. Tallaksen and E. Buchanan, University of Minnesota West Central Research and Outreach Center, Morris

Effects of canola meal and soybean meal as protein sources on methane and ammonia emissions of high producing dairy cows.
S. A. E. Moore\textsuperscript{1}, K. F. Kalscheur\textsuperscript{2}, M. J. Aguerre\textsuperscript{1} and M. J. Powell\textsuperscript{2}, \textsuperscript{1}University of Wisconsin-Madison, \textsuperscript{2}USDA-ARS, US Dairy Forage Research Center, Madison, WI

L. Fadul-Pacheco\textsuperscript{1}, D. Pellerin\textsuperscript{1}, P. Y. Chouinard\textsuperscript{1}, M. A. Wattiaux\textsuperscript{1}, \textsuperscript{1}Département des Sciences Animales, Université Laval, Québec, QC, Canada, \textsuperscript{2}University of Wisconsin-Madison

Including corn in crop rotations is profitable for dairy farms and does not result in greater greenhouse gas emissions at the whole-farm level.
V. Ouellet\textsuperscript{1}, D. Pellerin\textsuperscript{1}, M. Chantigny\textsuperscript{2} and E. Charbonneau\textsuperscript{1}, \textsuperscript{1}Département des Sciences Animales, Université Laval, Québec City, QC, Canada, \textsuperscript{2}Soils and Crops Research and Development Centre, Agriculture and Agri-Food Canada, Quebec, QC, Canada

Effect of forage source of dairy cow diets on methane emission from enteric fermentation and manure storage.
F. Hassanat\textsuperscript{1} and C. Benchaar, Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada

Ruminant Nutrition: Greenhouse Gas Emissions

Enteric methane emissions from dairy cows fed corn silage based-diet supplemented with increasing amounts of linseed oil.
C. Benchaar\textsuperscript{1}, F. Hassanat, D. Warner and H. Petit, Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada

Essential oils from three tropical Citrus species can reduce in vitro enteric methane production.
D. Kim\textsuperscript{1,2}, I. M. Ogunade\textsuperscript{1}, K. G. Arriola\textsuperscript{1}, D. Vyas\textsuperscript{1} and A. T. Adesogan\textsuperscript{1}, \textsuperscript{1}Department of Animal Sciences, UF/IFAS, Gainesville, FL, \textsuperscript{2}Division of Applied Life Science (BK21Plus, Institute of Agriculture and Life Science), Gyeongsang National University, Jinju, The Republic of Korea

Effect of different forages and concentrate levels on energy conversion, and enteric methane production of Holstein × Gyr heifers.
F. A. S. Silva\textsuperscript{1}, S. C. Valadares Filho\textsuperscript{2}, E. Detmann\textsuperscript{1}, L. F. Costa e Silva\textsuperscript{1}, L. A. Godoi\textsuperscript{1}, B. C. Silva\textsuperscript{2}, J. M. V. Pereira\textsuperscript{1}, A. C. B. Menezes\textsuperscript{1}, P. Pucetti\textsuperscript{1} and P. P. Rotta\textsuperscript{1}, \textsuperscript{1}Universidade Federal de Viçosa, Viçosa, Brazil, \textsuperscript{2}Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, \textsuperscript{3}Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, \textsuperscript{4}Colorado State University, Fort Collins

Ruminant Nutrition: Intake and Feed Efficiency

Endocannabinoids concentrations in plasma associated with feed efficiency and carcass composition on crossbreed steers.
V. M. Arteguito\textsuperscript{1}, A. P. Foote\textsuperscript{2}, R. M. Lewis\textsuperscript{1}, D. A. King\textsuperscript{2}, S. D. Shackelford\textsuperscript{2}, T. L. Wheeler\textsuperscript{2} and H. C. Freethy\textsuperscript{2}, \textsuperscript{1}University of Nebraska-Lincoln, \textsuperscript{2}USDA-ARS, US Meat Animal Research Center, Clay Center, NE

The phenotypic relationship between residual feed intake and ultrasound carcass traits in Santa Gertrudis steers.
C. R. Brandon\textsuperscript{1}, Stephen F. Austin State University, Nacogdoches, TX

Using indigestible rare earth markers and internal markers to predict DMI and residual feed intake.
K. A. Weld\textsuperscript{1} and L. E. Armentano, University of Wisconsin-Madison
Short term intake technique to predict dry matter intake and digestibility in forages.
F. M. Ingentron1,2, B. C. Lentz1, N. P. Stritzler1, C. N. Rabotnikof1, M. Menghini3,4 and H. M. Arelovich*3,4, 1Fac. Agronomía, Universidad Nacional de La Pampa, Santa Rosa, Argentina, 2CONICET, Santa Rosa, Argentina, 3CIC, Bahia Blanca, Argentina, 4Dto. Agronomía, Universidad Nacional del Sur, Bahia Blanca, Argentina, 5CERZOS, Bahia Blanca, Argentina

Effects of a blend of essential oils on milk yield and feed efficiency of lactating cows.
I. Guasch1, G. Elcoso1, B. Zweifel2 and A. Bach*3,4, 1Blanca, Lleida, Spain, 2Agolin, Bière, Switzerland, 1ICREA, Barcelona, Spain, 4IRTA, Caldes de Montbui, Spain

Repeatability of feed efficiency in beef cattle offered grass silage and zero-grazed grass.
S. Coyle1,2, C. Fitzsimons1, D. A. Kenny1, A. K. Kelly1 and M. McGee1, 1Teagasc Grange, Dunsany Co. Meath, Ireland, 2University College Dublin, Ireland

Repeatability of feed efficiency in steers offered a high concentrate diet.
S. Coyle1,2, C. Fitzsimons2, D. A. Kenny2, A. K. Kelly1 and M. McGee2, 1University College Dublin, Ireland, 2Teagasc Grange, Dunsany Co. Meath, Ireland

NADH dehydrogenase (ubiquinone) Fe-S protein-1 (NDUFS1), a core subunit of mitochondrial complex I, is not differentially expressed in peripheral blood mononuclear cells of beef steers with divergent residual feed intakes.
J. J. Michal1, J. R. Russell2, S. L. Hansen2, J. F. Taylor3, M. S. Kerley4, 1University of Missouri, Columbia, 2University College Dublin, Ireland, 3Kansas State University, Manhattan, 4Division of Animal Sciences, University of Missouri, Columbia

Dry matter intake prediction of heifers under tropical conditions.
M. I. Marcondes*1 and A. L. Silva2, 1Departamento de Zootecnia, Universidade Federal de Viçosa, Viçosa, Brazil, 2Universidade Federal de Viçosa, Viçosa, Brazil

An improved model for predicting dry matter intake in prepartum dairy cows.
F. A. Paiva1, E. F. Peñagaricano1, J. K. Drackley2 and J. E. P. Santos1, 1University of Florida, Gainesville, 2University of Illinois at Urbana-Champaign

The use of artificial neural network to estimate feed intake in lactating cows through milk mid-infrared spectra of individual cow milk samples.

Effects of supplementing lactating dairy cow ration with sodium sesquicarbonate on reticulorumen pH, rumination, and dry matter intake.
M. L. Jones1, J. D. Clark1, N. A. Michael2 and J. M. Bewley3, 1University of Kentucky, Lexington, 3Arm & Hammer Animal Nutrition, Princeton, NJ

**Nonruminant Nutrition: Feed Additives I**

Effect of supplemental citrulline on thermal and production parameters during heat stress in growing pigs.
S. K. Kvidera1, E. A. Horst1, E. J. Mayorga1, J. T. Seibert1, M. A. Al-Qaisi1, J. W. Ross1, R. P. Rhoads2 and L. H. Baumgard1, 1Iowa State University, Ames, 2Virginia Polytechnic Institute and State University, Blacksburg

P. Y. Zhao1, R. X. Lan, W. C. Liu, H. S. Kim and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea

Effect of multispecies probiotic supplementation source on growth performance and meat quality traits in growing-finishing pigs.
B. Balasubramanian1, Y. H. Kim, J. W. Park, Y. H. Liu and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea

Effect of dietary red ginseng on growth performance, nutrient digestibility, blood profile, meat quality, and carcass grade in growing-finishing pigs.
H. N. Tran1, Y. H. Kim, J. W. Park, S. Mohana Devi and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea

Effect of protected organic acid blend with medium chain fatty acid on growth performance, nutrient digestibility, blood profiles, meat quality, fecal micro flora and fecal gas emission in finishing pigs.
D. H. Nguyen1, T. S. Li, S. D. Upadhyaya, H. N. Tran and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, South Korea

Effect of dietary melamine concentrations on performance and tissue melamine residue in male broiler chickens.
J. H. Kim and D. Y. Kil1, Chung-Ang university, Anseong-si, The Republic of Korea
Effect of dietary melamine concentrations on performance and tissue melamine residue in female broiler chickens.  

A plant extract with manganese, Vali MP, decreased adipogenesis in 3T3-L1 pre-adipocytes by modulating adipogenic gene expression and cellular energy level.  
S. W. Choi†, J. Kim†, S. W. Jung§ and K. Y. Whang§, 1Korea University, Seoul, The Republic of Korea, 2CTC BIO, Seoul, The Republic of Korea

Effects of dietary lysophospholipids (LipidoTM) on intestinal morphology and gene expression of inflammatory cytokines in weaned rats.  

Effect of protected sodium butyrate and nutrient concentration on early phase of broilers.  
M. Puyalto†, C. Sol, J. J. Mallo and M. J. Villamide, 1NOREL S.A., Madrid, Spain, 2Departamento de Produccion Agraria. ETSI Agronomos. Universidad Politecnica de Madrid, Madrid, Spain

Use of aromatics plants in the diet on performance of broilers in Colombia.  
L. Bernal*, La Salle University, Bogotá, Colombia

Dietary antioxidants, chromium and betaine supplementation can improve lactation performance of sows during summer.  
J. J. Cottrell†, F. Liao†, D. J. Henman, 1Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, Australia, 2Rivalea Australia Pty Ltd, Corowa, Australia

Effects of dietary melamine on growth performance, organ weight, and blood melamine concentrations in pigs.  
K. R. Park* and B. G. Kim, Konkuk University, Seoul, The Republic of Korea

Effects of dietary melamine on growth performance and blood and urinary melamine concentrations in pigs.  
K. R. Park* and B. G. Kim, Konkuk University, Seoul, The Republic of Korea

Feed additives reduced diarrhea occurrence in a medication-free postweaning pig diet.  
Z. Yang†, X. Wang†, F. Chi† and S. Ching†, 1College of Animal Science, Shandong Agricultural University, Tai-an, China, 2Amlan International, Chicago, IL

Optimization of B vitamins for improving the quality of fermented feed with response surface methodology.  
Z. Yang* and X. M. Wang, 1College of Animal science, Shandong Agricultural University, Tai-an, China, 2College of Animal science, Shandong Agricultural University, Tai-an, Shandong, Taian, China

Ruminant Nutrition: Vitamins

Pantothenic acid does not affect the concentration of biotin in plasma of Holstein bull calves.  
G. Ferreira†, C. L. Teets, A. N. Bladen and A. Geiger, Virginia Polytechnic Institute and State University, Blacksburg

Short-term feeding of a tocopherol mix (α-, β-, γ-, and δ) alters the daily pattern of tocopherol isofoms present in milk and blood in lactating dairy cows.  
Y. Qu†, T. H. Elsasser†, J. R. Newbold†, E. E. Connors†, M. Garcia†, C. M. Scholte† and K. M. Mays†, 1Department of Animal and Avian Sciences, University of Maryland, College Park, 2USDA-ARS, Animal Biosciences and Biotechnology Laboratory, Beltsville, MD, 3Cargill Innovation Center, Veldriel, Netherlands, 4USDA-ARS, Animal Genomics and Improvement Laboratory, Beltsville, MD

Effect of rumen protected vitamin B complex on metabolic parameters, milk production and d 15 conceptus and endometrium outcomes.  
M. Kaur†, J. Hartling†, T. A. Burnett†, L. Polsky†, R. L. A. Cerri† and H. Leclerc‡, 1Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 2Jefo Nutrition, St. Hyacinthe, QC, Canada

Teaching/Undergraduate and Graduate Education II

Application of a survey instrument for assessing student demographics and interests in an animal and dairy sciences career planning course.  
M. C. Nicodemus*, Mississippi State University, Mississippi State

Evaluation of learning outcomes in a dairy science section of a science, technology, engineering, and math retention program.  
K. A. Dolecheck† and J. M. Bewley, University of Kentucky, Lexington
**Poster Session VII**

1:00 PM - 2:00 PM  
Exhibit Hall A/B

### Horse Species: Nutrition

806 1  
Feeding a small amount of hay prior to concentrate neutralizes the effects of high starch diets on inflammation in horses.  
J. K. Suagee-Bedore¹, K. Wimbush¹, D. R. Linden¹ and R. K. Splan², ¹The Ohio State University, Wooster, ²Virginia Polytechnic Institute and State University, Middleburg

807 2  
Feeding DigestaWell Buffer to horses neutralizes the effects of high starch diets on blood pH and inflammation.  
J. K. Suagee-Bedore¹, A. L. Wagner² and I. D. Girard³, ¹The Ohio State University, Wooster, ²Probiotech International Inc., St-Hyacinthe, QC, Canada

808 3  
Efficacy of a brewer’s yeast supplement with or without fat added to an energy restricted diet for performance horses.  
L. B. Hodge¹, A. Boyer¹ and B. J. Rude¹, ¹Mississippi State University, Mississippi State, ²FL Emmert, Cincinnati, OH

809 4  
Modeling ammonia emission rate from horses fed different concentrations of dietary crude protein.  
J. Weir¹, H. Lf, L. K. Warren, E. Macon¹ and C. Wickens¹, ¹University of Florida, Gainesville, ²University of Delaware, Newark, ³Middle Tennessee State University, Murfreesboro

810 5  
Dietary supplementation of DigestaWell NRG to unconditioned Warmblood mares may reduce lactate rise following exercise.  
A. L. Wagner¹, R. K. Splan², J. K. Suagee-Bedore³ and I. D. Girard¹, ¹Probiotech International Inc., St-Hyacinthe, QC, Canada, ²Virginia Polytechnic Institute and State University, Middleburg, ³The Ohio State University, Wooster

811 6  
Maturity of bermudagrass hay affects digestibility by horses.  

812 7  
Investigation of equine hindgut microbiota development in young horses.  
B. St-Pierre*, M. E. Graf, B. M. Schlaikjer and R. C. Bott, South Dakota State University, Brookings

813 8  
Evaluation of chromic oxide and titanium dioxide as external markers for estimating digestibility in horses.  
A. Fowler¹, M. B. Pyles¹, B. Harlow²,³, S. H. Hayes¹, A. Crum¹ and L. M. Lawrence¹, ¹University of Kentucky, Lexington, ²USDA-ARS Forage Animal Production Research Unit, Lexington, KY

814 9  
Effect of starch source in pelleted concentrates on fecal bacterial communities in thoroughbred mares.  
M. B. Pyles¹, A. L. Fowler¹, V. Bill¹, B. E. Harlow²,³, A. Crum¹, S. H. Hayes¹, M. D. Flythe¹² and L. M. Lawrence¹, ¹University of Kentucky, Lexington, ²USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY

### Horse Species: Management

796 10  
Stress responses in horses tied with overchecks.  
K. Bennett-Wimbush*, J. K. Suagee-Bedore and M. Amstutz, The Ohio State University, Wooster

797 11  
Effect of pre-race behavior on performance in racing quarter horses.  
C. E. Ferguson*, McNeese State University, Lake Charles, LA

798 12  
Evaluating the effectiveness of varying doses of supplemental tryptophan as a calmative in horses.  
B. Davis¹, T. Grandin¹, T. E. Engle¹ and J. Ransom¹,², ¹Colorado State University, Fort Collins, ²National Park Service, Sedro-Woolley, WA

799 13  
Effects of barefoot trimming and shoeing on the lower forelimb: Hoof morphology.  
D. K. Proskie¹, J. L. Leatherwood¹, M. J. Anderson¹, K. J. Stutts¹, C. J. Hammer² and J. Coverdale³, ¹Sam Houston State University, Huntsville, TX, ²North Dakota State University, Fargo, ³Texas A&M University, College Station

800 14  
Effects of barefoot trimming and shoeing on the lower forelimb: Joint inflammation.  
D. K. Proskie¹, J. L. Leatherwood¹, K. J. Stutts¹, M. J. Anderson¹, C. J. Hammer² and J. Coverdale³, ¹Sam Houston State University, Huntsville, TX, ²North Dakota State University, Fargo, ³Texas A&M University, College Station

801 15  
Characterizing the physiological response of a novel vaccine in mature horses.  
J. L. Leatherwood*, D. L. Parker, M. J. Anderson, K. J. Stutts, M. M. Beverly and S. F. Kelley, Sam Houston State University, Huntsville, TX
Application of either a single or multiple doses of an intravaginal GnRH agonist to induce ovulation in mares.
C. D. Sinclair1, S. K. Webley2, T. L. Douthit1, D. M. Griefer3 and J. M. Koubá1, 1Kansas State University, Manhattan,
2JBS United, Inc., Sheridan, IN

Incidence of exercise induced pulmonary hemorrhage in race horses in Puerto Rico.
V. Morales1, S. Glass1, J. De Angel2, B. Vallejo2 and A. A. Rodriguez3, 1University of Puerto Rico, Mayaguez, PR,
2Equus PR, Caguas, PR

Application of gait analysis to determine if the Galiceno horse breed is a gaited horse breed.
M. C. Nicodemus4 and J. Beranger3, 1Mississippi State University, Mississippi State, 2The Livestock Conservancy,
Pittsboro, NC

Effect of body condition score on fatty acid composition of equine subcutaneous adipose tissue.
R. M. Humphrey1, A. T. Sukumaran, R. L. Lemire, E. N. Ferjak, C. Cavinder, D. D. Burnett and T. T. N. Dinh,
Mississippi State University Department of Animal and Dairy Sciences, Mississippi State

**Physiology and Endocrinology:**

Ruminant Nutrition, Metabolism and Reproduction

Plasma concentrations of glucagon-like peptide 1 and 2 in calves fed calf starters containing lactose.
Y. Inabu1, A. Saegusa2, K. Inouchi2, M. Oba3 and T. Sugino4, 1Hiroshima University, Higashi-hiroshima, Japan,
2ZEN-RAKU-REN, Nishi-shirakawa, Japan, 3Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

Metabolic profile and inflammatory response in calves with different intake of immunoglobulins.
S. Dander, F. Piccoli-Cappelli, A. Bignami, A. Minuti and E. Trevisi1, Università Cattolica del Sacro Cuore, Piacenza,
Italy

Effect of the timing of addition of trans-10, cis-12 conjugated linoleic acid and L-carnitine during culture on
development and cryotolerance of bovine embryos produced in-vitro.
A. M. Zolini1, P. J. Hansen1, C. A. Torres2 and J. Block3,1, 1Department of Animal Sciences, University of Florida,
Gainesville, 2Universidade Federal de Vicensa, Vicos, Brazil, 3OvaTech LLC, Gainesville, FL

An insufficient supply of glucose substrates causes reduced lactose synthesis in lactating dairy cows fed cereal
straws instead of alfalfa hay.
B. Wang1, F. Zhao2, B. X. Zhang1 and J. X. Liu1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China,
2University of Vermont, Burlington

Expression of genes involved in the initial steps of steroidogenesis in adipose tissue depots of dairy cows during
the dry period and early lactation.
A. Alizadeh1,2,3, H. Sadri1, J. Rehage1, S. Dänicke2 and H. Sauerwein1, 1Institute of Animal Science, Physiology and
Hygiene Unit, University of Bonn, Germany, 2Department of Animal Science, Saveh Branch, Islamic Azad University,
Saveh, Islamic Republic of Iran, 3Department of Embryology, Reproductive Biomedicine Research Center, Royan
Institute for Reproductive Biomedicine, ACECR, Tehran, Islamic Republic of Iran, 4University for Veterinary Medicine,
Foundation, Hannover, Germany, 5Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig,
Germany

Effects of a dietary supplementation of rumen-protected B vitamins on reproduction of dairy cows by measuring
nutrigenomic parameters.
F. Richard1, D. R. Khan1, C. L. Girard2, H. Leclerc1 and E. Evans3, 1Universite Laval, Quebec, QC, Canada,
2Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, 3Jefo Nutrition, St. Hyacinthe, QC, Canada, 4Technical
Advisory Services, Bowmanville, ON, Canada

Impact of dietary protein levels during late pregnancy on the number of binuclear cells in sheep.
H. H. Mansour1, A. Reyaz1, S. T. Dorsam2, L. A. Lekatz3 and K. A. Vonnahme1, 1North Dakota State University, Fargo,
2Illinois State University, Normal

Effect of serum concentration of beta-carotene at AI on productive and reproductive parameters in lactating
Holstein cows.
A. M. L. Madureira1, T. Guzella Guida1, R. L. A. Cerri2 and J. L. M. Vasconcelos1, 1Sao Paulo State University,
Botucatu, Brazil, 2Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia,
Vancouver, BC, Canada

Propionic acid decreased hepatic acetyl CoA content compared with glycerol within the timeframe of meals
when infused abomasally.
L. B. Gualdron-Duarte1 and M. S. Allen, Michigan State University, East Lansing
Feed restriction-induced negative energy balance alters the fatty acid profiles of adipose tissue and milk fat of dairy cows.  

Body condition score and body condition score change: Associations with fertility phenotypes in lactating dairy cows.  
M. M. Herlihy*1, E. Rojas1, J. Kennelly1, P. Lonergan2 and S. Butler1, 1Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland, 2School of Agriculture and Food Science, University College Dublin, Ireland

Effects of Omnigen-AF supplementation on body temperature, milk production, and somatic cell count in lactating dairy cows.  
T. Leiva1*, R. F. Cooke1, A. P. Brandao2, R. L. A. Cerri2, R. O. Rodrigues1 and J. L. M. Vasconcelos1, 1UNESP - FMVZ, Botucatu, Brazil, 2Oregon State University - EOARC Burns, 3Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 4Sao Paulo State University, Botucatu, Brazil

The effects of stage of gestation and maternal nutrient status on binucleate cell numbers in the beef cow.  
A. M. Peterson1*, A. Reyaz1, S. T. Dorsam1, L. E. Camacho2, K. C. Swanson1, A. Grazul-Bilska1 and K. A. Vonnahme1, 1North Dakota State University, Fargo, 2University of Arizona, Tucson

Effects of post-AI supplementation with Ca salts of soybean oil on ovarian and pregnancy development in Bos indicus beef cows.  

Animal Health: Dairy Cattle

Assessment of tubal patency by hysterosalpingo-contrast sonography in cow.  
K. Itoh1, N. Endo1, S. I. Kataoka2 and T. Tanaka*1, 1Tokyo University of Agriculture and Technology, Fuchu, Tokyo, Japan, 2Tokyo Metropolitan Agriculture and Forestry Research Center, Ome, Tokyo, Japan

Retained placenta and subclinical endometritis: Prevalence and relation with reproductive performance in crossbred dairy cows.  
R. R. Busto, C. C. Campos, T. R. Santos, J. P. E. Saat and R. M. Santos*, FAMEV-UFU, Uberlândia, Brazil

Association of rumination time and health status with milk production in early lactation dairy cows.  
V. H. Asselstine1*, E. I. Kaufman1, S. J. LeBlanc2, B. W. McBride1, T. F. Duffield3 and T. J. DeVries1, 1Department of Animal Biosciences, University of Guelph, ON, Canada, 2Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

Associations of cow-level factors with the risk of poor hygiene.  
I. Robles1*, D. F. Kelton1, H. Barkema1, G. P. Keefe2, J. P. Roy3, M. A. von Keyserlingk4 and T. J. DeVries3, 1Department of Animal Biosciences, University of Guelph, ON, Canada, 2Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, 3University of Calgary, AL, Canada, 4Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PE, Canada, 5Faculté de Médecine Vétérinaire, Université de Montréal, St. Hyacinthe, QC, Canada, 6Animal Welfare Program - University of British Columbia, Vancouver, BC, Canada

Genomic markers associated with hyperketonemia in Jersey cows.  
R. S. Pralle*1, H. A. Adams2, T. L. Chandler1 and H. M. White1, 1Department of Dairy Science University of Wisconsin-Madison, 2CRI International Center for Biotechnology, Mount Horeb, WI

Meta-analysis of factors influencing new intramammary infection rate in experimental challenge teat dip efficacy trials.  
B. D. Enger3*, R. R. White5, S. C. Nickerson2 and L. K. Fox4, 1Virginia Polytechnic Institute and State University, Blacksburg, 2University of Georgia, Athens, 3Washington State University, Pullman

The effects of short-term feeding of tocopherol mix (α-, β-, γ-, and δ) on blood neutrophil function and immunometabolic-related gene expression in lactating dairy cows.  
Y. Qu1*, T. H. Elsasser2, M. Garcia1, C. M. Scholte1, E. E. Connor1, J. R. Newbold4 and K. M. Moyes1, 1Department of Animal and Avian Sciences, University of Maryland, College Park, 2USDA-ARS, Animal Biosciences and Biotechnology Laboratory, Beltsville, MD, 3USDA-ARS, Animal Genomics and Improvement Laboratory, Beltsville, MD, 4Cargill Innovation Center, Velddriel, Netherlands
Predicting hyperketonemia prevalence in Jersey herds from milk composition and cow test-day information using multiple linear regression.

T. L. Chandler, N. Zhang, M. R. Skiba, S. G. Moore, M. O. Caldeira, S. E. Poock, G. R. Oetzel, C. W. Wolfe, R. H. Fourdraine and H. M. White. 1Department of Dairy Science University of Wisconsin-Madison, 2Feed Research Institute Chinese Academy of Agricultural Sciences, Beijing, China, 3University of Missouri, Columbia, 4Department of Medical Sciences, School of Veterinary Medicine, University of Wisconsin-Madison, 5American Jersey Cattle Association, Reynoldsburg, OH, 6CRI International Center for Biotechnology, Mount Horeb, WI

Liver transcriptome modifications by nutrient restriction in early lactation Holstein cows challenged with intramammary lipopolysaccharide.

K. Pawlowski, C. Leroux, Y. Faulconnier, C. Boby, A. de la Foye, D. Durand and J. A. A. Pires. 1UMR1213 Herbivores, INRA, VetAgroSup, Saint-Genes-Champanelle, France, 2PFEM, INRA, Saint-Genes-Champanelle, France

Growth and transcriptional profile analysis following oral probiotic supplementation in dairy cows.

M. Worku, S. Adjei-Fremah, K. Ekwemalor, E. Asiamah and H. Ismail, North Carolina Agricultural and Technical State University, Greensboro

Mammary gland transcriptome and proteome modifications by nutrient restriction in early lactation Holstein cows challenged with intramammary lipopolysaccharide.

K. Pawlowski, C. Chambon, C. Boby, A. de la Foye, Y. Faulconnier, J. A. A. Pires and C. Leroux. 1UMR1213 Herbivores, INRA, VetAgroSup, Saint-Genes-Champanelle, France, 2PFEM, INRA, Saint-Genes-Champanelle, France

Methionine supplementation modulates the inflammatory response of dairy cow blood neutrophils in response to lipopolysaccharide.

M. Vailati Riboni, B. Qadir and J. J. Loor. 1University of Illinois at Urbana-Champaign, 2Veterinary Division, Sulaymaniyah Veterinary Department, Ministry of Agriculture and Water Resource, Kurdistan Region Government, Sulaymaniyah, Iraq

Feasibility and safety of nitric oxide releasing solution as a treatment for bovine mastitis.

G. Regev-Shoshani, J. Martins, J. Leemhuis, N. Dinn and C. Miller, University of British Columbia, Vancouver, BC, Canada

Methionine coupled with choline supplementation alters inflammation and oxidative stress gene network expression of dairy cow blood neutrophils.

M. Vailati Riboni, A. Bellingeri, I. Khan and J. J. Loor. 1University of Illinois at Urbana-Champaign, 2Università Cattolica del Sacro Cuore, Piacenza, Italy, 3University of Agriculture, Peshawar, Pakistan

Impact of a BRDC vaccine with a MLV or KV IBR component on the innate inflammatory profile of nulliparous heifers.

C. L. Widener, D. J. Hurley, W. M. Graves, A. H. Nelson, D. A. L. Lourenco and J. F. Bohlen, University of Georgia, Athens

Association between bovine milk infrared temperature and bacteriological results from CHROMagar Mastitis Plates and PathoProof Mastitis Complete-16 Kit.

M. G. Marrero-Pérez, J. Curbelo-Rodríguez, G. Ortiz-Colón, H. L. Sánchez-Rodríguez and Y. R. Vélez-Robles, University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico

The endometrial microbiome in transition cows fed an energy-restricted diet.

G. Esposito, J. J. Lim, T. Tasara, P. C. Irons, E. C. Webb and A. Chapwanya. 1Department of Production Animal Studies, Faculty of Veterinary Sciences, University of Pretoria, South Africa, 2Institute of Food, Nutrition and Well-being University of Pretoria, South Africa, 3Ross University School of Veterinary Medicine, Bassetere, Saint Kitts and Nevis, 4Institute for Food Safety and Hygiene, Vetsuisse Faculty University of Zurich, Switzerland, 5Department of Production Animal Studies, Faculty of Veterinary Sciences, University of Pretoria, Onderstepoort, South Africa

Beef Species I

Relationship between forage quality parameters and mineral intake in grazing beef cattle.

J. D. Rivera, M. L. Gipson and R. G. Gipson, Mississippi State University South Branch Experiment Station, Poplarville

Feeding antibodies against interleukin-10 improved gain efficiency in beef steers.

M. R. Schaefer, M. E. Cook and D. M. Schaefer, University of Wisconsin-Madison

Animal and digestibility marker variation influence predictions of dry matter intake and dry matter digestibility.

K. A. Weld, J. R. R. Dorea, F. A. P. Santos and D. E. Oliveira. 1University of Wisconsin-Madison, 2University of São Paulo, Piracicaba, Brazil, 3Santa Catarina State University, Lages, SC, Brazil
230 54 Using hair cortisol concentrations to assess the adrenocortical stress response in beef cattle administered corticotrophin-release hormone.
K. M. Schubach1, R. F. Cooke2, A. P. Brandao1,2, K. Lippolis1, M. T. Hinchliff1, D. W. Bohmer1 and R. L. A. Cerri3,
1Oregon State University - EOARC Burns, 2UNESP - FMVZ, Botucatu, Brazil, 3Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada

231 55 Effects of static or oscillating dietary crude protein levels on fermentation dynamics of beef cattle diets using a dual-flow continuous culture system.
P. Amaral1,2, L. Mariz1,2, P. Del Bianco Benedetti1,2, L. Galoro da Silva1, E. Marostegan de Paula1, H. Monteiro1,3, T. Shenkori1, S. A. Santos1, S. Poulson1 and A. Faciola1,1, University of Nevada, Reno, 2Federal University of Vicsosa, Brazil, 3Maringa State University, Brazil

232 56 Reproductive development of rotationally grazed beef heifers when supplemented chelated trace minerals.

233 57 Comparison of treatment protocols for bovine respiratory disease in high-risk, newly received beef calves.
J. J. Ball*, E. B. Kegley1, J. A. Hornsby1, J. L. Reynolds1, J. Sarcher1 and J. G. Powell1,1, Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville, 2Zoetis, Kalamazoo, MI

234 58 Glycerin as alternative energy source for ruminants: In vitro fermentation, total gas and methane production.
P. Del Bianco Benedetti1,2, T. Shenkori1, M. Fonseca3, R. Bittner2, K. Murphy2, D. Ivey2, B. Ribas2,4, E. Marostegan de Paula1, L. Galoro da Silva1, H. Monteiro1,2, I. Nicoliz1,2, H. Costa2,3, P. Amaral1,2, M. I. Marcondes1 and A. Faciola1,1, Federal University of Vicsosa, Brazil, 2University of Nevada, Reno, 3Texas A&M University, College Station, 4Sao Paulo State University, Botucatu, Brazil, 5Maringa State University, Maringa, Brazil

235 59 The effects of supplementing ruminal bypass unsaturated fatty acids during late gestation on cow and calf serum fatty acids in beef cows.
R. E. Ricks, E. K. Cook, S. K. Duckett and N. M. Long*, Clemson University, SC

236 60 The effects of supplementing ruminal bypass unsaturated fatty acids during late gestation on transfer of passive immunity and growth in calves.
R. E. Ricks, E. K. Cook, L. K. Lewis and N. M. Long*, Clemson University, SC

237 61 Effect of OmniGen-AF dietary supplementation on ultrasound parameters in purebred Angus steers fed a finishing diet.
S. A. Armstrong1,2, D. J. McLean1, G. Bobe2, M. Bionaz2 and T. J. Wistuba1,1, Phibro Animal Health Corporation, Quincy, IL, 2Department of Animal and Rangeland Sciences, Oregon State University, Corvallis

238 62 Total gastrointestinal tract digestibility of dry matter, neutral detergent fiber and starch of Nellore and ½ Angus x Nellore cattle adapted either for 9 or 14 days to high-concentrate diets.
W. I. Silva Filho1, D. H. M. Watanabe1, A. L. Rigueiro1, M. C. Pereira1, G. P. Bertoldi1, A. C. J. Pinto1, A. A. Santos1, M. M. Squizatti1, L. A. Tomaz1, O. A. Sousa1 and D. D. Millen1, São Paulo State University (UNESP), Dracena, Brazil, 2São Paulo State University (UNESP), Botucatu, Brazil

239 63 Effect of OmniGen-AF supplementation on the metabolic profile of growing beef cattle.
T. H. Schell1,2, S. A. Armstrong1,2, J. A. Bronson1, M. C. Lewis2, A. P. Snider1,2, D. J. McLean2 and G. Bobe1,1, Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, 2Phibro Animal Health Corporation, Quincy, IL

240 64 Dietary melatonin and growth responses in feedlot heifers.
M. R. Schafer* and D. M. Schafer, University of Wisconsin-Madison

241 65 Dietary melatonin and growth responses in implanted feedlot steers.
M. R. Schafer* and D. M. Schafer, University of Wisconsin-Madison

242 66 Use of the residual retained energy as a measure of efficiency in growing Nellore cattle bulls.
A. M. Castilhos1, A. M. Jorge1, C. L. Francisco1, M. E. Z. Mercadante1, S. F. M. Bonilha1, C. M. Paris1, D. C. M. Silva1 and R. H. Branco1,1, Universidade Estadual Paulista - FMVZ, Botucatu, Brazil, 2Centro APTA Bovinos de Corte, Instituto de Zootecnia, Sertãozinho, Brazil
Poster Session VIII

5:00 PM - 6:00 PM
Exhibit Hall A/B

Meat Science and Muscle Biology

890 1 Sensory properties of meat of Nellore cattle fed different levels of lipid-based diets.
T. N. P. Valente1*, E. S. Lima2, J. P. G. Morais3, R. O. Roça1 and D. P. B. Costa4, 1Environmental Health, FMU, São Paulo, Brazil, 2Agricultural Sciences Center, Federal University of Sao Carlos, Araras, Brazil, 3São Paulo State University (FCA/UNESP), Botucatu, Brazil, 4IFMT, Cuiabá, Brazil

891 2 Genome-wide efficient mixed-model study for meat quality in Nellore cattle.
C. E. Buss1, P. C. Tizioto2, P. S. N. Oliveira2, M. A. Mudada1, A. S. M. Cesar1, R. V. Ventura1, J. Afonso1, A. O. D. Lima1, L. L. Coutinho1, R. R. Tuillio2 and L. C. A. Regitano3, 1Federal University of Sao Carlos, Sao Carlos, Brazil, 2Embrapa Southeast Livestock, Sao Carlos, Brazil, 3Embrapa Pecuária Sudeste, São Paulo, Brazil, 4Animal Biotechnology Laboratory - ESALQ, University of São Paulo, Piracicaba, Brazil, 5Beef Improvement Opportunities, Guelph, ON, Canada

892 3 Comparison of carcass and sensory traits and contents of fatty acids and volatile compounds in Longissimus dorsi of three cattle breeds.

893 4 Label-Free MSE proteomic analysis of the bovine skeletal muscle: New approach for meat tenderness evaluation.
M. D. Poloń1, R. C. Simas1,2, A. S. M. Cesar1, S. C. S. Andrade1, G. H. M. F. Soza1, L. C. Cameron1, L. A. Regitano6 and L. L. Coutinho1, 1Animal Biotechnology Laboratory - ESALQ, University of São Paulo, Piracicaba, Brazil, 2Thomson Mass Spectrometry Laboratory - , Campinas, Brazil, 3Genetics and Evolutionary Biology Department – IB, University of São Paulo, São Paulo, Brazil, 4Waters Corporation, Sao Paulo, Brazil, 5Laboratory of Protein Biochemistry - Federal University of State of Rio de Janeiro, Brazil, 6Embrapa Southeast Livestock, Sao Carlos, Brazil

894 5 Carcass grading effects on the fatty acid and amino acid composition of pork loin from Duroc pigs.
J. Álvarez-Rodriguez1, R. Ros-Freixedes1, S. Gol1, E. Henríquez-Rodríguez1, R. N. Pena1, L. Bosch2, J. Estany1, F. Vilard1 and M. Tor1, 1University of Lleida, Agrotenio Center, Spain, 2Universitat de Girona, Spain, 3University of Lleida, Spain

895 6 The Longissimus thoracis muscle proteome in Alentejana bulls as affected by growth pattern.
A. M. Almeida1,2, P. Nanni3, A. M. Ferreira1, C. Fortes1, J. Grossmann1, R. J. Bessa1 and P. Costa4, 1Instituto de Biologia Experimental e Tecnologica, Oeiras, Portugal, 2Ross University School of Veterinary Medicine, Basseterre, Saint Kitts and Nevis, 3Functional Genomics Center Zurich (FGCZ) - University of Zurich, Zurich, Switzerland, 4CIISA, FMV-Ulisboa, Lisboa, Portugal

896 7 Ferulic acid in diets of heifers and its effect on the oxidative stability of meat stored in refrigeration.

897 8 Label-free quantification of myosin isoforms in porcine skeletal muscles.
J. Y. Jeong1, H. S. Yang2, J. K. Seo2, H. W. Yum2 and G. D. Kim3, 1Institute of Agriculture & Life Science, Gyeongsang National University, Jinju, The Republic of Korea, 2Division of Applied Life Science (BK21 plus), Gyeongsang National University, Jinju, The Republic of Korea, 3Department of Animal Sciences, University of Illinois at Urbana-Champaign

898 9 Identification of novel genes and mechanisms involved in bovine myogenic differentiation.
H. Jiang4, R. Settlage5, X. Leng1 and Y. Hou1, 1Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University, Blacksburg, 2Biocomplexity Institute, Virginia Polytechnic Institute and State University, Blacksburg

899 10 Omega-3 and omega-7 oil supplementation on tissue fatty acid accumulation.
S. K. Duckett1, I. F. Furusho-Garcia, M. F. Miller Jr., B. M. Koch and G. Volpi Lagpreca, Clemson University, SC

900 11 Supplementation of glycerol or fructose via drinking water of pasture-fed lambs.
G. Volpi Lagreca, I. F. Furusho-Garcia, B. M. Koch, M. F. Miller Jr. and S. K. Duckett1, Clemson University, SC

901 12 Comparison of meat quality and fatty acid composition of grain-fed calves to grass-fed steers, as an alternative beef production system in Chilean Patagonia.
F. Sales1, R. Morales2, R. Lira1, L. Bravo1 and Q. Sciaccia4, 1Instituto de Investigaciones Agropecuarias, Punta Arenas, Chile, 2Instituto de Investigaciones Agropecuarias, Osorno, Chile, 3Universidad del País Vasco, Bizkaia, Spain, 4Leibniz Institute, Dummerstorf, Germany
Influence of tannins extract supplementation on lipid oxidation of beef kept in refrigerated storage.
B. O. López1, R. Barajas1, M. A. Mariezcurrena3, M. D. Mariezcurrena2 and Y. Libien1, 1FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico, 2FMVZ-Universidad Autonoma del Estado de Mexico, Toluca, Mexico, 3FM-Universidad Autónoma de Estado de México, Toluca, Mexico

Differentially expressed genes in genetically divergent Nellore steers for calcium content in the Longissimus dorsi muscle.
J. Afonso1, P. C. Tizioto2, P. S. N. Oliveira2, W. J. S. Diniz1, A. O. D. Lima1, M. M. D. Souza1, M. I. P. Rocha1, J. V. D. Silva1, C. E. Buss1, C. F. Gromboni1, G. B. Mourão1, A. R. Nogueira1, L. L. Coutinho2 and L. C. A. Regitano2, 1Federal University of Sao Carlos, Brazil, 2Embrapa Southeast Livestock, Sao Carlos, Brazil, 3Federal Institute of Education, Bahia Science and Technology, Valenca, Brazil, 4University of Sao Paulo, Piracicaba, Brazil, 5Animal Biotechnology Laboratory - ESALQ, University of Sao Paulo, Piracicaba, Brazil

Fatty acid profile and gene expression of lipogenic transcription factors in the muscle of Nellore bulls fed processed soybean.
C. V. Oliveira1, M. M. Ladeira*1, O. R. Machado Neto2, D. R. Casagrande1, L. Ruiz3, J. R. R. Carvalho1, J. P. Schoonmaker1 and A. C. Rodrigues3, 1Universidade Federal de Lavras, Brazil, 2Universidade Federal de Lavras, Brazil, 3Universidade Estadual Paulista, Botucatu, Brazil, 4Purdue University, West Lafayette, IN

Heat shock protein expression differs in 14 day aged Longissimus lumborum in agreement with Warner-Bratzler Shear Force values.

Extension Education

Development of a web-based calendar tool for scheduling beef cow management activities.
D. Poddaturi1, S. Johnson*2, G. R. Dahlke1, D. A. Blasi3 and G. Hanzlicek2, 1Iowa State University, Ames, 2Kansas State University, Colby, 3Department of Animal Science & Industry, Manhattan, KS, 4Kansas State Veterinary Diagnostic Laboratory, Manhattan

Comparing The Pennsylvania State and NRC 2001 heifer ration programs.
L. K. Mitchell* and A. J. Heinrichs, The Pennsylvania State University, University Park

Motivations of calf care workers for sick calf identification and treatment decisions.
C. Crudo1, D. A. Moore*, J. A. Afema1 and W. M. Sischo3, 1Washington State University, Pullman, 2Department of Veterinary Clinical Sciences, Washington State University, Pullman

Developing a feed allocation model to maximize income over feed cost considering farmer risk preferences.
D. Liang1, T. F. Rutherford, B. L. Jones, R. D. Shaver and V. Cabrera, University of Wisconsin-Madison

A qualitative assessment of perception and communication barriers that interfere with the transfer of knowledge to dairy farmers.
M. E. Woolpert1,2, C. E. Morse1 and D. M. Barbano3, 1University of Vermont, Burlington, 2William H. Miner Agricultural Research Institute, Chazy, NY, 3Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY

Dairy Foods Division: Dairy Chemistry I

Characterization of the fatty acid composition of retail bovine milk and vegetable milk in Chile.
E. Vargas-Bello-Pérez, P. Toro-Majica, D. Enriquez-Hidalgo and M. A. Fellenberg, Pontificia Universidad Católica de Chile, Santiago, Chile

Effect of milk protein intake and casein: Whey ratio in breakfast meals on postprandial glucose, satiety ratings and subsequent meal intake.
B. Kang1, S. Paré1, A. J. Tucker1, G. H. Anderson1, A. J. Wright1 and H. D. Geff1, 1University of Guelph, ON, Canada, 2University of Toronto, ON, Canada

Influence of sodium reduction on the rheological characteristics of cottage cheese cream dressing.
H. L. Damiano1, University of Idaho, Moscow

A rapid and non-destructive fluorescence-based analyzer for monitoring the changes in deproteinized whey powder during storage.
K. Sajith Babu3 and J. K. Amamcharla, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan
Evaluation of mineral compositions in commercial Mongolian dried yogurts (Aaruul) marketed at retail stores in Mongolia.
Y. W. Park1, B. I. Davis1, J. H. Ko2, K. P. Bastola1, A. Siddique1 and J. O. Jones1, 1Fort Valley State University, GA, 2Mongolia Higher University of ICT, Ulaanbaatar, Mongolia

Potential protective effect of camel milk and yogurt with chromium on alloxan-induced hyperglycemia in rats.
M. M. Motawee* and A. M. Badawi, National Organization for Drug Control and Research, Giza, Egypt

Characteristics, composition and sensory properties of butter from cows on pasture versus indoor feeding systems.
T. F. O’Callaghan1,2, H. Faulkner2, S. McAuliffe2, M. G. O’ Sullivan1, D. Hennessy1, P. Dillon1, K. N. Kilcawley1, C. Stanton1 and R. P. Ross1, 1University College Cork, Ireland, 2Teagasc Food Research Centre, Cork, Ireland, 3Teagasc Animal & Grassland Research and Innovation Centre, Cork, Ireland

Identification of protein fractions in ripened American style natural cheese manufactured utilizing recombinant bovine and camel chymosin by capillary electrophoresis.
A. C. Biswas* and L. Metzger, South Dakota State University, Brookings

Effect of gamma radiation on physicochemical properties, protein-protein interaction, and microstructure of whey proteins.
M. Guo1,2, X. Wang1, F. Lee1, J. Lu1 and D. Zhang1, 1College of Food Science and Engineering, Jilin University, Changchun, China, 2University of Vermont, Burlington, 3Northeast Agriculture University, Harbin, China, 4Agriculture Academy of China, Beijing, China

Effects of sodium polyphosphate on distribution of particle size of polymerized whey protein.
M. Guo1,2, D. Liu1 and C. Wang1, 1College of Food Science and Engineering, Jilin University, Changchun, China, 2University of Vermont, Burlington

Effects of ultrasound treatment on physicochemical properties of whey protein soluble aggregates.
X. Shen1, T. Fang1, T. Zhang1 and M. Guo1,2, 1Department of Food Science, College of Food Science and Engineering, Jilin University, Changchun, China, 2Department of Nutrition and Food Science, College of Agriculture and Life Science, University of Vermont, Burlington

Crystallization of calcium phosphate in stabilized-paste white mold cheese rinds.
G. F. Tansman1, P. S. Kindstedt1 and J. M. Hughes2, 1Department of Nutrition and Food Sciences, University of Vermont, Burlington, 2Department of Geology, University of Vermont, Burlington

Effect of buffalo αs1-casein polymorphism on the semi-hard Monterey Jack-type cheese quality.
L. Li1, Q. Zeng1, D. Ren1,2, L. Huang1 and Y. Tang1, 1Buffalo Research Institute, Chinese Academy of Agricultural Science, Nanning, China, 2Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, China

Membrane fractionation of delactosed permeate to enhance salty taste.
L. D. Alexander1, M. A. Stout2, M. Drake1, S. L. Beckman1 and L. Metzger1, 1Midwest Dairy Foods Research Center, South Dakota State University, Brookings, 2North Carolina State University, Raleigh, 3South Dakota State University, Brookings

Characterization of Queso Fresco made with Na/K salt blends and stored for 12 weeks.
D. L. Van Hekken1, M. H. Tantick2, J. A. Renye and P. M. Tomasula, USDA-ARS, ERRC, Dairy & Functional Foods Research Unit, Wyndmoor, PA

Effect of micro-encapsulated iron salts on Cheddar cheese divalent cation balance and composition.
A. Arce1 and Z. Ustunol, Michigan State University, East Lansing

Chemical characteristics and enhanced hepatoprotective activities of Maillard-reaction products derived from milk protein-sugar system.

Production, Management and Environment: Stress

Use of evaporative cooling systems and their effects on core body temperature and lying times in lactating dairy cattle.
J. R. Johnson1, L. G. D. Mendonça2, J. P. Harner1 and M. J. Brouk1, 1Department of Animal Sciences and Industry, Kansas State University, Manhattan, 2Kansas State University, Manhattan, 3Department of Biological and Agricultural Engineering, Kansas State University, Manhattan

Relationship between blood parameters, physiological changes and behavior pattern in Korean native steers under cold stress.
Effects of exit-lane water drenching using showers on lactating dairy cow vaginal temperature.

The effects of zinc amino acid complex on biomarkers of gut integrity and metabolism in heat-stressed steers.
M. Abuajamieh1, S. K. Kvidera1, E. A. Horst1, E. J. Mayorga1, J. T. Seibert1, J. S. Johnson1, J. W. Ross1, M. A. Al-Qaisi1, P. J. Gorden1, J. DeFrain1, R. P. Rhoads1 and L. H. Baumgard1, 1Iowa State University, Ames, 2Vetinary Diagnostic and Production Animal Medicine, Iowa State University, Ames, 3Zinpro Corporation, Eden Prairie, MN, 4Virginia Polytechnic Institute and State University, Blacksburg

Effect of OmniGen-AF supplementation to heat stressed cows during late gestation on blood parameters and immune cells of their calves.
A. L. Skibiel*1, J. L. Powell1, T. F. Fabris1, Y. M. Torres1, F. N. Corra1, J. D. Chapman2, D. J. McLean2, D. Kirk2, G. E. Dahl1 and J. Laporta1, 1Department of Animal Sciences, University of Florida, Gainesville, 2Phibro Animal Health Corporation, Quincy, IL.

Effects of cooling and dietary zinc source on the inflammatory responses to an intra-mammary lipopolysaccharide challenge in lactating Holstein cows during summer.
A. P. A. Monteiro*1, X. Weng1, J. Gao1, J. K. Bernard1, J. DeFrain1 and S. Tao1, 1University of Georgia, Tifton, 2Zinpro Corporation, Eden Prairie, MN

Survey of facility design and heat abatement strategies in progressive Central California dairies.
A. H. Souza1, E. O. S. Batista2, B. Gonzales3 and F. Doricci4, 1Ceva Animal Health, Libourne, France, 2University of Sao Paulo, Pirassununga, Brazil, 3Large Animal Veterinary Practitioner, Campestre Dairy, Sao Pedro, Brazil, 4University of Sao Paulo, Sao Paulo, Brazil

The effect of vaginal temperature on expressed physical activity of lactating Holstein cows following induced estrus.
L. Polsky*1, A. M. L. Madureira2, E. L. Drago Filho2, J. L. M. Vasconcelos2 and R. L. A. Cerri3, 1Applied Animal Biology, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 2Departamento de Produção Animal - FMVZ - UNESP, Botucatu, Brazil 

Ruminant Nutrition: Protein, Amino Acids and Nitrogen II

The effect of heat stress and jugular infusions of methionine, lysine and branched-chain amino acids in lactating dairy cattle.
K. Kassube*, J. Kaufman, K. G. Pohler and A. G. Rius, The University of Tennessee, Knoxville

Effect of experimental design on production responses in high-producing dairy cows fed two levels of metabolizable protein.
G. I. Zanton*, USDA-ARS, U.S. Dairy Forage Research Center, Madison, WI

Meta-analysis of post-ruminal microbial nitrogen flows in dairy cattle.
B. D. Enger*1, R. R. White1, S. C. Nickerson2 and L. K. Fox3, 1Virginia Polytechnic Institute and State University, Blacksburg, 2University of Georgia, Athens, 3Washington State University, Pullman

Prediction of crude protein and neutral detergent fiber content in Pennisetum clandestinum by near-infrared spectroscopy.
A. Rivera*, Universidad Nacional de Colombia, Medellin, Colombia

Impact of metabolizable protein source on pancreatic enzyme activity in finishing cattle fed dry-rolled corn-based diets.
E. J. Blom1, D. W. Brake1, M. R. Fiene1, J. A. Walker1, F. E. Keomanivong2 and K. C. Swanson2, 1South Dakota State University, Brookings, 2North Dakota State University, Fargo

Comparative effects of multiple sources of rumen-protected methionine on milk production and serum amino acid levels in mid-lactation dairy cows.
Y. Zang1, S. Saed Samii*1, L. R. Tager2, J. W. McFadden1 and K. M. Krause1, 1West Virginia University, Morgantown, WV, 2Evonik Industries AG, Hanau, Germany

Milk protein synthesis gene expression and mTOR phosphorylation in response to the “ideal” profile of Lys, Met, Thr, Phe, His, Ile, and Leu in bovine mammary cells.
X. Dong1,2, Z. Zhou1, Z. Wang2, B. Saremi1 and J. J. Loor1, 1University of Illinois at Urbana-Champaign, 2Sichuan Agricultural University, Ya’an, IL, 3Evonik Industries AG, Hanau, Germany

Nitrogen excretion of lactating dairy cows fed alfalfa hay- or birdsfoot trefoil hay-based high-forage diet.
M. Ghelich Khan1, S. Y. Yang1, J. S. Eun*1 and J. W. MacAdam2, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, 2Department of Plants, Soils, and Climate, Utah State University, Logan

Determination of relative methionine bioavailability in lactating cows fed Smartamine M, Mepron, and AminoShure M using the plasma free AA dose-response method.
N. L. Whitehouse1, C. G. Schwab2, S. M. Fredin1 and A. F. Brito1, 1University of New Hampshire, Durham, 2Schwab Consulting, LLC, Boscobel, WI, 3Adisseo, Inc., Alpharetta, GA
Impact of three rumen protected lysine prototypes on dairy cow performance, milk composition, and milk casein.
A. M. Barnard, B. A. Barton, C. A. Zimmerman, R. S. Ordway and T. F. Gressley, University of Delaware, Newark, Balchem Corporation, New Hampton, NY

Effects of soybean meal, Fermenten, or expeller soybean meal on milk performance and intake in lactating dairy cattle.
S. W. Fessenden, D. A. Ross, E. Block and M. E. Van Amburgh, Cornell University, Ithaca, NY, Church and Dwight Animal Nutrition, Ewing, NJ

Effect of ruminal bypass lysine on amino acid status, performance and carcass characteristics of steers fed corn product based diets.
N. A. Lancaster, J. A. Tekippe, M. C. Claey's and J. P. Schoonmaker, Purdue University, West Lafayette, IN, Ajinomoto Heartland LLC, Chicago, IL

Determining ruminal lysine degradability of a bypass soybean meal product and an encapsulated lysine source.
J. M. Prestegaard, A. L. Kenny, M. M. Masiero and M. S. Kerley, Purdue University, West Lafayette, IN, Ajinomoto Heartland LLC, Chicago, IL

Effect of ruminal bypass lysine on milk yield and milk composition in lactating Holstein cows fed two different levels of crude protein.
A. Ostrensky, G. Negro, A. M. D. Santos, A. Anater, D. R. Ribeiro, L. F. Greco, M. N. Pereira and R. D. Almeida, Pontificia Universidade Catolica do Parauna, Curitiba, Brazil, Universidade Federal do Parauna, Curitiba, Brazil, Kem South America, Indaiatuba, Brazil, Universidade Federal de Lavras, Brazil

Effects of rumen-protected lysine and methionine on milk yield and milk composition in lactating Holstein cows fed two different levels of crude protein.
A. Ostrensky, G. Negro, A. M. D. Santos, A. Anater, D. R. Ribeiro, L. F. Greco, M. N. Pereira and R. D. Almeida, Pontificia Universidade Catolica do Parauna, Curitiba, Brazil, Universidade Federal do Parauna, Curitiba, Brazil, Kem South America, Indaiatuba, Brazil, Universidade Federal de Lavras, Brazil

Immunometabolic gene expression in blood neutrophils (PMN) in Holstein dairy cows supplemented with rumen-protected methionine or rumen-protected choline during the peripartal period.
P. Montagner, Z. Zhou, D. N. Lucini, J. J. Loor and M. Nunes Correa, University of Illinois at Urbana-Champaign, Adisseo S.A.S., Alpharetta, GA, Federal University of Pelotas, Pelotas, Brazil

Estimation of microbial protein and blood urea of confined bulls fed with diets containing virginiamycin and monensin sodium.
F. R. Camilo, A. M. Mobiglia, J. J. D. R. Fernandes, V. R. M. Couto, F. D. D. Resende, G. R. Siqueira and R. K. Grizzotto, CAPES Foundation, Brasilia, Brazil, UFG, Goiania, Brazil, Universidade Federal de Goias, Goiania, Brazil, Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil

Ruminant Nutrition: Ruminal Fermentation II

Effects of inoculum source and ammoniation on in vitro gas production kinetics of barley straw.
L. Xu, Z. X. He, P. X. Jiao, G. O. Ribeiro Jr., V. Bremer, K. A. Beauchemin, T. A. McAllister and W. Z. Yang, Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, Light Industry Vocational Technical College, Baotou, China, Northeast Agriculture and Forestry University, Yangling, China, Elanco Animal Health, Greenfield, IN

Feeding ground flaxseed to lactating dairy cows decreases the ruminal proportion of Archaea, but does not change the major species of cellulolytic bacteria.
A. B. D. Pereira, A. F. Brito, T. L. Resende, D. H. Woitschach, R. B. Reis and K. J. Soder, University of New Hampshire, Durham, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, Universidade Federal de Viçosa, Viçosa, Brazil, USDA-ARS, University Park, PA

Data acquisition settings of the Ankom RF system and inocula donors affect in vitro gas production.
D. R. Mertens, N. Schlau and D. M. Taysom, Mertens Innovation & Research LLC, Belleville, WI, Dairyland Laboratories, Inc., Arcadia, WI

Effect of duration of in vitro incubation on disappearance of NDF and starch from chopped corn plants versus their resulting corn silages.
L. Nuzback, B. Mahanna, R. A. Zinn, S. Dennis and F. Owens, DuPont Pioneer, Johnston, IA, University of California-Davis, El Centro

Rumen protozoal communities are dynamic after a dietary switch from conserved forage to pasture.
M. L. Bainbridge, L. K. Saldinger, J. W. Barlow, J. P. Alvez, J. Roman and J. Kraft, University of Vermont, Burlington

Effects of Bacillus subtilis supplementation on milk production and rumen fermentation of dairy cows.
A. Bach and N. Nakamura, IRTA, Caldes de Montbui, Spain, Asahi Calpis Wellness Co., Ltd., Tokyo, Japan

Effect of Enterococcus faecalis SROD5 supplementation on microbial communities and quantities of in vitro rumen fermentation.
L. L. Mamuad, S. S. Lee, A. A. Biswas and C. D. Jeong, Sunchon National University, Suncheon, The Republic of Korea
SYMPOSIA AND ORAL SESSIONS

Animal Health: Dairy Udder Health

Chair: Jamie P. Jarrett, Phibro Animal Health Corporation; Thomas R. Overton, Cornell University

Sponsor: H. J. Baker
10:30 AM - 12:30 PM
155 D

10:30 AM
Introductory Remarks

10:35 AM
152
The effect of dry period length and antibiotic treatment at drying off on somatic cell counts across the dry period.
R. J. Vanhoeij1, A. van Kne gel2, B. Kemp3, and T. J. G. M. Lam4, 1Wageningen University, Netherlands, 2Adaptation Physiology Group, Wageningen University, Netherlands, 3Animal Health Service, Deventer, Netherlands, 4University of Utrecht - Department of Farm Animal Health, Utrecht, Netherlands

10:50 AM
153
Enhancement of the dry-off process by intramammary infusion of metalloproteinase 9 nanoparticles.
S. Parés1, O. Cano-Garrido2, E. Garcia-Fruitós3, F. Fàbregas4, A. Bach2,5, N. Ferrer-Miralles6, M. Terré7, A. Villaverde7, and A. Arís8, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2 Departament de Genetica i de Microbiologia, UAB, Cerdanyola del Valles, Spain, 3IRTA, Caldes de Montbui, Spain, 4ICREA, Barcelona, Spain

11:05 AM
154
Effects of inhibiting prolactin production with cabergoline on the physiology of the cow-dry period.
S. Parés1, A. Arís2, M. Terré3, F. Fàbregas4, E. Garcia-Fruitós5, J. Ruberte6, V. Nacher7, A. De-Prado8, and A. Bach9, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2IRTA, Caldes de Montbui, Spain, 3CBATEG Universitat Autònoma de Barcelona, Bellaterra, Spain, 4Ceva Santé Animale, Libourne, France, 5ICREA, Barcelona, Spain

11:20 AM
155
The treatment of only environmental Streptococci clinical mastitis cases reduced antibiotic use, days out of the tank, recurrence of clinical mastitis and a tendency to reduce culling.
A. Lago*, C. Tovar, J. Zaragoza, D. Luiz, and D. Pearce, DairyExperts Inc., Tulare, CA

11:35 AM
156
Effect of the selective treatment of gram-positive clinical mastitis cases versus blanket therapy.
A. Lago*, D. Luiz, D. Pearce, C. Tovar, and J. Zaragoza, DairyExperts Inc., Tulare, CA

11:50 AM
157
Comparison of PCR and culture methods for detecting mastitis causing mycoplasma in bulk tank milk from commercial dairy herds.
A. M. Britten, E. D. Tretter*, and M. Gurajala, Udder Health Systems, Inc., Meridian, ID

12:05 PM
158
Effects of antibiotic dry cow therapy and internal teat sealant (Teatseal) on milk somatic cell counts, clinical, and subclinical mastitis in early lactation.
H. M. Golder*, A. Hodge2, and J. L. Lean3, 1Scibus, Camden, Australia, 2Zoetis Australia Research and Manufacturing Pty. Ltd., Parkville, Australia

ASAS Graduate Student Symposium

Chair: Kyle J. McLean, North Dakota State University

Sponsor: ASAS
10:30 AM - 12:30 PM
254 B

10:30 AM
Welcoming Remarks

10:35 AM
194
Marketing 101: Learning how to market yourself for a successful career.
R. M. Yamka*, Blue Buffalo Company, Ltd., Wilton, CT

11:00 AM
195
Personal branding.
M. Calvo-Lorenzo*, Elanco Animal Health, Greenfield, IN
11:25 AM  196  Bridging the gaps.  
*J. D. Crosswhite*, North Dakota State University, Fargo

11:50 AM  197  Doctoral programs in animal science: Strategies for targeting academic careers.  
*S. J. Caton*, Department of Animal Sciences, North Dakota State University, Fargo

12:15 PM  Panel Discussion

12:25 PM  Concluding Remarks

**Beef Species II**

*Chair: Patrick J. Gunn, Iowa State University*

10:30 AM - 12:30 PM  
150 B/C

10:30 AM  267  Locomotor activity changes in the final 72 hours prepartum in multiparous beef cows.  
*S. M. Bolen*¹, B. L. Vander Ley², K. N. Niederecker¹, and A. M. Meyer², ¹Division of Animal Sciences, University of Missouri, Columbia, ²Department of Veterinary Medicine and Surgery, University of Missouri, Columbia

10:45 AM  268  Impact of heifer development system on subsequent ADG and reproduction in two different breeding seasons.  
*S. A. Springman*¹, H. R. Nielson, and R. N. Funston, University of Nebraska, West Central Research and Extension Center, North Platte

11:00 AM  269  Effect of castration method and analgesia on growth performance and carcass traits in feedlot cattle.  
*S. L. Roberts*², H. D. Hughes, J. G. Powell³, and J. T. Richeson, ²Department of Agricultural Sciences, West Texas A&M University, Canyon, ³Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville

11:15 AM  270  Evaluation of long-acting eprinomectin and a combination of moxidectin/oxfendazole administration post-weaning on immune status by Angus and Angus × Hereford crossbred replacement heifers over a 274-d grazing period.  
*E. A. Backes*¹, J. G. Powell, E. B. Kegley, J. A. Hornsby, and J. L. Reynolds, Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville

11:30 AM  271  Modelling milk yield and calf performance of beef suckler cows on pasture-based systems.  
*D. Sapkota*¹², A. K. Kelly¹, M. McGee², and P. Crosson², ¹University College Dublin, Belfield, Ireland, ²Teagasc Grange, Dunsany Co. Meath, Ireland

11:45 AM  272  Dry and wet conditions during the prepartum forage growing season affect offspring feedlot performance and carcass composition in beef cattle.  
*A. M. Meyer*¹, B. L. Vander Ley², G. A. Gatson³, W. D. Busby⁴, and P. J. Gunn⁵, ¹Division of Animal Sciences, University of Missouri, Columbia, ²College of Veterinary Medicine, University of Missouri, Columbia, ³Tri-County Steer Carcass Futurity, Lewis, IA, ⁴Department of Animal Science, Iowa State University, Ames

12:00 PM  273  Modeling body condition score at calving by past body condition and forage allowance in grazing beef cow on rangelands.  
*M. Claramunt*⁶ and P. Socé⁷, ⁶Centro Universitario de la Region Este, Universidad de la Repablica, Treinta y Tres, Uruguay, ⁷Facultad de Agronomia, Universidad de la Republica, Paysandu, Uruguay

12:15 PM  274  Growth Potential of Dhanni cattle under rain fed conditions of Punjab, Pakistan.  
*G. Bilal*, M. Moaeen-ud-Din, and A. Zurwan, PMAS-Arid Agriculture University, Rawalpindi, Pakistan

**Breeding and Genetics:**

*Novel Traits and Selection Objectives*

*Chair: Jennifer M. Bormann, Kansas State University*

10:30 AM - 12:45 PM  
Grand Ballroom I

10:30 AM  352  Genetics of heat stress in purebred and crossbred pigs from different states using BLUP or ssGBLUP.  
*B. D. Fragomeni*¹, D. Lourencio¹, S. Tsaruta¹, K. A. Gray¹, Y. Huang², and I. Misztal¹, ¹University of Georgia, Athens, ²Smithfield Premium Genetics, Rose Hill, NC
10:45 AM 353 Genetic evaluation for heat tolerance in growing Angus cattle.
H. L. Bradford*, B. D. Fragomeni, D. Lourenco, and I. Misztal, University of Georgia, Athens

11:00 AM 354 Angus cattle at high elevation: Comparison of models to estimate breeding values of yearling pulmonary arterial pressure.
X. Zeng1, T. N. Holt2, S. E. Speidel1, R. M. Enns3, and M. G. Thomas3, 1Department of Animal Sciences, Colorado State University, Fort Collins, 2College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, 3Leachman Cattle of Colorado, Fort Collins

11:15 AM 355 The effect of heterosis on pulmonary arterial pressure on beef cattle.
M. M. Culbertson1, M. G. Thomas1, L. L. Leachman2, R. M. Enns3, and S. E. Speidel1, 1Department of Animal Sciences, Colorado State University, Fort Collins, 2Leachman Cattle of Colorado, Fort Collins

11:30 AM 356 Genetic and phenotypic analysis of Israeli Holstein milk, fat and protein production as determined by the Afilab real-time milk analyzer.
J. I. Weller1 and E. Ezra2, 1ARO, The Volcani Center, Bet Dagan, Israel, 2Israel Cattle Breeders Association, Caesarea, Israel

11:45 AM 357 ADSA-EAAP Speaker Exchange Presentation: Genetic analysis of multivariate indices of detailed fatty acid profile determined by gas chromatography in bovine milk.
N. P. P. Macciotta1, M. Mele2, A. Cecchinato3, G. Conte4, S. Schiavon5, and G. Bittante6, 1Dipartimento di Agraria, University of Sassari, Italy, 2University of Pisa, Italy, 3University of Padova, Legnaro PD, Italy, 4Department of Agriculture, Food and Environment, Università di Pisa, Italy, 5Department of Agronomy, Food, Natural resources, Animals and Environment, University of Padova, Italy

12:15 PM 358 Effectiveness of genomic prediction of boar taint components in Pietrain sired breeding populations.
C. Große-Brinkhaus1, E. Heuß1, J. Trautmann2, D. Mörlein2,3, K. Schellander1, J. Dodenhoff1, K. U. Götz4, and E. Tholen1, 1Institute of Animal Science, University of Bonn, Germany, 2Department of Animal Science, University of Göttingen, Germany, 3isi GmbH & Co. KG, Rosdorf, Germany, 4Bavarian State Research Centre for Agriculture, Institute of Animal Breeding, Poing, Germany

12:30 PM 359 Understanding the genetic architecture of Hays Converter Cattle.
M. K. Abo-Ismail1,2, R. Khorsheid1, E. C. Akanno1, J. Crowley1,3, S. P. Miller4,5,6, A. Fleming7, J. Basarab1,8, C. Li1,9, P. Stothard2, and G. Plastow1, 1Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Animal and Poultry Production, Damanhour University, Egypt, 3Canadian Beef Breeds Council, Calgary, AB, Canada, 4AgResearch Limited, Mosgiel, New Zealand, 5Centre for Genetic Improvement of Livestock, University of Guelph, ON, Canada, 6University of Queensland, Centre for Animal Science, QAAFI, St. Lucia, Australia, 7Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, 8Lacombe Research Centre, Alberta Agriculture and Forestry, Lacombe, AB, Canada, 9Lacombe Research and Development Centre, Agriculture and Ag-Food Canada, Edmonton, AB, Canada

Companion Animal: Nutrition and Biology
Chair: Brittany M. Vester Boler, Nestle Purina
10:30 AM - 11:45 AM
150 E/F

10:30 AM 425 Canine hemangiosarcoma expresses luteinizing hormone (LH) receptors.
K. Zwida* and M. A. Kutzler, Oregon State University, Corvallis

10:45 AM 426 Rabbit maternal pheromone delivered in ointment decreases heart rate in domestic dogs during a simulated thunderstorm.
G. M. Pirner* and J. J. McGlone, Texas Tech University, Lubbock

11:00 AM 427 Evaluation of nutrient digestibility and fecal scores in domestic dogs (Canis lupis familiaris) fed raw meat diets varying in protein source.
C. A. Iennarella*, C. J. Iske, and C. L. Morris, Iowa State University, Ames

11:15 AM 428 Miscanthus grass utilization as a dietary fiber source for dogs.
R. Antunes Donadelli*, C. G. Aldrich, and I. C. Alvarenga, Kansas State University, Manhattan

11:30 AM 429 The effect of milled sorghum fractions on diet utilization by dogs.
I. C. Alvarenga*, C. G. Aldrich, and R. A. Donadelli, Kansas State University, Manhattan
**Dairy Foods Division Symposium: Advances in Sustainability within the Dairy Processing Industry**

Chair: Lisbeth Goddik, Oregon State University; Ying Wang, Innovation Center for US Dairy

10:30 AM - 12:30 PM
151 B/C

10:30 AM  569  New packaging and strategies to enhance your sustainability plan.  
_E. Comere*, Tetra Pak Inc., Denton, TX_

11:00 AM  570  Life cycle environmental assessment of yogurt production and consumption in the USA.  
_Y. Wang¹, G. Thoma², D. Kim³, and J. Burek¹, Innovation Center for US Dairy, Rosemont, IL; ²University of Arkansas, Fayetteville_

11:30 AM  571  Using big data to drive sustainable CIP.  
_J. Curran*, Ecolab, St. Paul, MN_

12:00 PM  572  Processing sustainability – Ideas to create a comprehensive effort.  
_D. Skidmore*, Hilmar Cheese Company, Inc., Hilmar, CA_

**Food Safety Symposium: The Spectrum of Food Safety Improvement in Foods of Animal Origin**

Chair: Todd R. Callaway, USDA-ARS

10:30 AM - 5:00 PM
Grand Ballroom C

10:30 AM  606  Have we improved food safety in live cattle?  
_K. Stanford*, T. Reuter, and D. Niu, Alberta Agriculture and Forestry, Lethbridge, AB, Canada_

11:15 AM  607  Improving food safety in live swine.  
_T. R. Callaway*, USDA-ARS, College Station, TX_

12:00 PM  Risks involved with raw milk consumption.  
_A. Garcia, South Dakota State University_

12:45 PM  Break

2:15 PM  Food safety enhancements during meat harvesting and processing.  
_T. Schmidt, University of Nebraska-Lincoln_

3:00 PM  608  Characterization of zoonotic bacteria from dairy cattle in the era of genomics.  
_J. A. S. Van Kessel¹, S. W. Kim, J. S. Karns, and B. J. Haley, USDA-ARS, Beltsville, MD_

3:45 PM  Food safety in the industry and during preparation.  
_F. Diez Gonzalez, University of Minnesota._

4:30 PM  Panel Discussion
**Growth and Development**

**Chair: Jay Daniel, Berry College**  
10:30 AM - 12:30 PM  
150 G

**Friday, July 22, 2016**

10:30 AM 778  
A new view on the growth of pigs in relation to frequent body weight monitoring.  
A. H. Stygar¹, K. A. Dolecheck², and A. R. Kristensen¹, ¹University of Copenhagen, Department of Large Animal Sciences, Frederiksberg, Denmark, ²University of Kentucky, Lexington

10:45 AM 779  
Effect of prior fiber consumption on diet-induced obesity susceptibility and metabolic health indicators in Ossabaw pigs.  
V. V. Almeida¹ and K. M. Ajunw02, ¹Purdue University, West Lafayette, IN, ²Department of Animal Sciences, Purdue University, West Lafayette, IN

11:00 AM 780  
Body composition at first heat of gilts exposed to three different feeding regimens.  
S. Van Vliet¹, T. S. Bruur², J. Hales³, C. F. Hansen¹, and P. K. Theil⁴, ¹Aarhus University, Denmark, ²SEGES Pig Research Centre, Denmark, ³University of Copenhagen, Denmark

11:15 AM 781  
Pre-weaning diet and exogenous estrogen alter mammary epithelial cell proliferation and progesterone and estrogen receptor expression.  
A. J. Geiger⁶, R. M. Akers, and C. L. M. Parsons, Virginia Polytechnic Institute and State University, Blacksburg

11:30 AM 782  
In vivo knockdown of FGFR2 and MET mRNAs in trophectoderm of ovine conceptuses retards their development via abrogation of MAPK and MTOR pathways.  
X. Wang¹, K. A. Dunlap, M. C. Satterfield, G. Wu, and F. W. Bazer, Texas A&M University, College Station

11:45 AM 16  
Growth and reproductive performance of yearling beef heifers implanted with Revalor G in the Nebraska Sandhills.  
B. T. Tibbitts⁷, H. R. Nielson⁷, K. C. Ramsay⁸, and R. N. Funston², ¹University of Nebraska-Lincoln, ²University of Nebraska, West Central Research and Extension Center, North Platte, ³Rex Ranches, Ashby, NE

12:00 PM  
National Early Career award recipient.  
M. C. Satterfield, Texas A&M University, College Station

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**Milk Protein and Enzymes**

**Chair: Rafel Jimenez-Flores, California Polytechnic State University**  
10:30 AM - 12:30 PM  
Grand Ballroom B/D

10:30 AM 910  
Intrinsic and extrinsic factors affecting milk yield and composition of Camel milk in Northern Eritrea.  
Y. N. Berhane⁴, Uludag University, Bursa, Turkey

10:45 AM 911  
Effect of lactoferrin hydrolysates on cytokine expression in Raw264.7 cells.  
Y. W. Park¹, J. Y. Son², G. Renchinkhand³, S. H. Paik⁴, and M. S. Nam⁵, ¹Fort Valley State University, GA, ²Chungnam National University, Daejeon, The Republic of Korea, ³Cheonan Yonam College, Cheonan, The Republic of Korea

11:00 AM 912  
Three new bovine α₅-CN phosphorylation isoforms reveal different phosphorylation pathways.  
Z. H. Fang¹,², M. H. P. Wisker³, G. Miranda⁴, A. Delacroix-Bucher⁴, H. Bovenhuis⁵, and P. Martin⁶, ¹INRA, UMR1313 GABI, Jouy-en-Josas, France, ²Agroparistech, UMR 1313, GABI, Jouy-en-Josas, France, ³Animal Breeding and Genomics Centre, Wageningen University, Netherlands, ⁴UMR1313 GABI, INRA, AgroParisTech, Université Paris-Saclay, Jouy-en-Josas, France

11:15 AM 913  
Hardening and microstructure of high protein nutrition bars made using whey protein isolate or milk protein concentrate.  
S. K. Hassan⁶ and D. J. McMahon⁷, ⁶College of Education, Al-Qadisiya University, Al-Qadisiya - Diwaniya, Iraq, ⁷Western Dairy Center, Utah State University, Logan

11:30 AM 914  
Effect of casein non-phosphopeptides on the development of rat muscle analyzed using computed tomography (CT) scanning technology.  
N. Zhang¹,², S. Ikeda³, Y. Shi³, and Q. Guo⁴, ¹Harbin University of Commerce, China, ²University of Wisconsin-Madison, ³Northeast Forestry University, Harbin, China

11:45 AM 915  
Physico-chemical properties and antioxidant efficacy of whey protein isolate and casein hydrolyzate stabilized nano-vesicular vehicle systems containing curcumin.  
Z. Z. Haque⁸ and S. Mukherjee, Food Science, Nutrition and Health Promotion, Mississippi State
**Physiology and Endocrinology: Nutrition, Reproduction and Metabolism**  
Chair: Lance H. Baumgard, Iowa State University  
10:30 AM - 12:30 PM  
151 G

### 10:30 AM 1092  
**WS** Mycobacterium avium subspecies paratuberculosis serum lipid profile analysis through Fourier transform ion cyclotron resonance mass spectrometry.  

### 10:45 AM 1093  
**WS** Insulin-associated and insulin-independent impacts of β adrenergic agonists and pro-inflammatory cytokines on glucose metabolism in primary rat soleus muscle.  
C. N. Cadaret*, K. A. Beede, H. E. Riley, and D. T. Yates, University of Nebraska-Lincoln

### 11:00 AM 1094  
**WS** Relationship between current temperament measures and physiological responses to handling of feedlot cattle.  

### 11:15 AM 1095  
Cardiovascular performance of modern swine does not comply with allometric scaling laws.  
G. van Essen*, University Medical Center Rotterdam, Netherlands

### 11:30 AM 1096  
DL-methionine increases glutathione concentration and alleviates inflammatory responses in primary bovine hepatocytes.  

### 11:45 AM 1097  
Elevated hepatic lipid peroxidation and oxidative stress in underperforming piglets.  
T. G. Ramsay*, M. J. Stoll, L. A. Blomberg, and T. J. Caperna, USDA-ARS, BARC, Beltsville, MD

### 12:00 PM 1098  
Yeast supplementation altered the metabolic response to a combined viral-bacterial challenge in feedlot heifers.  
A. B. Word*, P. R. Broadway*, N. C. Burdick Sanchez*, K. P. Sharon*, S. L. Roberts*, J. T. Richeson*, P. J. De Moor*, M. D. Cravey*, J. R. Corley*, M. A. Ballou*, and J. A. Carroll*, 1The Pennsylvania State University, 2Texas Tech University, Lubbock, 3USDA-ARS, Livestock Issues Research Unit, Lubbock, Texas Tech University, Department of Animal and Food Sciences, Lubbock, 4Department of Agricultural Sciences, West Texas A&M University, 5Cactus Feeders, Canyon, TX, 6Phileo Lesaffre Animal Care, Milwaukee, WI, 7Phileo Lesaffre Animal Care, Cedar Rapids, IA

### 12:15 PM 1099  
**In vivo** production, quality and pregnancy of bovine embryos from cows with high or low intake of dry matter or energy.  
R. Sartori*, R. S. Surjas*, A. B. Prata*, P. L. J. Monteiro Jr*, M. C. C. Mattos*, F. C. Mattos*, G. B. Mourao*, and F. A. P. Santos*, 1University of São Paulo - ESALQ/USP, Piracicaba, Brazil, 2ESALQ/USP, Piracicaba, Brazil, 3CEVA Animal Health, Paulineia, Brazil, 4Ourofino Animal Health, Cravinhos, Brazil, 5Department of Animal Science, University of São Paulo/ESALQ, Piracicaba, Brazil, 6University of São Paulo, Piracicaba, Brazil

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**Ruminant Nutrition: Lactation Performance**  
Chair: Fernando Bargo, FAUBA  
10:30 AM - 12:30 PM  
155 F

### 10:30 AM 1500  
Effects of arginine infusion through jugular vein on the milk performance and casein synthesis in mid-lactation cows.  
M. Z. Wang*, Yangzhou University, Yangzhou, China

### 10:45 AM 1501  
Diet starch content and fermentability affects feed intake and milk yield of cows in the postpartum period.  
R. I. Albornoz*, Michigan State University, East Lansing

### 11:00 AM 1502  
Effects of feeding a histidine-deficient diet on lactational performance of dairy cows.  
F. Giallongo*, M. Harper*, J. Oh*, C. Parys*, I. Shinzaito*, and A. N. Hristov*, 1The Pennsylvania State University,
11:15 AM  1503
**The effect of metabolizable protein supply for dry Holstein dairy cows on periparturient feed intake, metabolism, and lactation performance.**
K. M. Hultquist¹, K. W. Cotanch¹, C. S. Ballard¹, H. A. Tucker¹, R. J. Grant¹, R. Suzuki¹, and H. M. Dann¹, ¹William H. Miner Agricultural Research Institute, Chazy, NY, ²ZEN-NOH National Federation of Agricultural Cooperative Associations, Tokyo, Japan

11:30 AM  1504
**Meta-analysis to predict amino acids limiting dairy cattle performance.**
I. J. Lean¹, M. B. De Ondarza², C. J. Sniffen¹, and K. E. Griswold³, ¹Scibus, Camden, Australia, ²Paradox Nutrition, West Chazy, NY, ³Fencrest, LLC, Holderness, NH, ⁴Kemin Industries, Inc., Des Moines, IA

11:45 AM  1505
**Influence of essential amino acid balancing post-partum on lactation performance by dairy cows through a meta-analysis.**
L. F. Ferraretto¹, C. S. Ballard¹, C. J. Sniffen², and I. Shinzato³, ¹William H. Miner Agricultural Research Institute, Chazy, NY, ²Fencrest, LLC, Holderness, NH, ³Ajinomoto Heartland Inc., Chicago, IL

12:00 PM  1506
**Canola meal in dairy cow diets during early lactation increases production compared to soybean meal.**
S. A. E. Moore¹ and K. F. Kalscheur², ¹University of Wisconsin-Madison, ²USDA-ARS, US Dairy Forage Research Center, Madison, WI

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**Ruminant Nutrition: Minerals**

**Chair: Matt J. Hersom, University of Florida**

10:30 AM - 12:30 PM
155 E

10:30 AM  1531
**A meta-analysis to estimate the net macromineral (Ca, P, Mg, Na, and K) requirements for maintenance in beef cattle.**
L. F. Costa e Silva¹, S. C. Valadares Filho², P. P. Rotta³, M. I. Marcondes³, D. Zanetti³, F. A. S. Silva¹, and M. V. C. Pacheco³, ¹Universidade Federal de Vícosa, Vícosa, Brazil, ²Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, ³Universidade Federal de Vícosa, Vícosa, Minas Gerais, Brazil, ⁴Departamento de Zootecnia, Universidade Federal de Vícosa, Vícosa, Brazil, ⁵Universidade Federal de Vícosa, Vícosa, Brazil

10:45 AM  1532
**Effect of micronutrient source on mineral status and performance of steers fed low or high sulfur diets.**
S. J. Hartman*, O. N. Genther-Schroeder, and S. L. Hansen, Iowa State University, Ames

11:00 AM  1533
**Effect of anionic salts on rumen fermentation in a continuous culture system.**
A. L. Kenny¹, J. L. Purdom¹, M. M. Maxier³, J. P. Jarrett¹, T. J. Wistuba¹, and M. S. Kerley¹, ¹University of Missouri, Columbia, ²Phibro Animal Health Corporation, Quincy, IL

11:15 AM  1534
**Effects of prepartum dietary cation anion difference and source of vitamin D on dairy cows: Vitamin D, mineral and bone metabolism.**
R. M. Rodney¹, N. Martinez³, E. Block⁴, L. L. Hernandez⁵, C. D. Nelson⁶, P. Celi⁷, J. E. P. Santos⁶, and I. J. Lean¹, ¹University of Sydney, Camden, Australia, ²Scibus, Camden, Australia, ³Department of Animal Sciences, University of Florida, Gainesville, ⁴Church and Dwight Animal Nutrition, Ewing, NJ, ⁵Department of Dairy Science, University of Wisconsin-Madison, ⁶University of Florida, Gainesville, ⁷Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, Australia

11:30 AM  1535
**The net macromineral (Ca, P, Mg, Na, and K) requirements for growth in beef cattle estimated by meta-analysis.**
P. P. Rotta¹, S. C. Valadares Filho², L. F. Costa e Silva¹, M. I. Marcondes³, A. C. B. Menezes³, M. V. C. Pacheco³, T. E. Engle⁴, and B. C. Silva¹, ¹Universidade Federal de Vícosa, Vícosa, Minas Gerais, Brazil, ²Universidade Federal de Vícosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, ³Universidade Federal de Vícosa, Vícosa, Brazil, ⁴Departamento de Zootecnia, Universidade Federal de Vícosa, Viçosa, Brazil, ⁵Universidade Federal de Vícosa, Viçosa, Brazil, ⁶Universidade Federal de Vícosa, Viçosa, Brazil, ⁷Colorado State University, Fort Collins
**Ruminant Nutrition:**

**Western Section**

**Chair:** Terry E. Engle, Colorado State University

**Sponsor:** Western Section ASAS

**10:30 AM - 12:30 PM**

**155 C**

10:30 AM  **1664**  **WS**  Effect of crude protein supplementation on performance of cow-calf pairs and replacement heifers grazing late growing season forage.
L. Canterbury*, P. Ebert, D. G. Lust, and E. A. Bailey, Department of Agricultural Sciences, West Texas A&M University, Canyon

10:45 AM  **1665**  **WS**  Effect of corn-based supplementation on gas emissions, performance, and energetic losses of steers grazing wheat pasture.
P. Ebert*, E. A. Bailey*, A. L. Shreck, N. A. Cole, and J. S. Jennings, Department of Agricultural Sciences, West Texas A&M University, Canyon, USDA-ARS Conservation and Production Research Laboratory, Bushland, TX, Texas A&M AgriLife Research and Extension Center, Amarillo

11:00 AM  **1666**  **WS**  Effects of rumen protected arginine supplementation to cows during early or late gestation on progeny glucose tolerance.
L. R. Owensby*, C. B. Gardner, R. C. Dunlap, C. A. Loest, S. L. Ivey, S. H. Cox, A. F. Summers, and E. J. Scholljegerdes, New Mexico State University, Las Cruces, Corona Range and Livestock Research Center, Corona, NM, Animal and Range Science Department, New Mexico State University, Las Cruces

11:15 AM  **1667**  **WS**  Effects of administering Ralgro to Holstein calves during the hut period on growth performance.

11:30 AM  **1668**  **WS**  Effects of protein concentration and degradability on performance and carcass characteristics of finishing heifers receiving 0 or 400 mg ractopamine hydrochloride.
K. L. Samuelson*, M. Hubbert, E. R. Oosthuysen, Z. Bester, and C. A. Loest, New Mexico State University, Las Cruces, Animal and Range Science Department, New Mexico State University, Las Cruces

11:45 AM  **1669**  **WS**  Evaluation of *Eragrostis tef* (Zucc.) as a forage option for grazing beef cattle in the Southern High Plains.
D. Sugg*, Texas Tech University, Lubbock; Angelo State University, San Angelo, TX

12:00 PM  **1670**  **WS**  Salivary cortisol concentrations affect rumen microbial fermentation and nutrient digestibility in vitro.

12:15 PM  **1671**  **WS**  Shifting the paradigm of liver abscess dogma in USA feedlots.
Z. Bester*, M. Hubbert, R. E. Carey, K. L. Samuelson, and C. A. Loest, New Mexico State University, Las Cruces, Clayton Livestock Research Center, New Mexico State University, Clayton

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**Swine Species**

**Chair:** Samer W. El-Kadi, Virginia Polytechnic Institute and State University

**10:30 AM - 12:30 PM**

**Grand Ballroom F**

10:30 AM  **1730**  **WS**  Probiotic treatment using *Bacillus subtilis* PB6 improves the growth performance, intestinal morphology, enzyme activities and barrier function in low birth weight piglets.
L. Hu, L. Che*, X. Peng, Q. Xu, Z. Fang, S. Xu, Y. Lin, and D. Wu, Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, China

10:45 AM  **1731**  **WS**  Dietary nucleotides supplementation improves the intestinal development and immune function of low birth weight piglets.
L. Hu, L. Che*, X. Peng, Q. Xu, Z. Fang, S. Xu, Y. Lin, and D. Wu, Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, China
11:00 AM 1732  Effect of supplemented mineral phosphorus and fermentable substrates on gut microbiota composition and metabolites, phytate hydrolysis, and health status of growing pigs.

11:15 AM 1733  Sexual development and boar taint in male pigs selected for divergent residual feed intake.
A. Prunier*1, S. Paroisi1, N. Le Floch1, and H. Gilber1, 1PEGASE, Agrocampus Ouest, INRA, Saint-Gilles, France, 2GenPhyse, Université de Toulouse, INRA, INPT, INPT-ENV, F-31326 Castanet-Tolosan, France

Q. Xu, L. Che**, C. Wu, X. Peng, C. Yan, L. Hu, L. Qin, R. Wang, Y. Lin, Z. Fang, and D. Wu, Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, China

11:45 AM 1735  Assessment of the age of lesions on the pig carcass at the abattoir through spectrophotometric color assessment and gene expression analysis.
M. Vitali*1, S. Conte2, M. Lessard3, G. Martelli1, F. Guay, and L. Faucitano5, 1University of Bologna, Bologna, Italy, 2Agriculture and Agri-Food Canada, Lennoxville, QC, Canada, 3Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, 4Universite Laval, Quebec City, QC, Canada, 5Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada

12:00 PM 1736  Blood plasma replacement by hydrolyzed yeast in weaned piglets diets.
J. A. Rivera1, L. F. Araújo1, R. L. D. C. Barbolho1, M. A. Bonato1, L. A. Vitagliano1, G. D. Santos1, and M. L. Cuadros2, 1Faculdade de Medicina Veterinária e Zootecnia – VNP/FMVZ/USP, Pirassununga, Brazil, 2University of Sao Paulo, Pirassununga, Brazil, 3ICC Brazil, Sao Paulo, Brazil, 4Universidade de Sao Paulo, Pirassununga, Brazil, 5Veterinary Medical, Universidad Peruana Cayetano Heredia, Lima, Peru

12:15 PM 1737  Effects of dietary energy on muscle growth of low birth weight neonatal pigs.
Y. Chen*, S. R. McAuley, K. R. Oliver, R. P. Rhoads, and S. W. El-Kadi, Virginia Polytechnic Institute and State University, Blacksburg

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**Animal Behavior and Well-Being**

Chair: Elsa Vasseur, McGill University

2:00 PM - 5:00 PM

150 B/C

2:00 PM 61  Utility of an online learning module for teaching disbudding in dairy calves, including cornual nerve block application.
C. B. Winder*1, S. J. LeBlanc2, D. B. Haley2, K. D. Lissemores1, M. A. Godkin1, and T. F. Duffield2, 1University of Guelph, ON, Canada, 2Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, 3Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada

2:15 PM 64  Identification of lameness using lying time, rumination time, neck activity, reticulorumen temperature, and milk yield.
B. A. Wadsworth*, A. Stone, J. D. Clark, and J. M. Bewley, University of Kentucky, Lexington

2:30 PM 63  Variability in feeding behavior between individual dairy cows fed under different levels of competition.
R. E. Crossley*, A. Harlander, and T. J. DeVries, Department of Animal Biosciences, University of Guelph, ON, Canada

2:45 PM 66  History of management procedures and hierarchy in dairy cows.
A. Butterworth* and L. van Dijk2, 1University of Bristol, United Kingdom, 2HAS Institute, Amsterdam, Amsterdam, Netherlands

3:00 PM 65  Management and dimensions of footbaths on California dairies.
M. Pineda* and N. Silva-del-Rio, Veterinary Medicine and Research Center, University of California, Tulare, CA

3:15 PM 65  Identification of lameness using lying time, rumination time, neck activity, reticulorumen temperature, and milk yield.
B. A. Wadsworth*, A. Stone, J. D. Clark, and J. M. Bewley, University of Kentucky, Lexington
3:30 PM  Break

3:45 PM  67 Behavioral analysis and performance response of feedlot steers on concrete slats versus rubber slats.
D. Wagner*, Colorado State University, Fort Collins

4:00 PM  68 Effect of corral modification for humane livestock handling on cattle behavior and cortisol release.
M. L. P. Lima1, J. A. Negrao2, C. C. P. Pae3,4, and T. Grandin1, Instituto de Zootecnia, Seriâocino, Brazil, 1Faculdade de Zootecnia e Engenharia de Alimentos, FZEA, USP, Pirassununga, Brazil, 1Universidade de Sao Paulo, Faculdade de Medicina de Ribeirão Preto - Departamento de Genética (USP/FMRP), Ribeirão Preto-SP, Brazil, 1SAA/APTA/Instituto de Zootecnia-Centro de Bovinos de Corte, Sertãozinho-SP, Brazil, 1Colorado State University, Fort Collins

4:15 PM  69 A preliminary examination of swine caretakers’ perspectives for euthanasia technology and training.
M. McGee1, R. L. Parsons1, A. M. O’Connor1, A. K. Johnson2, R. Anthony1, A. Ramirez1, and S. T. Millman1,4, 1Department of Veterinary Diagnostic & Production Animal Medicine, Iowa State University, Ames, 2Iowa State University, Ames, 3Department of Philosophy, University of Alaska Anchorage, Anchorage, 4Department of Biomedical Sciences, Iowa State University, Ames

4:30 PM  70 Slow doesn’t win the race: Reduced energy diets did not improve sow articular cartilage.
N. M. Chapel1, R. L. Dennis1, J. N. Marchant-Forde1, B. T. Richert1, and D. C. Lay Jr.1, 1Purdue University, West Lafayette, IN, 2University of Maryland, College Park, 3USDA-ARS Livestock Behavior Research Unit, West Lafayette, IN

**Animal Health:**

**Dairy Calves and General Health**

Chair: Charles C. Elrod, Natural Biologics, Inc.

Sponsor: H. J. Baker

2:00 PM - 5:00 PM

155 D

2:00 PM  Introductory Remarks

2:05 PM  110 Health status of dairy feeder calves arriving to a veal facility.
D. L. Renaud*, T. F. Duffield, D. F. Kelton, S. J. LeBlanc, and D. B. Haley, Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

2:20 PM  111 Acute immunological responses to a combined viral-bacterial respiratory disease challenge in feedlot heifers supplemented with yeast.
A. B. Word1, P. R. Broadway2, N. C. Burdick Sanchez3, Y. L. Liang3, K. P. Sharon3, S. L. Roberts4, J. T. Richeson5, P. J. Defoor6, M. D. Cravey7, J. R. Corley5, M. A. Ballou1, and J. A. Carroll2, 1Texas Tech University, Lubbock, 2USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 3Texas Tech University, Department of Animal and Food Sciences, Lubbock, 4Department of Agricultural Sciences, West Texas A&M University, Canyon, 5Cactus Feeders, Canyon, TX, 6Phileo Lesaffre Animal Care, Milwaukee, WI, 7Phileo Lesaffre Animal Care, Cedar Rapids, IA

2:35 PM  112 Safmannan and ActiSaf supplementation in milk replacer modulates health and performance in high-risk, pre-weaned Holstein calves.
T. L. Harris1, Y. Liang1, R. E. Hudson1, K. P. Sharon1, J. A. Carroll2, and M. A. Ballou1, 1Texas Tech University, Lubbock, 2USDA-ARS, Livestock Issues Research Unit, Lubbock, TX

2:50 PM  113 Evaluation of horn bud wound healing following cautery disbudding of pre-weaned dairy calves treated with aluminum-based aerosol bandage.
K. L. Huebner*, A. K. Kunkel, C. M. McConnel, R. J. Callan, R. P. Dinsmore, and L. S. Caixeta, Colorado State University, Fort Collins

3:05 PM  Break

3:15 PM  114 Automated milking systems: Using productivity and behavioral data to detect illness in dairy cows.
M. T. King1, E. A. Pajor2, S. J. LeBlanc1, and T. J. DeVries3, 1Department of Animal Biosciences, University of Guelph, ON, Canada, 2University of Calgary, Calgary, AB, Canada, 3Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

3:30 PM  115 Occurrence of mycotoxins in the 2015 US corn crop.
P. N. Gott1, B. G. Miller, R. Beltran, and G. R. Marugesan, Biomin America Inc., San Antonio, TX
Assessments of hygiene and lying behavior with the risk of elevated somatic cell count and lameness.
I. Robles¹, D. F. Kelton², H. Barkema³, G. P. Keefe⁴, J. P. Roy⁵, M. A. von Keyserlingk⁶, and T. J. DeVries⁷, ¹Department of Animal Biosciences, University of Guelph, ON, Canada, ²Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, ³University of Calgary, Calgary, AL, Canada, ⁴Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PE, Canada, ⁵Faculté de médecine vétérinaire, University of Montreal, St. Hyacinthe, QC, Canada, ⁶Animal Welfare Program - University of British Columbia, Vancouver, BC, Canada

Using milk fat-to-protein ratio to evaluate dairy cows energy balance status.
T. Schcolnik*, Afinil, Afikim, Israel

Evaluation of three lameness detection strategies on the odds of cure in dairy cows.
E. M. Wynands*, D. Moe, and G. Cramer, Department of Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, St. Paul

Risk factors for subclinical ketosis in grazing dairy herds in Brazil.
R. R. Daros*, M. J. Hötzel, S. J. LeBlanc, J. A. Bran, A. J. Thompson, and M. A. von Keyserlingk, ¹Animal Welfare Program - University of British Columbia, Vancouver, BC, Canada, ²Universidade Federal de Santa Catarina, Florianopolis, Brazil, ³Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

Mortality risk factors for calves entering a multi-location white veal farm in Ontario.
C. B. Winder*, D. F. Kelton, and T. F. Duffield, ¹University of Guelph, ON, Canada, ²Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

Breeding and Genetics Symposium:
Resilience of Livestock to Changing Environments
Chair: John B. Cole, Animal Genomics and Improvement Laboratory, USDA-ARS
Sponsor: Neogen
2:00 PM - 5:00 PM
Grand Ballroom I

Production, biological, and genetic responses to heat stress in ruminants and pigs.
L. H. Baumgard*, J. T. Seibert, S. K. Kvidera, A. F. Keating, J. W. Ross, and R. P. Rhoads, ¹Iowa State University, Ames, ²Virginia Polytechnic Institute and State University, Blacksburg

Breeding for resilience to heat stress effects: A comparison across dairy ruminant species.
M. J. Carabaño*, M. Ramón, C. Díaz, A. Molina, J. M. Serradilla, and M. D. Pérez-Guzmán, ¹INIA, Madrid, Spain, ²CERSYRA-IRIAF-CLM, Valdepeñas, Spain, ³Universidad de Córdoba, Córdoba, Spain, ⁴Centro Regional de Selección y Reproducción Animal (CERSYRA-IRIAF). Junta de Comunidades de Castilla La Mancha, Valdepeñas, Spain

Climate change and selective breeding in aquaculture.
P. Sae-Lim*, Nofima, Ås, Norway

Introgression of genes conveying resistance to heat stress into cattle populations using the “Slick” genetic variant as a model.
S. R. Davis*, R. J. Spelman, and M. J. Littlejohn, Livestock Improvement Corporation, Hamilton, New Zealand

Genetic solutions to infertility caused by heat stress.
P. J. Hansen*, S. Dikmen, J. B. Cole, M. S. Ortega, and G. E. Dahl, ¹Department of Animal Sciences, University of Florida, Gainesville, ²Uludag University, Faculty of Veterinary Medicine, Department of Animal Science, Bursa, Turkey, ³Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

Resilience and lessons from studies in genetics of heat stress.
I. Misztal*, University of Georgia, Athens
Companion Animal Symposium: Fundamentals of Protein Nutrition  
Chair: Greg Aldrich, Kansas State University  
Sponsor: George Fahey Appreciation Club  
2:00 PM - 5:00 PM  
150 E/F

2:00 PM  Introductory Remarks
2:10 PM 434  Global protein supply: Present and future considerations and availability.  
D. L. Schaefer*, Cargill, Wichita, KS
2:40 PM 435  Alternative protein supplies for petfood.  
G. Bosch*, Wageningen University, Netherlands
3:10 PM  Break
3:25 PM 436  Amino acid requirements and protein digestibility and assessment in dogs with considerations for cats.  
A. K. Shoveller*, University of Guelph, ON, Canada
3:55 PM 437  Idiosyncrasies of amino acid metabolism in dogs and cats.  
D. L. Harmon*, University of Kentucky, Lexington
4:25 PM  Panel Discussion

CSAS Symposium: Reducing the Use of Antibiotics in Livestock Production  
Chair: Filippo Miglior, Centre for Genetic Improvement of Livestock, University of Guelph; Eveline M Ibeagha-Awemu, Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre  
Sponsor: CSAS  
2:00 PM - 5:00 PM  
155 A

2:00 PM 492  Alternatives to antibiotics in swine and poultry.  
D. Schokker1,2 and M. A. Smit3,4, 1Wageningen UR Livestock Research, Netherlands, 2Animal Breeding and Genomics Centre, Wageningen, Netherlands, 3Wageningen UR, Central Veterinary Institute, Lelystad, Netherlands
2:30 PM 493  Management of dairy cows to improve resistance to infectious diseases.  
P. Lacasse1, N. Vanacker2, S. Lancôt4, and S. Ollier2, 1Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, 2Sherbrooke R&D Centre, Sherbrooke, QC, Canada, 3Université de Sherbrooke, Sherbrooke, QC, Canada, 4McGill University, Montréal, QC, Canada
3:00 PM 494  Selection for disease resistance in swine.  
G. Plastow1, Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada
3:30 PM 495  Genomic approaches to characterizing and reducing antimicrobial resistance in beef cattle production systems.  
M. A. Javed, C. Klina, A. A. Cameron, T. W. Alexander, R. Zaheer, K. Munns, and T. A. McAllister*, Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada
4:00 PM 496  Nurturing healthy gut microbiome: Route to increased disease resistance in ruminants.  
L. L. Guan* and N. Malmuthuge, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada
4:30 PM 497  Pre- and probiotics for increased disease resistance in the nonruminant animal.  
C. M. Nyachoti*, University of Manitoba, Winnipeg, MB, Canada
**Dairy Foods Division:**

**Advances in Dairy Microbiology**

**Chair:** Milena Corredig, University of Guelph

2:00 PM - 5:00 PM

151 B/C

2:00 PM 498

Investigating the antimicrobial activity of pasteurized and raw camel milk against foodborne pathogens: *Listeria monocytogenes* and *E. coli* O157:H7

*M. Ayyash*, UAE University, Al-Ain, United Arab Emirates

2:15 PM 499

Application of fluorescent probes to determine localized salt concentrations within cheese matrices and their influence on metabolic activity of entrapped bacterial cells.

*C. D. Hickey*, V. Fallico*, Z. Burdikova*, M. G. Wilkinson*, and J. J. Sheehan†, †Teagasc Food Research Centre Moorepark, CO Cork, Ireland, †University of Limerick, Ireland

2:30 PM 500

Inducing HT-29 colon cells apoptosis by the extracellular polymeric substances isolate from *L. casei* strains.

*W. Di*, L. Zhang, and X. Han, Harbin Institute of Technology, Harbin, China

2:45 PM 501

Comparative genomics of *Lactobacillus brevis* uncovers its common capability for efficiently synthesizing neuroactive γ-aminobutyric acid.

*Q. Wu*, H. M. Tun*, Y. S. Law*, E. Khafipour*, and N. P. Shah†, †School of Biological Sciences, The University of Hong Kong, Pokfulam, †Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada

3:00 PM 502

Effect of incubation temperature on yield and molar mass of EPS during fermentation of milk by *Streptococcus thermophilus* DGCC 7785 and the impact on the rheological properties of acid milk gels.

*S. N. Khanal*† and J. A. Lucey‡, †University of Wisconsin-Madison, ‡Wisconsin Center for Dairy Research, Madison, WI

3:15 PM 503


*S. Kim*, Korea University, Seoul, The Republic of Korea

3:30 PM 504

An ancient, species-specific tagatose-6-phosphate pathway in *Lactobacillus casei* group for galactose reduction in cultured dairy foods.

*N. P. Shah*† and *Q. Wu*, School of Biological Sciences, The University of Hong Kong, Pokfulam

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**Extension Education Symposium:**

**Growing Extension’s Impacts with Changing Budgets and Personnel**

**Chair:** Julie A. Walker, South Dakota State University

2:00 PM - 4:30 PM

155 C

2:00 PM 591

Work-life balance for extension professionals: Maybe it should be redefined as ‘work-life effectiveness’.

*G. P. Lardy*, North Dakota State University, Fargo

2:30 PM 592

Enhancing your Extension program through a strong research program, and vice versa.

*W. Powers*, Michigan State University, East Lansing

3:00 PM 593

Culturing and leveraging allied industry support for academic programs.

*M. W. Overton*, Elanco Animal Health, Greenfield, IN

3:30 PM 594

Developing regional and multi-state extension collaborations.

*A. J. Young*, Utah State University, Logan

4:00 PM 595

Extension faculty navigating the tenure and promotion process.

*N. E. Cockett*, Utah State University, Logan
Meat Science and Muscle Biology
Chair: Jerrad F. Legako, Utah State University
2:00 PM - 5:00 PM
155 F

2:00 PM 878
Chemical composition and expression of genes involved in lipid metabolism in the muscle of Nellore and Angus young bulls fed whole shelled corn diet.
M. M. Ladeira1, P. D. Teixeira1, M. P. Gionbelli1, M. L. Chizzotti2, J. R. R. Carvalho1, D. M. Oliveira1, and T. C. Coelho1, 1Universidade Federal de Lavras, Brazil, 2Universidade Federal de Viçosa, Brazil

2:15 PM 879
Effects of arachidonic acid and prostaglandins on proliferation, differentiation, and fusion of bovine myoblasts.
X. Leng* and H. Jiang, Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University, Blacksburg

2:30 PM 880
Influence of zinc amino acid complex and ractopamine hydrochloride supplementation on the sarcoplasmic protein profile of finishing steers.
O. N. Genther-Schroeder1, E. Huff-Lonergan1, M. E. Branine2, and S. L. Hansen1, 1Iowa State University, Ames, 2Zinpro Corporation, Eden Prairie, MN

2:45 PM 881
Survey of attitudes for millennials who do not consume lamb.
K. R. Wall1 and C. R. Kerth2, 1Texas A&M University, College Station, 2Texas A&M University Animal Science Department, College Station

3:00 PM 882
Survey of attitudes for millennial lamb consumers.
K. R. Wall1 and C. R. Kerth2, 1Texas A&M University, College Station, 2Texas A&M University Animal Science Department, College Station

3:15 PM 883
A histologic and ultrastructural study of wooden breast disease in modern broiler chickens.
M. P. Babak, E. M. Brannick, C. J. Schmidt, and B. Abasht*, Department of Animal and Food Sciences, University of Delaware, Newark

3:30 PM 884
High-energy forage and feedlot finishing impact on beef consumer acceptability and sensory characteristics in the upper Midwest.
R. M. Martin1, J. E. Rowntree1, J. P. Schweinhefer2, J. B. Harte1, and A. M. Merwin1, 1Michigan State University, East Lansing, 2Michigan State University Extension, East Lansing

3:45 PM 885
Effect of growth-promoting technologies on the proteome of bovine Longissimus lumborum.
C. A. Hayes1,2, W. L. Keller1, J. K. Grubbs3, S. M. Lonergan1, S. M. Ebarb4, K. J. Phelps4, J. S. Drouillard1, J. M. Gonzalez4, and K. R. Maddock-Carlin1, 1North Dakota State University, Fargo, 2Purina Animal Nutrition LLC, Gray Summit, MO, 3Iowa State University, Ames, 4Kansas State University, Manhattan

4:00 PM 886
Effects of post-weaning exposure to a high-concentrate diet vs. pasture on live performance, carcass characteristics, and meat quality of early harvested steers.
B. M. Koch1, L. E. Bowen1, J. T. Milopoulos2, G. Volpi Lagreca3, and S. K. Ducket4, 1Clemson University, SC, 2INTA, Anguil, Argentina

4:15 PM 887
Effects of post-weaning exposure to a high-concentrate diet vs. pasture on carcass ultrasound, plasma insulin and glucose, and gene expression of lipogenic enzymes of early harvested steers.
B. M. Koch1, L. E. Bowen, N. M. Long, and S. K. Ducket, Clemson University, SC

4:30 PM 888
Effects of dietary coated cysteamine hydrochloride on meat quality in finishing pigs.
H. Liu1, M. Bai1, K. Xu1, B. Zou1, R. Yu1, Q. Xi2, and Y. Yin1, 1Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, China, 2College of Animal Science, South China Agricultural University, Guanzhou, China, 1King Techina Group, Hangzhou, China

4:45 PM 889
Meat quality of lambs fed diets containing different levels of residual frying oil.
M. Capelari1, E. L. T. Peixoto2, E. S. Moura, E. L. A. Ribeiro3, and I. Y. Mizubuti1, 1Michigan State University, East Lansing, 2Universidade Federal do Sul e Sudeste do Pará, Marabá, Brazil, 3Universidade Estadual de Londrina, Londrina, Brazil
**MILK Symposium:**
**Marketing Milk for Entrepreneurial and Big Business Value**

Chair: Lisbeth Goddik, Oregon State University

Sponsor: ADSA Foundation

2:00 PM - 5:30 PM

Grand Ballroom B/D

2:00 PM 916

Get in the driver’s seat: Marketing milk and dairy products to today’s and tomorrow’s consumers.

*D. M. Berry*, Dairy & Food Communications Inc., Chicago, IL

2:45 PM 917

Practices and programs to ensure the safety of artisan cheese.

*D. J. D’Amico*, University of Connecticut, Storrs

3:30 PM 918

Camel milk from commodity to added value product. The science behind the development of the camel dairy industry.

*P. Nagy*, Emirates Industries for Camel Milk and Products, Dubai, United Arab Emirates

4:15 PM 919

Terroir: Science based or marketing gimmick.

*L. Goddik*, Oregon State University, Corvallis

5:00 PM

Reception

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**Nonruminant Nutrition: General**

Chair: Z. J. Rambo, Zinpro Corporation

Sponsor: JBS United, DuPont

2:00 PM - 3:30 PM

Grand Ballroom F

2:00 PM 980

Effects of SILOHealth 104 supplementation on the growth performance of Ross 308 broiler chickens.

*A. Bedford*¹, *H. Yu*¹, *M. Hernandez*¹, *J. Squires*¹, *S. Leeson*¹, and *J. Gong*¹, ¹Agriculture and Agri-Food Canada, Guelph, ON, Canada; ²Department of Animal Biosciences, University of Guelph, ON, Canada; ³Department of Animal and Poultry Science, University of Guelph, ON, Canada

2:15 PM 981

Effect of increasing *Buttiauxella* phytase dose to 2,000 FTU/kg on phytate degradation and ileal AA digestibility in weaned pigs.

*Y. Dersjant-Li*¹ and *G. Dusel*², ¹Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom; ²University of Applied Sciences Bingen, FB1 - Life Sciences, Bingen am Rhein, Germany

2:30 PM 982

Influence of dietary crude protein and phosphorus levels on the utilization of crude protein and phosphorus in growing pigs.

*P. Xue*¹ and *O. Adeola*², ¹Purdue University, West Lafayette, IN; ²Department of Animal Sciences, Purdue University, West Lafayette, IN

2:45 PM 983

Effects of Dakota gold and high fat commodity DDGS in a complete diet on pellet quality.

*A. D. Yoder*, Kansas State University, Manhattan

3:00 PM 984

Oregano essential oil supplementation in gestation and lactation shortened birthing interval in primiparous and multiparous sows.

*M. Renken, R. C. Thaler, and C. L. Levesque*, South Dakota State University, Brookings

3:15 PM 985

Effects of casein on digestibility of amino acids in distillers dried grains with solubles fed to pigs.

*C. S. Park*¹, *C. Fang*¹, *D. Ragland*², and *O. Adeola*¹, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN; ²Department of Veterinary Clinical Sciences, Purdue University, West Lafayette, IN
Physiology and Endocrinology:
Reproduction and Estrous Cycle Control

Chair: Vitor R. G. Mercadante, Virginia Polytechnic Institute and State University
2:00 PM - 5:00 PM
151 G

2:00 PM 1109  WS Effect of delayed insemination of non-estrous beef heifers following a 7-d-CO-Synch plus controlled internal drug release (CIDR) insert timed artificial insemination protocol.
D. C. Shaw*, K. E. Fike, and D. M. Griege, Kansas State University, Manhattan

2:15 PM 1110  GnRH increased pregnancy risk in suckled beef cows that did not display estrus when subjected to a split-time artificial insemination program.
S. L. Hill*, D. M. Griege, K. C. Olson, J. R. Jaeger, C. R. Dahlen, M. R. Crosswhite, N. Negrin Pereira, S. R. Underdahl, B. W. Neville, J. K. Ahola, M. C. Fischer, G. E. Seidel, and J. S. Stevenson, 1 Kansas State University, Manhattan, 1 Western Kansas Agricultural Research Center, Kansas State University, Hays, 1 North Dakota State University, Fargo, 1 North Dakota State University, Streeter, 1 Colorado State University, Fort Collins

2:30 PM 1111  Comparison of long- versus short-term CIDR-based protocols to synchronize estrus prior to fixed-time AI in primiparous two-year-old beef cows.
J. M. Abel*, B. E. Bishop, J. M. Thomas, M. R. Ellersieck, S. E. Poock, M. F. Smith, and D. J. Patterson, University of Missouri, Columbia

2:45 PM 1112  Comparing split-time AI pregnancy rates among non-estrous heifers based on administration of GnRH at AI.
B. E. Bishop*, J. M. Thomas, J. M. Abel, M. F. Smith, M. R. Ellersieck, S. E. Poock, and D. J. Patterson, University of Missouri, Columbia

3:00 PM 1113  Comparing fixed-time artificial insemination to split-time artificial insemination with delayed administration of GnRH in postpartum beef cows.
B. E. Bishop*, J. M. Abel, J. M. Thomas, M. F. Smith, S. E. Poock, M. R. Ellersieck, and D. J. Patterson, University of Missouri, Columbia

3:15 PM 1114  Split-time artificial insemination following synchronization of estrus with the 14-d CIDR-PG protocol in primiparous two-year-old beef cows.
J. M. Abel*, B. E. Bishop, J. M. Thomas, M. R. Ellersieck, S. E. Poock, M. F. Smith, and D. J. Patterson, University of Missouri, Columbia

3:30 PM  Break

3:45 PM 1115  The 9-d CIDR-PG protocol: Incorporation of prostaglandin pretreatment into a long-term, CIDR-based estrus synchronization protocol improves timed AI pregnancy rates in postpartum suckled beef cows.
J. M. Thomas*, B. E. Bishop, J. M. Abel, J. W. Locke, S. E. Poock, M. F. Smith, and D. J. Patterson, University of Missouri, Columbia

4:00 PM 1116  Requirement of GnRH administration at the onset of the 5 day CO-Synch + CIDR protocol in suckled beef cows.
T. M. Grussing*, M. L. Day, B. J. Funnell, B. R. Harstine, E. J. Northrop, G. A. Perry, J. J. J. Rich, D. W. Shike, K. R. Stewart, and P. J. Gunn, 1 Department of Animal Science, Iowa State University, Ames, 1 Department of Animal Science, University of Wyoming, Laramie, 1 Department of Veterinary and Clinical Sciences, Purdue University, West Lafayette, IN, 1 The Ohio State University, Columbus, 1 Department of Animal Science, South Dakota State University, Brookings, 1 University of Illinois at Urbana-Champaign, 1 Purdue University, West Lafayette, IN

4:15 PM 1117  Comparison of follicular dynamics and subsequent progesterone profiles in Brahman cows with either two or three ovarian follicular waves.
R. A. d’Orey Branco*, D. A. Neuendorf, A. W. Lewis, R. C. Vann, T. H. Welsh, Jr, and R. D. Randle, 1 Texas A&M AgriLife Research, Overton, 1 Department of Animal Science, Texas A&M University, College Station, 1 Texas A&M AgriLife Research, Texas A&M University System, Overton, 1 MAFES - Brown Loam Experiment Station, Mississippi State University, Raymond, 1 Texas A&M AgriLife Research and Department of Animal Science, College Station

4:30 PM 1118  Effect of a progesterone-based estrous synchronization program for timed AI (TAI) on reproductive performance in a seasonal pasture-based dairy production system.
F. Randi*, J. M. Sanchez, M. M. Herlhy, D. A. Kenny, A. Valenza, S. Butler, and P. Lonergan, 1 School of Agriculture and Food Science, University College Dublin, Ireland, 1 Teagasc Grange, Meath, Ireland, 1 Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland, 1 Teagasc Grange, Dunsany Co. Meath, Ireland, 1 Ceva Animal Health, Libourne, France
Production, Management and the Environment: Health and Welfare

Chair: Don Ely, University of Kentucky

2:00 PM - 5:00 PM
151 E/F

2:00 PM 1227
Factors associated with average daily gain in dairy heifer calves on US dairy operations.

2:15 PM 1228
Factors associated with morbidity in dairy heifer calves on US dairy operations.

2:30 PM 1229
Factors associated with Cryptosporidium and Giardia infection in preweaned dairy heifer calves.

2:45 PM 1230
Factors associated with colostrum quality and passive transfer status of dairy heifer calves on US dairy operations.

3:00 PM 1231
Risk factors for calf mortality on farms using automated feeders in the Midwest USA.
M. Jorgensen and M. I. Endres, University of Minnesota, St. Paul

3:15 PM 1232
Impact of milk-feeding programs on fecal bacteria population and antimicrobial resistance genes in Escherichia coli isolated from feces in preweaned calves.
G. Maynou, L. Migura-Garcia, J. Sabirats, H. Chester-Jones, D. Ziegler, A. Bach, and M. Terré, IRTA, Caldes de Montbui, Spain, CRESA, Cerdanyola del Vallès, Spain, ICRA, Girona, Spain, University of Minnesota Southern Research and Outreach Center, Waseca, ICREA, Barcelona, Spain

3:30 PM 1233
A survey of management practices and producers' perceptions regarding manual and automated milk feeding systems for dairy calves.
C. Medrano-Galarza, J. Rushen, A. M. de Passillé, A. Jones-Bitton, T. J. DeVries, S. J. LeBlanc, and D. B. Haley, Campbell Centre for the Study of Animal Welfare, University of Guelph, ON, Canada, Faculty of Land & Food Systems, University of British Columbia, Agassiz, BC, Canada, Department of Animal Biosciences, University of Guelph, ON, Canada

3:45 PM 1234
Investigating the within-herd prevalence and risk factors of hyperketonemia of dairy cattle in Ontario as diagnosed by the test-day concentration of milk ß-hydroxybutyrate.
E. H. Tatone, T. F. Duffield, S. J. LeBlanc, T. J. DeVries, and J. L. Gordon, Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

4:00 PM 1235
Relationships between early life milk replacer and starter intake and first lactation performance of Holstein dairy cows.
H. Chester-Jones, B. J. Heins, D. Ziegler, D. Schinek, S. E. Schuling, B. Ziegler, M. B. De Ondarza, C. J. Sniffen, and N. Broadwater, University of Minnesota Southern Research and Outreach Center, Waseca, University of Minnesota West Central Research and Outreach Center, Morris, Hubbard Feeds Inc., Mankato, MN, Paradox Nutrition, West Chazy, NY, Fencrest, LLC, Holderness, NH, University of Minnesota Extension, Rochester

4:15 PM 1236
Feeding management strategies on large and smaller freestall dairy herds in Minnesota.
L. Kloeckner and M. I. Endres, University of Minnesota, St. Paul

4:30 PM 1237
Evaluation of the CowVac for controlling flies on Minnesota organic dairy farms.
M. A. Kiene and B. J. Heins, University of Minnesota, Lakeville, University of Minnesota West Central Research and Outreach Center, Morris
Ruminant Nutrition: Intake, Digestibility and Efficiency

Chair: Kristen Johnson, Washington State University
2:00 PM - 5:00 PM
155 E

2:00 PM  1488  Toxicity of antibiotics on rumen protozoan Entodinium caudatum and its associated microbes.
T. Park*, The Ohio State University, Columbus

2:15 PM  1489  Effect of diets containing different levels of crude glycerol on nutrient intake in lambs.
M. A. Syperreck1, M. Capelari2, I. Y. Mizubuti3, and E. L. A. Ribeiro4, 1Universidade Estadual de Londrina, Londrina, Brazil, 2Michigan State University, East Lansing

2:30 PM  1490  Effects of corn particle size and ratio NDF:starch on in-vitro NDF degradability.
S. Melan and E. Raffrenato*, Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa

2:45 PM  1491  Associations between RFI, and metabolite profiles and feeding behavior traits in feedlot cattle.
M. D. Miller1, G. E. Carstens2, J. M. Thomson3, J. G. Berardinelli4, M. R. Herrygers5, J. White6, L. O. Tedeschi7, and P. K. Riggs8, 1Texas A&M University, College Station, 2Montana State University, Bozeman

3:00 PM  1492  Effects of acidity and silage type on lysine retention among two lipid-coated ruminally protected lysine products.
J. N. Reiners* and D. W. Brake, South Dakota State University, Brookings

3:15 PM  1493  Relationship of days in milk to nutrient digestibility in lactating multiparous cows.
A. M. Barnard*, H. Jensen*, and T. F. Fressley*, 1University of Delaware, Newark, 2BioZyme, Wathena, KS

3:30 PM  1494  Effects of animal and diet characteristics on digestibilities of dry matter, fiber and starch in lactating cows.
R. A. De Souza2, R. J. Tempelman1, M. S. Allen1, J. K. Bernard1, B. Weiss2, and M. J. VandeHaar1, 1Michigan State University, East Lansing, 2University of Georgia, Tifton, 3The Ohio State University, Wooster

3:45 PM  1495  Effects of silage type and inclusion level on ruminal characteristics and feeding behavior of feedlot steers.
P. R. B. Campanili*, J. O. Sarturi*, S. J. Trojan1, M. A. Ballou1, L. A. Pellarin1, J. D. Sugg2, L. A. Ovinge3, and A. A. Hoffman4, 1Texas Tech University, Lubbock, 2Angelo State University, San Angelo, TX

4:00 PM  1496  Identification of biological pathways involved in residual feed intake in Hereford cattle through Gene Set Enrichment Analysis.
J. L. Mutch1, M. Neupane1, C. M. Seabury2, H. L. Neibergs1, P. C. Tizioto3, D. J. Garrick4, M. S. Kerley3, D. W. Shike5, J. E. Beever6, J. F. Taylor1, U. S. Feed Efficiency Consortium1, and K. A. Johnson1, 1Department of Animal Sciences, Washington State University, Pullman 2College of Veterinary Medicine, Texas A&M University, College Station, 3University of Missouri, Columbia, 4Department of Animal Science, Iowa State University, Ames, 5University of Illinois at Urbana-Champaign

4:15 PM  1497  Updating equations to estimate dry matter intake of Nellore and beef crossbred cattle.
L. F. Costa e Silva1, S. C. Valadares Filho2, P. P. Rotta3, J. A. G. Acevedo3, F. F. Silva1, A. C. B. Menezes1, and B. C. Silva4, 1Universidade Federal de Viçosa, Vícosa, Brazil, 2Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, 3Universidade Federal de Viçosa, Vícosa, Minas Gerais, Brazil, 4Universidade Estadual de Santa Cruz, Ilheus, Bahia, Brazil

4:30 PM  1498  Rumen bacterial species associate with residual feed intake in beef cattle.
A. A. Elolimy1, M. Abdelmegeid2, J. C. McCann1, D. W. Shike1, and J. J. Loo1, 1 University of Illinois at Urbana-Champaign 2Kafrelsheikh University, Egypt

4:45 PM  1499  The association between body condition score, residual feed intake, and hyperketonemia.
F. M. Tiberio3, R. S. Pralle4, C. A. Geshel5, R. C. Oliveira5, S. J. Bertics1, K. A. Weigel1, R. D. Shaver1, L. E. Armentano3, and H. M. White3, 1Department of Dairy Science University of Wisconsin-Madison, 2University of Wisconsin-Madison
**Swine Species**

1738  1  
Prediction of the concentration of androstenone in backfat from boar carcasses using indicators of sexual development.

A. Prunier\(^1\), S. Parois\(^1\), A. Faouën\(^1\) and C. Larzel\(^2\), \(^1\)PEGASE, Agrocampus Ouest, INRA, Saint-Gilles, France, \(^2\)GenPhyse, Université de Toulouse, INRA, INPT, INPT-ENV, Castanet-Tolosan, France

1739  2  
Effects of dietary ramie (Bochmeria nivea) powder at different levels on carcass traits, muscle fiber characteristics and muscular free amino acid profile of Chinese indigenous finishing pigs.

Y. Tang\(^*\), Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, China

1740  3  
Effects of different sources and routes of administration of copper and vitamins A and D on gut volatile fatty acids and gene expression involved in regulation of innate and acquired immunity in piglets.

L. Lo Verso\(^*\), J. J. Matte\(^1\), G. Talbot\(^1\), J. Lapointe\(^1\), N. Bissonnette\(^1\), F. Guay\(^2\), N. Gagnon\(^1\), B. Ouattara\(^3\) and M. Lessard\(^1\), \(^1\)Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, \(^2\)Universite Laval, Quebec City, QC, Canada

1741  4  
Comparison of transport characteristics of ferrous sulfate and iron glycine gelate across IPEC-J2 cell monolayers.

S. Fang\(^*\), College of Animal Science, Zhejiang University, HangZhou, China

1742  5  
Studying of population structure of European wild boar (sus scrofa) and its subspecies, inhabiting Russia.

A. A. Traspov\(^1\), O. V. Kostynina\(^1\), I. A. Domsky\(^2\), A. V. Ekonomov\(^1\), A. A. Sermynagin\(^1\) and N. A. Zinovieva\(^1\), \(^1\)L.K.Ernst Institute of Animal Husbandry, Moscow, Russian Federation, \(^2\)Institute of Hunting and Fur-farming named after professor B.M. Zhitkov, Kirov, Russian Federation

1743  6  
Supplementation with a blend of capsicum and artificial sweetener improves performance of growing and finishing pigs.

C. Ionescu\(^*\), C. Soulet, C. Bruneau and E. H. Wall, Pancosma, Geneva, Switzerland

1744  7  
Effects of different sources and routes of administration of copper and vitamins A and D on piglets gut microbiota.

G. Talbot\(^1\), M. Lessard\(^1\), E. Yergeau\(^2\), N. Gagnon\(^1\), L. Lo Verso\(^1\), J. Lapointe\(^1\), N. Bissonnette\(^1\), D. Bueno Dalto\(^1\), B. Ouattara\(^3\), F. Guay\(^1\) and J. J. Matte\(^1\), \(^1\)Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, \(^2\)Université du Québec, Centre INRS-Institute Armand-Frappier, Laval, QC, Canada, \(^3\)Universite Laval, Quebec City, QC, Canada

1745  8  
Diurnal heat stress reduces nursery-grower pig performance and intestinal integrity.

N. K. Gabler\(^1\), G. R. Murugesan\(^1\), S. Schaumberger\(^1\), U. Hofstetter\(^1\) and G. Schatzmayer\(^2\), \(^1\)Department of Animal Science, Iowa State University, Ames, \(^2\)Biomin America Inc., San Antonio, TX, \(^3\)Biomin Holding GmbH, Getzersdorf, Austria, \(^4\)Biomin Research Center, Tallinn, Austria

1746  9  
Effect of diet composition on piglet growth and digestibility responses to a high dietary canola content.

G. A. Mejicanos\(^*\), University of Manitoba, Winnipeg, MB, Canada

**Breeding and Genetics: Molecular Genetics**

338  10  
Comparison of transcriptome profiles in longissimus dorsi muscle between bulls and steers of Korean cattle.

M. Baik, S. J. Park\(^*\) and N. Sang Weon, Department of Agricultural Biotechnology, College of Agriculture and Life Sciences, Seoul National University, Seoul, The Republic of Korea

339  11  
Gene network regulated by microRNAs suggests modulation of fat deposition in cattle.

G. B. Oliveira\(^1\), A. S. M. Cesar\(^1\), A. M. Feljto\(^1\), M. D. Poleti\(^1\), L. C. A. Regitano\(^2\) and L. L. Coutinho\(^3\), \(^1\)Animal Biotechnology Laboratory - ESAQ, University of São Paulo, Piracicaba, Brazil, \(^2\)Embrapa Southeast Livestock, Sao Carlos, Brazil
Differentially expressed miRNAs in skeletal muscle related to feed efficiency in Nelore cattle.

P. S. N. Oliveira\(^1\), P. C. Tizioto\(^1\), G. B. Oliveira\(^2\), A. S. M. Cesar\(^2\), W. J. S. Diniz\(^3\), A. O. D. Lima\(^3\), J. M. Reecy\(^4\), L. L. Coutinho\(^2\) and L. C. A. Regitano\(^5\), \(^1\)Embrapa Southeast Livestock, Sao Carlos, Brazil, \(^2\)Animal Biotechnology Laboratory - ESALQ, University of Sao Paulo, Piracicaba, Brazil, \(^3\)Federal University of Sao Carlos - UFSCar, Sao Carlos, Brazil, \(^4\)Iowa State University, Ames, \(^5\)Embrapa Southeast Livestock, Sao Carlos, Brazil

miRNAs related to fatty acids composition in Nelore cattle.

P. S. N. Oliveira\(^1\), A. S. M. Cesar\(^2\), G. B. Oliveira\(^2\), P. C. Tizioto\(^1\), M. D. Poletti\(^2\), W. J. S. Diniz\(^3\), A. O. D. Lima\(^3\), J. M. Reecy\(^4\), L. L. Coutinho\(^2\) and L. C. A. Regitano\(^5\), \(^1\)Embrapa Southeast Livestock, Sao Carlos, Brazil, \(^2\)Animal Biotechnology Laboratory - ESALQ, University of Sao Paulo, Piracicaba, Brazil, \(^3\)Federal University of Sao Carlos - UFSCar, Sao Carlos, Brazil, \(^4\)Iowa State University, Ames

Expression levels of the bovine SCD gene are significantly associated with fatty acid composition of cattle.

H. Chung\(^6\), National Institute of Animal Science, Wanju, The Republic of Korea

Profiling microRNA expression in Longissimus dorsi muscle of F2 pigs from the Michigan State University Duroc x Pietrain Resource Population.

K. R. Perry\(^1\), J. P. Steibel\(^2\), D. Velez-Irizarry\(^3\), S. A. Funkhouser\(^4\), N. E. Raney\(^5\), R. O. Bates\(^6\) and C. W. Ernst\(^7\), \(^1\)Department of Animal Science, Michigan State University, East Lansing, \(^2\)Department of Fisheries and Wildlife, Michigan State University, East Lansing, \(^3\)Gene expression Program, Michigan State University, East Lansing

Scan for allele frequency differences from pooled samples in lines of pigs selected for components of litter size.

B. A. Freking\(^8\), J. W. Keele and G. A. Rohrer, USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE

Construction and functional analysis of expression vector and miRNA interference vectors of Gsdma of Tibetan sheep.

C. Li\(^1\), L. Ren\(^1\), Y. Wang\(^1\), J. Zhong\(^2\), L. Huang\(^1\), Y. Lin\(^1\), X. Zi\(^1\) and Y. Zheng\(^3\), \(^1\)Southwest University for Nationalities, Chengdu, China, \(^2\)Auburn University, AL

Geneic characteristics of semi-domesticated reindeer populations from different regions of Russia based on SNP analysis.

V. R. Khazarina\(^1\), A. V. Dotsey\(^2\), I. M. Okhlopkov\(^3\), K. A. Layshev\(^4\), V. I. Fedorov\(^4\), L. D. Shimit\(^5\), G. Brem\(^6\) and K. Wimmers\(^7\), \(^1\)Science Institute of Biological Problems Cryolithozone, Yakutsk, Russian Federation, \(^2\)North-West Center of Interdisciplinary Research of Food Maintenance Problems, Federal Agency of Scientific Organizations, St. Petersburg, Russian Federation, \(^3\)Federal Government Budget Scientific Institutions Yakut Scientific Research Institute of the Agricultural Federal Agency Scientific Institutions, Yakutsk, Russian Federation, \(^4\)Tuva State University, Tyva Republic, Russian Federation, \(^5\)Institute of Animal Breeding and Genetics, VMU, Vienna, Austria, \(^6\)Genome Biology, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany

Candidate gene and marker for equine metabolic syndrome.

S. Lewis\(^8\), H. Holl, M. T. Long, M. Mallicote and S. Brooks, University of Florida, Gainesville

The polymorphisms of Toll-like receptor 4 gene influences milk production traits in Chinese Holstein cows.

X. Zhu, M. Wang, X. Zing, X. Yang and Y. Mao\(^9\), College of Animal Science and Technology, Yangzhou, China

A polymorphism within the PAPP2 gene is associated with postpartum fertility traits in Holstein dairy cattle located in southern Sonora Mexico.

P. Luna-Nevarez\(^1\), J. C. Levy-Corona\(^1\), M. A. Sanchez-Castro\(^1\), R. Zamorano-Algandar\(^1\), J. F. Medrano\(^2\), G. Rincon\(^3\), R. M. Enns\(^4\), S. E. Speidel\(^4\) and M. G. Thomas\(^4\), \(^1\)Instituto Tecnologico de Sonora, Ciudad Obregon Sonora, Mexico, \(^2\)University of California-Davis, \(^3\)Zoetis Inc., Kalamazoo, MI, \(^4\)Department of Animal Sciences, Colorado State University, Fort Collins

Using LD structure of several populations to optimize an SNP panel for conservation and selection.

C. Díaz\(^1\), L. Varona\(^1\), M. J. Carabaño\(^1\), E. Nicolazzi\(^2\), M. Bichard\(^3\), J. Baro\(^4\), A. Molina\(^5\), J. Piedrafita\(^6\), A. Rossoni\(^7\), H. Schwarzenbacher\(^8\), F. Seyfried\(^9\), T. R. Solberg\(^10\), D. Vicario\(^11\), J. Altarriba\(^12\) and K. J. Abraham\(^13\), \(^1\)INIA, Madrid, Spain, \(^2\)Universidad de Zaragoza, Spain, \(^3\)Fondazione Parco Tecnologico Padano, Lodi, Italy, \(^4\)English Guernsey Cattle Society, Launceston, United Kingdom, \(^5\)Universidad de Valladolid, Palencia, Spain, \(^6\)Universidad de Cordoba, Cordoba, Spain, \(^7\)Universitat Autònoma de Barcelona, Bellaterra (Barcelona), Spain, \(^8\)ANARB, Italian Brown Cattle Breeders’ Association, Bussolengo (VR), Italy, \(^9\)ZuchtData EDV-Dienstleistungen GmbH, Vienna, Austria, \(^10\)Qualitas AG, Zug, Switzerland, \(^11\)Geno Breeding and A.I. Association, Hamar, Norway, \(^12\)National Simmental Cattle Breeders Association, ANAPRI, Udine, Italy, \(^13\)Estacio –Uniseb, Ribeirão Preto, Brazil

Meiotic recombination differences in ruminant livestock species.

K. M. Davenport\(^*1\) and B. M. Murdoch, University of Idaho, Moscow
**Dairy Foods Division: Dairy Microbiology**

542 24 
Inactivation of Listeria innocua on cheddar cheese by supercritical fluid CO2.
S. Padilla Antunez¹ and R. Jimenez-Flores², ¹California Polytechnic State University, San Luis Obispo, ²Dairy Products Technology Center, California Polytechnic State University, San Luis Obispo

543 25 
Evaluation of the effect of cavitation on biofilm forming ability of sporeformers.
T. Almalki¹ and S. Anand¹, ¹Midwest Dairy Foods Research Center, Dairy Science Department, South Dakota State University, Brookings, ²South Dakota State University, Brookings

544 26 
The effect of Lactobacillus brevis and fibrolytic enzymes on fermentation of switchgrass silages.
L. Jingjing³, State Key Laboratory of Animal Nutrition, Engineering Technology Research Center of Raw Milk Quality and Safety Control, College of Animal Science and Technology, China Agricultural University, Beijing, China

545 27 
Influence of flax seed on the bile tolerances of Lactobacillus acidophilus, Lactobacillus bulgaricus and Streptococcus thermophilus.
M. Theegala¹, R. Chiquila Arevalo¹, V. Viana¹, D. Olson¹ and K. J. Aryana¹, ¹Louisiana State University, Baton Rouge, ²Louisiana State University Agricultural Center, Baton Rouge

546 28 
Characterization of Lactobacillus wasatchensis from aged cheeses showing late-gas defects.
C. J. Oberg¹, M. D. Culumber¹, T. Allen¹, T. S. Oberg¹, B. Villalba¹ and D. J. McMahon¹, ¹Department of Microbiology, Weber State University, Ogden, UT, ²Utah State University, Logan, ³Department of Nutrition, Dietetics, and Food Sciences, Western Dairy Center, Utah State University, Logan, ⁴Vivolac Cultures Corp., North Logan, UT, ⁵Western Dairy Center, Utah State University, Logan

547 29 
Determination of antagonism between NSLAB strains and Lactobacillus wasatchensis WDC04 using the agar-flip method.
C. J. Oberg¹, M. Walker¹, M. D. Culumber¹ and D. J. McMahon¹, ¹Department of Microbiology, Weber State University, Ogden, UT, ²Weber State University, Ogden, UT, ³Western Dairy Center, Utah State University, Logan

548 30 
Determination of treatments to reduce late gassy defect in cheese due to Lactobacillus wasatchensis WDC04 contamination.
C. J. Oberg¹, J. Bowen¹, M. D. Culumber¹ and D. J. McMahon¹, ¹Department of Microbiology, Weber State University, Ogden, UT, ²Weber State University, Ogden, UT, ³Western Dairy Center, Utah State University, Logan

549 31 
Regional milk sourcing impact on non-starter lactic acid bacteria (NSLAB) in raw milk and Cheddar cheese during aging.
L. Goddik*, C. Baird and J. Waite-Cusic, Oregon State University, Corvallis

550 32 
Effect of rate of cooling and ripening temperatures on non-starter lactic acid bacteria in cheese.
D. I. Khan* and S. Anand, Midwest Dairy Foods Research Center, South Dakota State University, Brookings

551 33 
Efficient removal of spores from skim milk using microfiltration: Spore size and surface property considerations.
E. R. Griepe¹, Y. Cheng and C. I. Moraru, Cornell University, Ithaca, NY

552 34 
Evaluation of microbial enzymes for degradation of exopolymeric substances (EPS) within biofilm matrices for more effective cleaning.
N. Garcia-Fernandez¹, ², A. Hassan³ and S. Anand⁴, ¹Dairy Science Department, South Dakota State University, Brookings, ²Midwest Dairy Foods Research Center, Brookings, SD, ³Daisy Brand, Garland, TX, ⁴South Dakota State University, Brookings

553 35 
Comparison of biofilm formation on stainless steel and modified surface milk plate heat exchangers.
S. Jindal¹, S. Anand¹, J. K. Amamcharla² and L. Metzger³, ¹South Dakota State University, Brookings, ²Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan

554 36 
Improved functionality of fermented milk is mediated by the symbiotic interaction between Cudrania tricuspidata leaf extract and Lactobacillus gasseri strains.

555 37 
Influence of proteolytic Bacillus spp. on sour cream characteristics.
D. Mehta¹, L. Metzger¹, A. Hassan² and B. Nelson², ¹South Dakota State University, Brookings, ²Daisy Brand, Garland, TX

556 38 
Heat tolerance of Leuconostoc mesenteroides as influenced by prior subjection to mild heat.
I. Osorio* and K. J. Aryana, Louisiana State University Agricultural Center, Baton Rouge

557 39 
Lactobacillus plantarum ameliorates inflammation in LPS-induced RAW264.7 cells and DSS-induced colitis animal model.
S. H. Choi¹, S. H. Lee¹, H. J. Lee² and G. B. Kim³, ¹Department of Animal Science and Technology, Chung-Ang University, Anseong, The Republic of Korea, ²Department of Food Science and Technology, Chung-Ang University, Anseong, The Republic of Korea
Animal Health: Beef Cattle

In silico identification of natural product inhibitors of Brucella abortus threonyl-tRNA synthetase.
M. Li\textsuperscript{1,2}, N. Zheng\textsuperscript{1,2,3}, F. Wen\textsuperscript{1,3}, Y. Zhang\textsuperscript{1,3}, S. Li\textsuperscript{1,2}, S. Zhao\textsuperscript{1,3} and J. Wang\textsuperscript{1,2,3}, \textsuperscript{1}Ministry of Agriculture Laboratory of Quality & Safety Risk Assessment for Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, \textsuperscript{2}Ministry of Agriculture - Milk and Dairy Product Inspection Center, Beijing, China, \textsuperscript{3}State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China

Evaluation of immune function markers in OmniGen-AF supplemented steers.
S. A. Armstrong\textsuperscript{1,2}, D. J. McLean\textsuperscript{2}, T. H. Schell\textsuperscript{1,2}, G. Bobe\textsuperscript{1} and M. Bionaz\textsuperscript{1,2}, \textsuperscript{1}Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, \textsuperscript{2}Phibro Animal Health Corporation, Quincy, IL

Influence of dietary supplementation with a Saccharomyces cerevisiae fermentation product prototype on the pathophysiological response to a combined intranasal bovine herpesvirus-1 and intratracheal Mannheimia haemolytica challenge in Holstein steers.
K. P. Sharon\textsuperscript{1,2}, Y. Liang\textsuperscript{1,2}, R. E. Hudson\textsuperscript{1,2}, I. Yoon\textsuperscript{1,2}, M. F. Scott\textsuperscript{2,3}, N. C. Bardick Sanchez\textsuperscript{1,2,3}, P. R. Broadway\textsuperscript{2}, J. A. Carroll\textsuperscript{2,3} and M. A. Ballou\textsuperscript{1,2,3}, \textsuperscript{1}Texas Tech University, Lubbock, \textsuperscript{2}Diamond V, Cedar Rapids, IA, \textsuperscript{3}USDA-ARS, Livestock Issues Research Unit, Lubbock, TX

Dose response effect of Saccharomyces cerevisiae fermentation product prototype on leukocyte functionality and ex vivo cytokine production during a dexamethasone challenge in Holsteins steer calves.
K. P. Sharon\textsuperscript{1,2}, Y. Liang\textsuperscript{1,2}, R. E. Hudson\textsuperscript{1,2}, I. Yoon\textsuperscript{1,2}, M. F. Scott\textsuperscript{2,3}, N. C. Bardick Sanchez\textsuperscript{1,2,3}, P. R. Broadway\textsuperscript{2}, J. A. Carroll\textsuperscript{2,3} and M. A. Ballou\textsuperscript{1,2,3}, \textsuperscript{1}Texas Tech University, Lubbock, \textsuperscript{2}Diamond V, Cedar Rapids, IA, \textsuperscript{3}USDA-ARS, Livestock Issues Research Unit, Lubbock, TX

Beef Species II

Effect of total replacement of trace minerals with Bioplex proteinated minerals on the health and performance of light weight, high risk feedlot cattle.
V. B. Holder\textsuperscript{1,2}, J. S. Jennings\textsuperscript{2} and T. L. Covey\textsuperscript{3}, \textsuperscript{1}Alltech Inc, Nicholasville, KY, \textsuperscript{2}Texas A&M AgriLife Research and Extension Center, Amarillo, \textsuperscript{3}OT Feedyard and Research Center, Hereford, TX

The effect of frequency of supplementing rumen protected unsaturated fatty acids on blood serum fatty acid profiles in beef heifers and lactating cows.
E. K. Cook\textsuperscript{1}, M. E. Garcia-Ascolani\textsuperscript{2}, R. E. Ricks\textsuperscript{1}, S. K. Duckett\textsuperscript{1}, N. DiLorenzo\textsuperscript{2}, G. C. Lamb\textsuperscript{2} and N. M. Long\textsuperscript{1}, \textsuperscript{1}Clemson University, SC, \textsuperscript{2}University of Florida, North Florida Research and Education Center, Marianna

Economic viability of supplementation during the rainy season for growing water buffaloes.
D. C. M. Silva\textsuperscript{1,2}, F. M. Silva, C. L. Francisco, A. M. Castilhos, P. R. L. Meirelles and A. M. Jorge, Universidade Estadual Paulista - FMVZ, Botucatu, Brazil

Subclinical ketosis prevalence in Nellore beef cows during the breeding season in Brazil did not affect pregnancy rate.
R. C. de Souza\textsuperscript{1,2}, R. C. Souza\textsuperscript{1,2}, A. C. B. P. Tavares\textsuperscript{3}, G. C. V. de Oliveira\textsuperscript{1,2}, L. A. M. de Souza\textsuperscript{1,2}, C. A. G. Pellegrino\textsuperscript{2}, M. I. V. Melo\textsuperscript{4}, J. P. Lustosa\textsuperscript{1} and A. B. D. Pereira\textsuperscript{1}, \textsuperscript{1}Pontifícia Universidade Católica de Minas Gerais, Belo Horizonte, Brazil, \textsuperscript{2}Faculdade Alís de Bom Despacho, Bom Despacho, Brazil, \textsuperscript{3}University of New Hampshire, Durham

Effects of breeding system of origin (natural service or artificial insemination) on pregnancy rates, distribution of calving, and calf weaning weights of commercial beef cow herds in North Dakota.
M. R. Crosswhite\textsuperscript{1,2}, D. N. Black\textsuperscript{3}, S. R. Underdahl\textsuperscript{1,2}, T. L. Neville\textsuperscript{2} and C. R. Dahlen\textsuperscript{2}, \textsuperscript{1}North Dakota State University, Fargo, \textsuperscript{2}Department of Animal Sciences, North Dakota State University, Fargo

Resynchronization for sequential timed artificial insemination.
K. E. Zechiel\textsuperscript{1,2}, K. G. Pohler\textsuperscript{1}, S. A. Lockwood\textsuperscript{3}, M. Backus\textsuperscript{1} and J. D. Rhinehart\textsuperscript{1}, \textsuperscript{1}University of Tennessee, Knoxville, \textsuperscript{2}Department of Animal Science, University of Tennessee, Knoxville, \textsuperscript{3}University of Tennessee, Spring Hill

Impact of diet on the behavior of limit-fed beef cows in drylots.
C. L. Daigle\textsuperscript{1}, J. R. Baber\textsuperscript{2}, J. E. Sawyer\textsuperscript{2} and T. A. Wickersham\textsuperscript{1}, \textsuperscript{1}Texas A&M University, College Station, \textsuperscript{2}Department of Animal Science, Texas A&M University, College Station

Newborn beef calves benefit from supplementation of vitamins D and E.
C. D. Nelson\textsuperscript{1,2}, M. Poindexter\textsuperscript{1,2}, J. L. Powell\textsuperscript{1,2}, J. V. Yelich\textsuperscript{1,2}, S. L. Bird\textsuperscript{1} and R. L. Stuart\textsuperscript{1,2}, \textsuperscript{1}University of Florida, Gainesville, \textsuperscript{2}Department of Animal Sciences, University of Florida, Gainesville, \textsuperscript{3}University of Minnesota, Grand Rapids, \textsuperscript{4}Stuart Products Inc, Bedford, TX
260 52 Functional SNP in a polygenic disease induced by high-altitude in fattening Angus steers using systems biology approach.
A. Cánovas*1, R. Cockrum1, S. Brown1, S. Riddle1, J. M. Neary4, T. N. Holt6, J. F. Medrano1, A. Islas-Trejo1, R. M. Enns1, S. E. Speidel1, K. Cammack1, K. R. Stenmark1 and M. G. Thomas2, 1University of Guelph, Ontario, ON, Canada, 2Virginia Polytechnic Institute and State University, Blacksburg, 3University of Colorado, Denver, 4Colorado State University, Fort Collins, 5College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, 6University of California-Davis, 7Department of Animal Sciences, Colorado State University, Fort Collins, 8University of Denver, CO

261 53 Factors affecting timing and intensity of calving season of beef cow-calf producers in the Midwest.
C. E. Andresen*1, P. J. Guinn1 and L. L. Schulz1, 1Department of Animal Science, Iowa State University, Ames, 2Department of Economics, Iowa State University, Ames

262 54 Effects of feeding NaturSafe on performance, carcass characteristics, and liver abscesses in finishing beef heifers at a commercial feedlot.
M. F. Scott1, K. L. Dorton1, D. L. Henry1, C. R. Belknap1 and B. E. Depenbusch2, 1Diamond V, Cedar Rapids, IA, 2Innovative Livestock Services, Inc., Great Bend, KS

263 55 Inclusion of exogenous enzymes in creep feeding rations for nursing beef calves.
J. M. Lourenço1, B. T. Campbell2, N. DiLorenzo3 and R. L. Stewart, Jr1, 1Department of Animal and Dairy Science, University of Georgia, Athens, 2DSM Nutritional Products, LLC., Parsippany, NJ, 3University of Florida, North Florida Research and Education Center, Marianna

264 56 Body Temperature And Seminal Characteristics In Double And Normally Muscled Senepol Bulls In The Tropics.
I. Suero1, E. Sanoguet1, H. Sánchez1, J. Curbelo1, A. Casas1, T. Sonstegard2 and M. Pagan-Morales1, 1Department of Animal Science, University of Puerto Rico, Mayaguez Campus, Mayaguez, Puerto Rico, 2Recombinetics, Inc., St Paul, MN

265 57 Effects of Summer and Winter Feeding of Endophyte Infected Tall Fescue Seeds on Average Daily Gain and Activity of Hepatic Cytochrome P450 1A, 2C, 3A, Aldo-Keto Reductase 1C, and Uridine 5'-Diphospho-Glucuronosyltransferase in Beef Steers.
B. J. McClenton*1, C. Waldrip1, C. G. Hart1, A. Theradiyil Sukumaran1, C. O. Lemley1, J. R. Blanton1 and T. T. N. Dinh1, 1Mississippi State University, Mississippi State, 2Mississippi State University Department of Animal and Dairy Sciences, Mississippi State

266 58 Relationships of neonatal beef calf birth weight and body size measures.
A. M. Meyer*, S. M. Bolen and J. M. Larson, Division of Animal Sciences, University of Missouri, Columbia

**Ruminant Nutrition: Minerals I**

1536 59 The effect of decreasing dietary cation-anion difference in the prepartum diet on urine mineral excretion and blood energy metabolite concentrations in multiparous Holstein cows.
B. M. Leno1, C. M. Ryan1, T. Stokol1, K. Zanzalari1, D. Kirk1, J. J. Chapman1 and T. R. Overton1, 1Cornell University, Department of Animal Science, Ithaca, NY, 2Cornell University College of Veterinary Medicine, Department of Population Medicine and Diagnostic Sciences, Ithaca, NY, 3Philbro Animal Health Corp., Quincy, IL

1538 61 Influence of molybdenum concentration, pH, and transit time on the in vitro bioaccessibility of sulfur.
J. Hawley* and E. B. Kegley, Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville

1539 62 Bovine hair mineral concentrations as potential indicators of mineral status.
J. Hawley* and E. B. Kegley, Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville

1540 63 Effects of diets containing either traditional anionic salts or a commercial anionic supplement on feed intake and energy balance of pre-partum dairy cows.
F. S. Strydom1, J. N. Nothnagel1 and J. P. Swiegers2, 1Nova Feeds, Malmesbury, South Africa, 2Ruminant Nutrition Consultancy, Bethlehem, South Africa

1537 60 The effect of decreasing dietary cation-anion difference in the prepartum diet on plasma haptoglobin concentrations and incidence of cytological endometritis in multiparous Holstein cows.
B. M. Leno1, C. M. Ryan1, R. O. Gilbert1, K. Zanzalari1, D. Kirk1, J. J. Chapman1 and T. R. Overton1, 1Cornell University, Department of Animal Science, Ithaca, NY, 2Cornell University College of Veterinary Medicine, Department of Clinical Sciences, Ithaca, NY, 3Philbro Animal Health Corp., Quincy, IL

1541 64 Effect of level of dietary cation-anion difference (DCAD) and duration of prepartum feeding on calcium and measures of acid-base status in transition cows.
C. Lopera*1, R. Zimpel1, F. R. Lopes Jr1, W. G. Ortiz1, B. N. Faria1, M. R. Carvalho1, A. Vieira Neto1, M. L. Gambarini2, E. Block1, C. D. Nelson1 and J. E. Santos1, 1University of Florida, Gainesville, 2Federal University of Goiás, Goiânia, Brazil, 3Church and Dwight Animal Nutrition, Ewing, NJ
Effects of concentrate type and chromium propionate supplementation on insulin resistance parameters, milk production, and reproductive outcomes in lactating dairy cows consuming excessive energy.
T. Leiva1, R. F. Cooke2, A. P. Brandao1,2 and J. L. M. Vasconcelos3,1, UNESP - FMVZ, Botucatu, Brazil, 2Oregon State University - EOARC Burns, 3Sao Paulo State University, Botucatu, Brazil

Regulatory effect of dietary intake of chromium propionate on function of monocyte-derived macrophages from Holstein cows in mid-lactation.
M. García1, Y. Qu2, C. M. Scholte2, D. O’Connor4, P. W. Roundsi and K. M. Moyes2, 1Kansas State University, Manhattan, 2Department of Animal and Avian Sciences, University of Maryland, College Park, 3Kemin Industries, Inc., Des Moines, IA

Poster Session X
8:15 AM - 9:15 AM
Exhibit Hall A/B

Animal Behavior and Well-Being

Use of a human tri-axial pedometer for measurement of sheep activity.
K. A. Perz1, J. G. Berardinelli, R. A. Shevitski II, J. White and J. M. Thomson, Montana State University, Bozeman

Cooling cows with soakers: Spray duration affects heat loss in dairy cattle.
G. Tresoldi1, K. E. Schütz1 and C. B. Tucker1, 1University of California-Davis, 1AgResearch, Hamilton, New Zealand

Association between rumination behavior, milk yield and milk composition in dairy cows kept on commercial farms.
T. Miedema and T. J. DeVries*, Department of Animal Biosciences, University of Guelph, ON, Canada

Lameness, productivity and cow behavior in dairy herds with automated milking systems.
M. T. King1, E. A. Pajor2, S. J. LeBlanc1 and T. J. DeVries1, 1Department of Animal Biosciences, University of Guelph, ON, Canada, 2University of Calgary, AB, Canada, 3Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada

Assessment of biomarkers of pain and daily activity patterns in lactating dairy cows diagnosed with clinical metritis.
A. A. Barragan1, S. Bas1, J. M. Piñeiro1, G. M. Schuenemann1, P. Rajala-Schultz1 and D. Sanders2, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Vaca Resources, Urbana, OH

Effect of social feeding environment on the feeding behavior of dairy cows and their willingness to consume a novel feed.
G. Mainardes and T. J. DeVries*, Department of Animal Biosciences, University of Guelph, ON, Canada

Effects of acute and chronic heat stress on feed sorting behavior of lactating dairy cows.
A. Dayton1, A. P. A. Monteiro2, X. Weng2, S. Tao2 and E. K. Miller-Cushon1, 1University of Florida, Gainesville, 2University of Georgia, Tifton, 3Department of Animal Sciences, University of Florida, Gainesville

In-utero exposure to heat stress during late gestation has prolonged negative effects on activity patterns of dairy calves.
E. K. Miller-Cushon1, K. C. Horvath, G. E. Dahl and J. Laporta, Department of Animal Sciences, University of Florida, Gainesville

Factors associated with the occurrence of stillborn calves.
M. I. Chavez1, M. A. Mellado2, E. Carrillo3 and J. E. Garcia2, 1Universidad Autonoma Agraria Antonio Narro, Torreon, Mexico, 2Universidad Autonoma Agraria Antonio Narro, Saltillo, Mexico, 3Instituto Tecnologico de Torreon, Torreon, Mexico

T. H. Friend1 and L. Y. Carrillo2, 1Texas A&M University, College Station, 1NASA Johnson Space Center, Houston, TX

Sprinkler system in a holding pen: Behavioral responses of dairy cows during the subsequent grazing.
S. V. Matarazzo1, D. S. Mello1, L. M. de Toledo1, I. Arcaro Júnior2 and S. A. D. A. Fernandes2, 1State University of Santa Cruz, Ilhéus, Brazil, 2Animal Science Institute, Nova Odessa, SP, Brazil, 3Instituto Tecnologico de Verona, São Paulo, Brazil

Evaluation of alternative flooring surfaces for dairy goats.
M. A. Sutherland1, G. L. Lowe, C. M. Ross, D. Rapp and G. A. Zobel, AgResearch Ltd, Hamilton, New Zealand
14. **Assessment of acute pain during and after knife and band castration following a single dose of Meloxicam in 1 week old beef calves.**

D. M. Melenedz, E. D. Janzen, D. Maya, E. A. Pajor and K. S. Schwartzkopf-Genswein,

1. University of Calgary, AB, Canada, 2. Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

15. **Effect of castration method and analgesia on inflammation and behavior in feedlot cattle.**

S. L. Roberts, H. D. Hughes, J. G. Powell and J. T. Richeson,

1. Department of Agricultural Sciences, West Texas A&M University, Canyon, 2. Department of Animal Science, Division of Agriculture, University of Arkansas, Fayetteville

16. **A systematic review-meta-analysis of castration and welfare indicators in beef cattle.**

M. E. A. Canozzi, A. Mederos, D. Zago, G. R. Pereira and J. O. Barcellos,

1. NESPRO/UFRGS - Federal University of Rio Grande do Sul, Porto Alegre, Brazil, 2. National Research Institute for Agriculture, Tacuarembo, Uruguay

17. **Blocking the steer’s view of people during restraint in a squeeze chute results in calmer behavior.**

M. L. P. Lima, R. Woiwode, C. C. P. Paz and T. Grandin,

1. Instituto de Zootecnia, Sertãozinho, Brazil, 2. Colorado State University, Fort Collins, 3. Universidade de Sao Paulo, Faculdade de Medicina de Ribeirao Preto - Departamento de Genetica (USP/FMRP), Ribeirao Preto-SP, Brazil, 4. SAA/APTA/Instituto de Zootecnia-Centro de Bovinos de Corte, Sertaozinho-SP, Brazil

18. **Effect of different hydraulic squeeze chute and cattle breed on behavior of steer during restraining in feedyard facilities.**

M. L. P. Lima, R. Woiwode, C. C. P. Paz and T. Grandin,

1. Instituto de Zootecnia, Sertãozinho, Brazil, 2. Colorado State University, Fort Collins, 3. Universidade de Sao Paulo, Faculdade de Medicina de Ribeirao Preto - Departamento de Genetica (USP/FMRP), Ribeirao Preto-SP, Brazil, 4. SAA/APTA/Instituto de Zootecnia-Centro de Bovinos de Corte, Sertaozinho-SP, Brazil

19. **Movement and spatial proximity patterns of rangeland-raised Raramuri Criollo cow-calf pairs.**

S. Nyamurekung’e, A. Cibils, R. Estell, A. Gonzalez, O. Roacho-Estrada and F. A. Rodríguez-Almeida,

1. New Mexico State University, Las Cruces, 2. Jornada Experimental Range, Las Cruces, 3. Universidad Autonoma de Chihuahua, Mexico

20. **Effects of predation on cortisol and progesterone levels in gestating ewes.**

M. Ward, A. F. Summers, S. Roscano, J. Beard and D. M. Hallford,

1. New Mexico State University, Las Cruces, 2. Animal and Range Science Department, New Mexico State University, Las Cruces

21. **Feeding and watering behavior of Nellore bulls fed with or without calcium, phosphorus and trace minerals supplemental sources.**


1. Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2. Universidade Federal de Viçosa, Viçosa, Brazil, 3. Colorado State University, Fort Collins, 4. Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil

22. **Effects of ventilation and water misting on the physiological response of pigs kept in a stationary trailer before unloading.**

T. Pereira, N. Devillers, R. Sommavilla, R. Friendship, F. Guay, F. Dalla Coste, E. A. Titto and L. Faucitano,

1. University of Sao Paolo, Pirassununga, Brazil, 2. Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, 3. Agriculture & Agri-food Canada, Sherbrooke, QC, Canada, 4. Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, 5. Université Laval, Quebec City, QC, Canada, 6. Universidade Estadual Paulista, Jaboticabal, Brazil, 7. University of Sao Paulo. School of Animal Science and Food Engineering, Pirassununga, Brazil, 8. Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada

23. **Increased intake of tannin-rich sainfoin (Onobrychis vicifolia) pellets by parasitized and non-parasitized sheep after a period of conditioning.**

M. Costes-Thiré, J. J. Villalba, H. Hoste and C. Ginane,

1. INRA Clermont-Ferrand/Theix, St Genès-Champaneille, France, 2. Utah State University, Logan, 3. UMR 1225 INRA DGER, 23 Chemin des Capelles, Toulouse, France, 4. Institut National de la Recherche Agronomique (INRA), St-Genès-Champaneille, France

24. **Mitigation of variability in feeding patterns between competitively-fed dairy cows through increased feed delivery frequency.**

R. E. Crossley, A. Harlander and T. J. DeVries, Department of Animal Biosciences, University of Guelph, ON, Canada
Production, Management and the Environment: Health and Welfare

1208  25  Effects of pre- and postpartum supplementation of ruminally protected polyunsaturated fatty acids on reproductive performance of suckled beef cows.
P. L. P. Fontes¹, N. Oosthuizen¹, F. M. Ciriaco¹, D. D. Henry¹, M. E. Garcia-Ascolani¹, V. R. G. Mercadante¹, N. Di Lorenzo¹ and G. C. Lamb¹, ¹University of Florida, North Florida Research and Education Center, Marianna, ¹Virginia Polytechnic Institute and State University, Blacksburg, ¹University of Florida, Marianna

1209  26  The effect of straw bedding on dry matter intake and residual feed intake ranking in yearling bulls.
J. B. Hall², M. C. Roberts Lew² and W. K. Smith¹, ¹University of Idaho Nancy M. Cummings Research, Extension Education Center, Carmen, ²Department of Animal & Veterinary Sciences, University of Idaho, Moscow

1210  27  Management of dairy bull calves on U.S. dairy operations.
C. B. Shively¹,², N. Urié¹,² and J. E. Lombard, ¹USDA:APHIS:VS:Center for Epidemiology and Animal Health, National Animal Health Monitoring System, Fort Collins, ²Colorado State University, Fort Collins

1211  28  Assessment of different bedding systems for lactating cows in freestall housing.
H. Su¹, N. M. Esser², W. K. Cobleünchen², M. A. Borchardt², W. Jokela² and M. Akins¹, ¹University of Wisconsin-Madison, ²University of Wisconsin, Marshfield, ³US Dairy Forage Research Center, Marshfield, WI

1212  29  Management practices related to the welfare of dairy heifer calves on U.S. dairy operations.
C. B. Shively¹,², N. Urié¹,² and J. E. Lombard, ¹USDA:APHIS:VS:Center for Epidemiology and Animal Health, National Animal Health Monitoring System, Fort Collins, CO, ²Colorado State University, Fort Collins

1213  30  Performance and health of calves pre- and post-weaning when fed pasteurized whole milk and whole milk supplemented with differing milk replacer protein sources.
D. Ziegler¹, H. Chester-Jones¹, D. L. Cook², J. L. Olson² and S. M. McCusker², ¹University of Minnesota Southern Research and Outreach Center, Waseca, ²Milk Products, Chilton, WI

1214  31  Performance and health of calves pre- and post-weaning when fed milk replacers formulated with alternative protein sources.
H. Chester-Jones¹, D. Ziegler¹, R. Blome² and D. Wood, ¹University of Minnesota Southern Research and Outreach Center, Waseca, ²Animix, Juneau, WI

1215  32  Performance and health of calves pre- and post-weaning when fed milk replacer supplemented with algae.
D. Schimek¹, B. Ziegler¹, D. Ziegler² and H. Chester-Jones², ¹Hubbard Feeds Inc., Mankato, MN, ²University of Minnesota Southern Research and Outreach Center, Waseca

1216  33  Evaluation of the efficacy of a copper sodium hypochlorite footbath and a 5% copper sulfate footbath on the control of digital dermatitis lesions.
B. A. Wadsworth¹, J. D. Clark and J. M. Bewley, University of Kentucky, Lexington

1217  34  Comparison of DX613 copper sulfate acidifier to a 5% copper sulfate footbath for prevention of digital dermatitis lesions in dairy cattle.
H. B. Reichenbach¹, B. A. Wadsworth, J. D. Clark and J. M. Bewley, University of Kentucky, Lexington

1218  35  Northeast dairy herd characteristics: Transition cow management strategies, performance, culling, and health.
A. B. Lawton¹, W. S. Burhans¹, D. V. Nydam¹, M. Tetreault¹ and T. R. Overton¹, ¹Cornell University, Department of Animal Science and Pro-Dairy, Ithaca, NY, ²Cornell University, Department of Population Medicine and Diagnostic Sciences, Ithaca, NY, ³Poulin Grain Inc., Newport, VT

1219  36  Facilities, management, and animal factors associated with heifer culls in New York State dairy farms.
B. D. Scott¹ and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

1220  37  Facilities, management, and animal factors associated with primiparous cows postpartum herd exit risk in New York state dairy farms.
B. D. Scott¹ and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

1221  38  Facilities, management, and animal factors associated with calf losses in New York state dairy farms.
B. D. Scott¹ and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

1222  39  Seasonal effects on milk yield and somatic cell score in organic dairy farms from the Northeast United States.
J. G. B. Galvão Jr¹, A. F. Brito², A. H. N. Rangel³ and J. B. A. Silva⁴, ¹Federal Institute of Science, Education and Technology of Rio Grande do Norte, Ipanguaçu, Brazil, ²University of New Hampshire, Durham, ³Federal University of Rio Grande do Norte, Natal, Brazil, ⁴Universidade Federal do Semi-arido, Mossoro, Brazil

1223  40  Argentina Veterinary preferences to devise a mastitis control plan: A conjoint analysis approach.
C. Vissio¹,², M. Richardevle²,², C. Bonetto³, P. Turillo³ and A. Larriestra⁴, ¹Facultad de Agronomía y Veterinaria, UNRC, Rio Cuarto, Argentina, ²CONICET, Rio Cuarto, Argentina, ³IAP Ciencias Basicas y Aplicadas, UNVM, Villa Maria, Argentina
A model to estimate losses due to bovine mastitis for Argentinian dairy herds.
M. Richardet¹,², H. Solari³,⁴, C. Vissio¹,², J. Bartolome¹, G. Bo², P. Turriello², C. Bogni and A. Larriestra², ¹CONICET, Rio Cuarto, Argentina, ²Facultad de Agronomía y Veterinaria, UNRC, Rio Cuarto, Argentina, ³CONICET, Buenos Aires, Argentina, ⁴Facultad de Ciencias Exactas, Físicas y Naturales, UBA, Buenos Aires, Argentina, ⁵Facultad de Ciencias Veterinarias, UNLPam, General Pico, Argentina, ⁶IAP Ciencias Basicas y Aplicadas, UNVM, Villa Maria, Argentina, ⁷Facultad de Ciencias Exactas, Físico-Químicas y Naturales, UNRC, Rio Cuarto, Argentina

Effects of oral calcium formate supplementation in peripartum dairy cows.
E. W. Carneiro¹, E. E. Ichikawa², D. M. V. F. Carneiro² and R. D. Almeida¹, ¹Universidade Federal do Paraná, Curitiba, Brazil, ²Bayer HealthCare, São Paulo, Brazil, ³Instituto Federal Catarinense, Araquari, Brazil

Effect of prenatal and lactating cow trace mineral source on Angus and Brangus calf acute phase protein response to a weaning stressor.
D. M. Price¹, K. G. Arriola2, K. K. Arellano³, M. M. O’Neil¹, W. B. Watson III¹, D. M. Irsik³, D. O. Rae¹, M. J. Hersom¹ and J. V. Yelich³, ¹Department of Animal Sciences, University of Florida, Gainesville, ²Department of Animal Sciences, UF/IFAS, Gainesville, FL, ³College of Veterinary Medicine, University of Florida, Gainesville

Short chain nitrocompounds treatment of poultry excreta: In vitro survivability of Salmonella, E. coli and nitrogen metabolism.
C. Arzola-Alvarez¹, J. Corrales¹, O. Ruiz-Barrera¹, R. C. Anderson², M. E. Hume², Y. Castillo-Castillo¹, A. Corral-Luna¹, J. L. Guevara-Valdez¹, J. Salinas¹ and C. Rodríguez-Muela¹, ¹Universidad Autónoma de Chihuahua, Mexico, ²USDA/ARS, College Station, TX, ³Universidad Autónoma de Ciudad Juarez, Cd. Juarez, Chihuahua, Mexico, ⁴Universidad Autónoma de Tamaulipas, Reynosa, Tamaulipas, Mexico

Effect of protected sodium butyrate on Salmonella spp. excretion in a pig fattening unit.
M. Puyalto¹, C. Sol¹, J. J. Mallo¹, S. Andrés-Barranco¹, A. Casanova-Higes² and R. C. Mainar-Jaime³, ¹NOREL S.A., Madrid, Spain, ²Unidad de Produccion y Sanidad Animal, Centro de Investigacion y Tecnologia Agroalimentaria de Aragon, Universidad de Zaragoza-CITA, Zaragoza, Spain, ³Departamento de Patología Animal. Facultad de Veterinaria, Instituto Agroalimentario de Aragón, Universidad de Zaragoza - CITA, Zaragoza, Spain

Study of genetic basis of immune response in gilts vaccinated with a modified live PRRS virus in a swine farm from southern Sonora Mexico.
P. Luna-Nevarez¹, M. Pavlovich-Sotomayor¹, R. I. Luna-Ramirez¹, C. M. Aguilar-Trejo¹, G. Luna-Nevarez¹, X. Zeng², S. E. Speidel², R. M. Enns² and M. G. Thomas², ¹Instituto Tecnologico de Sonora, Ciudad Obregon Sonora, Mexico, ²Department of Animal Sciences, Colorado State University, Fort Collins

Influence of supplementary zinc and chromium-amino acid complexes on growth performance and carcass characteristics of finishing cattle fed zilpaterol hydrochloride.
R. Barajas¹, M. E. Branine², C. K. Larson² and B. J. Cervantes³, ¹FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico, ²Zinpro Corporation, Eden Prairie, MN, ³Ganadera los Migueles, S.A. de C.V., Culiacán, México

Effect of peripartum source of dietary calcium and magnesium, and postpartum level of magnesium, on dry matter intake, performance and plasma minerals in multiparous Holstein cows.
B. M. Leno¹, S. E. Williams¹, C. M. Ryan¹, D. Briggs², M. Crombie¹ and T. R. Overton¹, ¹Cornell University, Department of Animal Science, Ithaca, NY, ²Papillon Agricultural Company, Inc., Easton, MD, ³MIN-AD, Inc., Winnemucca, NV

Effects of mineral supplementation on pre- and postpartum primiparous beef heifer performance and progeny preweaning performance.
J. Hawley¹, E. B. Kegley and J. G. Powell, Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville

Effects of mineral supplementation on pre- and postpartum primiparous beef heifer mineral status and progeny preweaning mineral status.
J. Hawley¹, E. B. Kegley and J. G. Powell, Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville

Relative bioavailability of selenium sources for beef cattle.
M. A. Zanetti¹, J. S. Silva², J. C. D. C. Balieiro¹ and J. A. Cunha², ¹University of São Paulo- USP/FZEA, Pirassununga, Brazil, ²FZEA-USP, Pirassununga, Brazil
Hydroxy trace mineral supplementation lowers proportion of low-quality embryos in postpartum dairy cows.

A. H. Souza¹, C. D. Narciso², G. E. Higginbotham³, E. Martinez², R. Ruggeri² and E. O. S. Batista⁴, ¹Ceva Animal Health, Libourne, France, ²Sequoia Veterinary Services Inc., Tulare, CA, ³Micronutrients, Indianapolis, IN, ⁴University of Sao Paulo, Pirassununga, Brazil

Effects of zinc amino acid complex on mammary epithelium and dairy food chemistry.

J. E. Shaffer¹, K. Pandalaneni¹, L. Mamedova¹, J. DeFrain², J. K. Amamcharla¹ and B. J. Bradford¹, ¹Kansas State University, Manhattan, ²Zinpro Corporation, Eden Prairie, MN

Effects of sulfur on the nutrition value of DDGS for beef cattle.

L. He*, China Agricultural University, Beijing, China

Effects of sulfur on the in vitro fermentation profile of DDGS.

L. He*, China Agricultural University, Beijing, China

**Ruminant Nutrition: Forages and Feeds II**

Evaluation of use of heat-stable α-amylase for neutral detergent fiber contents by using cellulose standard in filter bags made from different textiles add starch in samples.

T. N. P. Valente¹, E. Detmann² and C. Batista Sampaio², ¹IFGoiano, POSSE, Brazil, ²Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil

Production response of lactating cows to diets based on corn or forage sorghum silage harvested on two dates and supplemented with soybean meal or mechanically pressed cottonseed meal.

J. K. Bernard*, S. Tao and T. Smith, University of Georgia, Tifton

Commercial ground corn surface area is better related to rumen disappearance than geometric mean particle size.

J. P. Goeser¹,², B. Beck¹, T. Koehler¹, D. Tanata¹, E. Reid¹, M. Kirk² and R. D. Shaver¹, ¹University of Wisconsin-Madison, ²Rock River Laboratory, Inc, Watertown, WI

Effect of steam flake and ground corn with different particle size on dairy cow performance with high concentrate diet.

G. R. Ghorbani*, F. Ahmadi and M. Haidary, Isfahan University of Technology, Isfahan, Islamic Republic of Iran

Effect of diastatic power and processing index on the feed value of barley grain for finishing feedlot cattle.

G. O. Ribeiro Jr.*¹, M. L. Swift² and T. A. McAllister¹, ¹Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ²Hi-Pro Feeds, Okotoks, AB, Canada

Heating of ensiled high moisture corn and aerobic loss of volatile organic compounds are delayed by inoculation with Lactobacillus buchneri.

S. Qi, W. Rutherford, B. Smiley, B. Harman and F. Owens*, DuPont Pioneer, Johnston, IA

Liver gluconeogenesis in young bulls fed different levels of crude glycerin.

M. M. Ladeira¹, J. R. R. Carvalho¹, P. D. Teixeira¹, J. C. O. Dias¹, T. R. Gionbelli¹, A. C. Rodrigues¹ and D. M. Oliveira¹, ¹Universidade Federal de Lavras, Brazil, ²IFNMG, Salinas, Brazil, ³Universidade Estadual do Mato Grosso do Sul, Aquidauana, Brazil

Starch digestibility by lactating cows fed flint or dent corn silage stored two or six months prior to feeding.

A. Laflotte¹, L. Aubry², B. Mahanna³ and F. Owens², ¹U. Lorraine, Nancy, France, ²DuPont Pioneer, Aussonne, France, ³DuPont Pioneer, Johnston, IA

Ruminal in situ degradability and in vitro organic matter digestibility of peanut hulls under different incubation times with calcium oxide.

F. M. Ciriaco¹,², D. D. Henry¹, R. Beierbach², T. M. Schulmeister¹, M. Ruiz-Moreno¹, M. E. Garcia-Ascolani¹, N. Oosthuizen³, P. L. P. Fontes¹, G. C. Lamb¹ and N. DiLorenzo¹, ¹University of Florida, Florida North Florida Research and Education Center, Marianna, FL, ²Instituto Nacional de Tecnología Agropecuaria (INTA), EEA Anguil, Anguil, Argentina

A comparison of Lacto-Whey to soybean meal in continuous cultures fed corn- or wheat-based diets.

J. L. Firkins¹, B. K. Wagner*¹, J. E. Plank¹, B. A. Wenner and G. Poppy², ¹The Ohio State University, Columbus, ²Fermented Nutrition Corporation, St, Luxembourg, WI

Glucose precursor supplementation in Holstein and Jersey cows as a preventative treatment for ketosis in the transition period.

K. E. Mitchell*, University of California-Davis
Manipulation of lactating dairy cows diets using reduced-fat distillers grains, corn oil and calcium sulfate to reduce methane production measured by indirect calorimetry.  
J. V. Judy1, T. M. Brown-Brandl2, S. C. Fernando1 and P. J. Kononoff1, 1University of Nebraska-Lincoln, 2USDA-ARS, U.S. Meat Animal Research Center, Clay Center, NE

Effect of particle size of a mash concentrate on behavior, rumen fermentation, and macroscopic and microscopic lesions of the digestive tract in Holstein bulls fed a high-concentrate diet.  
M. Devant1, B. Quintana2, A. Sole3 and A. Bach1,2, 1IRTA - Department of Ruminant Production, Caldes De Montbui, Spain, 2IRTA, Caldes Montbui, Spain, 3ICREA, Barcelona, Spain

**Poster Session XI**

1:00 PM - 2:00 PM  
Exhibit Hall A/B

**Dairy Foods Division: Dairy Chemistry II**

**522** 1  
Prediction of intact casein in cheese by using amaltheys: A front-face fluorescence analyzer.  
Z. Liu1, K. Sajith Babu1, A. Coutoulou2, F. Allouche2 and J. K. Amamcharla1, 1Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan, 2Spectralys Innovation, Romainville, France

**523** 2  
Changes of the state of calcium and protein in low fat and full fat processed cheese during cheese making.  
N. Shirashoji1,2, H. Aoyagi2, T. Abe1 and M. Ikeda1, 1Food Research & Development Laboratory, Morinaga Milk Industry Co., Kanagawa, Japan, 2Life Sciences and Bioengineering, Graduate School of Life and Environmental Sciences, University of Tsukuba, Ibaraki, Japan

**524** 3  
Effect of selenium fortification on mozzarella cheese quality.  
K. L. Peng, J. X. Liu and D. X. Ren*, Institute of Dairy Science, College of Animal Science, Zhejiang University, Hangzhou, China

**525** 4  
Relationship between the yield of mozzarella cheese of buffalo’s milk, milk quality and the recovery of constituents in whey.  
D. C. Sales1, A. H. N. Rangel1, J. G. B. Galvão Júnior2, L. H. F. Borba1, A. R. Freitas1 and E. O. Moura1, 1Federal University of Rio Grande do Norte, Natal, Brazil, 2University of New Hampshire, Durham, 3Brazilian Agricultural Research Corporation (Embrapa), São Paulo, Brazil

**526** 5  
Transmission Electron Microscopy (TEM) identifies major microstructural changes in soft Feta cheese.  
A. H. Vollmer1, D. J. McMahon1, J. C. Grande2 and N. N. Youssef1, 1Western Dairy Center, Utah State University, Logan, 2Analytical Sciences Laboratory, GE Global Research, Niskayuna, NY

**527** 6  
Performance shelf life extension of LMP Mozzarella using high pressure treatment and low temperature storage.  
L. A. Jiménez-Maroto1, S. Govindasamy-Lucey2, J. J. Jaegg2, M. E. Johnson2 and J. A. Lucey1,2, 1University of Wisconsin-Madison, 2Wisconsin Center for Dairy Research, Madison, WI

**528** 7  
Hydrolysis of phosphates with a different chain length in water, milk and calcium caseinate.  
W. H. Viotto1 and D. Maus, University of Campinas, Brazil

**529** 8  
Water mobility, texture and composition of “REQUEIJÃO CREMOSO” manufactured with polyphosphates of different chain lengths.  
W. H. Viotto1 and V. R. Dias, University of Campinas, Brazil

**530** 9  
Effect of carbon dioxide injection on protein interaction to reduce viscosity of high solids skim milk concentrates.  
H. Dahiya1,2, L. Metzger1 and H. A. Patel3, 1South Dakota State University, Brookings, 2Land O’Lakes Inc., Arden Hills, MN

**531** 10  
Hauling and receiving practices at dairy processing facilities.  
E. Kuhn*, J. Waite-Cusic and L. Goddik, Oregon State University, Corvallis

**532** 11  
Comparing Fluorescent and Light-emitting Diode (LED) Retail Lighting Effects on Consumer Acceptability of Fluid Milk.  
S. Duncan*, H. Potts and K. N. Amin, Virginia Polytechnic Institute and State University, Blacksburg

**533** 12  
Effect of various storage conditions on the stability of Sulphonamides in raw milk.  
M. Chen1,2, F. Wen1,2, H. Wang1, N. Zheng1,2 and J. Q. Wang1,2, 1Ministry of Agriculture Laboratory of Quality & Safety Risk Assessment for Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 3College of Animal Science and Technology, Yangzhou University, Yangzhou, China
Effect if pH on the hydrolysis of sodium polyphosphates in different dairy matrices.
W. H. Viotto* and A. P. Barth, University of Campinas, Brazil

NIR technology as a process analytical tool for cheese inspection.
W. H. Viotto*, D. F. Barbin and C. Karaziack, University of Campinas, Brazil

Extraction of phospholipids from procream using supercritical carbon dioxide and ethanol as a modifier.
B. Li1, Z. Linghu1, F. Hussain1, S. J. Smith1 and J. K. Amamcharla1,1, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan, 2Kansas State University, Manhattan

Evaluation of Sol-Gel non-stick surface modification in dairy thermal processing.
Z. Liu1, J. K. Amamcharla1 and L. Metzger2,1Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan, 2South Dakota State University, Brookings

Foaming and baking properties of MPC and egg white protein mixtures.
V. Hor* and B. Vardhanabhuti, University of Missouri, Columbia

The effect of emulsifying salts on the turbidity of a diluted milk system with varying pH and protein concentration.
M. Culler*, Y. Saricay and F. M. Harte, The Pennsylvania State University, University Park

Effect of high pressure jet processing on the rheological properties of ice cream mix.
M. Tran*, D. R. Roberts and F. M. Harte, The Pennsylvania State University, University Park

Fat reduction in ice cream and its effect on physical structure and consumer acceptability.

Oxygen barrier and light interference packaging properties for controlling light-induced oxidation in milk.
H. Potts*, S. Duncan, M. L. Johnson, S. F. O’Keefe, J. E. Marcy and K. Mallikarjunan, Virginia Polytechnic Institute and State University, Blacksburg

Physiology and Endocrinology: Estrus and Estrous Cycle Control

Comparisons of two short duration estrous synchronization protocols on pregnancy rates to fixed-time AI.
J. B. Hall*1 and M. C. Roberts-Lew2,1Department of Animal & Veterinary Sciences, University of Idaho, Moscow, 2University of Idaho Nancy M. Cummings Research, Extension Education Center, Carmen

Effect of prostaglandin administration after ram exposure on ewe reproductive efficiency.
S. L. Rosasco*, J. K. Beard, M. C. Herrington, D. M. Halford and A. F. Summers, Animal and Range Science Department, New Mexico State University, Las Cruces

The association between Anti-Mullerian Hormone concentrations, antral follicle count and fertility measures in dairy cows.
M. Gobikrushanth1, P. A. Dutra1, C. A. Felton1, A. Ruiz-Sanchez1, T. C. Bruinjé1, M. G. Colazo1, S. Butler1 and D. J. Ambrose12,1Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada, 1Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland

Natural patterns of early postpartum luteal activity and their association with insemination outcomes in dairy cows.
T. C. Bruinjé1, M. Gobikrushanth1 and D. J. Ambrose12,1Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada

Circulating LH concentrations after intravaginal instillation of GnRH in lactating dairy cows.
R. Wijma*, M. L. Stangaferro, M. A. Elmetwally, F. Amovilli and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

Effect of dose and timing of prostaglandin F2α treatments during a Resynch protocol on luteal regression and fertility to timed artificial insemination in lactating Holstein cows.

Fertility of lactating Holstein cows after synchronization of ovulation and timed artificial insemination versus artificial insemination after detection of estrus at a similar DIM range.
V. G. Santos1, P. D. Carvalho1, C. Maia2, B. Carneiro2, A. Valenza3 and P. M. Fricke*1, 1Department of Dairy Science, University of Wisconsin-Madison, 2Diessen Servicos Veterinarios Lda, Evora, Portugal, 3Ceva Animal Health, Libourne, France
1062 29 Increasing estrus expression in lactating dairy cows.
J. A. Sauls*, B. E. Voelz, S. L. Hill and J. S. Stevenson, Kansas State University, Manhattan

1063 30 The characterization of estradiol concentration prior to insemination and its effect on fertility in dairy cattle.
M. Gobikrishanath1, P. A. Dutra1, C. A. Felton2, T. C. Bruinjé1, M. G. Colazo2, S. Butler1 and D. J. Ambrose1,2,1Department of Agricultural Food and Nutrition Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada, 3Animal & Grassland Research and Innovation Centre, Teagasc Moorepark, Fermoy, Co. Cork, Ireland

1064 31 Resynchronization of ovulation strategies including or not including GnRH treatment before non-pregnancy diagnosis.
R. Wijma*, M. L. Stangaferro, M. Masello, G. E. Granados and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

1065 32 Effects of modification of proestrus length and duration of progesterone exposure on automated measurements of estrous expression in lactating Holstein cows.

1066 33 Effect of GnRH removal at CIDR insertion in the 5 day CO-Synch + CIDR ovulation synchronization protocol on ovarian function in beef cows.
T. M. Grussing*, T. C. Grussing and P. J. Gunn, 1Department of Animal Science, Iowa State University, Ames, 2Department of Animal Science, South Dakota State University, Brookings

1067 34 Effect of eCG and P4 level in timed AI programs in bos indicus and bos indicus x bos taurus heifers.
A. D. P. Rodrigues*, R. F. G. Peres1, M. L. Day2 and J. L. M. Vasconcelos1, 1Departamento de Produção Animal - FMVZ - UNESP, Botucatu, Brazil, 2Department of Animal Science, University of Wyoming, Laramie

Animal Health: Dairy Cattle II

138 35 Fecal microbial shifts of the german Holstein dairy cows with left-sided displacement of the abomasum.
M. K. Shim1, B. R. Kim2, J. W. Shim1, S. H. Hong2 and H. B. Kim1, 1Dankook University, Cheonan, The Republic of Korea, 2Department of Animal Resource & Science, Dankook University, Cheonan, The Republic of Korea

139 36 Genetic parameters and impact of post-partum diseases on lactation curves in dairy cattle.
H. Jeong1, D. Gonzalez-Pena2, T. M. Goncalves1, P. J. Pinedo1, J. E. P. Santos3, G. M. Schuenemann4, G. J. M. Rosa5, R. O. Gilber5, R. C. Bicalho6, R. Chebel6, K. N. Galvão6, C. M. Seabury6, W. W. Thatcher6 and S. L. Rodriguez Zas7, 1University of Illinois at Urbana-Champaign, 2Zoetis, Kalamazoo, MI, 3Colorado State University, Fort Collins, 4University of Florida, Gainesville, 5Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 6University of Wisconsin-Madison, 7Cornell University, Ithaca, NY, 8Department of Large Animal Clinical Sciences; University of Florida, Gainesville, 9Texas A&M University, College Station, 10Department of Animal Sciences, University of Florida, Gainesville

140 37 Genetic and environmental components of disease traits in dairy cattle.
T. M. Goncalves1, D. Gonzalez-Pena2, H. Jeong1, P. J. Pinedo1, J. E. P. Santos4, G. M. Schuenemann5, G. J. M. Rosa5, R. O. Gilber5, R. C. Bicalho6, R. Chebel6, K. N. Galvão6, C. M. Seabury6, W. W. Thatcher6 and S. L. Rodriguez Zas7, 1University of Illinois at Urbana-Champaign, 2Zoetis, Kalamazoo, MI, 3Colorado State University, Fort Collins, 4University of Florida, Gainesville, 5Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 6University of Wisconsin-Madison, 7Cornell University, Ithaca, NY, 8Department of Large Animal Clinical Sciences; University of Florida, Gainesville, 9Texas A&M University, College Station, 10Department of Animal Sciences, University of Florida, Gainesville

141 38 Undernutrition alters metabolic responses to acute inflammation in early lactation cows.
J. A. A. Pires1, K. Pawlowski2, J. Rouel3, C. Delavaud4, G. Foucras5, P. Rainard5, P. Gerton6 and C. Leroux7, 1UMR1213 Herbivores, INRA, VetAgroSup, Saint-Gene\'\'s-Champel, France, 2UMR1225 IHAP, INRA, Toulouse, France, 3UMR1282 ISP, INRA, Nouzilly, France

142 39 Potential modulation of the toxic effects of Escherichia coli in bovine endometrium by lactic acid bacteria.
S. Genís*, A. Sánchez-Chardi1, A. Bach1,4 and A. Arís1, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2Servei de Microscopia, UAB, Cerdanyola del Valles, Spain, 3ICREA, Barcelona, Spain, 4IRTA, Caldes de Montbui, Spain

754 40 Meta-analysis of factors influencing new intramammary infection rate in natural exposure teat dip efficacy trials.
B. D. Enger*, R. R. White1, S. C. Nickerson2 and L. K. Fox3, 1Virginia Polytechnic Institute and State University, Blacksburg, 2University of Georgia, Athens, 3Washington State University, Pullman
Nonruminant Nutrition: Feed Additives II

1011 41 Changes in pH of digestive tract and cecal microflora composition in broilers fed with probiotic and prebiotic supplementation (SynerAll).
A. Ipek* and A. Sozcu, Uludag University, Faculty of Agriculture, Department of Animal Science, Bursa, Turkey

1012 42 Effects of dietary inclusion of probiotic and prebiotic (SynerAll) on growth performance and serum biochemical parameters in broiler.
A. Ipek1, A. Sozcu2 and V. Akay2, 1Uludag University, Faculty of Agriculture, Department of Animal Science, Bursa, Turkey, 2Global Nutritech Biotechnology LLC, Richmond, VA

1013 43 Changes in pH of digestive tract and cecal microflora composition in broilers fed with probiotic and prebiotic supplementation, SynerAll.
A. Ipek* and A. Sozcu, Uludag University, Faculty of Agriculture, Department of Animal Science, Bursa, Turkey

1014 44 Supplementation of chestnut tannins in artificially infected weaned piglets.
G. Bee*, S. Thanner, G. Marion and A. Gutzwiller, Agroscope Institute for Livestock Sciences, Posieux, Switzerland

1015 45 Curcumin prevents hepatotoxic effects of Aflatoxin B1 associated with inhibition of cytochrome P450 isozymes genes in chick liver.
L. Sun*, N. Zhang, M. Zhu, L. Zhao and D. Qi, College of Animal Science and Technology, Huazhong Agricultural University, Wuhan, China

1016 46 Effects of humic acids supplementation on pig growth performance, Nitrogen digestibility, odor and ammonia emission.
C. H. Ponce*, C. Arteaga2 and A. Flores2, 1Escuela de Medicina Veterinaria, Colegio de Ciencias de la Salud, Universidad San Francisco de Quito USFQ, Quito, Ecuador, 2Departamento de Ciencias de la Vida y Agricultura, Universidad de las Fuerzas Armadas ESPE, Sangolqui, Ecuador

1017 47 A standardized blend of capsicum and turmeric oleoresins given during late gestation improves performance of sows vaccinated against E. coli.
C. Oguey*, I. Ruíu, C. Quintilla1 and S. Lopez1, 1Pancosma, Geneva, Switzerland, 2Avena Nutrició, La Garriga, Spain, 3Copinsa, Altorrícan, Spain, 4Pancosma SA, Le Grand Saconnex, Switzerland

1018 48 Evaluation of biodegraded and undegraded plantain peels as replacement to wheat offal in broiler production.
F. A. Aderemi*, O. M. Alabi and A. Awe, 1Bowen University, Iwo, Nigeria

1019 49 Effect of lyso phospholipids supplementation in different energy diets on growth performance, nutrient digestibility, milk composition, litter performance and fecal score in lactating sows.

1020 50 Effect of crystalline silicon dioxide in piglet feed on growth performance with different levels of growth promoters.
Y. Martel-Kennes*, J. Lévesque and C. Decaux, 1Centre de Recherche en Sciences Animales de Deschambault, Deschambault, QC, Canada, 2Ceresco Nutrition, Saint-Urbain-Premier, QC, Canada

Ruminant Nutrition: Ruminal Fermentation III

1643 51 Effects of dietary neutral detergent fiber and starch ratio on rumen epithelial cell morphological structure and gene expression in dairy cows.
L. Ma1, M. Zhao1, J. Xu2, L. Zhao3 and D. Bu11,4, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China, 3Hunan Co-Innovation Center of Animal Production Safety, CICAPS, Changsha, China, 4CAAS-ICRAF Joint Laboratory of Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China

1644 52 Rumen disappearance of capsaicin and dihydrocapsaicin in lactating dairy cows.
J. Oh*, D. M. Bravo, E. H. Wall and A. N. Hristov, 1The Pennsylvania State University, University Park, 2Pancosma, Geneva, Switzerland

1645 53 WS Effects of capsaicin source on blood capsaicin, glucose and insulin concentrations, rumen fermentation and nitrogen balance of sheep.
J. B. Alford, J. G. Castro, R. Oosthuysen1, S. L. Rosasco, R. D. Richins, E. J. Scholljegerdes1, D. M. Hallford and C. A. Loest, 1New Mexico State University, Las Cruces, 2Animal and Range Science Department, New Mexico State University, Las Cruces

1646 54 Describing aNDFom in vitro digestion with a multi-compartment model and evaluation of predictions in the CNCP5 v7.0 Model.
A. M. Zontini* and M. E. Van Amburgh, Cornell University, Ithaca, NY
Mammalian hormones associated with stress impact microbial fermentation of rumen fluid in vitro.

RNA sequencing reveals differential expression of genes associated with an altered morphology of rumen papillae in lactating dairy cows fed diets with various forage sources.
B. Wang1, D. M. Wang1, M. Liu1, X. B. Wang1, L. L. Guan2 and J. X. Liu1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

Effect of ruminal inoculum from bison or cattle on in vitro gas production, feed digestibility and responses to exogenous enzyme supplementation.
Z. X. He1, G. O. Ribeiro Jr1, V. Bremer1, K. A. Beauchemin1, T. A. McAllister1 and W. Z. Yang1, 1Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Key Laboratory for Agro-Ecological Processes in Subtropical Region, Hunan Research Center, The Chinese Academy of Sciences, Changsha, China, 3Elanco Animal Health, Greenfield, IN

Ruminal fermentation from Nellore steers supplemented with additives in the rainy season.
E. E. Dalantonna1, J. F. Lage2, E. San Vito2, P. D. S. Castagnino2, L. Maneck Delevatti2, R. A. Reis2 and T. T. Berchielli2, 1Universidade Estadual Paulista Júlio de Mesquita Filho - UNESP, Jaboticabal, Brazil, 2Trouw Nutrition Guelph, 2University of New Hampshire, Durham

The micro gas test – a small scale in vitro system for high throughput analysis.
K. Elberg1, P. Steuer2, U. Habermann2, J. Lenz2, M. Nelles3 and K. H. Südekum3, 1Department of Waste Management and Material Flow, University of Rostock, Germany, 2Senzyme GmbH, Troisdorf, Germany, 3German Biomass Research Center GmbH, Leipzig, Germany, 4Institute of Animal Science, University of Bonn, Germany

Rumen protozoal community structures are not altered in lactating dairy cows offered alternative forage crops during short-term grazing experiments.
L. M. Cersosim6, R. Tacom6, S. Greenwood6, K. Juntwait2, A. F. Brito7 and J. Krafi4, 1University of Vermont, Burlington, 2University of New Hampshire, Durham

Metabolomics analysis reveals effect of corn silage levels on ruminal metabolic profiles in Holstein heifers.
J. Zhang, H. Shi, Z. Cao, S. Li and Y. Wang5, 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

Response of rumen microbiota to diets containing different corn silage levels in Holstein heifers.
H. T. Shi, Z. J. Cao, S. K. Ji, H. T. Zhang, S. L. Li and Y. J. Wang4, 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

Effect of acetate addition and headspace gas composition on in vitro production of volatile fatty acids and gases.
L. M. Judd1 and R. A. Kohn, The University of Maryland, College Park

Predicting the time course of ruminal pH from continuous reticular pH measurements.
D. J. Seymour1, K. M. Wood2, J. P. Cant1 and G. B. Penner2, 1Department of Animal Biosciences, University of Guelph, ON, Canada, 2Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, 3University of Saskatchewan, Saskatoon, SK, Canada

Changes in milk production efficiency and ruminal bacterial community composition following near-total exchange of ruminal contents between high- and low-efficiency Holstein cows.
P. J. Weimer1, M. S. Cox2, T. Vieira de Paula1, M. Lin1 and G. Suero1, 1USDA-ARS, Madison, WI, 2University of Wisconsin-Madison, 1Federal University of Mato Grosso, Cuiabá, Brazil, 4Yangzhou University, Yangzhou, China

Synergism of cattle and bison inoculum on ruminal fermentation and bacterial communities in an artificial rumen (Rusitec) fed barley straw.
D. B. Oss1, G. O. Ribeiro Jr1, M. I. Marcondes1, W. Yang2, K. A. Beauchemin2, R. J. Forster2, V. Bremer2 and T. A. McAllister2, 1Department of Zootecnica, Universidade Federal de Viçosa, Brazil, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3Elanco Animal Health, Greenfield, IN

Effect of peNDF on milk production and composition in goats fed with NNFS replacing alfalfa hay.
D. Esparza1, R. Rodriguez, F. G. Veliz, O. Angel, T. Arbez and P. Robles-Trillo, Universidad Autonoma Agraria Antonio Narro, Torreon, Mexico

Effects of conventional dietary adaptation over periods of 6, 9, 14 and 21 days on rumen morphometrics of Nellore cattle.
D. D. Estevam1, I. C. Pereira1, A. L. Rigueiro2, F. T. Pereira1, C. L. Martins1, M. D. Arrigon1 and D. D. Miller2, 1São Paulo State University, Botucatu, Brazil, 2São Paulo State University, Dracena, Brazil
Poster Session XII

5:00 PM - 6:00 PM
Exhibit Hall A/B

Breeding and Genetics: Quantitative Traits

360 1 Genetic parameters and trends for length of productive life and lifetime production efficiency traits in Thai Landrace and Yorkshire sows.
U. Noppibool¹, M. A. Elzo², S. Koonawootitririon² and T. Suwanasopee³, ¹University of Florida, Gainesville, ²Kasetsart University, Bangkok, Thailand

361 2 Estimation of genetic parameters on carcass traits and body type measurements in Hanwoo.
Y. S. Choi¹, S. W. Kim¹, K. S. Kim¹, D. J. Yu¹, M. J. Ku², G. H. Lee¹, S. G. Park¹ and J. W. Lee¹, ¹Livestock Research Institute, Jeollanamdo Agricultural Research & Extension Service, Jeollanamdo, The Republic of Korea, ²Chonnam National University, Gwangju, The Republic of Korea

362 3 Residual feed intake (RFI) for genetic selection of Simmental and Simbrah cattle.
N. Manzanares-Miranda¹, J. R. Kaws², H. Villalon-Mendoza³ and G. Moreno-Degollado⁴, ¹Universidad Autonoma de Nuevo Leon, Posgrado Conjunto de las Facultades de Agronomia y Medicina Veterinaria y Zootecnia, San Nicolas de los Garza, Mexico, ²Universidad Autonoma de Nuevo Leon, San Nicolas de los Garza, Mexico

363 4 Multivariate analysis of reproductive and productive traits in Sindhi breed females (Bos indicus).
R. R.C. Mello¹, L. D. P. Sinedino², S. L.G. Sousa¹ and M. R.B. Mello¹, ¹Federal Rural University of Rio de Janeiro, Seropedica, Brazil, ²University of Florida, Gainesville

364 5 Repeatability of egg weight in Japanese quail.
O. T. Abanikannda, O. N. Ottun and A. O. Leigh, Lagos State University, Ojo-Lagos, Nigeria

365 6 Genetic parameters of cyclicity and other fertility indicators in dairy cattle.
D. Gonzalez-Pena¹, H. Jeong², P. J. Pinedo³, J. E. P. Santos⁴, G. M. Schuenemann⁵, G. J. M. Rosa⁶, R. O. Gilbert⁷, R. C. Bicalho⁷, R. Chebel⁷, K. N. Galvao⁷, C. M. Seabury⁷, W. W. Thatcher⁷ and S. L. Rodriguez Zas², ¹Zoetis, Kalamazoo, MI, ²University of Illinois at Urbana-Champaign, ³Colorado State University, Fort Collins, ⁴University of Florida, Gainesville, ⁵Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, ⁶University of Wisconsin-Madison, ⁷Cornell University, Ithaca, NY, ⁸Department of Large Animal Clinical Sciences; University of Florida, Gainesville, ⁹Texas A&M University, College Station, ¹⁰Department of Animal Sciences, University of Florida, Gainesville

366 7 Industrial associations between milk production and growth traits in Guzerat breed.
M. P. M. Gama¹, H. T. Ventura¹, M. Alencar Pereira¹, L. El Faro¹ and C. C. P. Paz¹, ¹Departamento de Genetica, FMRP-USP, Ribeirao Preto, Brazil, ²Associação Brasileira de Criadores de Zebu, Uberaba, Brazil, ³SAA/APTA/Instituto de Zootecnia-Centro de Bovinos de Corte, Seriâzinho-SP, Brazil, ⁴Universidade de Sao Paulo, Faculdade de Medicina de Ribeirao Preto - Departamento de Genetica, Ribeirao Preto-SP, Brazil

367 8 Genetic evaluation of mastitis, metritis, and ketosis in Holstein cattle using producer recorded data.
G. C. Marquez*, Y. Zare, K. L. Stephan and K. Olson, ABS Global, DeForest, WI

368 9 Genetic evaluation of dairy cow livability.
J. R. Wright* and P. M. VanRaden, Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

369 10 Genetic evaluation of dairy cow livability.
J. R. Wright* and P. M. VanRaden, Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

370 11 Production, reproduction, and health of Holstein, Jersey, and crossbred cattle in a seasonal calving pasture-based dairy.
K. A. E. Mullen* and S. P. Washburn, North Carolina State University, Raleigh

371 12 Between and within-lactation repeatabilities for hoof lesions in Canadian Holsteins.
F. Malchiodi¹, A. M. Christen², D. F. Kelton², F. S. Schenkel² and F. Miglior³, ¹Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, ²Valacta, Sainte-Anne-De-Bellevue, QC, Canada, ³Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, ⁴Canadian Dairy Network, Guelph, ON, Canada
Sexed-semen usage for Holstein AI in the United States.
J. L. Hutchison* and D. M. Bickhart, Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

Effect of semen type (cooled-fresh vs frozen-thawed) on fertility of lactating dairy cows.
A. H. Souza¹, H. J. Bessoff¹ and E. Danzeiser¹, ¹Ceva Animal Health, Libourne, France, ²Dairy Management Solutions, Tulare, CA, ³Global AG Alliance, Tulare, CA

Subclinical ketosis in the oocyte donors of Holstein X Gir cows.
R. C. de Souza¹, R. C. Souza¹, B. C. M. V. Reginaldo¹, G. C. M. V. da Silva¹, C. A. G. Pellegrino¹, M. I. V. Melo¹, J. P. Lastosa¹ and A. B. D. Pereira¹, ¹Pontificia Universidade Catolica de Minas Gerais, Betim, Brazil, ²Faculdade Alis de Bom Despacho, Brazil, ³University of New Hampshire, Durham

Clinical signs associated with bovine respiratory disease diagnosis and high heritability in beef and dairy cattle.
J. N. Kiser¹, C. M. Seabury², J. F. Taylor³, J. E. Womack², R. Hagevoort⁴, T. W. Lehenbauer⁵, S. S. Aly⁶, A. L. Van Eenennaam⁷, ¹Department of Animal Science, Washington State University, Pullman, ²Texas A&M University, College Station, ³University of Missouri, Columbia, ⁴New Mexico State University, Dairy Extension, Clovis, ⁵University of California-Davis, ⁶VMTRC, University of California, Tulare, ⁷Department of Animal Sciences, Washington State University, Pullman

Estimating enteric methane and carbon dioxide emission from lactating dairy cows using GreenFeed system.
D. Hailemariam¹, G. Manafiazar¹, J. Basarab¹,², F. Miglior³,⁴, G. Plastow¹ and Z. Wang¹, ¹Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Lacombe Research Centre, Alberta Agriculture and Forestry, Lacombe, AB, Canada, ³Canadian Dairy Network, Guelph, ON, Canada, ⁴Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada

Evaluation of factors affecting NaCl content the evolution in ewes milk and of its effect on technological properties.
J. Serdino, F. Correddu, M. G. Manca, A. Nudda, P. Urgeshe and N. P. P. Macciotta*, Dipartimento di Agraria, University of Sassari, Italy

A survey on breeding strategies and selection objectives for increased feed efficiency and decreased methane emission.
C. Richardson¹, F. Malchiodi¹, A. M. Wilson¹, A. M. Butty¹, C. Baes¹, A. Cánovas¹, M. P. Coffey¹, E. E. Connor¹, M. De Paou¹, B. Greddler¹, E. Goddar¹, G. Haila¹, V. R. Osborne¹, J. E. Pryce¹, M. Sargolzaei¹,², F. S. Schenkel¹, P. Stothard¹,², E. Wall¹, Z. Wang¹, T. Wright¹,² and F. Miglior¹,²,³, ¹Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, ²SRUC, Edinburgh, United Kingdom, ³USDA-ARS, Animal Genomics and Improvement Laboratory, Beltsville, MD, ⁴University of Alberta, Edmonton, AB, Canada, ⁵Qualitas AG, Zug, Switzerland, ⁶Department of Resource Economics and Environmental Sociology, University of Alberta, Edmonton, AB, Canada, ⁷Department of Food, Agricultural and Resource Economics, University of Guelph, ON, Canada, ⁸University of Guelph, ON, Canada, ⁹Department of Economic Development, Jobs, Transport and Resources, Bundaberra, Australia, ¹⁰Semex Alliance, Guelph, ON, Canada, ¹¹Livestock Gentec, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ¹²University of Guelph, OMAFRA, Guelph, ON, Canada, ¹³Canadian Dairy Network, Guelph, ON, Canada

Functional characterization of porcine SCD1 in stably transduced porcine SK6 cells.
J. Hwang*, N. Singh, C. Long and S. B. Smith, Texas A&M University, College Station

Gene expression profiling and fatty acid composition in muscle during growth of Yanbian Yellow Cattle.
X. Li¹, C. Yan¹, C. Choi¹, J. Shin¹ and S. B. Smith⁴, ¹Yanbian University, Yanji, China, ²Chungbuk National University, Chungju, The Republic of Korea, ³Kongwon National University, Chuncheon, The Republic of Korea, ⁴Texas A&M University, College Station

α-chaconine induces myogenesis of bovine satellite cells isolated from semimembranosus and longissimus muscle tissue.

Vitamin C supplement increased intramuscular adipose tissues but not affect myogenic development of Hanwoo steers.

Chromium propionate supplementation alters feedlot performance and GLUT4 activity in feedlot steers.
J. O. Baggerman*, Z. K. F. Smith¹, A. J. Thompson¹, J. Kim¹, P. W. Rounds² and B. J. Johnson¹, ¹Texas Tech University, Lubbock, ²Kemin Industries, Inc., Des Moines, IA
Feeding 5% grass hay or wheat straw with high starch, textured diets to weaned dairy calves between 8 and 16 weeks of age.
F. X. Suarez-Mena*, T. S. Dennis, T. M. Hill, J. D. Quigley and R. L. Schlotterbeck, Provimi, Brookville, OH

Effects of a milk balancer protein supplement on growth and performance of dairy calves.
P. Turiello1,2, E. Martinez1, M. Añi2, A. Bogni3 and O. Queiroz2, 1Facultad de Agronomía y Veterinaria, UNRC, Rio Cuarto, Argentina, 2Department Tecnico Bovinos, TEKNAL SA, Cordoba, Argentina

Effects of trans-10, cis-12 conjugated linoleic acid on gene expression and lipid content of adipocytes derived from lactating dairy cows.

Effects of maternal exercise on postnatal growth and carcass characteristics of swine.
B. L. Ferguson*, E. K. Harris, D. J. Newman, E. P. Berg and K. A. Vonahnne, North Dakota State University, Fargo

The effect of phase-feeding on feed cost, growth, and performance of calves fed milk replacer.

The effect of weaning over a 14-day vs 21-day period on the performance of calves fed milk replacer on a controlled ad libitum curve through an automatic feeder.

Effects of maternal dietary restriction during the second trimester on offspring growth and feedlot performance.
S. M. Quarnberg*, J. F. Legako, J. M. Gardner, D. R. ZoBell, C. E. Carpenter, K. A. Rood and K. J. Thornton, Utah State University, Logan

Neonate immunity, growth and puberty in dairy calves: Influence of dietary conjugated linoleic acid supplementation of the dam.
C. L. Cardoso1, D. Somwe2 and G. Esposito1,3, 1Department of Production Animal Studies, Faculty of Veterinary Science, University of Pretoria, South Africa, 2Department of Animal and Wildlife Science, Faculty of Natural and Agricultural Sciences, University of Pretoria, South Africa, 3Institute of Food, Nutrition and Well-being University of Pretoria, Pretoria, South Africa

Repeatability of residual feed intake and indices of body composition in growing Columbia ewes fed the same diet.

Food Safety

Monitoring of pesticide residues in animal feeds from republic of Korea.

Bacillus amyloliquefaciens from UHT Organic Milk Produces Biofilm and Demonstrates Virulence Potential.
J. L. McKillip*, A. Grutsch, E. R. Wagner and C. Klug, Ball State University, Muncie, IN

Occurrence of aflatoxin M1 in UHT, pasteurized and powdered milk marketed in Hubei province (central China).
J. L. Xiong*, H. L. Zhou, L. Y. Wu1 and F. T. Meng1, 1Hubei Key Laboratory of Animal Nutrition and Feed Science, Wuhan Polytechnic University, Wuhan, China, 2Xiangyang Engineering Research Center of Animal Medicine, Xiangyang Vocational and Technical College, Xiangyang, China

An aptamer-based biosensor for detection of aflatoxin M1.
X. Guo1,2,3,4, F. Wen1,2, N. Zheng1,3, S. Li1,2, M. L. Fauconnier1 and J. Wang1,2,3, 1Ministry of Agriculture - Milk and Dairy Product Inspection Center, Beijing, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 3Ministry of Agriculture - Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 4Chimie Générale et Organique, Gembloux Agro-Bio Tech, Université de Liège, Gembloux, Belgium
Effects of increasing sugar beets on steer backgrounding performance.
L. C. Roma Junior*1, E. S. Castro Filho2, J. M. Bertocco Ezequiel3, M. Almeida2 and E. H. C. B. Van Cleef2, 1Sao Paulo’s Agency for Agribusiness Technology, Ribeirao Preto, Brazil, 2School of Agricultural and Veterinary Sciences, University of Sao Paulo, Pirassununga, Brazil, 3College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China

Distribution and genetic characterization of the top clinically-relevant Shiga toxin-producing Escherichia coli in feedlot cattle.
J. Hallewell*1, K. Stanford2, T. Reuter3, L. Chui4, R. Johnson5, T. A. McAllister1, E. Topp1 and T. W. Alexander1, 1Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Alberta Agriculture and Forestry, Lethbridge, AB, Canada, 3Provincial Laboratory for Public Health, Edmonton, AB, Canada, 4Public Health Agency of Canada, Ottawa, ON, Canada, 5Agriculture and Agri-Food Canada, London, ON, Canada

Isolation and characterization of listeriaphages for control of growth of Listeria monocytogenes in dairy foods.
S. H. Lee1, H. S. Lee1, S. Heo1, C. R. Lee1,2 and G. B. Kim1, 1Department of Animal Science and Technology, Chung-Ang University, Anseong, The Republic of Korea, 2Feed Industry Research Institute, Korea Feed Association, Seoul, The Republic of Korea

Effects of feeding NaturSafe on foodborne pathogens in finishing beef heifers.
K. M. Feye1, K. L. Anderson1, M. F. Scott2, K. L. Dorton3, D. L. Henry3, C. R. Belknap2, B. E. Depenbusch1 and S. A. Carlson1, 1Department of Biomedical Sciences, Iowa State University, Ames, 2Diamond V, Cedar Rapids, IA, 3Innovative Livestock Services, Inc., Great Bend, KS

Moxidectin residues in tissues of lambs submitted to three programs of gastrointestinal endoparasite control.
A. L. G. Monteiro4, C. H. E. C. Poli5, M. A. M. Fernandes1, F. G. Reyes-Reyes5, C. J. A. Silva3, M. D. Bianchi5, S. Gilaverie1 and M. T. Peres1, 1Universidade Federal de Pernambuco, Recife, Brazil, 2Universidade Federal do Pará, Belém, Brazil, 3Utah State University, Logan, UT, 4Public Health Agency of Canada, Ottawa, ON, Canada, 5Universidade Estadual de Campinas, Brazil, 6Instituto Federal de SC, Camboriú, Brazil

Shiga toxin-producing Escherichia coli on cattle hides and bacterial transfer from hides to carcasses in Midwestern commercial beef slaughter operations.
A. McKiearnan*, N. Cernichiaro and M. Sanderson, Kansas State University, Manhattan

Effects of red grape pomace to adapt beef cattle to finishing diets and spoilage mitigation strategies.
L. A. Pellarin1, J. O. Sarturi1, P. R. B. Campanili1, L. A. Ovinge1, B. C. Bernhard1, B. J. Johnson1, J. C. Brooks1 and E. W. Hellman2, 1Texas Tech University, Lubbock, 2Texas A&M AgriLife Extension and Texas Tech University, Lubbock

Effects of rumen-protected Capsicum oleoresin on immune responses in lactating dairy cows experimentally challenged with lipopolysaccharide.
J. Oh1, M. Harper1, F. Giullongo1, E. H. Wall2, D. M. Bravo3 and A. N. Hristov3, 1The Pennsylvania State University, University Park, 2Pancosma, Geneva, Switzerland

Ruminant Nutrition: Plant-Derived Feed Additives I

Supplementation with a blend of capsicum and artificial sweetener alters milk yield and nutrient partitioning in lactating dairy cows.
E. H. Wall* and D. M. Bravo, Pancosma, Geneva, Switzerland

Supplementation with rumen-protected capsicum oleoresin increases milk production and component yield in lactating dairy cows.
E. H. Wall* and D. M. Bravo, Pancosma, Geneva, Switzerland

E. H. Wall*, C. M. Page, W. C. Stewart and M. Van Emon, Montana State University, Bozeman

Effects of red grape pomace to adapt beef cattle to finishing diets and spoilage mitigation strategies.
L. A. Pellarin1, J. O. Sarturi1, P. R. B. Campanili1, L. A. Ovinge1, B. C. Bernhard1, B. J. Johnson1, J. C. Brooks1 and E. W. Hellman2, 1Texas Tech University, Lubbock, 2Texas A&M AgriLife Extension and Texas Tech University, Lubbock

Effects of thyme (Thymus vulgaris) essential oil on feed intake and feeding behavior of Nellore steers.
J. Oh1, M. Harper1, F. Giullongo1, E. H. Wall2, D. M. Bravo2 and A. N. Hristov3, 1The Pennsylvania State University, University Park, 2Pancosma, Geneva, Switzerland
Effects of cinnamaldehyde on performance of post-weaned Holstein dairy heifers.
C. E. Chapman1, D. Ziegler2, H. Chester-Jones2, J. A. Clapper3 and P. S. Erickson1, 1University of New Hampshire, Durham, 2University of Minnesota Southern Research and Outreach Center, Waseca, 3South Dakota State University, Brookings

Effects of essential oils and exogenous enzyme in feedlot finishing diets high in flint ground corn at different particle sizes during the adaptation period.
M. A. P. Meschiatti1, J. M. M. D. Moraes1, T. S. Acedo1, L. F. M. Tamassia2, C. S. Cortinhas2, V. N. D. Gouvea3, J. R. Dorea1 and F. A. P. Santos4, 1 University of São Paulo, São Paulo, Brazil, 2DSM Nutritional Products SA, São Paulo, Brazil, 3University of Wisconsin, Madison, 4University of São Paulo, Piracicaba, Brazil

Effects of essential oils and exogenous enzymes on intake, digestibility and rumen fermentation in finishing Nelore cattle.
M. A. P. Meschiatti1, L. A. Pellarin1, C. D. A. Batalha2, T. S. Acedo3, L. F. M. Tamassia2, C. S. Cortinhas2, V. N. D. Gouvea3, F. A. P. Santos2 and J. R. Dorea1, 1 University of São Paulo, São Paulo, Brazil, 2University of Wisconsin, Madison, 3University of São Paulo, Piracicaba, Brazil, 4DSM Nutritional Products SA, São Paulo, Brazil, 5University of Wisconsin, Madison

Effect of inclusion of Acacia mearnsii tannin extract on nitrogen and energy balance in growing beef cattle fed a low protein-corn silage diet.
S. Capa de Avila1, G. V. Kozloski2, K. R. McLeod3 and D. L. Harmon1, 1University of Kentucky, Lexington, 2Federal University of Santa Maria, Brazil

Ruminant Nutrition: Fats, Fatty Acids and Energy I

Hepatic oxidation is responsive to prepartum energy and peripartum rumen protected choline supplementation.
V. Caprarulo1,2, T. L. Chandler3, M. G. Zenobi4, B. A. Barton5, C. R. Staples6 and H. M. White1, 1Department of Dairy Science University of Wisconsin-Madison, 2Department of Health, Animal Science and Food Safety, University of Milan, Milan, Italy, 3Department of Animal Sciences, University of Florida, Gainesville, 4Balchem Corporation, New Hampton, NY

Rumen-protected methyl donors during the transition period: Hepatic short-chain acyl CoA concentration in response to supplemental methionine or choline.
Z. Zhou1, C. L. Girard2, B. Ouattara2, M. Vallati Riboni1, D. N. Luchini1 and J. J. Loor1, 1University of Illinois at Urbana-Champaign, 2Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, 3Adisseo S.A.S., Alpharetta, GA

Development and validity of a lipid accessibility index that quantifies reaction exposure of internal fatty acids in animal feeds.
T. C. Jenkins1, K. Murphy2 and R. Ward3, 1Clemson University, SC, 2Virtus Nutrition, LLC, Corcoran, CA, 3Cumberland Valley Analytical Services Inc., Hagerstown, MD

Comparison of flax oil with varying lipid supplements in dairy ration: A meta-analysis.
M. Leduc1,2, M. P. Létourneau Montminy1, R. Gervais1 and P. Y. Chouinard1,2, 1Département des Sciences Animales, Université Laval, Québec, QC, Canada, 2INAF, Université Laval, Québec, QC, Canada

Milk bioactive fatty acids decrease in cows grazing pearl millet versus a cool-season pasture.
M. L. Bainbridge1, E. Egolf, J. W. Barlow, J. P. Alvez, J. Roman and J. Kraft, University of Vermont, Burlington

Effect of early lactation feeding strategy on production, metabolic and endocrine responses of primiparous dairy cows.
M. Carriquiry1, M. Cariani2, A. Jasinsky2, M. L. Adrien3 and D. A. Mattiauda2, 1Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay, 2Facultad de Agronomía, Universidad de la República, Paysandú, Uruguay, 3Facultad de Veterinaria, Universidad de la República, Paysandú, Uruguay

Ratios of milk fatty acids accurately estimates plasma non-esterified fatty acid concentrations as an indicator of animal energy balance.
J. R. R. Dórea1,2, E. A. French2 and L. E. Armentano3, 1University of Wisconsin-Madison, 2DeLaval USA, Madison, WI

Effect of linseed oil supplementation on milk fatty acid profile of dairy cows fed diets based on red clover silage or corn silage.
F. Hassanat1, R. Gervais1 and C. Benchaab1, 1Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, 2Département des Sciences Animales, Université Laval, Québec, QC, Canada

Characterization of rumen bacterial and protozoal fatty acid compositions from lactating Jersey cows offered alternative forage crops.
L. M. Cersosimo1, R. Tacoma1, S. Greenwood1, K. Juntwait2, A. F. Brito3 and J. Kraft4, 1University of Vermont, Burlington, 2University of New Hampshire, Durham
1327 65 Effect of frequency of supplementation with Megalac-R on non-esterified fatty acids and blood urea nitrogen concentration in lactating beef cows.
M. E. Garcia-Ascolani1, T. M. Schulmeister1, M. Ruiz-Moreno1, D. D. Henry3, F. M. Ciriaco1, P. L. P. Fontes1, G. C. Lamb1, N. M. Long2 and N. DiLorenzo1, 1University of Florida, North Florida Research and Education Center, Marianna, 2Clemson University, SC

1328 66 Supplementation of palm oil to lactating dairy cows fed a high fat diet during summer.
R. P. Melo1, L. P. Castro1, F. F. Cardoso1, E. F. Barbosa1, L. Q. Melo1, R. B. Silva1,2, R. A. N. Pereira1,2 and M. N. Pereira1,2, 1Universidade Federal de Lavras, Brazil, 2Better Nature Research Center, Ijaci, Brazil, 3Empresa de Pesquisa Agropecuaria de Minas Gerais, Lavras, Brazil

1329 67 Effects of dietary fat source on performance of lactating dairy cows fed a pre-mixed concentrate.
C. M. Ylioja1, C. Schulte2, R. A. Stock2 and B. J. Bradford1, 1Kansas State University, Manhattan, 2Cargill Corn Milling, Blair, NE

758 68 Effects of feeding different forms of polyunsaturated fatty acids on performance, plasma metabolites and milk fatty acid composition of dairy cows.
L. D. P. Sinedino1, R. R. C. Mello2, C. Lopera1, A. Vieira Neto1, M. G. Zenobi1, E. Block1, C. L. Preseault1, A. L. Lock1, C. R. Staples1, W. W. Thatcher1 and J. E. P. Santos1, 1University of Florida, Gainesville, 2Federal Rural University of Rio de Janeiro, Seropedica, Brazil, 3Arm & Hammer Animal Nutrition, Princeton, NJ, 4Michigan State University, East Lansing
SYMPOSIA AND ORAL SESSIONS

Triennial Growth and Development Symposium
Chair: Gary J. Hausman, University of Georgia; Angela Canovas, University of Guelph
Sponsor: ASAS
8:00 AM - 5:00 PM
150 G

8:00 AM
Introductory Remarks

8:15 AM 785
Muscle gene expression patterns associated with differential intramuscular fat in cattle and markers for skeletal
muscle growth rate and major cell types.
B. P. Dalrymple*, CSIRO Agriculture, Brisbane, Australia

9:00 AM 786
Factors influencing bovine intramuscular adipose tissue development and cellularity.
E. Albrecht1, L. Schering1, Y. Liu1, K. Komolsa1, C. Kühn1, K. Winners1, and S. Maak1, 1Muscle Biology and Growth,
Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany

9:45 AM 787
Growth and growth rate influences bovine intramuscular adipose tissue gene expression in a differential manner.
C. R. Krehbiel1, P. A. Lancaster2, G. W. Horn3, J. D. Starkey4, E. D. Sharman5, and S. L. Roberts6, 1Oklahoma State
University, Stillwater, 2Missouri State University, Springfield, 3Oklahoma Agricultural Experiment Station, Stillwater,
4Starkey Consulting Services, Gainsville, GA, 5Johnson Research, LLC, Parma, ID, 6Department of Agricultural
Sciences, West Texas A&M University, Canyon

10:20 AM
Break

10:50 AM 788
Molecular mechanisms of bovine intramuscular fat deposition.
M. Baik1, H. J. Kang, S. J. Park, and M. Y. Piao, Department of Agricultural Biotechnology, College of Agriculture and
Life Sciences, Seoul National University, Seoul, The Republic of Korea

11:30 AM 789
Dedifferentiated fat cells: Potential involvement in intramuscular adipogenesis.
M. S. Duarte1, R. Bueno1, M. V. Dodson2, and G. J. Hausman3, 1Universidade Federal de Viçosa, Viçosa, Brazil,
2Washington State University, Pullman, 3University of Georgia, Athens

12:00 PM 790
Metabolic programming and intramuscular adipogenesis.
T. Gotoh1, Kyushu University, Taketa-city, Japan

12:30 PM
Break

1:30 PM 791
Genetics and breeding for intramuscular fat and oleic acid content in pigs.
J. Estany1, R. Ros-Freixedes2, M. Tor1, and R. N. Pena1, 1Universitat de Lleida - Agrotenio Center, Spain, 2Universitat de
Lleida, Spain

2:10 PM 792
The genetic landscape of intramuscular fat content and composition in pigs.
M. Amills1, Center for Research in Agricultural Genomics, Bellaterra, Spain

2:50 PM 793
Statistical models and tools for Integration of omics data to uncover the genetic control of pork quality and
growth traits.
J. P. Steibel1, D. Velez-Izquierdo1, S. Casiro1, and C. W. Ernst2, 1Department of Animal Science, Michigan State
University, East Lansing, 2Michigan State University, East Lansing

3:30 PM 794
Marbling: Management of cattle to maximize the deposition of intramuscular adipose tissue.
S. B. Smith1 and B. J. Johnson2, 1Texas A&M University, College Station, 2Texas Tech University, Lubbock

4:10 PM 795
Linking from the farm to the table.
M. R. McMorris*, Beef Improvement Opportunities, Guelph, ON, Canada

5:30 PM
Discussion
### Functional Annotation of Animal Genomes (FAANG)
#### ASAS-iSAg Joint Symposium

**Chair:** Chris Tuggle, Iowa State University  
**Sponsor:** Illumina  
8:30 AM - 4:30 PM  
Grand Ballroom A

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<td>8:30 AM</td>
<td>Welcoming Remarks</td>
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<td>8:35 AM</td>
<td>Introductory Remarks</td>
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<td>8:40 AM</td>
<td>Sponsor’s Remarks</td>
<td>Andre Eggen, Illumina</td>
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<td>9:25 AM</td>
<td>Discussion</td>
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<td>9:40 AM</td>
<td>Causal inference of molecular networks integrating multi-omics data.</td>
<td>F. Peñagaricano*, University of Florida, Gainesville</td>
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<td>10:05 AM</td>
<td>Break</td>
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<td>10:35 AM</td>
<td>Genotypes to phenotypes: Lessons from functional variation in the human genome and transcriptome.</td>
<td>B. E. Stranger*, Section of Genetic Medicine, Department of Medicine, Institute of Genomics and Systems Biology, Center for Data Intensive Sciences, University of Chicago, Chicago, IL</td>
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<tr>
<td>11:20 AM</td>
<td>Discussion</td>
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<td>11:35 AM</td>
<td>Recurrent chimeric transcripts in human and mouse.</td>
<td>S. Djebali¹²³, B. Rodríguez Martin², E. Palumbo², D. D. Pervouchine²³, A. Breschi²³, C. Davis⁴, A. Dobin⁴, G. Alonso⁴, A. Rastrojo⁴, B. Aguado⁴, T. R. Gingeras⁴, and R. Guigó²³, ¹GenPhySE, INRA, Castanet-Tolosan, France, ²Universitat Pompeu Fabra (UPF), Barcelona, Spain, ³Bioinformatics and Genomics Programme, Centre for Genomic Regulation (CRG), Barcelona, Spain, ⁴Cold Spring Harbor Laboratory, Functional Genomics, Cold Spring Harbor, NY, ⁵Centro de Biología Molecular Severo Ochoa (CSIC - UAM), Madrid, Spain</td>
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<tr>
<td>12:00 AM</td>
<td>Lunch and Poster Viewing</td>
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<td>12:55 PM</td>
<td>Improving genomic selection across breeds and across generations with functional annotation.</td>
<td>B. Hayes⁵, A. J. Chamberlain⁵, H. Daetwyler⁵, C. J. Vander Jagt⁵, and M. E. Goddard⁵, ⁵Department of Economic Development, Melbourne, Australia, ⁶Dairy Futures Cooperative Research Centre, Bundoora, Australia, ⁷Department of Economic Development, Jobs, Transport and Resources, Bundoora, Australia, ⁸Department of Primary Industries, Melbourne, Australia</td>
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<td>1:35 PM</td>
<td>Discussion</td>
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<td>1:50 PM</td>
<td>Integrating dynamic -omics responses for universal personalized medicine.</td>
<td>G. I. Mias⁶, Michigan State University, East Lansing</td>
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<td>2:30 PM</td>
<td>Discussion</td>
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<td>2:45 PM</td>
<td>Break</td>
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<td>3:15 PM</td>
<td>A review of sequencing and assembly methods that enhance computational use.</td>
<td>W. C. Warren⁶, McDonnell Genome Institute, Washington University School of Medicine, St Louis, MO</td>
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<tr>
<td>3:55 PM</td>
<td>Updates on ongoing FAANG activities</td>
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**Companion Animal Symposium: Behavior and the Human-Animal Bond**

**Chair:** Brittany M. Vester Boler, Nestle Purina

**Sponsor:** George Fahey Appreciation Club

**9:30 AM - 12:30 PM**

150 E/F

9:30 AM  
Introductory Remarks

9:40 AM 430  
**Cognitive assessment protocols for use with companion animals.**  
B. Milgram*, CanCog Technologies, Toronto, ON, Canada

10:10 AM 431  
**Objective evaluation of affective states in dogs.**  
R. T. S. McGowan*, Nestlé Purina Research, St. Louis, MO

10:40 AM  
Break

10:55 AM 432  
**The human-animal bond: Science-based approaches to improving companion animal welfare and adoption outcomes.**  
C. C. Croney*, Purdue University, W. Lafayette, IN

11:25 AM 433  
**2015 Corbin Award Winner: Behavior and training of companion and zoo animals.**  
C. L. Morris*, Iowa State University, Ames

11:55 AM  
Panel Discussion

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**Lactation Biology**

**Chair:** Thomas B. McFadden, University of Missouri

**9:30 AM - 12:30 PM**

155 B

9:30 AM 859  
**Differences in body condition of gilts that are maintained from mating to the end of gestation affect their mammary development.**  
C. Farmer*, M. Comi, M. Vignola, P. Charague, C. R. A. Duarte, and M. F. Palin, 1Agriculture and Agri-Food Canada, Sherbrooke R & D Centre, Sherbrooke, QC, Canada, 2Dipartimento VESPA, Università Studi Milano, Milano, Italy, 3Trouw Nutrition, St-Elzéar, QC, Canada, 4Hypor Inc, Regina, SK, Canada, 5Departamento de Zootecnia, Universidade Estadual de Maringá, Maringá, Brazil

9:45 AM 860  
**Stem cells and cell hierarchy in the bovine mammary gland.**  
I. Barash* and G. Rauner, 1Volcani Center, Bet-Dagan, Israel, 2Hebrew University of Jerusalem, Jerusalem, Israel

10:00 AM 861  
**Optimal combination of histidine, lysine, methionine and leucine affect β-casein synthesis via mTOR signaling pathway in bovine mammary epithelial cells.**  
H. Gao1,2,4, N. Zheng1,2,4, S. Zhao1,2,4, Y. Zhang1,2,4, S. Wang1,2,4, X. Q. Zhou1,2,4, and J. Wang*, 1Ministry of Agriculture-Milk Risk Assessment Laboratory, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 3College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China

10:15 AM 862  
**The goat (Capra hircus) mammary gland secretory tissue proteome as influenced by weight loss: A study using label free proteomics.**  
A. M. Almeida1,2, L. E. Hernandez-Castellano1, A. M. Ferreira1, P. Namni1, J. Grossmann1, A. Argüello1, J. Capote1, G. Cai1, J. D. Lippolis1, and N. Castro1, 1Ross University School of Veterinary Medicine, Bassestrerre, Saint Kitts and Nevis, 2Instituto de Biologia Experimental e Tecnologica, Oeiras, Portugal, 3Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland, 4Functional Genomics Center Zurich (FGCZ) - University of Zurich, Zurich, Switzerland, 5Department of Animal Science, Universidad de Las Palmas de Gran Canaria, Arucas, 35413, Las Palmas, Spain, 6Canarian Agronomic Science Institute, La Laguna, Spain, 7USDA-ARS, National Animal Disease Center, Ames, IA, 8Dep. Animal Science, University of Las Palmas de Gran Canaria, Arucas, Spain
Pre-calving and early lactation factors that predict milk casein and fertility in the transition dairy cow.  
1Scibus, Camden, Australia, 2University of Sydney, Camden, Australia, 3Halltech Services, Orange, Australia, 4Kimihia Research Centre, PGG Wrightson Seeds Limited, Lincoln, Canterbury, New Zealand, 5Faculty of Veterinary and Agricultural Sciences, the University of Melbourne, Parkville, Australia.

Increasing blood 5-hydroxy-L-tryptophan concentration for prevention of periparturient hypocalcemia in dairy cows.  
1Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland, 2Department of Dairy Science, University of Wisconsin-Madison.

Beta-hydroxybutyrate infusion affects glucose metabolism before and after parturition in dairy cows.  
1Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland, 2Department of Animal Science, Yasouj University, Yasouj, Iran.

Impact of increasing dietary crude protein content on urinary nitrogen excretion and milk nitrogen secretion of lactating sows.  
1Aarhus University, Tjele, Denmark, 2SEGES Pig Research Centre, Copenhagen, Denmark.

Intramammary prednisolone affects the permeability of the blood-milk barrier during LPS and LTA induced mastitis in dairy cows.  
1Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland.

Regulation of sterol regulatory element binding protein-1 in bovine mammary epithelial cells.  
L. Chen and B. A. Corl.  
1Virginia Polytechnic Institute and State University, Blacksburg.

Efficacy of dual x-ray absorptiometry as a means to measure mammary gland development in dairy heifer calves.  
A. J. Geiger, C. L. M. Parsons, and R. M. Akers.  
1Virginia Polytechnic Institute and State University, Blacksburg.

Percentages of milk fat, lactose and protein are affected by diurnal variations in dairy goats.  
1Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, 2University of Guilan, Rasht, Islamic Republic of Iran, 3University Cattolica del Sacro Cuore, Piacenza, Italy.

Comparative effect of two commercial preparations of bovine somatotropin on milk yield and overall performance in Chilean dairy cows.  
M. A. Barrios, P. Melendez, and M. Duchens.  
1University of Chile, Santiago, 2University of Missouri, Columbia.

Physiology and Endocrinology Symposium: Pre- and Post-natal Impacts on Offspring Performance

Chair: Kimberly A. Vonnahme, North Dakota State University

Sponsor: Elanco Animal Health

9:30 AM - 5:00 PM

9:30 AM 1159
Consequences of early nutritional insults on fetal hepatic glucose metabolism and insulin action.
S. R. Wesolowski.  
1University of Colorado School of Medicine, Aurora.

10:20 AM 1160
Alterations in uteroplacental hemodynamics during melatonin supplementation in sheep and cattle.
C. O. Lemley and K. A. Vonnahme.  
1Mississippi State University, Mississippi State, 2North Dakota State University, Fargo.

10:50 AM 1161
Development of the fetus and fetal reproductive tract in gilts subjected to heat stress from week 4 to 8 of gestation.
University of Missouri, Columbia.

11:05 AM
Break
11:20 AM 1162  The effects of under- and over-feeding ewes during gestation on offspring growth and stem cell function.  
K. E. Govoni, S. A. Reed, M. L. Hoffman, S. M. Pillai, and S. A. Zinn, Department of Animal Science, University of Connecticut, Storrs

11:50 AM 1163  Postnatal reproductive development and the lactocrine hypothesis.  
F. F. Barto1, C. A. Bagnell2, and A. F. George3, 1Auburn University, Auburn, AL, 2Rutgers University, New Brunswick, NJ

V. C. Kennedy, J. J. Gaspers, B. Mordhorst, G. L. Stokka, M. L. Bauer, K. C. Swanson, and K. A. Vonnahme, 1North Dakota State University, Fargo, 2Department of Animal Sciences, North Dakota State University, Fargo

12:55 PM 1165  The effects of nutritional restriction on endogenous retroviruses and placentation during the first 50 d of gestation in beef heifers.  
K. J. McLean, M. S. Crouse, M. R. Crosswhite, N. Negrin Pereira, A. K. Ward, C. R. Dahlen, L. P. Reynolds, P. P. Borowicz, B. W. Neville, and J. S. Caton, 1Department of Animal Sciences, North Dakota State University, Fargo, 2North Dakota State University, Fargo, 3North Dakota State University, Streeter

1:10 PM  Concluding Remarks

Production, Management and the Environment: Lactation and Growth  
Chair: April B. Leytem, USDA-ARS  
9:30 AM - 12:30 PM  
151 E/F

9:30 AM 1242  Health treatment costs of pure Holsteins in 8 high-performance Minnesota dairies.  
M. R. Donnelly, A. R. Hazel, B. J. Heins, and L. B. Hansen, 1University of Minnesota, St. Paul, 2University of Minnesota West Central Research and Outreach Center, Morris

B. J. Heins, H. Chester-Jones, D. Ziegler, M. B. De Ondarza, S. E. Schuling, B. Ziegler, D. Schimek, N. Broadwater, and C. J. Sniffen, 1University of Minnesota West Central Research and Outreach Center, Morris, 2University of Minnesota Southern Research and Outreach Center, Wascoa, 3Paradox Nutrition, West Chazy, NY, 4Hubbard Feeds Inc., Mankato, MN, 5University of Minnesota Extension, Rochester, 6Fencrest, LLC, Holderness, NH

10:00 AM 1244  Relationships between birth season versus early life starter intake and growth and first lactation performance of Holstein dairy cows.  
B. J. Heins, D. Ziegler, D. Schimek, S. E. Schuling, B. Ziegler, H. Chester-Jones, M. B. De Ondarza, C. J. Sniffen, and N. Broadwater, 1University of Minnesota West Central Research and Outreach Center, Morris, 2University of Minnesota Southern Research and Outreach Center, Wascoa, 3Paradox Nutrition, West Chazy, NY, 4Hubbard Feeds Inc., Mankato, MN, 5University of Minnesota Extension, Rochester, 6Fencrest, LLC, Holderness, NH

10:15 AM 1245  ADSA-EAAP PhD Student Travel Award Presentation: Comparing milk yield between cows with different dry period lengths over multiple lactations.  
A. Kok, C. van Middelaar, A. van Knegsel, B. Engel, H. Hogeveen, B. Kemp, and I. de Boer, 1Animal Production Systems group, Wageningen University, Netherlands, 2Adaptation Physiology Group, Wageningen University, Netherlands, 3Biometris, Wageningen University, Netherlands, 4Business Economics Group, Wageningen University, Netherlands

10:45 AM 1246  Economic impact of introducing automatic milking system on Canadian dairy farms.  
J. Ferland, E. Vasseur, M. Duplessis, E. A. Pajor, and D. Pellerin, 1Université Laval, Québec, QC, Canada, 2McGill University, Sainte-Anne-de-Bellevue, QC, Canada, 3Valacta, Sainte-Anne-de-Bellevue, QC, Canada, 4University of Calgary, Calgary, AB, Canada

11:00 AM 1247  Potential economic returns associated with weekly body condition scoring.  
C. M. Truman and J. M. Bewley, University of Kentucky, Lexington

11:15 AM 1248  The influence of genetic potential on lactation curve and survival response of commercial dairy cattle to early lactation non-steroidal antiinflammatory (NSAID) drug administration.  
A. J. Carpenter, J. Ehrlich, L. G. D. Mendoça, M. J. Brukał, and B. J. Bradford, 1Kansas State University, Manhattan, 2DairySight LLC, Argyle, NY
11:30 AM 1249  
Management practices and dietary physically effective fiber are related to bulk tank milk de novo fatty acid concentration on Holstein dairy farms.
M. E. Woolpert, H. M. Dann, K. W. Cotanch, C. Melilli, L. E. Chase, R. J. Grant, and D. M. Barbano, William H. Miner Agricultural Research Institute, Chazy, NY, University of Vermont, Burlington, Cornell University, Ithaca, NY, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY

11:45 AM 1250  
Estimating the benefit:cost ratio of monensin supplementation.
K. A. Dolecheck and J. M. Bewley, University of Kentucky, Lexington

12:00 PM 1251  
TMR versus grazing supplemented with TMR out or into the grazing plot: Productive response.
D. A. Mattiauda, J. P. Marchelli, and P. Chilibroste, Facultad de Agronomía, Universidad de la Republica, Paysandu, Uruguay, Facultad de Agronomía, Universidad de la Republica, Montevideo, Uruguay

12:15 PM 1252  
Shearing during milking increases milk yield in dairy ewes.
A. Elhadi, G. Caja, A. A. K. Salama, X. Such, and E. Albanell, Universitat Autonoma de Barcelona, Bellaterra, Spain, Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Spain, Animal Production Research Institute, Giza, Egypt

Ruminant Nutrition: Calves
Chair: Jill L. Anderson, South Dakota State University
9:30 AM - 12:30 PM 155 F

9:30 AM 1297  
Effect of lactose inclusion in calf starters on rumen fermentation of weaned calves.
A. Saegusa, K. Inouchi, Y. Inabu, S. Koike, T. Sugino, and M. Oba, ZEN-RAKU-REN, Fukushima, Japan, ZEN-RAKU-REN, Nishi-shirakawa, Japan, Hokkaido University, Sapporo, Japan, Hiroshima University, Higashi-hiroshima, Japan, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada

9:45 AM 1298  
Methionine:lysine ratio for crossbred suckling calves fed milk replacer and an amino acid complex.
J. C. Chagas, M. A. Ferreira, M. R. Entjes, F. S. Machado, L. F. Costa e Silva, and M. I. Marcondes, Universidade Federal Rural de Pernambuco, Recife, Brazil, VHL University of Applied Sciences, Leeuwarden, Netherlands, EMBRAPA, Juiz de Fora, Brazil, Universidade Federal de Vicsosa, Vicsosa, Brazil, Departamento de Zootecnia, Universidade Federal de Vicsosa, Vicsosa, Brazil

10:00 AM 1299  
Effects of organic or inorganic Co, Cu, Ma, and Zn supplementation to weaned calves during preconditioning on their productive and health responses.

10:15 AM 1300  
Dynamics of prepartum β-carotene supplementation among cow, colostrum, and calf.
C. M. Prom, M. A. Engstrom, and J. K. Drackley, University of Illinois at Urbana-Champaign, DSM Nutritional Products, LLC, Parsippany, NJ

10:30 AM 1301  
Effect of supplementing increasing levels of RUP on growing performance in calves fed a silage-based diet.

10:45 AM  
Break

11:00 AM 1302  
The effects of a high- or low-plane of nutrition pre-weaning on growth and starter intake of group-housed calves.
J. Haisan, M. Oba, D. J. Ambrose, and M. Steele, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, Livestock Research Branch, Alberta Agriculture and Forestry, Edmonton, AB, Canada

11:15 AM 1303  
Evaluation of stay strong for new born dairy calves.
K. Froehlich and D. P. Casper, South Dakota State University, Brookings, Dairy Science Department, South Dakota State University, Brookings
11:30 AM 1304 Effects of supplementing pasteurized waste milk with vitamins A, D and E on fat-soluble vitamin status, growth, and health of calves.  
L. Blakely*, M. Kweh1, M. Poindexter1, R. L. Stuart2, and C. D. Nelson1, 1Department of Animal Sciences, University of Florida, Gainesville, 2Stuart Products Inc, Bedford, TX, 3University of Florida, Gainesville

11:45 AM 1305 Effect of phytopgenic compounds fed to preweaned calves.  
B. G. Miller*1 and C. Scheider2, 1Biomin USA, Warrenton, MO, 2Biomin Holding GmbH, Herzogenburg, Austria

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**Ruminant Nutrition: Feed Additives II**  
Chair: Maurice Eatridge, The Ohio State University  
Sponsor: Ajinomoto  
9:30 AM - 12:30 PM  
155 D

9:30 AM 1373 Optimal blood sampling time points to determine bioavailability of rumen-protected Met products using the plasma free AA dose-response method.  
N. L. Whitehouse1, D. L. Chirgwin1, C. G. Schwab1, D. N. Luchini1, and A. F. Brito1, 1University of New Hampshire, Durham, 2Schwab Consulting, LLC, Boscohel, WI, 3Adisseo S.A.S., Alpharetta, GA

9:45 AM 1374 Effects of prophylactic supplementation with oral calcium boluses on peripartum calcium, urine pH and health in a commercial Jersey herd supplemented with anionic salts.  
A. Valdecarabes*, D. Rolle, A. Belaid, S. Rodriguez, and N. Silva-del-Rio, Veterinary Medicine Teaching and Research Center, University of California Davis, Tulare, CA

10:00 AM 1375 Effects of supplemental zinc sulfate concentrations on growth performance and carcass characteristics of feedlot heifers, and in vitro ruminal fermentative activity.  
C. L. Van Bibber-Krueger*, C. I. Vahl, and J. S. Drouillard, Kansas State University, Manhattan

10:15 AM 1376 Evaluating the effects of an injectable trace mineral product on steers raised in a natural beef feedlot program.  
E. K. Niedermayer*, O. N. Genther-Schroeder, and S. L. Hansen, Iowa State University, Ames

10:30 AM 1377 Interactive effects of supplemental Zn sulfate and ractopamine hydrochloride on growth performance, carcass traits, and plasma urea nitrogen in feedlot heifers.  
C. L. Van Bibber-Krueger*, J. M. Gonzalez1, R. G. Amachawadi1, H. M. Scott1, and J. S. Drouillard1, 1Kansas State University, Manhattan, 2Texas A&M University, College Station

10:45 AM 1378 SafeGain (ruminally-protected lysine) for growing beef cattle.  
V. De Aquiari Veloso*, C. L. Van Bibber-Krueger1, K. Karges2, and J. S. Drouillard1, 1Kansas State University, Manhattan, 2H.J. Baker, Animal Health and Nutrition Division, Little Rock, AR

11:00 AM Break

11:15 AM 1379 Effects of rotating antibiotic and ionophore feed additives on enteric methane and rumen microbial populations of steers consuming a high forage diet.  
W. L. Crossland*, L. O. Tedeschi1, T. R. Callaway2, M. D. Miller1, and W. B. Smith1, 1Texas A&M University, College Station, 2USDA-ARS, College Station, TX, 3Texas A&M AgriLife Research, Overton

11:30 AM 1380 Effects of supplementing lactating dairy cow ration with sodium sesquicarbonate on reticulorumen pH, rumination, and dry matter intake.  
M. L. Jones*, J. D. Clark1, N. A. Michael1, and J. M. Bewley1, 1University of Kentucky, Lexington, 2Arm & Hammer Animal Nutrition, Princeton, NJ

11:45 AM 1381 Comparison of Titanium 5 PH-M versus Titanium 5 plus NUPLURA PH with the presence or absence of monensin on health and performance of newly received feedlot calves fed RAMP.  
R. M. Jones1, C. J. Bittner1, F. H. Hilser1, R. A. Stock1, and G. E. Erickson1, 1University of Nebraska-Lincoln, 2Cargill, Blair, NE

12:00 PM 1382 Effect of Bovamime on performance of lactating dairy cows.  
C. Dickey* and M. Eatridge*, 1The Ohio State University, Columbus, 2The Ohio State University, Columbus

12:15 PM 1383 Effects of rumen-protected choline (RPC) supplementation to periparturient dairy cows did not depend upon prepartum energy intake.  
Ruminant Nutrition: Microbiology, Fermentation and Feeding

Chair: Antonio Faciola, University of Nevada

9:30 AM - 12:30 PM
155 E

9:30 AM 1519
Does microbial contamination affect in situ estimation of crude protein degradability of concentrate feedstuffs?.
1Universidade Federal de Vicosa, Vicosa, Brazil, 2Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, 3Colorado State University, Fort Collins, 4Universidade Federal da Bahia, Salvador, Brazil, 3Universidade Federal de Viçosa, Vicosa, Minas Gerais, Brazil

9:45 AM 1520
Effect of concentrate type (starch vs. fiber) and bicarbonate addition in grass silage-based diets on performance, diet digestibility and enteric methane emissions in lactating dairy cows.
A. Bougouin1, A. Ferlay, M. Doreau, Y. Rochette, S. Rudel, C. Lascoux, and C. Martin, INRA-UMR1213 Herbivores, Saint-Genes-Champanelle, France

10:00 AM 1521
Validation of the GreenFeed system against model predicted methane emissions.
P. Huhtanen1, M. Ramin1, and A. N. Hristov2.
1Swedish University of Agricultural Sciences, Umea, Sweden, 2The Pennsylvania State University, University Park

10:15 AM 1522
Influence of colostrum on the microbiological diversity of the developing bovine intestinal tract.
S. L. Ishaq1, E. Bichi2, S. K. Olivo1, J. Lowe1, C. J. Yeoman1, and B. M. Alridge2.
1Montana State University, Bozeman, 2University of Illinois at Urbana-Champaign

10:30 AM 1523
Effects of starch feeding on lipopolysaccharide (LPS) concentrations in rumen fluid and feces in fresh dairy cows.
J. Guo1, J. C. Plaizier1, S. Li1, S. E. William1, E. Khafipour1, and H. M. Dann1.
1University of Manitoba, Winnipeg, MB, Canada, 2Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 3William H. Miner Agricultural Research Institute, Chazy, NY

10:45 AM 1524
Correlations between the abundance of specific ruminal bacteria with milk production and total tract digestibility of dairy cows fed live or killed yeast.
Y. Jiang1, R. M. Martins2, I. M. Ogundade3, M. A. Bamikole1, F. Amaro1, W. Rutherford1, S. Qi1, F. Owens1, B. Smiley1, K. G. Arriola1, A. Oliveria1, D. Vyas2, A. P. Cervantes3, and A. T. Adesogan1.
1UF/IFAS, Gainesville, FL, 2Federal University of Viçosa, Viçosa, Brazil, 3Department of Animal Science, University of Benin, Benin, Nigeria, 4DuPont Pioneer, Johnston, IA, 5Department of Animal Sciences, University of Florida, Gainesville

11:00 AM 1525
Inhibiting the growth of Escherichia coli O157:H7 in alfalfa silage with silage additives.
1UF/IFAS, Gainesville, FL, 2Department of Food Quality and Safety, Agricultural Research Organization, The Volcani Center, Rishon Le Zion, Israel

11:15 AM 1526
Partial replacement of ground corn by citrus pulp or steam-flaked corn fed at two concentrate Levels on rumen parameters and kinetics.
V. B. Ferrari*, N. R. B. Cônsolo, F. Rodriguez, J. F. Penso, M. O. Frasseto, and L. F. P. Silva, University of Sao Paulo, Pirassununga, Brazil

11:30 AM 1527
Recovering lactating dairy cows from diet-induced milk fat depression using corn with different starch degradabilities.
B. M. Koch, L. E. Koch*, W. C. Bridges, and G. J. Lascano, Clemson University, Clemson, SC

11:45 AM 1528
Effects of field pea supplementation on digestibility and rumen VFA concentration of diets containing high and low quality forages.
H. L. Greenwell3, J. L. Gramkow1, M. L. Galyean, P. R. B. Campanili, and L. A. Pellarin, Texas Tech University, Lubbock

12:00 PM 1529
Effect of live yeast fed to natural-program beef steers during the finishing phase.

12:15 PM 1530
Effects of calcium-ammonium nitrate on in vitro fermentation of bahiagrass hay with supplemental molasses.
D. D. Henry*, F. M. Ciriaco1, R. C. Araujo2, M. E. Garcia-Ascolani1, P. L. P. Fontes1, N. Oosthuizen1, C. D. Sanford1, T. M. Schumelsteier1, M. Ruiz-Moreno1, G. C. Lamb2, and N. DiLorenzo1.
1University of Florida, North Florida Research and Education Center, Marianna, FL, 2GRASP Ind. & Com. LTDA, Curitiba, Brazil
**Breeding and Genetics: Genomic Selection and GWAS**

313 1  Identification of causative genomic region for carcass weights of cattle.

314 2  Introgression of the Belgian Blue Myostatin variant into Nelore cattle: Effects of double muscling on birth weight and calving ease.
   G. Nogueira1, K. S. Paulussi1, A. T. H. Utsunomiya2, Y. T. Utsunomiya2, A. Almeida1, A. Tanuri1, T. Santos1 and R. Alonso1, 1 UNESP, Aracatuba-SP, Brazil, 2 UNESP Univ Estadual Paulista, Jaboticabal, Brazil, 1 Deo, Aracatuba-SP, Brazil, 1 UFRRJ, Rio de Janeiro-RJ, Brazil

315 3  Genomic-polygenic and polygenic parameters and prediction trends for growth and reproduction traits in an Angus-Brahman multibreed population.
   M. A. Elzo1, R. Mataesca1, M. G. Thomas1, D. D. Johnson1, D. O. Rae1, J. D. Wasdin1, M. D. Driver1 and J. D. Driver1, 1 University of Florida, Gainesville, 2 Department of Animal Sciences, Colorado State University, Fort Collins

316 4  Genome-enabled prediction of genetic values of growth traits using artificial neural networks.
   S. O. Peters1, M. Sinecen1, M. G. Thomas1, I. G. Immnorin1 and K. Kzikaya1, 1 Department of Animal Science, Berry College, Mount Berry, GA, 2 Adnan Menderes University, Aydin, Turkey, 3 Department of Animal Sciences, Colorado State University, Fort Collins, 4 Animal Genetics and Genomics Laboratory, Cornell University, Ithaca, NY

317 5  Molecular breeding values distribution in slick male and female senepol cattle differing in musculature.
   C. L. González-Berrios1, A. Rivera-Serrano1, A. Casas-Guérnica1, T. Sonstegard1, M. Pagán-Morales1, 1 Department of Animal Science, University of Puerto Rico, Mayaguez, Puerto Rico, 2 Recombiotics Inc., St Paul, MN

318 6  PRUNE2 gene has a potential effect on residual feed intake in Nelore cattle.
   A. O. D. Lima1, P. S. N. Oliveira1, P. C. Tizioto1, A. L. Somavilla1, W. J. S. Diniz1, J. V. D. Silva1, S. C. S. Andrade1, C. Boschiero2, A. S. M. Cesar2, M. M. Souza2, M. I. P. Rocha2, J. Afonso2, C. E. Buss2, M. A. Muçadu2, G. B. Mourao2, L. L. Coutinho2 and L. C. A. Regitano2, 1 Federal University of Sao Carlos, Sao Carlos, Brazil, 2 Embrapa Southeast Livestock, Sao Carlos, Brazil, 3 Universidade Estadual Paulista, Julio de Mesquita Filho, Jaboticabal, Brazil, 4 Genetics and Evolutionary Biology Department – IB, University of Sao Paulo, Sao Paulo, Brazil, 5 Department of Animal Science, University of Sao Paulo/ESALQ, Piracicaba, Brazil, 6 Biotechnology Laboratory - ESALQ, University of Sao Paulo, Piracicaba, Brazil, 7 Embrapa Pecuária Sudeste, Sao Carlos, Brazil

319 7  A genome-wide association study for changes in dry matter intake due to temperature variation in an admixed beef cattle population.
   R. Ghebrewold1 and M. L. Spangler, University of Nebraska-Lincoln

320 8  An international effort to improve feed efficiency and reduce methane emissions in dairy cows through genomics.
   A. M. Wilson1, A. M. Butty1, C. Baes1, A. Cánovas1, M. P. Coffey2, E. E. Connor3, M. De Pauw4, B. Gredler5, E. Goddard6, G. Hailu7, V. R. Osborne8, J. E. Pryce9, M. Sargolzaei1,9, F. S. Schenkel1, P. Stothard10, E. Wall10, Z. Wang10, T. C. Wright11 and F. Miglior12, 1 Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, 2 SRUC, Edinburgh, United Kingdom, 3 USDA-ARS, Animal Genomics and Improvement Laboratory, Beltsville, MD, 4 University of Alberta, Edmonton, AB, Canada, 5 Qualitas AG, Zug, Switzerland, 6 Department of Food, Agricultural and Resource Economics, University of Guelph, ON, Canada, 7 University of Guelph, ON, Canada, 8 Department of Economic Development, Jobs, Transport and Resources, Bundooka, Australia, 9 Semex Alliance, Guelph, ON, Canada, 10 Livestock Genetics, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 11 Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada, 12 Canadian Dairy Network, Guelph, ON, Canada

321 9  Effect of diet energy level and genomic residual feed intake on dairy heifer performance.
   K. Williams1, K. A. Weigel1, W. K. Coblenz1, N. M. Esser1, H. Schlessner2, P. Hoffman1,6, H. Su1 and M. Akins1, 1 University of Wisconsin-Madison, 2 Department of Dairy Science University of Wisconsin-Madison, 3 US Dairy Forage Research Center, Marshfield, WI, 4 University of Wisconsin, Marshfield, 5 University of Wisconsin-Extension, Marathon County, Wausau, WI, 6 Vita Plus Corporation, Madison, WI
Genomic prediction for feed efficiency traits based on 50K and imputed high density SNP genotypes in multiple breed populations of Canadian beef cattle.
C. Li1,2, L. Chen1, M. Vinsky2, J. Crowley1, S. P. Miller3,4, G. Plastow1, J. Basarab1 and P. Stothard1, 1Livestock Genomics, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Lacombe Research and Development Centre, Agriculture and Agri-Food Canada, Lacombe, AB, Canada, 3Invermay Agricultural Centre, AgResearch Ltd., Mosgiel, New Zealand, 4Centre for the Genetic Improvement of Livestock, University of Guelph, ON, Canada, 1Lacombe Research Centre, Alberta Agriculture and Forestry, Lacombe, AB, Canada

Use of multivariate statistical analyses to preselect SNP markers for GWAS on residual feed intake in dairy cattle.
C. Dimauro1, E. Manca1, A. Rossoni2, E. Santus2, M. Cellesi1 and G. Gaspa3, 1Università di Sassari, Italy, 2ANARB, Italian Brown Cattle Breeders’ Association, Bussolegno (VR), Italy, 3Dipartimento di Agraria, University of Sassari, Sassari, Italy

Breed base representation in dairy animals of five breeds.
H. D. Norman2, P. M. VanRaden1, J. H. Megonigal1, J. W. Dürr1 and T. A. Cooper2, 1Council on Dairy Cattle Breeding, Bowie, MD, 2Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD

Estimation of the composition of four U.S. swine breeds using genomic data.
S. A. Funkhouser3, R. O. Bates2, C. W. Ernst1, D. W. Newcom1 and J. P. Stiebel3, 1Genetics Program, Michigan State University, East Lansing, 2Department of Animal Science, Michigan State University, East Lansing, 3National Swine Registry, West Lafayette, IN, 4Department of Fisheries and Wildlife, Michigan State University, East Lansing

Genome-wide association study and accuracy of genomic prediction for teat number in Duroc pigs using genotyping by sequencing.
C. Tan4, Y. Dai1, Z. Wu1, D. Liu1, X. He1, N. Li1 and X. He1, 1State Key Laboratory for Agrobiotechnology, China Agricultural University, Beijing, China, 2Department of Animal Science, University of Minnesota, Saint Paul, 3College of Animal Science, South China Agricultural University, Guangzhou, China

Genome-wide association study for supernumerary teats in Swiss Brown Swiss Cattle reveals LGR5 as a major gene on chromosome 5.
A. M. Butty1,2, M. Frischknecht2,3, B. Gredler2, C. Baes2, S. Neuschwander2, J. Moll2, A. Bieber2 and F. Seefried2, 1Centre for Genetic Improvement of Livestock, University of Guelph, ON, Canada, 2Qualitas AG, Zug, Switzerland, 3School of Agricultural, Forest and Food Sciences, Bern University of Applied Sciences, Zollikofen, Switzerland, 4Unit of Animal Genetics, Institute of Animal Sciences, Swiss Federal Institute of Technology, Zurich, Switzerland, 5Department of Animal Science, Research Institute of Organic Agriculture (FiBL), Frick, Switzerland

Genomic and polygenic evaluations for milk and fat yields in Holstein upgraded Thai dairy cattle.
D. Jattawa1, M. A. Elzo1, S. Koonawootrittriron1 and T. Suwanasopee2, 1University of Florida, Gainesville, 2Kasetsart University, Bangkok, Thailand

Genome wide association study for loci associated with digital dermatitis and pododermatitis circumscripta in Holstein cattle.
A. M. Oberbauer1, A. L. Danner1, J. M. Belanger1, T. R. Famula1 and J. M. Heguy2, 1Department of Animal Science, University of California-Davis, 2UCCE Stanislaus and San Joaquin Counties, Modesto, CA

Genome-wide association study for somatic cell score in Russian Holstein cattle population.
A. A. Sermyagin*, E. A. Gladyr’ and N. A. Zinovieva, L.K.Ernst Institute of Animal Husbandry, Moscow, Russian Federation

Genomic analysis of lactation persistency in four breeds of dairy cattle.
J. B. Cole1, D. J. Null*1 and K. L. Parker Gaddis2, 1Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, 2Department of Animal Sciences, University of Florida, Gainesville

Genome-wide association study for tick count and infection level of Babesia bovis traits in Angus cattle.
L. Cavani*1,2, C. H. Santana1, R. Giglioti1, T. B. Bilhassi1, M. C. D. S. Oliveira1, R. Carvalheiro1 and H. N. Oliveira1, 1State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, Brazil, 2São Paulo State Foundation, São Paulo, Brazil, 3Embrapa Southeast Livestock, São Carlos, Brazil
Identification of loci associated with susceptibility to bovine paratuberculosis using imputed genotypes based on whole genome sequencing.
J. N. Kiser1, J. L. Hoff1, S. N. White1, J. F. Taylor2 and H. L. Neibergs1, 1Department of Animal Science, Washington State University, Pullman, 2University of Missouri, Columbia, 3USDA-ARS, Animal Disease Research Unit, Pullman, WA

Joint SNP-haplotype analysis for genomic selection based on the invariance property of GBLUP and GREML to duplicate SNPs.
Y. Da1, C. Tan2 and D. Parakapenka1, 1Department of Animal Science, University of Minnesota, Saint Paul, 2State Key Laboratory for Agrobiotechnology, China Agricultural University, Beijing, China

Practical approximation of accuracy in genomic breeding values for a large number of genotyped animals.
S. Tsuruta1, D. Lourenco1, Y. Masuda1, D. W. Moser2 and I. Misztal1, 1University of Georgia, Athens, 2Angus Genetics Inc., St. Joseph, MO

Animal Health: General Health

A new protocol for the isolation of key recombinant proteins in livestock production using lactic acid bacteria as a cell factory.
L. Gifre1, O. Cano-Garrido2, J. Seras-Franzos2, R. Rocca3, N. Ferrer-Miralles3, A. Villaverde3, A. Bach4, A. Aris5 and E. Garcia-Fruitós5, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2Departament de Genetica i de Microbiologia, UAB, Cerdanyola del Valles, Spain, 3CIBER de Bioingenieria, Biomateriales y Nanomedicina (CIBER-BBN), Cerdanyola del Valles, Spain, 4Institut de Biotecnologia i de Biomedicina, UAB, Cerdanyola del Valles, Spain, 5Cibbim-Nanomedicine, Hospital Vall d’Hebron, Institut de Recerca de la Vall d’Hebron (VHIR), Barcelona, Spain, 6ICREA, Barcelona, Spain

The negative effects of electromagnetic field exposure in male New Zealand White rabbits.
O. Yildiz Gulay1, M. S. Gulay1, A. Balcı2 and A. Aya1, 1Mehmet Akif Ersoy University, Burdur, Turkey, 2Sakarya Research Hospital, Sakarya, Turkey

Embracing innovation in the animal drug approval process.
D. M. Sholly1 and C. Taylor-Edwards, U.S. Food and Drug Administration/CVM, Rockville, MD

Regulation of animal drugs and foods in the 21st century: Enhancing communication among industry, academics, regulators, and the public.
C. Taylor-Edwards1 and D. M. Sholly, U.S. Food and Drug Administration/CVM, Rockville, MD

Exploring a new presentation form of recombinant proteins for animal production.
O. Cano-Garrido2, S. Parés3, A. Sánchez-Chardi3, L. Gifre1, N. Ferrer-Miralles2, A. Natalelo4, R. Cubarsi1, A. Bach4, A. Villaverde3, A. Aris5 and E. Garcia-Fruitós5, 1Institut de Biotecnologia i de Biomedicina, UAB, Cerdanyola del Valles, Spain, 2Departament de Genetica i de Microbiologia, UAB, Cerdanyola del Valles, Spain, 3CIBER de Bioingenieria, Biomateriales y Nanomedicina (CIBER-BBN), Cerdanyola del Valles, Spain, 4Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 5Servei de Microscopia, UAB, Cerdanyola del Valles, Spain, 6Department of Biotechnology and Biosciences, Università di Milano-Bicocca, Milano, Italy, 7Department de Matemàtica Aplicada IV. Universitat Politècnica de Catalunya, Barcelona, Spain, 8ICREA, Barcelona, Spain, 9IRTA, Caldes de Montbui, Spain

Reduced severity of histological lesions in mink selected for tolerance to Aleutian mink disease virus infection- A field survey.
A. H. Farid1 and L. E. Ferns2, 1Department of Animal Science, Dalhousie University Faculty of Agriculture, Truro, NS, Canada, 2Pathology Laboratory, Veterinary Services, Nova Scotia Department of Agriculture, Truro, NS, Canada

Type of blood tube affects haptoglobin concentration when analyzed with a colorimetric assay.
M. A. Campbell1, J. W. Darrah2 and H. M. Dunn1, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2University of Vermont, Burlington

Health and production benefits of feeding cowpeas to goats.

Exposure of bovine blood to pathogen associated and non pathogen associated molecular patterns results in transcriptional activation.
K. Ekwemalor1, S. Adjei-Fremah, E. Asiamah, H. Ismail and M. Worku, North Carolina Agricultural and Technical State University, Greensboro

Prevalence of Brucella suis in hunting dogs in Hawai‘i.
B. S. McNeill, J. Odani, R. Jha1 and H. M. Zaleski, University of Hawaii at Manoa, Honolulu
Pulmonary arterial pressure in yearling Angus cattle managed at high altitude: Study of a non-synonymous SNP in the oxygen-dependent degradation domain of the endothelial PAS domain-containing protein 1 gene.
N. F. Crawford, X. Zeng, S. J. Coleman, T. N. Holz, S. E. Speidel, R. M. Ems, J. H. Newman, R. Hamid and M. G. Thomas, 1Department of Animal Sciences, Colorado State University, Fort Collins, 2College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, 1Department of Medicine, Division of Allergy, Pulmonary and Critical Care, Vanderbilt University School of Medicine, Nashville, TN, 4Department of Pediatrics, Division of Medical Genetics and Genomic Medicine, Vanderbilt University School of Medicine, Nashville, TN

Subclinical right heart failure may contribute to the development of liver disease in feedlot cattle during the finishing phase.
A. K. Gulick, K. M. Freeman, B. C. Bernhard, J. O. Sarturi and J. M. Neary, Texas Tech University, Lubbock

Evidence of cor pulmonale and liver disease in association with pneumonia in feedlot and dairy cattle at an altitude of 975m.
A. K. Gulick and J. M. Neary, Texas Tech University, Lubbock

Nonruminant Nutrition: Nutrient Digestibility and Gene Effects

Investigations of marker and fiber effects on energy and nutrient utilization in growing pigs.
T. Wang, D. Ragland and O. Adeola, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2Department of Veterinary Clinical Sciences, Purdue University, West Lafayette, IN

Evaluation of ileal energy digestibility of diets based on different grain species fed to growing pigs.

The relationship between the expression of genes regulating appetite control and feeding behaviour in pigs divergent in feed efficiency.
S. Vigors, J. V. O’Doherty, A. K. Kelly and T. Sweeney, 1School of Veterinary Medicine, University College Dublin, Belfield, Ireland, 2School of Agriculture and Food Science, University College Dublin, Ireland

Ileal amino acid digestibility in broiler chicken fed rice bran with or without carbohydrase and phytase.
C. Gallardo, J. C. Dadalt, J. C. da Silva Maciel de Souza and M. A. D. T. Neto, University of São Paulo, Pirassununga, Brazil

Effect of dietary net energy and digestible lysine levels on performance of weaned and starter pigs fed low protein-amino acids fortified diets.
J. K. Htoo and J. Morales, 1Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany, 2PigCHAMP Pro Europa, Segovia, Spain

Relationship between the microbiota in different sections of the gastrointestinal tract, and the body weight of broiler chickens.
J. Lee and C. Kong, Konkuk University, Seoul, The Republic of Korea

Nutrient profile and in vitro digestibility of cassava silages in swine.
U. P. Tiwari and R. Jha, University of Hawaii at Manoa, Honolulu

Amino acid digestibility in feed ingredients fed to pigs.
S. A. Lee, J. Y. Ahn, A. R. Son and B. G. Kim, 1Konkuk University, Seoul, The Republic of Korea, 2Jeongeup, The Republic of Korea

Evaluation and development of the prediction equation for the gross energy in feed ingredients.
A. R. Son and B. G. Kim, Konkuk University, Seoul, The Republic of Korea

Ruminant nutrition: Plant-derived feed additives II

Effects of condensed tannins on the ensiling and aerobic stability of purple prairie clover (Dalea purpurea Vent.) silage.
K. Peng, Q. Huang, T. A. McAllister, S. Wang, Z. Xu, S. Acharya and Y. Wang, 1College of Engineering, China Agricultural University, Beijing, China, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3College of Animal Science and Technology, Northwest A&F University, Yangling, China
Effect of purple prairie clover (Dalea purpurea Vent.) and its condensed tannins on nutrient intake, digestibility and growth performance of lambs.
K. Peng1,2, D. C. Shirley3, Z. Xu4, Q. Huang5,6, T. A. McAllister7, A. V. Chaves8, S. Acharya9, S. Wang1 and Y. Wang1,
1College of Engineering, China Agricultural University, Beijing, China, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3The University of Sydney, Faculty of Veterinary Science, School of Life and Environmental Sciences, Sydney, Australia, 4College of Animal Science and Technology, Northwest A&F University, Yangling, China

Effect of dietary polyphenol, protected amino acid and crude protein levels on in vitro rumen fermentation and crude protein digestibility.
B. Choi1, J. Yang1, C. Ryu1, S. J. Shin1, Y. Kim1, J. Heo2, S. Cho1 and N. J. Choi1, 1Chonbuk National University, Jeonju-si, The Republic of Korea, 2Microbial Institute for Fermentation Industry, Sunchang-gun, The Republic of Korea, 3CALS Co., Ltd, Seongnam-si, The Republic of Korea

The effect of addition of mulberry leaves silage in the diet of beef cattle on their growth and slaughter performance.
H. Wu1, Q. Meng, L. Ren and Z. Zhou, China Agricultural University, Beijing, China

Supplementation of Korean honeysuckle (Lonicera vesicaria) extract in timothy hay on in vitro ruminal fermentation.
I. D. Lee1, S. K. Lee1, S. Y. Yang1, S. S. Lee1 and J. S. Eun1, 1Division of Applied Life Science, Gyeongsang National University, Jinju, The Republic of Korea, 2Institute of Agriculture and Life Science, Gyeongsang National University, Jinju, The Republic of Korea, 3Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan

Effects of an extract of plant flavonoids from Citrus aurantium on performance, eating and animal behavior, ruminal health, and carcass yield in Holstein bulls fed high-concentrate diets.
M. Paniagua1, F. J. Crespo1, A. Bach1,2 and M. Devant1, 1IRTA - Department of Ruminant Production, Caldes De Montbui, Spain, 2Interquim SA, Barcelona, Spain, 1ICREA, Barcelona, Spain, 2IRTA, Caldes de Montbui, Spain, 3Quimidroga, Barcelona, Spain

A blend of cinnamonaldehyde, eugenol and capsicum oleoresin improves milking performance in lactating dairy cows.
C. Oguey1 and E. H. Wall, Pancosma, Geneva, Switzerland

Evaluation of a proprietary blend of essential oil and cobalt on a commercial dairy.
O. J. Kuester*, South Dakota State University, Brookings

Effects of feeding functional oils or monensin on feedlot performance and carcass traits of Nellore cattle.
A. C. Melo1,2, A. L. Rigueiro1, D. H. M. Watanabe1, M. M. Squizatti1, L. A. Tomaz1, J. V. Dellaqua1, O. A. Souza1, P. F. Santi1, A. L. J. Lis1, A. F. Toledo1 and D. D. Millen1, 1São Paulo State University, Dracena, Brazil, 2São Paulo State Foundation, São Paulo, Brazil, 3São Paulo State University, Botucatu, Brazil

Influence of tannins extract and monensin supplementation on performance of feedlot heifers in Argentina.
C. Cabral1, A. Lopez Da Siliva2, J. J. Couderc3, D. Colombatto4 and R. Barajas5, 1Indiano, S.A., Buenos Aires, Argentina, 2Feedlot Don Corral de Corijunio S.A., Buenos Aires, Argentina, 3Novet S.A, Buenos Aires, Argentina, 4Universidad de Buenos Aires, Argentina, 5FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico

Milk production responses to palmitic acid supplementation when fed as fatty acids or triglycerides.
J. de Souza1,2 and A. L. Lock, Michigan State University, East Lansing

Comparison of a palmitic acid-enriched triglyceride supplement and a calcium salts of palm fatty acids supplement on milk production responses of dairy cows.
J. de Souza1,2 and A. L. Lock, Michigan State University, East Lansing

Changes in milk odd and branched-chain fatty acids during induction and recovery from biohydrogenation-induced milk fat depression.
E. Palmer1, M. Baldin1, D. E. Rico2 and K. J. Harvatine1, 1The Pennsylvania State University, University Park, 2Université Laval, Quebec, QC, Canada

Dynamics of enrichment of omega-3 fatty acids in plasma lipid fractions following a bolus dose in dairy cows.
N. L. Urrutia1, M. Baldin2, J. J. Ying1, S. R. McKinney1 and K. J. Harvatine1, 1The Pennsylvania State University, University Park, 2The Pennsylvania State University, State College

Intravenous nicotinic acid suppresses adipose tissue lipolysis in Holstein dairy cows.
A. N. Davis1, J. L. Clegg and J. W. McFadden, West Virginia University, Morgantown, WV
Ruminal metabolism of fatty acids from fish oil or algae in steers fed a finishing diet.  
A. Pesqueira*, University of Kentucky, Lexington

Increases in milk fat yield are maintained with prolonged palmitic acid supplementation in mid-lactation dairy cows.  

Feedlot performance of Nellore bullocks fed with two different types of ruminally protected fat.  

Studies on different energy density of close-up diets on energy metabolism and lactation performance in montbeliarde-sired crossbred holstein cows.  
S. Dong, Z. Cao, S. Li and Y. J. 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

Prepartum body condition score and plane of nutrition affect the hepatic transcriptome during the transition period in grazing dairy cows.  

**Poster Session XIV**

8:15 AM - 9:15 AM  
Exhibit Hall A/B

**Companion Animal Biology**

Ehrlichia canis in canines from Culiacan, Sinaloa, Mexico.  

Effect of dietary composition over food preferences of dogs.  
J. Figueroa, S. A. Gezmán-Pino, S. Morales* and C. Muñoz, Universidad de Chile, Santiago, Chile

Hind limb kinematics of the Weimaraner at the trot.  
L. Carlisle*, M. C. Nicodemus* and K. Slater*, Mississippi State University, Mississippi State, Banfield Pet Hospital, Magnolia

The effect of source and drying process on amino acid composition and protein quality of dried poultry used in high quality pet diets and select human foods.  

The amino acid composition and protein quality of various poultry and vegetable proteins commonly used in the production of dog and cat diets.  

The effect of Miscanthus grass as a fiber source in cat diets on nutrient utilization and stool consistency.  
R. A. Donadelli*, C. G. Aldrich and I. C. Alvarenga, Kansas State University, Manhattan

The effect of feed form on diet digestibility and cecal fermentation in rabbits.  
I. C. Alvarenga*, C. G. Aldrich* and M. Kohles*, Kansas State University, Manhattan, Oxbow Animal Health, Murdock, NE
Lactation Biology

840 Duration of lactation in first-parity sows: Does it affect piglet growth in second parity?
C. Farmer, M. Amezcua, R. M. Bruckmaier, O. Wellnitz, and R. Friendship, Agriculture and Agri-Food Canada, Sherbrooke R & D Centre, Sherbrooke, QC, Canada, Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland

841 Effects of glucose and amino acids on casein synthesis via JAK2/STAT5 signaling pathway in bovine mammary epithelial cells.
M. Zhang, S. Zhao, H. Gao, C. Luo, S. Wang, N. Zheng, and J. Wang, Ministry of Agriculture-Milk Risk Assessment Laboratory, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China, College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China, Ministry of Agriculture Laboratory of Quality & Safety Risk Assessment for Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China

842 Repeated mammary tissue collections during lactation have no impact on cow performance.

843 Lack of glucose and amino acids suppresses protein synthesis of bovine mammary epithelial cells by activating AMPK and inhibiting mTORC1 signaling pathways.
S. Wang, S. Zhao, H. Gao, M. Zhang, N. Zheng, Y. Zhang, Y. Fan, and J. Wang, Ministry of Agriculture-Milk Risk Assessment Laboratory, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China, College of Animal Science, Inner Mongolia Agricultural University, Hohhot, China, College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China

844 Genome wide association analysis and pathways enrichment for lactation persistency in Canadian Holstein cattle.
D. N. Do, N. Bissonnette, P. Lacasse, M. Sargolzaei, F. Miglior, X. Zhao, and É. M. Ibeagha-Awemu, Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, Department of Animal Science, McGill University, Montreal, QC, Canada, Semex Alliance, Guelph, ON, Canada, Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, ON, Canada, Canadian Dairy Network, Guelph, ON, Canada

845 Effect of 17β-estradiol on milk production, hormone secretion and mammary gland gene expression of dairy cows.
J. J. Tong, I. M. Thompson, and P. Lacasse, Department of Clinical Veterinary Medicine, College of Veterinary Medicine, Northeast Agricultural University, Harbin, China, Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada

846 Estimation of quarter vs. composite colostrum composition via Brix refractometry, specific gravity, and visual color appearance in dairy cows.
J. J. Gross, E. C. Kessler, and R. M. Bruckmaier, Veterinary Physiology, Vetsuisse Faculty University of Bern, Switzerland

847 Effects of increasing residual milk on milk yield and composition.
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M. Garcia, M. Power, and K. M. Moyes, Department of Animal and Avian Sciences, University of Maryland, College Park, Smithsonian Conservation Biology Institute, Washington DC, DC

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R. L. Baldwin1, C. Li1, D. M. Bickhart1, C. M. Evock-Clover1, P. Grossi1, R. K. Choudhary2, T. H. Elsasser4, G. Bertoni3, E. Trevisi3, G. E. Aiken1, K. R. McLeod2 and A. Capuco1, 1Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, 2Università Cattolica del Sacro Cuore, Piacenza, Italy, 3School of Animal Biotechnology, GADVASU, Ludhiana, India, 4USDA-ARS Animal Biosciences and Biotechnology Laboratory, Beltsville, MD, 5Istituto di Zootecnica, Università Cattolica del Sacro Cuore, Piacenza, Italy, 6Università Cattolica del Sacro Cuore, Piacenza, Italy, 7USDA-ARS, Lexington, KY, 8University of Kentucky, Lexington

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S. R. Weaver1, L. L. Hernandez2, S. Tao2 and J. Laporta1, 1Department of Dairy Science, University of Wisconsin-Madison, 2University of Georgia, Tifton 1Department of Animal Sciences, University of Florida, Gainesville

Effect of cortisol on mammary epithelial cell, Bax and Bel-2 gene expression at lactation peak of goats.
G. F. Bomfim1, State University, Julio de Mesquita Filho, Jaboticabal, Sao Paulo, Brazil

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A. Suárez-Trujillo1, J. S. Crodian1, A. M. Shamy1, S. J. Mahjeeesh1, K. Plaut1 and T. M. Casey1, 1Department of Animal Science, Universidad de Las Palmas de Gran Canaria, Arucas, Las Palmas, Spain, 2Purdue University, West Lafayette, IN, 3Agriculture Research Organization, Volcani Center, Bet Dagan, Israel, 4Department of Animal Sciences, The Robert H. Smith Faculty of Agriculture, Food and Environment The Hebrew University, Rehovot, Israel, 5Department of Animal Sciences; Purdue University, West Lafayette, IN

Effects of stress on IGF-1 plasma concentrations, and on expression of GH and IGF-1 receptors in mammary glands.
G. F. Bomfim*, Faculty of Animal Science and Food Engineering, FZEA/USP, Pirassununga / Sao Paulo, Brazil

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H. L. M. Tucker*, C. L. M. Parsons and K. M. Daniels, Virginia Polytechnic Institute and State University, Blacksburg

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S. A. Metzger*, L. L. Hernandez and P. L. Ruegg, Department of Dairy Science, University of Wisconsin-Madison

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Y. Chen*, K. C. Ramsey, C. Y. Tsai, M. A. McGuire and P. Rezamand, University of Idaho, Moscow

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S. Lanctot*, X. Zhao1, P. Fustier2, A. Taherian2, B. Bisakowski2 and P. Lacasse3, 1Department of Animal Science, McGill University, Montreal, QC, Canada, 2Food Research and Development Centre, St-Hyacinthe, QC, Canada, 3Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada

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Effects of early or conventional weaning on beef cow and calf performance in pasture and drylot environments.
G. W. Preedy1, J. R. Jaeger2, J. W. Waggoner1 and K. C. Olson1, 1Kansas State University, Manhattan, 2Western Kansas Agricultural Research Center, Kansas State University, Hays, 3Western Kansas Agricultural Research Center, Kansas State University, Garden City

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G. M. Schuenemann1*, J. M. Piñeiro1 and P. Turiello2, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Facultad de Agronomía y Veterinaria, UNRC, Río Cuarto, Córdoba, Argentina

Association between management practices and dairy herd performance.
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Impacts of early lactation hyperketonemia on reproduction and 305-d milk production.
D. E. Santschi1, R. Lacroix1, R. K. Moore2, F. Miglior1 and D. M. Lefebvre1, 1Valacta, Saint-Anne-de-Bellevue, QC, Canada, 2Canadian Dairy Network, Guelph, ON, Canada

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R. Wijma*, M. L. Stangaferro and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

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E. M. Wynands*1, M. von Massow2, S. J. LeBlanc1 and D. F. Kelton1, 1Department of Population Medicine, Ontario Veterinary College, University of Guelph, ON, Canada, 2School of Hospitality, Food & Tourism Management, University of Guelph, ON, Canada

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P. Chilibroste1, J. P. Marchelli2 and D. A. Mattiudai1, 1Facultad de Agronomía, Universidad de la Republica, Paysandu, Uruguay, 2Facultad de Agronomía, Universidad de la Republica, Montevideo, Uruguay

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W. C. Chandler*, M. L. Stangaferro and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY

1274 37 Pre-weaning injections of bovine somatotropin enhanced puberty attainment of Bos indicus-influenced beef heifers.
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N. C. Burdick Sanchez*, J. A. Carroll1, P. R. Broadway1, B. E. Bass2 and J. W. Frank3, 1USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 2Diamond V, Cedar Rapids, IA

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Z. Lei*, Nanjing Agricultural University, Nanjing, China

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P. L. J. Monteiro Jr1, B. Gonzales2, J. N. Drum1, A. B. Prata1, S. Soriano1, J. E. P. Santos1, M. C. Wilbank2 and R. Sartori1,1University of São Paulo - ESALQ/USP, Piracicaba, Brazil, 2Large Animal Veterinary Practitioner - Campeste Dairy, Sao Pedro, Brazil, 3Fazenda Colorado, Araras, Brazil, 4University of Florida, Gainesville, 5University of Wisconsin-Madison

Increasing fatty acid oxidation improves insulin sensitivity in primary differentiated bovine adipocytes.
J. E. Rico*, F. Seck, M. V. Pinti and J. W. McFadden, West Virginia University, Morgantown

Ruminant Nutrition: Feed Additives II

Effects of Peptide supplementation on ruminal microbiota and feed digestibility in dairy cows.
A. Arís1, J. Polo2, C. Rodríguez3 and A. Bach,1 Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2APC Europe, S.A. Research and Development Department, Barcelona, Spain, 3ICREA, Barcelona, Spain

Effects of different doses of sodium monensin on nutrient digestibility on feedlot Nellore cattle.
L. A. Tomaz*, M. C. Pereira1, A. L. Rigueiro1, D. H. M. Watanabe1, A. A. Santos1, A. C. J. Pinto1, M. D. Arrigon1 and D. D. Millen1, 1São Paulo State University, Dracena, Brazil, 2São Paulo State University, Botucatu, Brazil

Effects of carbohydrases on the digestibility of fibrous feed ingredients using a rumen simulation model.
V. R. Vasconcelos1, K. G. Arriola1, A. F. Campos2, F. Amaro1, M. C. Walsh1 and A. T. Adesogan2, 1Universidade Federal do Piauí, Brazil, 2Department of Animal Sciences, UF/IFAS, Gainesville, FL, 3IFC (Instituto Federal Catarinense), Videira, Brazil, 4Federal University of Vicsa, Brazil, 5Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom

Microbial and chemical additives inhibit the growth of Escherichia coli O157:H7 in corn silage.

Effect of glucoamylase, particle size, and duration of silage storage on dry matter loss and digestibility of ground corn rehydrated and ensiled.
N. M. Lopes1, P. C. Cardoso2 and M. N. Pereira1, 1Universidade Federal de Lavras, Brazil, 2University of Illinois at Urbana-Champaign, 3Better Nature Research Center, Ijaci, Brazil

Effect on a crude fermentation extract derived from Trichoderma on the performance of early lactation primiparous cows.
N. D. Walker1 and G. Povey3, 1AB Vista Feed Ingredients, Marlborough, United Kingdom, 2ADAS, Stratford upon Avon, United Kingdom

Whey protein-based composite gels fed to Jersey cows to protect beta-carotene from rumen degradation.
K. P. Ortega*, M. Rosenberg, J. G. Fadel and E. J. DePeters, University of California-Davis

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T. Fernandes1, K. T. Silva1,2, D. R. Gomide2, R. A. N. Pereira2,3, C. L. S. Avila1 and M. N. Pereira1,3, 1Universidade Federal de Lavras, Brazil, 2Empresa de Pesquisa Agropecuaria de Minas Gerais, Lavras, Brazil, 3Better Nature Research Center, Ijaci, Brazil

Effect of Optifeed on feed intake and live weight of Holstein calves.
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F. Bargo1,2, I. Guasch1, G. Tedo1, A. Bach2 and I. R. Ipharragüerre1,5, 1Lucta S.A., Barcelona, Spain, 2FAUBA, Buenos Aires, Argentina, 3Blanca, Lleida, Spain, 5ICREA, Barcelona, Spain, 5IRTA, Caldes de Montbui, Spain, 6University of Kiel, Germany

Effect of rumen-protected capsicum on milk production in early lactating cows in a pasture-based system.
K. Stelwagen*, E. H. Wall2 and D. M. Bravo2, 1SciLactis, Hamilton, New Zealand, 2Pancosma, Geneva, Switzerland

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\textsuperscript{1}Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, \textsuperscript{2}Northwest Agriculture and Forestry University, Yangling, China, \textsuperscript{3}Key Laboratory for Agro-Ecological Processes in Subtropical Region, Hunan Research Center, The Chinese Academy of Sciences, Changsha, China, \textsuperscript{4}AB Vista Feed Ingredients, Marlborough, United Kingdom

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M. L. C. B. Azevedo\textsuperscript{1}, T. Tewoldebrhan\textsuperscript{2}, R. Appuhamy\textsuperscript{2}, G. C. Reyes\textsuperscript{2}, K. J. Bolek\textsuperscript{2}, S. Seo\textsuperscript{3}, J. J. Lee\textsuperscript{3} and E. Kebreab\textsuperscript{2},
\textsuperscript{1}Wageningen University, Netherlands, \textsuperscript{2}University of California-Davis, \textsuperscript{3}Chungnam National University, Daejeon, The Republic of Korea

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