Linking animal science and animal agriculture: Meeting the global demands of 2050

July 20–24, Kansas City, Missouri

CONFERENCE INFORMATION & SCIENTIFIC PROGRAM

www.asas.org/JAM2014
Go to www.asas.org/JAM2014 for download information.
Welcome to 2014 Joint Annual Meeting (JAM)!

The American Society of Animal Science (ASAS) is excited to be meeting jointly with the American Dairy Science Association (ADSA) and the Canadian Society of Animal Science (CSAS). Over 2,200 abstracts were submitted and after strenuous review, approximately 2000 will be presented. More than 45 symposia, workshops, and educational lunches are planned.

The symposia and workshops program can be found in the scientific program starting on page 45 of this program. These and many other symposia, along with a broad, discipline-based scientific program, promise to make this year’s meeting truly outstanding. Graduate student oral and poster competitions as well as undergraduate student 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.

Additionally, to add more continuity to JAM, we added a theme in 2014: Linking Animal Science and Animal Agriculture: Meeting the Global Demands of 2050. To help call attention to the theme, we have identified several talks per day as "linkages" talks. A listing of these talks can be found on page 44 of this program.

It has been an honor to serve as the JAM Program Chair for 2014; 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. To thank the program chairs and their committees, we are having a special Program Committee Reception in the Marriott on Wednesday. Please stop by the reception, and help show the program committee appreciation for a job well done!

The ASAS and ADSA staff, do a fantastic job with the logistics of the meeting and making everything run smoothly. Please spare a moment to let the staff know what you think of the meeting.

JAM 2014 promises to be a meeting with a great scientific program and plenty of time for networking. I look forward to seeing you in Kansas City!

Dean Hawkins
JAM Overall Program Chair
On behalf of the American Dairy Science Association and the American Society of Animal Science, we welcome you to Kansas City, MO and JAM 2014.

This year’s meeting begins on Sunday, July 20, and runs through Thursday, July 24. Many opportunities exist for interaction among society members, starting with the Opening Session on Sunday, July 20, when our speaker will be Dr. William C. Weldon.

Dr. Weldon is the Vice President for Global Research and Development at Elanco Animal Health and is a great advocate for the advancement of technology and food security. The Opening Session will be followed by a BBQ (page 10) for all attendees. Other special pre-meeting events include the Triennial Lactation Symposium: Nutrigenomics in Dairy Cows; the ASN-ASAS Preconference: Next Step from Innovate 2013: Feed Bunk to Bedside to Bench: Current Analytical Platforms in Nutrition; and the Beta Agonist Symposium: “What the Data say”.

Approximately 2,000 abstracts and over 45 symposia are scheduled that cross many species, disciplines, and societal topics of importance to food and companion animal production. Our schedule highlights include symposia on research ethics, the role of water in the future of animal and food production and processing, a symposium on meeting the present and future demand for employees with a Ph.D. in dairy science, four dairy foods symposia, a symposium on the future of the beef cattle industry in the United States, two symposia on companion animals, and a symposium on the microbiome and its’ role in ruminant nutrition.

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 Dean Hawkins (chair), Barry Bradford, Kees de Lange, Connie Larson, and Geoff Dahl for their efforts in bringing forth this outstanding scientific program. We also thank the many others who contributed to this huge undertaking, including staffs of ADSA and ASAS.

Finally, thank you, the attendees, for participating in JAM 2014 and making it a grand success!

Scott Rankin
ADSA President

Greg Lardy
ASAS President

Scott Rankin
ADSA President

Greg Lardy
ASAS President
I would like to extend a very warm welcome to everybody attending the 2014 Joint Annual Meeting (JAM 2014) of the American Dairy Science Association (ADSA), the American Society of Animal Science (ASAS) and the Canadian Society of Animal Science (CSAS) in Kansas City, MO.

Between the various symposia, oral presentations, posters and workshops, JAM 2014 promises to have something for everyone.

I would also like to thank all members of the planning committee of JAM 2014 for doing a fantastic job in putting together a comprehensive scientific program that guarantees something for everyone in addition to scheduling social and informal activities that provide unfettered networking opportunities among participants.

CSAS on its part will host a number of special events including: a symposium on “Feeding Behavior”, a topic which will be addressed from various perspectives by world class experts; graduate student competitions for best oral and poster presentations; an awards banquet to recognize and honor outstanding members of CSAS, and a special student “social” night, to provide an opportunity for students to have fun as well as to network.

Finally, I would like to say a special “thank you” to all our sponsors for their continual support of our awards and various activities.

On behalf of the CSAS and our host ASAS, I welcome you to JAM 2014.

John Baah
President, CSAS
Join ASAS and ARPAS as we launch the Career Learning Center on Tuesday, July 22 at 5pm in the Convention Center, room 2503.
## Important Message

In the event that protestors interrupt the meeting, please ignore them. Their goal is to attract attention, and 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 spokespeople will be available.

Thank you for your cooperation.
Schedule of Events
The 2014 ADSA-ASAS-CSAS JAM will be held July 20 – 24 (Sunday through Thursday). The Opening Session will be Sunday evening, July 20; scientific sessions will begin Monday morning, July 21, and run through noon on Thursday, July 24. Please note the Triennial Lactation, ASN-ASAS, and Beta Agonists preconferences will be on Sunday, July 20.

Location
The meeting will be held at the Kansas City Convention Center and area hotels. The convention center is ideally located in downtown Kansas City within walking distance of hotels, shopping, and dining.

Opening Night Activities
You can’t say “Kansas City” without thinking of BBQ! We’re bringing out the local flavor during the opening night activity. The events kicks off at 4:30 pm with a “Meet and Greet” in the Convention Center. Drinks (cash bar) and light snacks will be served. The Opening Session will begin at 5:30 pm featuring Dr. William Weldon as the Keynote Speaker. Dr. Weldon is a long-time member of the ASAS and will give a talk titled “Linking Animal Science and Animal Agriculture: Meeting the Global Demands of 2050.”

Following the Opening Session, join us at the National Agricultural Center & Hall of Fame for a night of fun! The event will feature BBQ and ice cream taste-testing, along with activities including hayrides and a mechanical bull. Buses from the Convention Center will run from 6:15 to 6:45 pm and begin returning to the Convention Center around 9:30 pm. Don’t miss the flavor of Kansas City!

Important Phone Numbers
Marriott Downtown (ADSA/ASAS HQ) (816) 421-6800
Crowne Plaza Downtown (CSAS HQ) (816) 474-6664
Aladdin Holiday Inn Downtown (Student HQ) (816) 421-8888
Hilton President Kansas City (816) 221-9490

Program Format for 2014
Poster sessions: 7:30 am – 9:15 am
Scientific sessions: 9:30 am – 12:30 pm
Lunch breaks: 12:30 pm – 2:00 pm
Scientific sessions: 2:00 pm – 5:00 pm

Meeting rooms will be equipped for electronic presentations and preloaded sessions. A cyber café will be available for attendees to keep up-to-date while at the meeting.

Registration Hours
Registration will be located in Hall AB in the Kansas City Convention Center.

Registration hours for the 2014 Joint Annual Meeting, including special symposia and other events, will be as follows:
Saturday, July 19 (preregistered only)........ 1:00 pm – 5:00 pm
Sunday, July 20............................................. 7:00 am – 6:00 pm
Monday, July 21 ............................................. 6:30 am – 5:15 pm
Tuesday, July 22 ............................................ 6:30 am – 5:15 pm
Wednesday, July 23 ................................. 6:30 am – 5:15 pm
Thursday, July 24................................. 8:00 am – 12:00 pm

*Preregistered attendees can also pick up packets at the Registration desk during the Sunday evening “Meet & Greet” from 4:00 – 6:00 pm.

Media Check-In & Media Room
Please check in at the Registration Desk in Hall A-B in the Kansas City Convention Center. The Media Room is located on room 2204 in the Convention Center.

Speaker Ready Room
The Speaker Ready Room is located in Exhibit Hall AB of the Kansas City 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 Exhibit Hall AB and the exhibit hall of the Kansas City Convention Center. Those lounges will offer attendees an area to relax and network. They also serve as a great meeting locations when departing the convention center as a group.

Business Center
The Harvest Productions Business Center is located on the 2200 level of the Kansas City Convention Center. The phone number is 816-513-5651. Use of the business center is at your own expense. The business center will be open during daytime meeting hours.

Presentation Information

Oral and Invited Speakers
Oral sessions will begin at 9:30 am on Monday and Tuesday, 10:30 am on Wednesday, and 8:30 am on Thursday. Meeting rooms will be equipped for electronic presentations and preloaded sessions.
Onsite Upload Information
Onsite presentation upload will be available; files can be delivered to the Pre-Load Room (2206) at the convention center (Saturday: 3:00 to 5:00 pm; Sunday to Wednesday: 7:00 am. to 5:00 pm; Thursday: 7:00 am. to noon). Presentations must be uploaded by 5:00 pm the day before your scheduled presentation. Files will not be accepted by e-mail. No presentations will be loaded while the session is in progress or between presentations.

Poster Presentations
Two hours each morning will be dedicated to poster presentations. The “open poster” sessions will be from 7:30 am to 9:15 am Monday, Tuesday and Wednesday in the Convention Center, Hall AB.

Each poster presentation will be available for public viewing for the entire day, with the authors present during the open posters time (7:30 am – 9:15 am). All posters must be mounted on the board 30 minutes before the beginning of the day’s session and must list the abstract number and corresponding day. The exhibit hall will open at 6:30 am, Monday through Wednesday. Posters must be removed after 5:00 pm each day. Any posters remaining after 5:30 pm will be removed by the Convention Center staff and discarded.

Each poster board area is 48 inches high and 96 inches wide. Use of this space is dictated by the presenter, with the following exceptions:
- The top of the poster space must include the abstract number with corresponding letter of the day it is being presented, title, authors and affiliations.
- The lettering for this section should be at least 1 inch high.

Please note maps of the poster board area can be found on page 251-256 of the program. The maps are perforated to make it easy to carry and use.

Locating the Correct Poster Board
Each poster board number corresponds to the abstract number as noted in the program. For Monday posters an “M”, Tuesday posters a “T”, and Wednesday posters a “W” precede the board number.

ARPAS Continuing Education Units
The 2014 Joint Annual Meeting has been approved for up to 21 continuing education units (CEUs) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. Check the schedule of events for times and location of the ARPAS exams.

Continuing Education Credits for Veterinarians (RACE credits)
Many of the symposia at the 2014 Joint Annual Meeting will be approved for RACE credits. We are in the process of having specific symposia approved. Following approval, symposia approved for RACE credits will be posted online at http://www.asas.org/JAM2014. Information regarding RACE can be found at www.aavsb.org.

Job Resource Center
The ADSA-ASAS-CSAS 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 2014 App and Personal Scheduler
There are two ways to keep informed and organized at JAM 2014. 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 2014 App is the Personal Scheduler. Find the Personal Scheduler at www.asas.org/JAM2014.

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.
GENERAL MEETING INFORMATION

Transportation in Kansas City
Located 25 minutes northwest of downtown, the one-way taxi fare to the Kansas City Convention Center area is approximately $50.00. An airport shuttle service (SuperShuttle) is also available; the rate is $36.00 roundtrip. Visit http://groups.supershuttle.com/asas.html or call 1-800-258-3826 to book your reservation. Provide discount code 57GAF to receive this rate.

Kansas City Sightseeing Options
From the Kansas City Convention and Visitors Bureau (CVB):
Kansas City knows how to entertain visitors. Whether learning how greeting cards are made at the international headquarters of Hallmark Cards or watching how a “hog” is assembled at the Harley-Davidson Final Assembly Plant, today’s traveler will find a multitude of diverse and fun attractions. Thrill seekers of all ages love the side-by-side theme parks Worlds of Fun and Oceans of Fun. Kids can’t get enough of Union Station’s theater district and SeaLife Aquarium at Crown Center.

For a wild time, head to the Kansas City Zoo, or get a speed-rush at one of many Kansas Speedway racing events. For thrills of a different kind, head to the city’s five casinos for traditional gaming, dining and amazing live entertainment. When it comes to attractions, Kansas City has plenty to keep visitors busy! Visit the CVB (http://www.visitkc.com/) to plan your fun in Kansas City!

Hotels

Marriott Downtown – Marriott Tower
(ASAS Headquarters Hotel)
200 West 12th Street
Kansas City, MO 64105

Marriott Downtown – Muehlebach Tower
(ADSA Headquarters Hotel)
200 West 12th Street
Kansas City, MO 64105

Crowne Plaza Downtown
(CSAS Headquarter Hotel)
1301 Wyandotte Street
Kansas City, MO 64105

Aladdin Holiday Inn Downtown
(Student Headquarters Hotel)
1215 Wyandotte Street
Kansas City, MO 64105

Hilton President Kansas City
1329 Baltimore Avenue
Kansas City, MO 64105

More hotels will be added as necessary. Check the website for details.
ADSA Student Tour
Saturday, July 19 • 12:30 pm – 4:30 pm
Bus departs from Aladdin Holiday Inn Downtown
Heins Family Farm, Higginsville, MO
Students will travel to Higginsville, MO, to visit the Heins family farm. Paul and Cindy Heins are sixth generation dairy farmers who farm with their three children and milk more than 600 cows. The facilities employ new environmentally sensitive practices which are friendlier for the cows and the environment. This event is open to all ADSA student registrants, both undergraduate and graduate.

Student Mixer
Sponsored by ADSA
Saturday, July 19 • 7:00 pm – 9:30 pm
College Basketball Experience
The College Basketball Experience is a 41,500 square-foot facility featuring hands-on basketball “experience” activities and the National Collegiate Basketball Hall of Fame. The night will offer something for everyone—from basketball aficionados to beginner fans. Participants should wear comfy clothes because this is a high-energy, highly interactive venue. This event is open to all students, undergraduate and graduate.

ADSA-SAD Undergraduate Midday Mixer & Pizza Party
Sunday, July 20 • 11:00 am – 12:00 pm
Convention Center, 2215A
Join your fellow dairy clubs for a fun hour of networking, and get to know your 2014-2015 SAD Officer candidates. Ticket price includes lunch. Registration is limited to ADSA undergraduate student members and advisors.

Graduate Student Manuscript Writing Workshop
Sponsored by ADSA
Sunday, July 20 • 12:00 pm – 3:00 pm
Convention Center, 2211
Manuscript writing is a key skill for graduate students. We’re excited to introduce the first ADSA GSD “Manuscript Writing Workshop: The Art and Science of Getting Published.” Topics for the workshop include: insight into the manuscript review process, how to write an effective response to revisions, explanations of copyright rules and ways to improve your writing. Many professionals will be present at this interactive workshop to field questions and help you get published. A $10 registration fee is required and includes lunch. All graduate students are welcome and attendees will be entered into a drawing for an exciting prize!

ADSA Graduate Student Division Business Meeting and Open Forum
Sunday, July 20 • 3:30 pm – 4:15 pm
Convention Center, 2211
In addition to meeting the incoming GSD officer team, be sure to attend this meeting to voice your ideas and opinions about ADSA GSD activities. Join us for a new, more interactive style of business meeting. Enjoy refreshing drinks and conversations with your fellow dairy science graduate students.
ADSA Undergraduate SAD Dairy Quiz Bowl Final Round  
Sunday, July 20 • 4:30 pm – 5:00 pm  
Convention Center, 2210  

University teams from across North America will compete in the ADSA-SAD Dairy Quiz Bowl contest. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The 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 2014 Dairy Quiz Bowl Champion.

Opening Night Activities  
Sunday, July 20 • 4:30 pm – 9:30 pm  

Meet & Greet  
4:30 pm – 5:30 pm  
Music Hall Foyer  

Prior to the opening session, visit with old friends and make new ones! Light snacks and drinks will be available. Pre-registered attendees will be able to pick up their packets at the registration desk during this time.

Opening Session  
5:30 pm – 6:15 pm  
Music Hall Foyer  

Join us as we kick off the 2014 JAM at the opening session. The opening session will include meeting updates and announcements and a keynote by Dr. William Weldon. Dr. Weldon is a long-time member of the ASAS and will give a talk entitled "Linking Animal Science and Animal Agriculture: Meeting the Global Demands of 2050."

Opening BBQ  
6:45 pm – 9:30 pm  
National Agricultural Center & Hall of Fame  

New this year, we are having a Kansas City BBQ! After the opening session, head over to the National Agricultural Center & Hall of Fame just outside of the city. The museum will allow attendees to step back in time and explore one of the country's great agrarian collections featuring plows, threshing machines, tractors and other implements used in agriculture since the early 1800s. The Hall of Fame profiles some of the men and women who have made a lasting impact on the industry, such as John Deere, George Washington Carver and Abraham Lincoln.

Come hungry and ready for fun! The event will feature BBQ and ice cream taste-testing, along with activities including hayrides and a mechanical bull. Buses from the Convention Center will run from 6:15 – 6:45 pm and begin returning to the Convention Center around 9:00 pm. Don’t miss the flavor of Kansas City!

ASAS Undergraduate Academic Quadrathlon  

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 and oral presentations will be held early in the week. Quiz bowl finals will be held immediately before the ASAS awards on Monday night. Please come out and support our undergraduates.

Sunday, July 20 • All Day  
Kansas State University  
Lab practicum and written exam  

Monday, July 21 • All Day  
Marriott Downtown  
Quiz bowl rounds

Opening Session Keynote Speaker  

Dr. William Weldon, PhD  

In his position, Dr. Weldon is responsible for Elanco’s global research, development and regulatory operations, as well as Western European Commercial Operations. These areas are responsible for the development and launch of new products and solutions that improve the health, wellbeing and performance of animals. In Western Europe, he is also responsible for sales and marketing of Elanco products. Since joining Elanco in 1995, he has served in various roles and been involved with teams focused on delivering innovation and introducing new products to market. Prior to Elanco, Dr. Weldon was assistant professor of animal science at Ohio State University and was a swine nutritionist at Newsham Hybrids USA.
2014 ASAS University Ice Cream Competition

We are excited to kick off the first ever ASAS University ice cream competition at the 2014 JAM Opening BBQ. In 2014, we are featuring ice cream from the Kansas State University, South Dakota State University, University of Connecticut, University of Missouri, and Washington State University. Come out to the BBQ, sample the ice-cream and vote for your favorite!

The university product that receives the most votes will receive the first ever traveling ASAS ice cream competition trophy, a $1,000 departmental scholarship and the honor of winning our first competition. Please note – there is no second place in this competition, the winner takes all. The winner will be announced and will receive their trophy and scholarship at the ASAS Awards Ceremony!

The five universities participating in this competition are fierce competitors, and we know they will bring their best. Come see it for yourself! And while friendly competition is expected, please take a moment and thank these universities for donating the ice cream.

ADSA-SAD Undergraduate Poster Competition

Monday, July 21  •  7:30 am – 9:15 am
Convention Center, Exhibit Hall AB

In addition to their oral presentations, ADSA undergraduate students will be presenting posters in the exhibit hall. You can visit the posters on Monday morning and attend the oral presentations on Monday afternoon. See program for complete details.

Spouse Event 1: Arabia Steamboat & Hallmark Visitor Center

Monday, July 21  •  9:45 am – 4:00 pm
Meet in the Lobby of the Marriott Downtown Hotel

A fun day of history and Kansas City sightseeing is planned for the Spouse Event! The day will kick off at the Arabia Steamboat Museum, where attendees will explore a home to a true time capsule of frontier life in the 1800s. The Arabia was headed up the Missouri River in the fall of 1856 when the boat struck a tree snag and sank just north of Kansas City. The steamboat’s cargo was 200 tons of supplies bound for general stores and pioneer settlements. As the years passed, the river changed course and left the Arabia buried beneath a Kansas cornfield. Finally, in 1988 a group of modern-day adventurers uncovered the lost Arabia and her magnificent cargo. They were amazed to find fine dishware, clothing and even bottled food all preserved in remarkable condition.

After the Arabia Steamboat Museum, there will be lunch provided and then attendees will travel to the Hallmark Visitors Center. The Hallmark Visitors Center celebrates the Hallmark story in a display of remarkable exhibits from humble beginning in 1910, to the creation of one of the world’s largest greeting card companies.

ADSA Graduate Student Division Career Insights Luncheon

Sponsored by Leprino Foods

Monday, July 21  •  12:30 pm – 2:00 pm
Convention Center, 2215B

ADSA graduate students will interact with career professionals from various industry, academic and government agencies. Students will be able to ask questions about how to get a job interview, interviewing skills and how to thrive once a job offer is made. Registration is required and includes a free box lunch. Thank you to Leprino Foods for making this luncheon possible through their generous sponsorship!
Lunch Panel Discussion: Funding Agencies Perspective in Today’s Economy

Sponsored by ASAS
Monday, July 21 • 12:30 pm – 2:00 pm
Convention Center, 2215A

ASAS is excited to welcome key individuals from USDA, NSF, USAID, and NIH to discuss the current funding atmosphere. Panelists will give brief overviews of their perspective and then take questions from the attendees. Our goal is provide a forum for frank and open conversation about availability of dollars and the best approaches to grant submission.

ASAS Undergraduate Lunch and Learn
Monday, July 21 • 12:30 pm – 2:00 pm
Marriott Downtown, Bennie Moten A

This interactive discussion will focus on preparing for a future in animal science with specific emphasis on navigating career challenges.

Late Breaking Abstract Session
Monday, July 21 • 2:00 pm – 4:00 pm
Convention Center, 2504

Join us for the oral presentations of the selected late-breaking abstracts. The late-breaking abstract are original research that highlight a broad spectrum of work, including cutting-edge, high-tech research that was completed very recently and is important to the species or disciplines involved in animal and dairy science. In addition to oral presentations, late-breaking abstracts are presented in poster form. This year the posters will be presented as e-Posters.

ASAS President’s Picks Posters
Monday, July 21 • 6:00 pm – 9:00 pm
Marriott Downtown, Imperial Ballroom Foyer

30 minutes before the ASAS awards, a select group of posters will be displayed, which represent the science the ASAS president finds innovative and exciting! Take a moment to walk through the posters and see what Dr. Lardy thinks is new and exciting at JAM this year. New this year, the President’s Picks will be displayed as large format ePosters.

ASAS Awards Ceremony
Monday, July 21 • 7:00 pm – 8:30 pm
Marriott Downtown, Imperial 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 2014 ASAS award winners. The 2014 Awards Celebration follows immediately after the awards ceremony.

ASAS Awards Celebration
Monday, July 21 • 8:30 pm
Marriott Downtown, Barney Allis

Come and join ASAS after our awards ceremony to celebrate and congratulate all of the 2014 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.

ADSA Student Mixer
Monday, July 21 • 7:00 pm – 9:00 pm
Howl at the Moon

Howl at the Moon Kansas City is one of the hottest spots in the Power and Light District. The high-energy dueling pianos will have everyone singing and dancing to their favorite tunes. Plan on a howlin’ good time at the Monday night mixer! This event is open to all ADSA student registrants, both undergrad and graduate students.

ASAS Graduate Student Mixer
Monday, July 21 • 9:00 pm – 12:00 am
PBR Big Sky

Join your fellow graduate students from ASAS at a mixer for all to enjoy. This event will provide an opportunity to catch up with old friends and make new ones. Don't miss it! Preregistration is highly recommended. Snacks and one drink ticket are included with the purchase of your ticket.

ASAS Undergraduate Poster Competition
Tuesday, July 22 • 7:30 am – 9:15 am
Convention Center, Exhibit Hall AB

In 2013 ASAS held their first undergraduate poster competition. After a successful inaugural year we are excited to continue the competition in 2014. Don't miss the posters from our undergraduate students!

ADSA-SAD Undergraduate Student Career Roundtable
Tuesday, July 22 • 9:30 am – 11:00 am
Convention Center, 2215B

Students will have the opportunity to visit with industry members to learn about career opportunities, get useful tips on planning for their careers and much more insight. Students are encouraged to dress professionally (business casual or business professional) and bring several copies of their resume. Students should also visit industry representatives in the exhibit hall for information about upcoming internship and job opportunities.

ASSA Student Mixer
Family Fun Day: Sea Life Aquarium and LEGOLAND Discovery Center
Tuesday, July 22 • 9:45 am – 4:00 pm
Meet in the Lobby of the Marriott Downtown Hotel
Kansas City provides excitement for the whole family. Attendees will arrive at the Crown Center area near SEA LIFE Kansas City Aquarium and LEGOLAND Discovery Center. SEA LIFE Kansas City Aquarium provides an amazing underwater world to explore. With nose-to-nose experiences with sharks and astonishingly close views of starfish and seahorses, there are animals for the whole family to enjoy. LEGOLAND Discovery Center will make you feel like you’ve just jumped into the world’s biggest box of LEGO bricks! Lunch is not included in the ticket price, but multiple dining options are located within the Crown Center area. Buses will pick up and drop off from the Kansas City Marriott Downtown. Please note, adults not accompanied by children are not allowed into LEGOLAND.

ADSA Undergraduate SAD Awards Luncheon
Tuesday, July 22 • 11:45 am – 2:00 pm
Convention Center, 2215A
Plan to attend this year’s SAD awards luncheon. The afternoon will be capped with the presentation of student awards and announcement of new SAD officers. Students and industry professionals are encouraged to attend. This is a wonderful chance to get to know the next generation of the dairy industry.

ASAS Foundation Heritage Lunch
Tuesday, July 22 • 12:30 pm – 2:00 pm
Marriott Downtown, Julia Lee A/B
Each year the Foundation Heritage Lunch honors notable Animal Scientists for their achievements. The Heritage Lunch will be held during the JAM. Please join us at this Foundation fundraiser to honor pioneers of animal science. The 2014 honorees are J. Lush and Daryl Goll.

ASAS JAS and Animal Frontiers Editorial Meeting and Lunch
Tuesday, July 22 • 12:30 pm – 2:00 pm
Convention Center, 2215B
Division editor, and associate division editors are invited to the Journal of Animal Science and Animal Frontiers Lunch to discuss the current status of the journals and future development opportunities.

ADSA Graduate Student Division Dairy Tales
Tuesday, July 22 • 3:00 pm – 4:30 pm
Convention Center, 2208
Make plans to attend the 3rd annual Dairy Tales! This event will feature 15 minute “TED-style” talks from graduate students involved in the dairy industry. These talks will cover controversial topics in a balanced way and appeal to non-experts in the field. Confirmed topics include: the controversy over chocolate milk in the school lunch program, the farm bill and what it means, lameness in dairy cattle, and epigenetics and the dairy cow. This event is free and open to all graduate students, but please pre-register to stay informed about the program.

ASAS Open Forum: Accreditation
Tuesday, July 22 • 4:00 pm – 5:00 pm
Convention Center, 2503
Come meet with the ASAS Accreditation Committee to discuss and contribute to this new ASAS initiative. ASAS is looking for suggestions, methods and volunteers. ASAS will begin with a brief description of the goals and scope of the project and use the remainder of time to answer questions and to take ideas from attendees.

ASAS-ARPAS: Career Learning Center Launch
Tuesday, July 22 • 5:00 pm - 6:00 pm
Convention Center, 2503
Join ASAS and ARPAS at our Career Learning Center (CLC) launch party. The CLC is a new electronic member benefit that will host more than 400 hours of programming.

ADSA Awards Program
Tuesday, July 22 • 7:00 pm – 8:15 pm
Marriott Downtown, Imperial Ballroom
All meeting participants, families, and friends are welcome to attend the 2014 ADSA awards program. Please join us at this special event at the Marriott Kansas City to recognize and congratulate the 2014 award winners.

JAM Ice Cream Social
Sponsored by Kansas State University
Tuesday, July 22 • 8:15 pm – 9:30 pm
Convention Center, Ballroom CD
All meeting participants, families, friends and award donors are invited to join us for the always popular ice cream social. Ice cream is donated by the KSU creamery—be sure to come by for this special treat!
ADSA Graduate Student Division Mixer  
**Sponsored by Lallemand Animal Nutrition, Bar Diamond, Inc. and Balchem**  
Tuesday, July 22 • 9:00 pm – 12:00 am  
PBR Big Sky  
Enjoy the evening with your fellow ADSA graduate students at PBR Big Sky, Kansas City’s most stunning country bar in the heart of the Power and Light District. Cold drinks and a little bull riding will make this a fun night out with new and old friends alike. Free drink tickets will be awarded for the first 100 to enter the door. Please preregister for this FREE event, located just three blocks from the convention center. Attend to win door prizes and relax with colleagues from around the globe.

**Spouse Event 2: National WWI Museum and Shopping**  
Wednesday, July 23 • 9:45 am – 4:00 pm  
Meet in the Lobby of the Marriott Downtown Hotel  
The National World War I Museum at Liberty Memorial shares deeply personal stories of courage, honor, patriotism and sacrifice. Through thousands of historical objects, photographs and eyewitness accounts, you will experience this monumental event from the individual’s perspective. This state-of-the-art museum takes you on an epic journey through a transformative time in our world’s history.  

Following the museum visit you will be dropped off at the Country Club Plaza for lunch and shopping. This 14-square-block outdoor shopping and entertainment district is filled with romantic Spanish architecture, European art and dazzling fountains. Designed in 1922, the Plaza features boutiques and fashionable national stores as well as distinctive restaurants, outdoor cafes and nightlife hotspots. Two nationally renowned art museums are located nearby, The Nelson-Atkins Museum of Art and the Kemper Museum of Contemporary Art. Buses will pick up and drop off at the Kansas City Marriott Downtown.

**Focus on Animal Frontiers**  
Wednesday, July 23 • 10:30 am – 12:00 pm  
Convention Center, 2101  
Join us as we launch the July issue of Animal Frontiers. We will have two speakers present and discuss the issue and a moment to congratulate Dr. Steven Zinn for is exceptional service to EiC. We will also welcome the new Animal Frontiers EiC.

**Lunch Panel Discussion: Animal Science in the Real World**  
**Sponsored by ASAS**  
Wednesday, July 23 • 12:30 pm – 2:00 pm  
Convention Center, 2215A  
Join us as members of industry and representatives of commodities groups discuss what is important in animal science in the real world today.

**ASAS Graduate Student Snack and Fact**  
Wednesday, July 23 • 3:30 pm – 5:00 pm  
Convention Center, 2102A  
Following the ASAS Graduate Student Symposium join us for the inaugural ASAS National Graduate Student Snack & Fact. This interactive discussion will focus on future career options and opportunities after graduation. Snacks and soft drinks are included in the ticket price.

**CSAS Award Banquet**  
Wednesday, July 23 • 6:00 pm – 8:30 pm  
Crown Plaza, Starlight Ballroom  
All meeting participants, families and friends are welcome to attend the CSAS awards banquet (please note this is a ticketed event). Please join us at this special event to recognize and congratulate the 2014 CSAS award winners. The banquet is being held in a round room with floor to ceiling windows on the 12th floor of the Crown Plaza providing attendees with the best view of Kansas City!

**CSAS Graduate Student Mixer**  
Wednesday, July 23 • 9:00 pm – 12:00 am  
Crowne Plaza, Salon C  
Please join us for Canadian hospitality at the CSAS Graduate Student Mixer immediately following the awards banquet. This event is open to all CSAS members and CSAS graduate students. Refreshments and a cash bar will be available.

**Workshop: Make your Talk TED-Worthy**  
Thursday, July 24 • 9:00 am – 3:00 pm  
Marriott Downtown, Bennie Moten A/B  
Join ASAS as we welcome the premiere PR firm, Charleston Orwig. This event will focus on refining and perfecting your presentation skills. Special emphasis will be making your presentations noteworthy and exceptional.
ASAS is pleased to announce that Dr. Sonny Ramaswamy, Director of the National Institute for Food and Agriculture will join us via video link at JAM 2014. Dr. Ramaswamy will speak to JAM attendees on Wednesday July 23, 2014 at 5 pm central. The video link will be broadcast live. We will have light refreshments in the room and there will be an opportunity to ask Dr. Ramaswamy questions.

Dr. Sonny Ramaswamy

Dr. Sonny Ramaswamy was appointed to serve as director of the USDA’s National Institute of Food and Agriculture (NIFA) on May 7, 2012. As part of USDA’s Research, Education, and Extension mission, he oversees NIFA awards funds for a wide range of extramural research, education, and extension projects that address the needs of farmers, ranchers, and agricultural producers.

Prior to joining NIFA, Dr. Ramaswamy served as dean of Oregon State University’s College of Agricultural Sciences and director of the Oregon Agricultural Experiment Station.

Previously, Dr. Ramaswamy was associate dean of the Purdue University College of Agriculture and directed the university’s agricultural research programs from 2006 to 2009. Prior to joining the Purdue faculty, Dr. Ramaswamy was head of Kansas State University’s Department of Entomology from 1997 to 2006, where he held the title of Distinguished Professor and was named the Presidential Outstanding Department Head in 2002. He also served on the faculty of Mississippi State University and as a research associate at Michigan State University. As an insect physiologist, he worked on the integrative reproductive biology of insects.

He received a Bachelor of Science in agriculture and a Master of Science in entomology from the University of Agricultural Sciences, Bangalore, India, and his doctorate in entomology from Rutgers University. He is also a graduate of the University of Nebraska’s New Academic Chair’s Program and Harvard University’s Management Development Program.

Triennial Lactation/BOLFA (with Lactation Biology): Nutrigenomics in Dairy Cows
Sunday, July 20 • 8:30 am – 4:30 pm
Convention Center, 2505B

The 2014 BOLFA Conference will concentrate on the effects of specific nutritional molecules and overall energy status on gene expression and protein function. View the full speaker list on page 60 of this program.

ASAS-ASN Preconference Workshop: Next Step from Innovate 2013: Feed Bunk to Bedside to Bench: Current Analytical Platforms in Nutrition
Sunday, July 20 • 8:00 am – 4:30 pm
Convention Center, 2505A

ASAS is pleased to partner with the American Society of Nutrition (ASN) to offer our third ASAS-ASN Preconference.

This year, we are using the preconference to build on the information presented at Innovate 2013. Just like Innovate 2013, we have an amazing line up outstanding speakers. In this round of talks they will take delve into the analytical aspects of their research - letting us know exactly how they are achieving their results. View the full line up of speakers on page 59.

Beta Agonist Symposium: “What the Data Say”
Sunday, July 20 • 9:00 am – 4:00 pm
Convention Center, 2502

What a difference a year makes. At the 2013 JAM we were just beginning to hear about the controversy surrounding Beta Agonist use. A year later there are still multiple opinions. This Pre-conference is designed to move away from the hype and focus on the data. View the full line up of speakers on page 59.
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www.aaalac.org
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AAALAC International (the Association for Assessment and Accreditation of Laboratory Animal Care) promotes the humane treatment of animals in science, research and education through voluntary assessment, accreditation and education programs. More than 900 institutions in 38 countries have earned AAALAC accreditation, demonstrating their commitment to responsible animal care and use.

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American Dairy Science Association (ADSA)
1800 S Oak St, Ste 100 • Champaign, IL 61820-6974
www.adsa.org
Booth(s): 404
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. Please visit www.adsa.org for more information.
American Registry of Professional Animal Scientists (ARPAS)
1800 S Oak Street, Suite 100 • Champaign, IL 61820-6974
www.arpas.org
Booth(s): 439
ARPAS is the organization that provides certification of animal scientists through examination, continuing education, and commitment to a code of ethics. Continual improvement of individual members is catalyzed through publications (including The Professional Animal Scientist journal) and by providing information on educational opportunities.

American Society of Animal Science (ASAS)
PO Box 7410 • Champaign, IL 61820
www.asas.org
Booth(s): 302
Established in 1908, ASAS is a professional organization for animal scientists designed to help members provide effective leadership through research, extension, teaching, and service 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 (animalfrontiers.org)
- Natural Sciences Education
- AnimalSmart.org
- ASAS Foundation
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Federation of Animal Science Societies
1800 S Oak Street, Suite 100 • Champaign, IL 61820-6974
www.fass.org
Booth(s): 406
The Federation of Animal Science Societies (FASS) was formed in 1998 by three founding member societies: the American Dairy Science Association® (ADSA®), the American Society of Animal Science (ASAS), and the Poultry Science Association (PSA). FASS is unique in that we support common agricultural interests and, at the same time, streamline administrative expenses while preserving the societies' traditions and values. We specialize in providing a wide array of management services to small and medium-sized, not-for-profit associations. In addition, each year, PhD scientists in animal science compete for the opportunity to represent FASS in Congress through the Congressional Science Fellowship (CSF) Program. Many of these individuals stay on the Washington scene after their fellowship year and continue to serve animal agriculture in significant ways.

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GrowSafe Systems Ltd.
273216 Range Road 23 • RR#1, Site #2, Box 29
Airdrie, AB T4B 2A3
Toll Free: 1 866-929-1879
www.growsafe.com
Booth(s): 517
GrowSafe’s advanced data acquisition and analytics platform automatically measures feed, water, weight, behavioral and situational data continuously from a plurality of sensors. We are seeking synergistic research collaborations to build new large scale data computational models to improve feed efficiency, profitability and sustainability in beef cattle, dairy and sheep industries.
H.J. Baker & Bro., Inc.
228 Saugatuck Avenue, Suite 1 • Westport, CT 06880-6444
www.hjbaker.com
Booth(s): 332
H.J. Baker, a global manufacturer and supplier of agricultural goods and services for 164 years, builds relationships that last decades. It continues to invest in innovative products like MetaboLysâ, a by-pass lysine that outperformed like-products in comparison trials and delivers the highest payload of lysine to the small intestine. For more information, please visit www.hjbaker.com.

IMMVAC, Inc.
6080 East Bass Lane • Columbia, MO 65201-9735
www.immvac.com
Booth(s): 418
Endovac-Dairy and Endovac-Beef with Immune Plus, ented protection against E. coli, Salmonella, and Pasteurella. IMMVAC, science and service excellence, is the industry’s most scientifically respected manufacturer of vaccines and serums that protect production and companion animals against common disease threats and virtually all gram-negative bacteria.
Phone: 800-944-7563
Web site: www.immvac.com

Kansas State University
www.asi.k-state.edu
Booth(s): 213

Kemin Industries
2100 Maury Street • Des Moines, IA 50317-1100
www.kemin.com
Booth(s): 204
Kemin brings value to the feed industry by working in partnership with our customers. With more than fifty years of expertise in animal nutrition, our Total Nutrition program offers nutritional solutions contributing to the safe, efficient, and healthy production of animal protein. Stop by our booth and learn why KemTRACE Chromium is essential to improving the nutrition of beef, dairy and swine.

KING TECHINA
431 El Camino Real 2305 • Santa Clara, CA 95050
Booth(s): 525

LabSource
1186 Arbor Drive • Romeoville, IL 60446
www.labsource.com
Booth(s): 211

Lallemand Animal Nutrition
6120 W. Douglas Avenue • Milwaukee, WI 53218-1548
www.lallemandanimalnutrition.com
Booth(s): 305
Lallemand Animal Nutrition offers a range of solutions for the dairy industry, including Levucell SC and Levucell SB active dry yeast, Biotol forage inoculants, Alkosel organic selenium yeast, Agrimos, and other mineral-enriched yeast supplements.

Lesaffre Feed Additives
7475 W Main Street • Milwaukee, Wisconsin 53214
Phone: 414-615-3300
www.lesaf.com
Booth(s): 420
Lesaffre Feed Additives is the animal health and nutrition division of the Lesaffre Group; the World’s largest manufacturer of yeast and yeast extracts. Lesaffre Feed Additives researches and designs active dry yeasts, mineral yeast, and yeast extracts that offer solutions to problems and challenges faced in production agriculture.

Micronutrients
1550 Research Way • Indianapolis, IN 46231
www.micro.net
Booth(s): 205
Micronutrients, based in Indianapolis, is dedicated to challenging the status quo, by advancing the science, application and environmental sustainability of trace mineral nutrition in livestock. Product development has led to the creation of a new class of trace minerals, Hydroxy Trace Minerals. Use of the first mineral, IntelliBond C (Micronutrients’ basic copper chloride), has grown consistently for the past 20 years as the leading source of Cu in the poultry and swine markets. In the past two years zinc and manganese hydroxychloride have followed basic copper chlorides’ lead in the market, supported by expansion into the ruminant market. Greater than 80 independent research studies involving Hydroxy trace minerals have proven their ability to deliver improved essential nutrient stability in feeds while significantly increasing the availability and efficacy of the trace mineral to the animal.

National Animal Nutrition Program
University of Kentucky
Lexington, KY
www.nanp-nrsp-9.org
Booth(s): 408

NIRS Forage and Feed Testing Consortium (NIRSC):
E17995 Western Road • Hillsboro, Wisconsin 54634
Phone: 608-489-3960
www.nirsconsortium.org
Booth(s): 532
The NIRSC is a nonprofit association of commercial laboratories, universities, government units, plant researchers, and instrument manufacturers. Our scope is to work in synergy to develop innovations as well as unity for the use of NIRS. We look to collaborate with the agricultural industry to advance NIRS knowledge and performance.
Novus International
20 Research Park Drive • Saint Charles, MO 63304-5633
www.novusint.com
Booth(s): 503
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, Novus works to improve animal performance, health and well-being globally.

Osborne Industries, Inc.
PO Box 388, 120 N Industrial Avenue • Osborne, KS 67473
Phone: 785-346-2192
Booth(s): 208
Osborne Industries manufactures the leading system for performance testing of pigs, sheep, and goats. The FIRE® (Feed Intake Recording Equipment) System automates the measurement of individual feed intake and other performance characteristics for genetic, feed, and pharmaceutical testing. Osborne is 100% employee owned and headquartered in North Central Kansas.

Parnell
9401 Indian Creek Pkwy, Suite 1170 • Overland Park, KS 66210
Phone: 1-800-88PARNELL
www.parnell.com
Booth(s): 216
Parnell is a fully integrated pharmaceutical company focused on developing, manufacturing and commercializing innovative animal health solutions. Our goal is to improve dairy reproductive performance one farm at a time by partnering with veterinarians and producers and by providing true innovation. Parnell has invested tens of millions of dollars to bring GONAbreed® (gonadorelin acetate) to market; the first product approved by the FDA to synchronize estrous cycles in both lactating dairy and beef cows. Available with estroPLAN® (cloprostenol sodium) in the convenience of the SYNCHRONIZATION PACK®, there is now a repro solution for every operation. Parnell develops more than just pharmaceutical solutions by offering integrated digital tools to be used by veterinary practices and animal owners to ensure that they gain the maximum advantage from Parnell’s premium products. Currently Parnell is developing mySYNCH® in the U.S.A., a digital tool to help veterinarians and producers optimize reproduction and maximize economic gains. mySYNCH® combines highly effective in-field training with simple repro reports that use predictive metrics to benchmark your performance against comparable operations. Partner with Parnell.

Poultry Protein & Fat Council
1530 Cooledge Road • Tucker, GA 30084-7303
www.poultryegg.org/ppfc
Booth(s): 225
The Poultry Protein & Fat Council solicits and sponsors research that would develop new and increased utilization of poultry byproduct meal, feather meal, blood meal, and poultry fat by demonstrating their efficacy in poultry, aquaculture, livestock, and companion animal rations.

Probiotech International, Inc.
6225 Choquette Street Street • Hyacinthe, QC J25 8L2, Canada
www.probiotech.com
Booth(s): 528
Probiotech International Inc. and Phodé Laboratories develop and provide the animal nutrition industry with natural solutions. The line of products was designed using the principles of biotechnology in order to promote animal health and to maximize agriculture production with the respect of our environment in mind. Products include patented rumenprotected choline for dairy cows to natural appetite enhancers, organic acidifiers, and plant extracts and sweeteners for all species.

Ritchie Industries, Inc.
PO Box 730 • Conrad, IA 50621
www.ritchiefount.com
Booth(s): 315

Rock River Laboratory Inc., Headquarters
710 Commerce Drive, PO Box 169 • Watertown, WI 53094
Phone: 920-261-0446
www.rockriverlab.com
Facebook: Rock River Laboratory, Inc.
Booth(s): 227
Rock River Laboratory provides production assistance to the agricultural industry through advanced analytical systems, progressive techniques, and research-supported analyses. Employing a team of top specialists in their respective fields, Rock River Laboratory is built on providing accurate, cost-effective, and timely analytical results to customers, while featuring unsurpassed customer service.

SmartStock LLC
PO Box 337 • Pawnee, Oklahoma 74058-0337
Phone: 918-762-1065
www.smartstock-usa.com
Booth(s): 506

Soybean Meal Information Center
1255 SW Prairie Trail Pkwy
Ankeny, Iowa 50023-7068
Phone: 515-210-1601
Fax: 515-334-1128
Booth(s): 210
SoyBest
PO Box 157 • West Point, NE 68788-0157
www.soybest.com
Booth(s): 402
SoyBest high bypass soybean meal is bypass protein for dairy cows. Manufactured using a mechanical process, it contains no chemical solvents and is all natural. SoyBest includes fresh soy gums with lecithin and phosphatidyl-choline. Research shows these nutrients behave like rumen-protected fat, resulting in even more bypass protein with excellent intestinal digestibility.

SoyPlus SoyChlor West Central
PO Box 68 • Ralston, Iowa 51459-0068
United States Contact: Alicia Clancy
Phone: 712-667-3334
aclancy@westcentral.net
Booth(s): 207

Unity Scientific, Inc.
117 Old State Road • Brookfield, CT 06804
Booth(s): 411
Unity Scientific is a global leader in the design and manufacturing of near infrared instrumentation that serves a wide variety of applications in the animal science industry. Unity has just introduced a new Feed Analyzer and Dairy Analyzer that offers everything required to start analyzing samples with pre-loaded calibrations.

Varied Industries Corporation (Vi-COR)
905 S Carolina Avenue, PO Box 1483 • Mason City, IA 50402
www.vi-cor.com
Booth(s): 318
Vi-COR (Varied Industries Corporation) headquarters, located in Mason City, IA was purchased in 1998 by Mark Holt, President. The company has expanded sales and marketing efforts by launching several new products and hiring key personnel for research, international sales, domestic sales and technical service positions. Vi-COR a manufacturer of unique, all-natural refined functional carbohydrate feed ingredients is the first in the market to develop a concentrated, a liquid, and a soluble concentrated powder. Vi-COR provides a global on farm customer service and tech service, focusing on serving producers in dairy, beef, swine and poultry in over 65 countries.

Zinpro Corporation
10400 Viking Drive, Suite 240 • Eden Prairie, MN 55344
www.zinpro.com
Booth(s): 330
Zinpro Performance Minerals are uniquely designed and manufactured to be the highest bioavailable trace mineral products on the market.

Ztags North America
109 Asher Bay Street • Smithville, MO 64089
www.ztags.com
Booth(s): 337

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!!
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- Novus International, Inc
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- DuPont Pioneer
- Elanco Animal Health
- Global Agri-Trade Corporation
- Grande Cheese Company
- Kent Nutrition Group
- Kraft Foods
- Lallemand Animal Nutrition
- Masters Choice
- MIN-AD, Inc.
- Papillon Agricultural Company
- Performance Products, Inc.
- Prince Agri Products
- QualiTech, Inc.
- Renaissance Nutrition, Inc.
- SoyPLUS, SoyChlor (West Central)
- Varied Industries Corporation
- Westfalia Surge Inc.
- Zinpro Corporation
- Zook Nutrition & Management, Inc.
Marriott Downtown Muehlebach Tower (ADSA HQ Hotel)
Thank you to the 2014 Joint Annual Meeting Sponsors!

**Platinum Level**
- Alltech
- European Association of Animal Science (EAAP)
- Elanco Animal Health
- Pancosma

**Gold Level**
- American Dairy Science Association
- American Society of Animal Science
- American Society of Animal Science Foundation
- Animal Frontiers
- Diamond V
- Kansas State University
- Merck
- Novus
- Zoetis

**Silver Level**
- Ajinomoto Heartland
- Dairy Research Institute/Innovation Center for US Dairy
- USAID
- USDA-NIFA

**Bronze Level**
- Chr. Hansen
- DuPont - Danisco Animal Nutrition

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A Special Thank you to our ASAS Event Sponsors

ASAS Awards Dinner Sponsors
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ARPAS
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  Colorado State University
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University of California-Davis
University of Connecticut
University of Kentucky
University of Minnesota
University of Missouri
University of Nebraska-Lincoln
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Alltech
Balchem Corp.
Elanco Animal Health

A Special Thank you to our ADSA Event Sponsors

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Balchem
Bar Diamond, Inc.
Lallemand Animal Nutrition
Leprino Foods

A Special Thank you to our CSAS Event Sponsors

CSAS Fellowship Award
Alltech Canada

CSAS Award for Technical Innovation in the Production of Safe, Affordable Food
Elanco Animal Health Canada

CSAS Award of Excellence in Nutrition and Meat Science
Nutreco Canada Inc.

CSAS Animal Industries Award in Extension and Public Service
Chicken Farmers of Canada, Canadian Pork Council, Canadian Cattlemen’s Association, and Dairy Farmers of Canada.
INNOVATE 2014:
Global Food Security
Innovations in Protein Production
to Meet the Global Demands of 2050

October 5–7, 2014
Madden’s On Gull Lake / Brainerd, MN

asas.org/innovate2014
Even the best operations can do better. We can all do better. We can raise stronger, healthier, more productive animals. We can become more efficient, more consistent, more profitable. For many operations, doing better starts with KemTRACE® Chromium. It’s the essential mineral that helps swine, beef and dairy cattle optimize energy use. It’s essential to them, essential to you, and essential to what can be.

Essential to you and your operation.
Scheduling and locations are subject to change without notice.

### Saturday, July 19

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am – 8:00 am</td>
<td>ASAS New Board Orientation</td>
<td>Marriott Downtown, Andy Kirk A/B</td>
</tr>
<tr>
<td>7:30 am – 5:00 pm</td>
<td>ADSA Board of Directors Meeting</td>
<td>Marriott Downtown, Truman A</td>
</tr>
<tr>
<td>8:00 am – 9:00 am</td>
<td>ASAS Membership Committee Meeting</td>
<td>Marriott Downtown, Jay McShann B</td>
</tr>
<tr>
<td>9:30 am – 5:30 pm</td>
<td>ASAS Board of Directors Meeting</td>
<td>Marriott Downtown, Andy Kirk A/B</td>
</tr>
<tr>
<td>12:30 pm – 4:30 pm</td>
<td>ADSA-SAD and GSD Tour</td>
<td>Depart from Aladdin Holiday Inn</td>
</tr>
<tr>
<td>1:00 pm – 5:00 pm</td>
<td>Registration open (preregistered, badge and material pick-up only)</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>6:00 pm – 8:00 pm</td>
<td>ARPAS Executive Committee Dinner</td>
<td>Marriott Downtown, Kennedy (Salon 1)</td>
</tr>
<tr>
<td>7:00 pm – 9:00 pm</td>
<td>Student Mixer sponsored by ADSA</td>
<td>College Basketball Experience</td>
</tr>
</tbody>
</table>

### Sunday, July 20

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am – 6:00 pm</td>
<td>Registration open</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>7:30 am – 10:00 am</td>
<td>ADSA New Board Orientation</td>
<td>Marriott Downtown, Truman B</td>
</tr>
<tr>
<td>8:00 am – 12:30 pm</td>
<td>ASAS Board of Directors Meeting</td>
<td>Marriott Downtown, Andy Kirk A/B</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>ARPAS Governing Board Meeting</td>
<td>Marriott Downtown, Kennedy (Salon 1)</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Triennial Lactation Symposium/BOLFA: Nutrimeromics in Dairy Cows</td>
<td>Convention Center, 2505B</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>ASAS-ASN Preconference: Next Step for Innovate 2013: Feedbunk to Bedside to Bench: Current Analytical Platforms in Nutrition</td>
<td>Convention Center, 2505A, 2502</td>
</tr>
<tr>
<td>9:00 am – 4:00 pm</td>
<td>Beta Agonist Symposium: “What the Data Say”</td>
<td>Convention Center, 2209</td>
</tr>
<tr>
<td>9:00 am – 10:00 am</td>
<td>ADSA-SAD Officers and Advisor Meeting</td>
<td>Convention Center, 2208</td>
</tr>
<tr>
<td>10:00 am – 11:00 pm</td>
<td>ADSA-SAD Quiz Bowl Officials Meeting</td>
<td>Convention Center, 2215B</td>
</tr>
<tr>
<td>10:00 am – 6:00 pm</td>
<td>Exhibit Setup</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>10:30 am – 11:00 am</td>
<td>ADSA-SAD Quiz Bowl Seating Test</td>
<td>Convention Center, 2215A</td>
</tr>
<tr>
<td>11:00 am – 12:00 pm</td>
<td>ADSA-SAD Undergraduate Midday Mixer &amp; Pizza Party</td>
<td>Convention Center, 2211</td>
</tr>
<tr>
<td>12:00 pm – 1:00 pm</td>
<td>ADSA JDS Editors and Journal Management Committee Lunch</td>
<td>Marriott Downtown, Truman A</td>
</tr>
<tr>
<td>12:00 pm – 3:00 pm</td>
<td>Graduate Student Manuscript Writing Workshop</td>
<td>Convention Center, 2208 &amp; 2210</td>
</tr>
<tr>
<td>12:00 pm – 4:00 pm</td>
<td>ADSA-SAD Quiz Bowl Seating/Preliminary Rounds</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>12:00 pm – 5:00 pm</td>
<td>Hospitality Lounge open</td>
<td>Marriott Downtown, Andy Kirk A</td>
</tr>
<tr>
<td>1:00 pm – 3:00 pm</td>
<td>ASAS Foundation Board of Trustees Meeting</td>
<td>Convention Center, 2504</td>
</tr>
<tr>
<td>1:00 pm – 3:00 pm</td>
<td>2015 Program Committee Meeting</td>
<td>Marriott Downtown, Truman A</td>
</tr>
<tr>
<td>1:00 pm – 5:00 pm</td>
<td>ADSA Journal Management Committee Meeting</td>
<td>Convention Center, 2213</td>
</tr>
<tr>
<td>1:00 pm – 6:00 pm</td>
<td>CSAS Executive Committee Meeting</td>
<td>Conrane Plaza, Executive Boardroom, Suite 2725</td>
</tr>
<tr>
<td>1:30 pm – 3:00 pm</td>
<td>ASAS Foundation Board of Trustees Meeting</td>
<td>Convention Center, 2212</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td>ADSA Production Division Council Meeting</td>
<td>Marriott Downtown, Truman B</td>
</tr>
<tr>
<td>2:00 pm – 4:00 pm</td>
<td>ADSA Foundation Board of Trustees Meeting</td>
<td>Convention Center, 2212</td>
</tr>
<tr>
<td>3:00 pm – 4:00 pm</td>
<td>ADSA Production Division Nominating Committee</td>
<td>Convention Center, 2211</td>
</tr>
<tr>
<td>3:30 pm – 4:15 pm</td>
<td>ADSA Graduate Student Division Business Meeting and Open Forum</td>
<td>Convention Center, 2504</td>
</tr>
<tr>
<td>3:30 pm – 4:30 pm</td>
<td>NRC Update: Nutrient Requirements for Dairy Cattle</td>
<td>Convention Center, 2210</td>
</tr>
<tr>
<td>4:30 pm – 5:00 pm</td>
<td>ADSA-SAD Quiz Bowl Final Round</td>
<td>Music Hall Foyer</td>
</tr>
<tr>
<td>4:30 pm – 5:30 pm</td>
<td>JAM Opening Session Meet &amp; Greet</td>
<td>Convention Center, 2212</td>
</tr>
<tr>
<td>5:00 pm – 6:00 pm</td>
<td>ADSA Dairy Foods Division Council Meeting</td>
<td>Music Hall Theater</td>
</tr>
<tr>
<td>5:30 pm – 6:15 pm</td>
<td>JAM Opening Session</td>
<td>National Agricultural Center &amp; Hall of Fame</td>
</tr>
<tr>
<td>6:45 pm – 9:30 pm</td>
<td>JAM Opening BBQ</td>
<td></td>
</tr>
</tbody>
</table>
## SCHEDULE OF EVENTS

### Monday, July 21

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>All day</td>
<td>ASAS Undergraduate Academic Quadrathlon</td>
<td>Marriott Downtown</td>
</tr>
<tr>
<td>6:30 am – 8:00 am</td>
<td>ADSA Dairy Specialists/Dairy-Related Participants Breakfast</td>
<td>Marriott Downtown, Truman A</td>
</tr>
<tr>
<td>6:30 am – 8:00 am</td>
<td>Michigan State University Breakfast</td>
<td>Convention Center, 2201</td>
</tr>
<tr>
<td>6:30 am – 5:15 pm</td>
<td>Registration open</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>7:30 am – 9:15 am</td>
<td>Poster Presentations</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>7:30 am – 9:15 am</td>
<td>ADSA-SAD Undergraduate Poster Competition</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>7:30 am – 8:15 am</td>
<td>Turn in ADSA-SAD Yearbooks, Scrapbooks and Annual Reports for Judging at ADSA-SAD Booth 538</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>8:00 am – 9:00 am</td>
<td>Johnne's/TB Disease Interest Group</td>
<td>Convention Center, 2212</td>
</tr>
<tr>
<td>8:00 am – 6:00 pm</td>
<td>Exhibits open</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Job Resource Center open</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Hospitality Lounge open</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>8:30 am – 9:30 am</td>
<td>ADSA-SAD Judging of Yearbooks, Scrapbooks and Annual Reports in ADSA-SAD Booth 538</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>8:30 am – 9:45 am</td>
<td>ADSA-SAD Activities Symposium</td>
<td>Convention Center, 2210</td>
</tr>
<tr>
<td>9:30 am – 10:30 am</td>
<td>Discover Conference Steering Committee</td>
<td>Convention Center, 2213</td>
</tr>
<tr>
<td>9:30 am – 5:00 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center, 2210</td>
</tr>
<tr>
<td>9:45 am – 10:45 am</td>
<td>ADSA-SAD Business Meeting</td>
<td>Convention Center, 2210</td>
</tr>
<tr>
<td>9:45 am – 4:00 pm</td>
<td>Spouse Event 1: Arabia Steamboat &amp; Hallmark Visitor Center</td>
<td>Marriott Downtown, Lobby</td>
</tr>
<tr>
<td>10:30 am – 12:30 pm</td>
<td>ARPSAS Exam</td>
<td>Convention Center, 2214</td>
</tr>
<tr>
<td>11:00 am – 12:15 pm</td>
<td>ADSA-SAD Undergraduate Dairy Foods Paper Presentations</td>
<td>Convention Center, 2208</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ASAS National &amp; Sectional Graduate Directors Meeting</td>
<td>Marriott Downtown, Andy Kirk A</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ASAS Undergraduate Lunch and Learn</td>
<td>Marriott Downtown, Bennie Moten A</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ADSA Graduate Student Division Career Insights Luncheon</td>
<td>Convention Center, 2215A</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>Lunch Panel Discussion: Funding Agencies Perspective in Today's Economy</td>
<td>Convention Center, 2215B</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ASAS Past Presidents’ Lunch</td>
<td>Marriott Downtown, Bennie Moten B</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ADSA Past Presidents’ Lunch</td>
<td>Marriott Downtown, Barney Allis Tea Room</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>American College of Animal Science (ACAS) Annual Meeting</td>
<td>Convention Center, 2214</td>
</tr>
<tr>
<td>1:00 pm – 2:00 pm</td>
<td>Discover 28 'Starch for Ruminants' Program Committee</td>
<td>Convention Center, 2213</td>
</tr>
<tr>
<td>2:00 pm – 4:00 pm</td>
<td>ARPSAS Exam</td>
<td>Convention Center, 2214</td>
</tr>
<tr>
<td>2:00 pm – 4:15 pm</td>
<td>ADSA-SAD Undergraduate Production Paper Presentations</td>
<td>Convention Center, 2208</td>
</tr>
<tr>
<td>2:00 pm – 4:30 pm</td>
<td>ADSA-SAD Undergraduate Original Research Paper Presentations</td>
<td>Convention Center, 2210</td>
</tr>
<tr>
<td>2:00 pm – 5:30 pm</td>
<td>Southern Branch ADSA Symposium and Business Meeting</td>
<td>Convention Center, 2101</td>
</tr>
<tr>
<td>5:00 pm – 5:30 pm</td>
<td>Removal of ADSA-SAD Posters</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>5:00 pm – 6:30 pm</td>
<td>Penn State University Reception</td>
<td>Marriott Downtown, Julia Lee A/B</td>
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<tr>
<td>5:00 pm – 7:00 pm</td>
<td>Informal Calf Gathering</td>
<td>Marriott Downtown, Colonial Ballroom</td>
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<tr>
<td>5:30 pm – 7:00 pm</td>
<td>ASAS Award Winners Dinner and Photo Session</td>
<td>Marriott Downtown, Imperial Ballroom Foyer</td>
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<tr>
<td>6:00 pm – 9:00 pm</td>
<td>ASAS President’s Picks Poster Presentations</td>
<td>Marriott Downtown, Imperial Ballroom</td>
</tr>
<tr>
<td>7:00 pm – 8:30 pm</td>
<td>ASAS Awards Program &amp; Undergraduate Academic Quadrathlon Finals</td>
<td>Marriott Downtown, Imperial Ballroom</td>
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<tr>
<td>7:00 pm – 9:00 pm</td>
<td>ADSA-SAD and GSD Student Mixer</td>
<td>Howl at the Moon</td>
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<tr>
<td>8:30 pm – 11:00 pm</td>
<td>Iowa State Alumni and Friends Reception</td>
<td>Marriott Downtown, Truman B</td>
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<tr>
<td>8:30 pm – 11:00 pm</td>
<td>Purdue University Reception</td>
<td>Marriott Downtown, Truman A</td>
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<tr>
<td>8:30 pm – 12:00 am</td>
<td>ASAS Awards Celebration</td>
<td>Marriott Downtown, Barney Allis</td>
</tr>
<tr>
<td>9:00 pm – 12:00 am</td>
<td>ASAS Graduate Student Mixer</td>
<td>PBR Big Sky</td>
</tr>
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</table>
Tuesday, July 22

6:30 am – 8:00 am  University of Illinois Breakfast  
Marriott Downtown, Andy Kirk A/B

6:30 am – 8:00 am  University of Kentucky Breakfast  
Marriott Downtown, Yardbird A

6:30 am – 8:00 am  Virginia Tech Breakfast  
Marriott Downtown, Bennie Moten B

6:30 am – 8:00 am  JDS Editorial Board Breakfast/Meeting  
Marriott Downtown, Truman B

6:30 am – 8:00 am  ADSA DF Division Milk Proteins and Enzyme Committee Breakfast  
Convention Center, 2213

7:00 am – 5:15 pm  Registration open  
Convention Center, Exhibit Hall AB

7:30 am – 9:15 am  Poster Presentations  
Convention Center, Exhibit Hall AB

7:30 am – 9:15 am  ASAS Undergraduate Poster Competition  
Convention Center, Exhibit Hall AB

8:00 am – 9:00 am  ADSA Spokesperson/Media Training  
Convention Center, 2208

8:00 am – 5:00 pm  Exhibits open  
Convention Center, Exhibit Hall AB

8:00 am – 5:00 pm  Job Resource Center open  
Convention Center, Exhibit Hall AB

8:00 am – 5:00 pm  Hospitality Lounge open  
Convention Center, Exhibit Hall AB

8:30 am – 9:30 am  ADSA-SAD Business Meeting–Election of Officers  
Convention Center, 2210

9:00 am – 10:30 am  ASAS Presidents and Block and Bridle Board Meeting  
Marriott Downtown, Andy Kirk A

9:30 am – 11:00 am  ADSA-SAD Undergraduate Student Career Roundtable  
Convention Center, 2215B

9:30 am – 12:30 pm  ARPAS Symposium  
Convention Center, 2102B

9:30 am – 5:00 pm  Scientific Sessions  
Convention Center

9:45 am – 4:00 pm  Family Fun Day: Sea Life and LEGOLAND Discovery Center  
Marriott Downtown, Lobby

10:30 am - 11:00 am  Block & Bridle Advisors Meeting  
Marriott Downtown, Andy Kirk B

10:30 am – 12:00 pm  ASAS Investment Committee Meeting  
Marriott Downtown, Andy Kirk A

11:30 am – 12:30 pm  ADSA Production Division Business Meeting  
Convention Center, 3501F

11:30 am – 12:30 pm  ADSA Dairy Foods Division Business Meeting  
Convention Center, 3501C

11:45 am – 2:00 pm  ADSA-SAD Awards Luncheon  
Convention Center, 2215A

12:30 pm – 2:00 pm  ASAS Foundation Heritage Lunch  
Marriott Downtown, Julia Lee A/B

12:30 pm – 2:00 pm  ARPAS Business Meeting  
Convention Center, 2101B

12:30 pm – 2:00 pm  ADSA Dairy Foods Division Program Planning Lunch  
Convention Center, 2212

12:30 pm – 2:00 pm  ADSA Dairy Foods Division Milk Proteins and Enzyme Committee  
Convention Center, 2213

12:30 pm – 2:00 pm  ASAS JAS/Animal Frontiers Editorial Meeting and Lunch  
Convention Center, 2515B

12:30 pm – 2:00 pm  CSAS Annual General Meeting and Lunch  
Crowne Plaza, Salon B

2:00 pm – 3:00 pm  ARPAS Exam  
Convention Center, 2214

2:00 pm – 4:00 pm  ADSA-SAD Award and Club Photos  
Convention Center, 2215A

2:00 pm – 5:00 pm  Pick up Yearbooks and Scrapbooks from SAD Exhibit  
Convention Center, Exhibit Hall AB

2:30 pm – 3:30 pm  ADSA-SAD Committee Meeting – Old and New Officers and Advisors  
Convention Center, 2209

3:00 pm – 4:30 pm  ADSA Graduate Student Division Dairy Tales  
Convention Center, 2208

4:00 pm – 5:00 pm  ASAS Open Forum: Accreditation  
Convention Center, 2503

5:00 pm – 6:00 pm  ASAS-ARPAS Career Learning Center Launch  
Marriott Downtown, Truman AB

5:00 pm – 6:30 pm  ADSA Award Donor Dinner  
Marriott Downtown, Imperial Ballroom

7:00 pm – 8:15 pm  ADSA Awards Program  
PBR Big Sky

8:15 pm – 9:30 pm  JAM Ice Cream Social  
PBR Big Sky

9:00 pm – 12:00 am  ADSA Graduate Student Division Mixer  
PBR Big Sky
## Wednesday, July 23

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:00 am – 9:15 am</td>
<td>ASAS Sectional Leadership Meeting</td>
<td>Convention Center, 2201</td>
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<tr>
<td>7:00 am – 5:15 pm</td>
<td>Registration open</td>
<td>Convention Center, Exhibit Hall AB</td>
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<tr>
<td>7:30 am – 9:15 am</td>
<td>Poster Presentations</td>
<td>Convention Center, Exhibit Hall AB</td>
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<tr>
<td>8:00 am – 9:00 am</td>
<td>S-PAC® Users Meeting</td>
<td>Convention Center, 2505A</td>
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<tr>
<td>8:00 am – 3:00 pm</td>
<td>Exhibits open</td>
<td>Convention Center, Exhibit Hall AB</td>
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<tr>
<td>8:00 am – 5:00 pm</td>
<td>Job Resource Center open</td>
<td>Convention Center, Exhibit Hall AB</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Hospitality Lounge open</td>
<td>Convention Center, Exhibit Hall AB</td>
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<tr>
<td>9:30 am – 10:00 am</td>
<td>ASAS Business Meeting</td>
<td>Convention Center, 2104A</td>
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<tr>
<td>9:30 am – 10:30 am</td>
<td>ADSA Business Meeting</td>
<td>Convention Center, 2503</td>
</tr>
<tr>
<td>9:45 am – 4:00 pm</td>
<td>Spouse Event 2: National WWI Museum and Shopping</td>
<td>Marriott Downtown, Lobby</td>
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<tr>
<td>10:30 am – 12:30 pm</td>
<td>ARPAS Exam</td>
<td>Convention Center, 2214</td>
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<tr>
<td>10:30 am – 12:30 pm</td>
<td>Focus on Animal Frontiers Symposium &amp; July Launch</td>
<td>Convention Center, 2101</td>
</tr>
<tr>
<td>10:30 am – 1:00 pm</td>
<td>NE ASAS/ADSA Symposium, Business Meeting, Reception and Awards</td>
<td>Convention Center, 3501B</td>
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<tr>
<td>10:30 am – 5:00 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
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<tr>
<td>12:30 pm – 2:30 pm</td>
<td>ADSA Board of Directors Meeting</td>
<td>Marriott Downtown, Truman A</td>
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<tr>
<td>12:30 pm – 2:00 pm</td>
<td>Lunch Panel Discussion: Animal Science in the Real World</td>
<td>Convention Center, 2215A</td>
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<tr>
<td>2:00 pm – 4:00 pm</td>
<td>ARPAS Exam</td>
<td>Convention Center, 2214</td>
</tr>
<tr>
<td>2:30 pm – 4:30 pm</td>
<td>ASAS Board of Directors Meeting</td>
<td>Marriott Downtown, Andy Kirk A/B</td>
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<tr>
<td>3:00 pm – 5:00 pm</td>
<td>Exhibits Dismantle</td>
<td>Convention Center, Exhibit Hall AB</td>
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<tr>
<td>3:30 pm – 5:00 pm</td>
<td>ASAS Graduate Student Snack and Fact</td>
<td>Convention Center, 2102A</td>
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<tr>
<td>5:00 pm – 6:30 pm</td>
<td>ASAS-Novus Graduate Student Dinner: Career Pathways</td>
<td>Convention Center, 2215B</td>
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<tr>
<td>6:00 pm – 9:00 pm</td>
<td>CSAS Awards Banquet</td>
<td>Crowne Plaza, Starlight Ballroom</td>
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<tr>
<td>6:30 pm – 8:30 pm</td>
<td>Companion Animal Reception</td>
<td>Convention Center, 3501F</td>
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<tr>
<td>8:30 pm – 10:30 pm</td>
<td>JAM 2014 Program Committee Reception</td>
<td>Marriott Downtown, Basic C/C1</td>
</tr>
<tr>
<td>9:00 pm – 12:00 am</td>
<td>CSAS Graduate Student Mixer</td>
<td>Crowne Plaza, Salon C</td>
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## Thursday, July 24

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>8:00 am – 10:00 am</td>
<td>ASAS Executive Committee Meeting</td>
<td>Marriott Downtown, Andy Kirk A/B</td>
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<tr>
<td>8:00 am – 12:00 pm</td>
<td>Registration open</td>
<td>Convention Center, Lobby 2200</td>
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<tr>
<td>8:30 am – 11:30 am</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
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<tr>
<td>9:00 am – 3:00 pm</td>
<td>Workshop: Make your talk TED-worthy</td>
<td>Marriott Downtown, Bennie Moten A/B</td>
</tr>
<tr>
<td>10:00 am – 2:00 pm</td>
<td>Midwestern Section ASAS and Midwest Branch ADSA Board Meeting</td>
<td>Marriott Downtown, Julia Lee A/B</td>
</tr>
<tr>
<td>1:00 pm – 5:00 pm</td>
<td>NIFA Joint Animal Growth, Feed Efficiency &amp; Animal Genomics Project Directory Meeting</td>
<td>Crowne Plaza</td>
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</table>

## Friday, July 25

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>9:00 am – 1:00 pm</td>
<td>NIFA Joint Animal Growth, Feed Efficiency &amp; Animal Genomics Project Directory Meeting</td>
<td>Crowne Plaza</td>
</tr>
</tbody>
</table>
Note about abstract numbering:

To better facilitate locating abstracts within their topic area the abstract number system has been adjusted for the 2014 JAM. First abstracts were split into oral and poster presentations, then grouped by their section (topic area) and finally sorted by presentation order. This modified abstract numbering system will ensure that all abstracts within the abstract book are grouped by oral and poster as well as by topic area. To help locate the abstract within their sessions we are providing two listing of sessions and the abstract numbers within those sessions; the first lists the abstracts grouped by oral and poster and then within their topic area, the second is a listing of sessions in presentation order by day.
Linking animal science and animal agriculture: Meeting the global demands of 2050

To help call attention to the theme, we have identified several talks and symposia per day as “linkages” talks. These talks or symposia are listed below and are identified throughout the program by the ⚪️ mark.

**Linkage Symposia – All talks**

Beta Agonist Symposium: “What the Data Say” (page 59)

Beef Species Symposium: Making More, But Using Less: The Future of the U.S. Beef Industry with a Reduced Cowherd and the Challenge to Feed the U.S. and the World; Session I. The U.S. Stocker and Feedlot Industries (page 90)

Beef Species Symposium: Making More, but Using Less: The Future of the U.S. Beef Industry with a Reduced Cowherd and the Challenge to Feed the U.S. and the World; Session II. The Cow-Calf Industry (page 103)

Dairy Foods Symposium: Advances in Delivery of Dairy Ingredients for Health and Functional Benefits (page 103)

ARPAS Symposium: Customer/Consumer Confidence In The Livestock Industry-Ethics (page 140)

International Animal Agriculture Symposium: Global Prospective Of Livestock Production Systems To Meet The Growing Need For Animal Protein In Human Diets: Impacts On Production And Human Health (page 194)

Animal Science in the Real World (page 197)

ADSA Multidisciplinary and International Leadership Keynote (MILK) Symposium: Water: Consideration for the Future of Animal and Food Production and Processing (page 198)

EAAP Equine Symposium: Know-How And Future Challenges for Developing the Horse Sector In Europe: The Activity of the EAAP Horse Commission (page 210)

Workshops: Crafting USAID’s Livestock Research Agenda – Animal Science Priorities Under Feed The Future (page 215)

**Linkage Talks**

Page 91  295  **Introduction – Global challenges to a safe food supply.**  
R. J. Harmon*, University of Kentucky, Lexington.

Page 98  741  **EAAP-ASAS Speaker Exchange Presentation: Opportunities and challenges with the use of carbohydrase and protease enzymes in swine formulations.**  

Page 140  77  **Can the genetic selection for improved immune response be tailored to expand the efficacy of disease management interventions.**  
B. Mallard*, Department of Pathobiology, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

Page 151  188  **Nutritional sustainability of pet foods.**  
R. A. Carter1, P. R. Buff1, K. S. Swanson1, T. P. Yount1, and J. H. Kersey*, 1The Nutro Company, Franklin, TN, 2Department of Animal Sciences, University of Illinois at Urbana-Champaign.

Page 151  189  **How sustainability influences ingredient sourcing, quality and safety.**  
D. L. Meeker*, National Renderers Association, Alexandria, VA.

Page 151  190  **Sustainability of non-traditional companion animals.**  
G. Ballam*, Purina Animal Nutrition, St Louis, MO.

Page 205  735  **Pasture development and sustainable grazing management.**  
S. P. Hart*, American Institute for Goat Research, Langston University, Langston, OK.

Page 205  740  **Global demand for small ruminant products.**  
G. W. Williams* and D. Anderson, Texas A&M University, College Station
### Abstract Numbers by Section (Topic Area)

#### ORAL AND SYMPOSIUM PRESENTATIONS

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<tr>
<th>Section (topic area)</th>
<th>Session</th>
<th>Day</th>
<th>Abstract Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADSA Foundation Symposium</strong></td>
<td>Meeting the Present and Future Demand for Employees</td>
<td>T</td>
<td>1–5</td>
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<tr>
<td></td>
<td>With a PhD in Dairy Science</td>
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<tr>
<td><strong>ADSA Southern Section Symposium</strong></td>
<td>Strategies for Housing Dairy Animals in the Southeast</td>
<td>M</td>
<td>6–10</td>
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<tr>
<td><strong>ADSA-ASAS Northeast Section Symposium</strong></td>
<td>Opportunities to Meet Changing Consumer Preferences for Animal Products</td>
<td>W</td>
<td>11–13</td>
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<tr>
<td><strong>ADSA-SAD Undergraduate Student Paper Competition</strong></td>
<td>Dairy Foods</td>
<td>M</td>
<td>14–17</td>
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<tr>
<td></td>
<td>Original Research</td>
<td>M</td>
<td>18–23</td>
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<tr>
<td></td>
<td>Dairy Production</td>
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<td>24–31</td>
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<tr>
<td><strong>Animal Behavior and Well-Being</strong></td>
<td>Animal Behavior &amp; Well-Being I</td>
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<tr>
<td></td>
<td>Animal Behavior &amp; Well-Being II</td>
<td>W</td>
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<td>Animal Behavior &amp; Well-Being III</td>
<td>W</td>
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<td></td>
<td>Animal Behavior &amp; Well-Being IV</td>
<td>TH</td>
<td>52–59</td>
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<tr>
<td><strong>Animal Health</strong></td>
<td>Animal Health Symposium I: Animal Health Research From the Perspective of Information Gaps</td>
<td>M</td>
<td>60–63</td>
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<tr>
<td></td>
<td>Animal Health I: Models of Disease and Stress</td>
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<td>64–75</td>
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<tr>
<td></td>
<td>Animal Health Symposium II: Optimizing Disease Response Modeling</td>
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<td>76–79</td>
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<td></td>
<td>Animal Health II: Host-Microbial Interactions: Detection and Intervention</td>
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<td></td>
<td>Animal Health III: Periparturient and Lactation Health</td>
<td>W</td>
<td>91–101</td>
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<tr>
<td><strong>ARPAS Symposium</strong></td>
<td>ARPAS Symposium: Customer/Consumer Confidence in the Livestock Industry–Ethics</td>
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<td>102–105</td>
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<tr>
<td><strong>ASAS Cell Biology Symposium</strong></td>
<td>Long-Term Consequences of Maternal and Neonatal Nutrition for Pregnancy and Postnatal Outcomes</td>
<td>TH</td>
<td>106–108</td>
</tr>
<tr>
<td><strong>ASAS Graduate Student Symposium</strong></td>
<td>Research Ethics: What Are They and Why Are They Needed?</td>
<td>W</td>
<td>109–111</td>
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<tr>
<td><strong>Beef Cattle Reproduction Symposium</strong></td>
<td>Rebuilding the U.S. Cowherd: Rethinking the Way Industry Selects and Develops Replacements</td>
<td>T</td>
<td>112–116</td>
</tr>
<tr>
<td><strong>Beef Species</strong></td>
<td>Symposium: Making More, But Using Less: The Future of the U.S. Beef Industry with a Reduced Cowherd and the Challenge to Feed the U.S. and the World:</td>
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<td></td>
<td>Session I: The U.S. Stocker and Feedlot Industries</td>
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<td>117–120</td>
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<td></td>
<td>Session II: The Cow-Calf Industry</td>
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<td>121–125</td>
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<tr>
<td>Section (topic area)</td>
<td>Session</td>
<td>Day</td>
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<tr>
<td>Cow-calf</td>
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<td>Stocker and Feedlot</td>
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<td>Feed Additives</td>
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<td>W</td>
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<tr>
<td>Breeding and Genetics</td>
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<tr>
<td>Applications and Methods in Animal Breeding-Dairy I</td>
<td></td>
<td>M</td>
<td>152–158</td>
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<tr>
<td>Genetic and Genomic Methods</td>
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<td>163–169</td>
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<tr>
<td>Applications and Methods in Animal Breeding–Livestock II</td>
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<td>W</td>
<td>170–173</td>
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<tr>
<td>Applications and Methods–Molecular Biology</td>
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<td>TH</td>
<td>174–179</td>
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<tr>
<td>Companion Animals</td>
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<tr>
<td>Symposium: Companion Animals and Sustainability: Today’s Impact on the Future</td>
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<td>188–192</td>
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<tr>
<td>George C. Fahey Companion Animal Nutrition Symposium:</td>
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<td>193–197</td>
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<tr>
<td>Preparing Future Companion Animal Biologists</td>
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<td>Comparative Gut Physiology Symposium</td>
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<tr>
<td>Session I</td>
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<td>198–203</td>
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<tr>
<td>Session II</td>
<td></td>
<td>T</td>
<td>204–211</td>
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<tr>
<td>CSAS Graduate Student Oral Competition</td>
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<td>CSAS oral student presentation competition</td>
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<td>CSAS Symposium</td>
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<tr>
<td>Understanding Feeding Behavior to Improve Animal Well-being and Productivity</td>
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<td>229–232</td>
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<tr>
<td>Dairy Foods</td>
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<tr>
<td>Symposium: Advances in Delivery of Dairy Ingredients for Health and Functional Benefits</td>
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<td>233–237</td>
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<tr>
<td>Technical Oral Session: Cheese / Yogurt / Ice Cream</td>
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<td>238–247</td>
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<tr>
<td>Symposium: Protein Functionality in Cheese Systems:</td>
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<td>Natural, Process Cheese and Analogs</td>
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<td>248–252</td>
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<td>Symposium: Milk Protein-Hydrocolloid Interactions: Recent Impacts</td>
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<td>253–256</td>
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<tr>
<td>Technical Oral Session: Analytical / Processing</td>
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**ADSA-SAD Undergraduate Student Paper Competition**
Original Research Poster Competition

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**Animal Behavior and Well-Being**
Animal Behavior & Well-Being Posters I
Animal Behavior & Well-Being Posters II

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**Animal Health**
Models of Animal Immune Status and Performance
Calf Health
Cow and Heifer Health

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**ASAS Undergraduate Student Poster Competition**
ASAS Undergraduate Student Poster Competition

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**Beef Species**
Feedlot and Stocker
Cow-Calf and Bull

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**Breeding and Genetics**
Applications and Methods in Animal Breeding-Beef
Genomic Methodology
Applications and Methods in Animal Breeding–Dairy II
Applications and Methods in Animal Breeding–Poultry
Application and Methods in Animal Breeding–Livestock I
Molecular Biology and Genomics

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**Companion Animals**
Companion Animal Nutrition

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**CSAS Graduate Student Competition**
CSAS Graduate Student Poster Competition

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**Dairy Foods**
Technical Poster Session I: Cheese / Yogurt
Technical Poster Session II: Analytical / Processing
Technical Poster Session III: Fluid Milk

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**Extension Education**
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**Forages and Pastures**
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(Re) introducing two proven winners — now backed by Bayer, with more than 150 years of quality, experience and support.

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Federal law restricts these drugs to use by or on the order of a licensed veterinarian. Not for use in humans. Non-steroidal anti-inflammatory drugs may inhibit prostaglandin synthesis; therefore this class of drugs should not be administered concurrently.
**ProstaMate™ (dinoprost tromethamine) Sterile Solution**

**BRIEF SUMMARY:**
Before using ProstaMate™, please consult the product insert, a summary of which follows:

**CAUTION:** Federal (USA) law restricts this drug to use by or on the order of licensed veterinarian.

For intramuscular use for estrus synchronization, treatment of unobserved estrus and pyometra in cattle, and for abortion of feedlot and other non-lactating cattle.

**DESCRIPTION:** This product contains the naturally occurring prostaglandin F2 alpha (dinoprost). Each mL contains dinoprost tromethamine equivalent to 5 mg dinoprost.

**INDICATIONS:** ProstaMate™ Sterile Solution is indicated as a luteolytic agent. ProstaMate™ is effective only in those cattle having a corpus luteum. Future reproductive performance of animals that are not cycling will be unaffected by injection of ProstaMate™.

For intramuscular use for estrus synchronization in beef cattle and non-lactating dairy heifers. ProstaMate™ is used to control the timing of estrus and ovulation in estrous cycling cattle that have a corpus luteum. For intramuscular use for unobserved estrus in lactating dairy cows with a corpus luteum. For intramuscular use for treatment of pyometra in cattle. For intramuscular use for abortion of feedlot and other non-lactating cattle during the first 100 days of gestation.

**WARNINGS:** Not for human use. Women of childbearing age, asthmatics, and persons with bronchial and other respiratory problems should exercise extreme caution when handling this product. Dinoprost tromethamine is readily absorbed through the skin and cause abortion and bronchospasms. Accidental spillage on the skin should be washed off immediately with soap and water.

**Residue Warnings:** No milk discard or pre-slaughter withdrawal is required for labeled use in cattle. Use of this product in excess of the approved dose may result in drug residues.

**PRECAUTIONS:** Do not administer intravenously. No vial stopper should be entered more than 20 times. For this reason, the 90 mL bottle should only be used for cattle. Non-steroidal anti-inflammatory drugs may inhibit prostaglandin synthesis; therefore this class of drugs should not be administered concurrently. Do not administer to pregnant cattle, unless abortion is desired. Cattle administered a progestin would be expected to have a reduced response to ProstaMate™ Sterile Solution.

**ADVERSE REACTIONS:** Limited salivation has been reported in some instances.

**SAFETY AND TOXICOLOGY:** In cattle, evaluation was made of clinical observation, clinical chemistry, hematology, urinalysis, organ weights, and gross plus microscopic measurements following treatment with various doses up to 250 mg dinoprost administered twice intramuscularly at a 10 day interval or doses of 25 mg administered daily for 10 days. There was no unequivocal effect of dinoprost on the hematology or clinical chemistry parameters measured. Clinically, a slight transitory increase in heart rate was detected. There was no evidence of toxicological effects. If given to a pregnant cow, it may cause abortion; the dose required for abortion varies considerably with the stage of gestation. Induction of abortion in feedlot cattle at stage of gestation up to 100 days of gestation did not result in dystocia, retained placenta or death of heifers in the field studies. However, induction of parturition or abortion with any exogenous compound may precipitate dystocia, fetal death, retained placenta and/or metritis, especially at latter stages of gestation.

For customer service or to obtain product information, including a Material Safety Data Sheet, call 1-800-255-6826.

**ANADA 200-253, Approved by FDA**

**Bayer**

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**OvaCyst™ (gonadorelin diacetate tetrahydrate)**

**Injection for the treatment of cystic ovaries in cattle**

**BRIEF SUMMARY:**
Before using, please consult the product insert, as summary of which follows:

**CAUTION:** Federal (USA) law restricts this drug to use by or on the order of licensed veterinarian.

**DESCRIPTION:** OvaCyst™ is a sterile solution containing 50 micrograms of gonadorelin (GnRH) diacetate tetrahydrate per milliliter suitable for intramuscular or intravenous administration. Gonadorelin is the hypothalamic releasing factor responsible for the release of gonadotropins from anterior pituitary. Synthetic gonadorelin is physiologically and chemically identical to the endogenous bovine hypothalamic releasing factor.

**INDICATIONS:** OvaCyst™ is indicated for the treatment of ovarian follicular cysts in dairy cattle. Ovarian cysts are non-ovulated follicles with incomplete luteinization which result in nymphomania or irregular estrus. Historically, cystic ovaries have responded to an exogenous source of luteinizing hormone (LH) such as human chorionic gonadotropin. OvaCyst™ initiates release of endogenous LH to cause ovulation and luteinization.

**PRECAUTIONS:** Not for use in humans. Keep this and all drugs out of reach of children.

For customer service or to obtain product information, including a Material Safety Data Sheet, call 1-800-255-6826.

**ANADA 200-069, Approved by FDA**

**Bayer**

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SYMPOSIA AND ORAL SESSIONS

ASAS-ASN Preconference: Next Step from Innovate 2013: Feed Bunk to Bedside to Bench: Current Analytical Platforms in Nutrition
Chair: Doug Burrin, Baylor College of Medicine
Sponsor: ASAS, ASN, and DuPont - Danisco Animal Nutrition
2505A

8:30 AM Welcome and introductions
Teresa Davis and Jim Sartin

8:45 AM Techniques for imaging and correlating functional and physical early brain development influenced by nutrition.
R. W. Johnson*, University of Illinois at Urbana-Champaign.

9:30 AM Perturbations in calcium and phosphorus homeostasis.
J. S. Radcliffe*, Purdue University, West Lafayette, IN.

10:15 AM Break

11:00 AM SCID pig model.
C. Tuggle*, Iowa State University, Ames.

11:45 AM Lunch and poster competition

1:45 PM Gut enteroids – What are they and how can we use them?
S. E. Blut*, Baylor College of Medicine, Houston, TX.

2:30 PM Microbiome applications in animals.
K. Swanson*, University of Illinois at Urbana-Champaign.

3:15 PM Functional crosstalk between the metagenome and metabolome.
T. Savidge*, Baylor College of Medicine, Houston, TX.

4:00 PM Closing Remarks
D. G. Burrin*, Baylor College of Medicine, Houston, TX.

Beta Agonist Symposium: “What the Data Say”
Chair: Don Topliff, West Texas A&M University
Sponsor: Merck
2502

9:00 AM Muscle fat/biology: Muscle.
B. Johnson*, Texas Tech University, Lubbock.

9:30 AM Muscle fat/biology: Fat.
S. Smith*, Texas A&M University, College Station.

10:00 AM Live/carcass performance: Swine.
T. See*, North Carolina State University, Raleigh.

10:30 AM Live/carcass performance: Beef.
R. Rathman*, Texas Tech University, Lubbock.

11:00 AM Carcass transfer/composition: Swine.
J. Apple*, University of Arkansas, Fayetteville.
11:30 AM  Carcass transfer/composition: Beef.  
*T. Lawrence*, West Texas A&M University, Canyon.

12:00 PM  Lunch Break

1:00 PM  Sensory characteristics (color/palatability): Swine.  
*D. Boler*, University of Illinois at Urbana-Champaign.

1:30 PM  Sensory characteristics (color/palatability): Beef.  
*C. Brooks*, Texas Tech University, Lubbock.

2:00 PM  Private industry perspective  
*K. Karr*, Cactus Feeders, Amarillo, TX.

2:30 PM  Trade barriers  
*P. Clayton*, United States Meat Export Federation, Denver, CO.

3:00 PM  Panel Discussion

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**Triennial Lactation Symposium / BOLFA: Nutrigenomics in dairy cows**

Chair: Monique Rijnkels, Baylor College of Medicine  
Sponsor: ASAS Foundation & EAAP  
2505B

8:30 AM  Welcoming Remarks

8:40 AM  Utilizing ‘omic’ techniques to understand energy balance in the lactating dairy cow.  
J. R. Roche¹, C. V. Phyn¹, T. M. Grala², C. G. Walker², M. A. Crookenden², S. Meier¹, J. K. Kay¹, and J. J. Loor³, ¹DairyNZ, Hamilton, New Zealand, ²DairyNZ, Auckland, New Zealand, ³University of Illinois at Urbana-Champaign.

J. P. McNamara³, Washington State University, Pullman.

10:10 AM  Break

10:30 AM  Insights provided by nutrigenomics into the effect of diet on metabolism and milk production.  
K. J. Harvatine³, Pennsylvania State University, University Park.

11:15 AM  Nutrigenomics in dairy cows.  
M. Bionaz¹ and J. J. Loor², ¹Oregon State University, Corvallis, ²University of Illinois at Urbana-Champaign.

12:00 PM  Lunch Break

1:30 PM  Systems biology and the role of nutrition in coordinating adaptations to lactation.  
J. J. Loor¹ and M. Bionaz², ¹University of Illinois at Urbana-Champaign, ²Oregon State University, Corvallis.

2:15 PM  Nutrient partitioning during intramammary inflammation: A key to severity of mastitis and risk of subsequent disease?  
K. M. Moyes¹, Department of Animal and Avian Sciences, University of Maryland, College Park.

3:00 PM  EAAP - ASAS Speaker Exchange Presentation: Nutritional effects on immunology and inflammation in dairy cattle.  
E. Trevisi², P. Grossi, and A. Minuti, Università Cattolica del Sacro Cuore, Piacenza, Italy.

3:45 PM  Concluding Remarks

3:55 PM  H. Allen Tucker Lactation and Endocrinology Award Ceremony
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### POSTER PRESENTATIONS

**Exhibit Hall AB**

#### ADSA-SAD Undergraduate Student Paper Competition: Original Research

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#### Animal Behavior & Well-Being Posters I

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<td>M006</td>
<td>Behavioral laterality, facial hair whorls, and heart rate variability in horses.</td>
<td>C. B. Shivley*, T. Grandin, and M. Deesing, Colorado State University, Fort Collins.</td>
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<td>M008</td>
<td>Comparison of three acute stressors in horses.</td>
<td>A. J. Bachman, A. Berzas, and C. E. Ferguson*, McNeese State University, Lake Charles, LA.</td>
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<td>M10</td>
<td>Associations of stall design, behavior, and hygiene of lactating dairy cows.</td>
<td>M. A. Overvest*, and T. J. DeVries, University of Guelph, Kemptville, ON, Canada.</td>
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<td>M011</td>
<td>Time budget and rumen development of dairy calves around the time of weaning.</td>
<td>M. A. Overvest*, E. K. Miller-Cushion, and T. J. DeVries, University of Guelph, Kemptville, ON, Canada.</td>
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<td>M013</td>
<td>Effect of stall size, tie-rail position, and chain length on cow injuries and cleanliness in Eastern Canadian tie-stall farms.</td>
<td>V. Bouffard*, A. M. de Passille, J. Rashen, E. Vasseur, D. B. Haley, and D. Pellerin, Université Laval, Québec, QC, Canada, l'Alacta, Sainte-Anne-de-Beauregard, QC, Canada, University of British Columbia, Agassiz, BC, Canada, University of Guelph-Campus d’Alfred, Alfred, ON, Canada.</td>
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Animal Health: Models of Animal Immune Status and Performance

827 M016  Gastrointestinal and hepatic tissue fatty acid composition and interleukin-6 concentration in broiler chickens: Effect of maternal dietary n-3 fatty acids.
C. J. Bullock, G. Bobe, and G. Cherian*, Oregon State University, Corvallis.

828 M017  Sandwich enzyme-linked immunosorbent assay for detection of Fasciola gigantica excretory secretory in goat sera.
H. R. Metawi1 and E. M. Oudah2, 1Animal Production Research Institute, Agriculture Research Center, Cairo, Egypt, 2Faculty of Agriculture, Mansoura University, Mansoura, Egypt.

829 M018  Response of beef cows offered a chlortetracycline fortified mineral and either strip or continuous stocked to stockpiled fescue.
M. S. Gadberry1, D. S. Hubbell, IIJ, J. D. Tucker2, P. A. Beck2, J. Jennings2, J. G. Powell2, and E. A. Backes2, 1Department of Animal Science, University of Arkansas, Little Rock, 2University of Arkansas Livestock and Forestry Research Station, Batesville, 3Department of Animal Science, University of Arkansas, Hope, 4Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville.

830 M019  Regulation of gene expression and chemotactic and phagocytic function of bovine neutrophils incubated with citrus oil and lipopolysaccharides.
M. Garcia1, D. Biswas1, T. H. Elsasser2, and K. M. Moyes1, 1Department of Animal and Avian Sciences, University of Maryland, College Park, 2USDA/ARS Growth Biology Lab, Beltsville, MD.

831 M020  Effect of Penicillium mycotoxins on bovine macrophage (BoMac) function.
S. Y. Oh1, H. J. Boermans2, H. V. L. N. Swamy2, T. K. Smith2, and N. A. Karrow2, 1Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, 2Department of Biomedical Sciences, University of Guelph, Guelph, ON, Canada, Haladi Consultancy Services, Bangalore, India.

832 M021  The Mycobacterial Diseases of Animals (MDA) Multistate Initiative—a cooperative effort addressing animal diseases.
K. E. Olson1, V. Kapur2, P. Coussens1, and D. H. Lein3, 1KEO Consulting, Schaumburg, IL, 2Pennsylvania State University, State College, PA, 3Michigan State University, East Lansing, 4Cornell University, Ithaca, NY.

833 M022  Up-regulation of fetal cardiac genes following persistent and transient bovine viral diarrhea virus infection.
S. W. Hahm*, T. R. Hansen, and H. Han, Colorado State University, Fort Collins.

834 M023  Omnigen-AF supplementation inclusion rate independently promotes immune function in a rat model.
J. A. Branson1,2, D. J. McLean1, N. E. Forsberg1, S. A. Armstrong1, T. H. Schell1, and G. Bobe2, 1OmniGen Research, Prince Agri Products, Corvallis, OR, 2Oregon State University, Corvallis.

835 M024  Effects of betaine on growth performance, carcass characteristics and meat quality of broilers.
J. Ma, W. Chang*, G. Liu, H. Cai, S. Zhang, and A. Zhen, Feed Research Institute, Chinese Academy of Agricultural Sciences, Beijing, China.

836 M025  Effects of dietary polyphenols on inflammatory processes, nutrient digestibility and microbiota in the intestine of piglets.
A. Fiesel1, D. K. Geßner1, B. Eckel2, and K. Eder2, 1Institute of Animal Nutrition and Nutrition Physiology, Universität Gießen, Gießen, Germany, 2Dr. Eckel GmbH, Niederzissen, Germany.

837 M026  Effects of CO2 and filter pore size on bovine neutrophil chemotaxis.
A. M. Barnard*, R. Nebenhaus, S. Polukis, and T. F. Gressley, University of Delaware, Newark.

838 M027  Preliminary evaluation of the effect of a mushroom (Coriolus versicolor) probiotic on gene expression in goat blood.
K. A. Ekwemalor*, North Carolina Agricultural and Technical State University, Greensboro.

839 M028  Current colostrum management practices on Jersey farms in Vermont and New York State.
K. M. Morrill1, M. M. Spring2, and H. D. Tyler2, 1Cornell University, Ithaca, NY, 2Iowa State University, Ames.

840 M029  Effect of 2,4-thiazolidinedione treatment in milk production and leukocytes phagocytosis after sub-clinical mastitis induction in lactating dairy goats.
S. G. Richards1, L. Robertson, D. Dahl, L. Johnston, C. T. Estill, and M. Bionaz, Department of Animal and Rangeland Sciences, Oregon State University, Corvallis.

841 M030  Cross-talk between liver and mammary tissue after experimental Escherichia coli mastitis in Holstein dairy cows using RNaseq.
M. Bionaz1, K. M. Moyes2, and P. Sørensen1, 1Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, 2Department of Animal and Avian Sciences, University of Maryland, College Park, 3Center for Quantitative Genetics and Genomics, Department of Molecular Biology and Genetics, Aarhus University, Tjøle, Denmark.
Identifying the major bacteria causing intramammary infections in individual milk samples of sheep and goats using traditional bacteria culturing and real-time polymerase chain reaction.
M. Rovai1, G. Caja1, A. Salama1,2, A. Jubert1, B. Lazaro1, M. Lazaro3, and G. Leitner1, 1Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, 2Animal Production Research Institute, Dokki, Giza, Egypt, 3Laboratori Interprofessional Lleter de Catalunya (ALLIC), Cabrils, Spain, 4Vacunek, Ibaizabal Bidea 800, Parque Cientifico y Tecnologico de Bizkaia, Derio, Spain, 5National Mastitis Reference Center, Kimron Veterinary Institute, Bet-Dagan, Israel.

Antibiotic dry-off therapy for intramammary infections in dairy sheep and goats.
M. Rovai1, G. Caja1, A. Salama1,2, C. L. Manuelian1, X. Such1, M. Cervino1, and G. Leitner1, 1Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, 2Animal Production Research Institute, Dokki, Giza, Egypt, 3Boehringer-Ingelheim España S.A., Barcelona, Spain, 5National Mastitis Reference Center, Kimron Veterinary Institute, Bet-Dagan, Israel.

Tissue protein nitration and peripheral blood endotoxin activity are indicative of the severity of systemic organ compromise in naturally-occurring clinical cases of bacterial mastitis in holstein dairy cows.
S. Kahl1, T. H. Elsasser, and G. Sample, USDA, Agricultural Research Service, Beltsville, MD.

Prolinflammatory responses of a hTERT-transformed, immortalized line of cultured bovine mammary epithelial cells (BME).
T. H. Elsasser2,3, S. Kahl1, D. E. Kerr2, E. Zudaire1, and F. Cattita1, 1USDA, Agricultural Research Service, Beltsville, MD, 2University of Vermont, Burlington, 3NIH-NCI, Bethesda, MD.


Identification of immune response markers to Omnigen-AF supplementation in a rat model.
J. A. Branson1,2, D. J. McLean1, N. E. Forsberg1, S. A. Armstrong2, T. H. Schell1, and G. Bobe1, 1Omnigen Research, Prince Agri Products, Corvallis, OR, 2Oregon State University, Corvallis.

Effects of recombinant bovine somatotropin treatment during the transition period on serum growth hormone and insulin-like growth factor 1 concentrations and liver content of lipid, triglyceride, and glycogen.
P. Basso Silva1, D. S. Lobao2, D. H. Keisler1, and R. C. Chebel1, 1University of Minnesota, Saint Paul, 2Department of Animal Science, University of Minnesota, St. Paul, 3University of Missouri-Division of Animal Sciences, Columbia, 4Department of Veterinary Population Medicine, University of Minnesota, St. Paul.

Vitamin D signaling enhances expression of antibacterial β-defensin genes in bovine monocytes.
C. D. Nelson1, K. E. Merriman1, and J. D. Lippolis1, 1Department of Animal Sciences, University of Florida, Gainesville, 2USDA, ARS, National Animal Disease Center, Ames, IA.

Effects of genotype and transportation stress on cytokine gene expression in steers.
M. A. Sales1, M. Ata1, B. Williamson1, K. P. Coffey1, M. L. Looper2, and C. F. Rosenkranz1, 1University of Arkansas, Fayetteville, 2USDA-ARS Dale Bumpers Small Farms Research Center, Booneville, AR.

Prevalence and molecular identification of Cryptosporidium spp. in lambs on the Huasteca Alta Region, State of Veracruz, Mexico.
S. S. Gonzalez1 and I. Vitela-Mendoza2, 1Colegio de Postgraduados, Montecillo Estado de Mexico, Mexico, 2Instituto Tecnologico El LLano, Aguaasculientes, Mexico.

Bacteriological culture and California mastitis test results of non-clinical quarters from cows with clinical mastitis.
A. Lago1 and N. Silva-del-Rio2, 1DairyExperts, Tulare, CA, 2VMTRC, University of California, Tulare.

Effect of early feed restriction programs on IgY production of broiler chickens.
M. L. Moraes1, F. M. Batzon1, M. M. Vieira1, C. M. M. Pimentel1, and A. M. L. Ribeiro1, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil.

Breeding and Genetics: Applications and Methods in Animal Breeding-Beef

Effects of functional polymorphisms on beef carcass merit.

Steers carcass characteristics with different genetic predominance fed with diets containing substitution levels of grain corn by millet grain.
R. M. D. Silva1,2, J. T. Pádua1, J. J. R. Fernandes1, R. Z. Taveira1, R. L. Missio1, P. S. Pacheco1, D. A. Fausto1, and J. Restle1, 1Universidade Estadual de Goiás, São Luis de Montes Belos, Goiás, Brazil, 2Universidade Federal de Goiás, Goiânia, Goiás, Brazil, 3FAPEG, Goiânia, Goiás, Brazil, 4Universidade Federal de Goiás, Goiânia, Brazil, 5Universidade Federal de Santa Maria, Santa Maria, Rio Grande do Sul, Brazil, 6ESALQ / USP, Piracicaba, São Paulo, Brazil.
931 M045  Genome-wide association analysis for beef traits in Marchigiana cattle breed.
S. Sorbolini1, C. Graber2, C. Dimaro2, G. Gaspa3, M. Cellesi4, A. Valentini4, and N. P. P. Macciotta1, 1Università di Sassari, Sassari, Italy, 2Dipartimento per l’Innovazione dei sistemi biologici, agroalimentari e forestali, Viterbo, Italy.

932 M046  Estimation of genetic parameters for reproductive traits in a multibreed population of beef cattle.
S. O. Peters1, K. Kizilkaya2, D. J. Garrick2, R. L. Fernando2, E. J. Pollak3, M. Enns3, and I. G. Immink4, 1Berry College, Mount Berry, GA, 2Adnan Menderes University, Aydin, Turkey, 3Iowa State University, Ames, 4USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, 5Colorado State University, Fort Collins, 6Cornell University, Ithaca, NY.

933 M047  Copy number variation in the genome of Nellore cattle.
M. V. A. Lemos1, M. P. Bertoni2, C. Aboujauade1, F. Feitosa3, G. C. Venturini4, R. L. Tonussi5, R. Espigolan6, H. N. Oliveira7, L. G. Albuquerque7, and F. Baldi8, 1State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, São Paulo, Brazil, 2State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, São Paulo, Brazil, 3Jaboticabal, Brazil, Jaboticabal, Brazil, Jaboticabal, Brazil, 4FCAV-UNESP, Jaboticabal, Brazil, 5UNESP, Jaboticabal, Brazil, 6State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, Brazil, 7Universidade Estadual Paulista “Júlio de Mesquita Filho”- UNESP, Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, Brazil.

934 M048  Seasonality and fresh semen quality from Pantaneira and Nellore bulls raised in Brazilian Pantanal.
L. E. S. Silva1, L. K. Hatamoto-Zervoudakis2, A. F. Ramos2, P. P. Tsuneda2, F. M. Wingert2, M. F. Duarte Junior2, T. B. Castaldelli2, R. D. Almeida2, and J. D. O. Moraes1, 1Federal University Of Mato Grosso, Cuiaba, Brazil, 2Embrapa-Cenargen, Brasilia, Brazil.

935 M049  Sliding window methods to detection of regions under selection in Nellore cattle.
D. F. Cardoso1, G. C. Venturini2, D. J. A. Santos3, R. R. Aspilcueta Borquis1, A. A. Stella1, F. Baldi1, L. G. Albuquerque1, M. E. Z. Mercadante1, and H. Tonhati1, 1State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, São Paulo, Brazil, 2Bolsista-Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), São Paulo, Brazil, 3Sao Paulo State University (UNESP), Jaboticabal, Brazil, 4Univ Estadual Paulista, Jaboticabal, Brazil, 5Universidade Estadual Paulista “Júlio de Mesquita Filho”- UNESP, Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, Brazil, 6Centro APTA Bovinos de Corte, Instituto de Zootecnia, Seridózinho-SP, Brazil.

936 M050  Association between copy number variation regions in the Nellore cattle genome and meat tenderness.
M. P. Bertoni1, M. V. A. Lemos2, C. Aboujauade2, G. M. de Camargo2, F. Feitosa3, G. C. Venturini4, R. L. Tonussi5, R. Espigolan6, D. M. Gordo2, A. S. C. Pereira7, H. N. Oliveira7, L. G. Albuquerque7, and F. Baldi8, 1State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, São Paulo, Brazil, Jaboticabal, Brazil, Jaboticabal, Brazil, 2Universidade Estadual Paulista “Júlio de Mesquita Filho”- UNESP, Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, Brazil, 3State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, Brazil, 4Sao Paulo State University (UNESP), Jaboticabal, Brazil, 5State University of São Paulo, Jaboticabal, Brazil, 6State University of São Paulo, Jaboticabal, Brazil.

937 M051  An evaluation of six years of carcass and feedlot performance in Brahman and Brahman influenced steers tested by the American Brahman Breeders Association (ABBA) National Carcass Evaluation Program.
A. Royer* and M. D. Garcia, Louisiana State University, Baton Rouge.

938 M052  Relationship of physical characteristics and reproductive status in crossbred Angus replacement heifers.
J. E. Thames1, C. M. Turner1, A. H. Brown, Jr.2, C. F. Rosenkrans1, K. Anschutz2, and J. G. Powell2, 1University of Arkansas, Fayetteville, 2Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville.

Breeding and Genetics: Genomic Methodology

939 M053  Signature of selection reveals large difference in selection traits.
X. Zhang1, I. Misztal2, M. Heidaritabar3, J. W. M. Bastiaanssen4, R. Hawken5, R. Okimoto6, R. L. Sapp6, H. H. Cheng5, D. A. Lourenco7, and W. M. Muir8, 1University of Georgia, Athens, 2Wageningen University, Wageningen, Netherlands, 3Animal Breeding and Genomics Centre, Wageningen University, Wageningen, Netherlands, 4Cobb-Vantress Inc., Siloam Springs, AR, 5USDA, ARS, ADOL, East Lansing, MI, 6Purdue University, West Lafayette, IN.

940 M054  Weighted single-step genomic BLUP: An iterative approach for accurate calculation of breeding values and SNP effects.
X. Zhang1, D. A. L. Lourenco2, and I. Misztal, University of Georgia, Athens.

941 M055  Derivation of Bayes and Minimax decision rules for allelic frequencies estimation in biallelic loci.
C. A. Martinez1, K. Khare2, and M. A. Elzo3, 1Department of Animal Sciences, University of Florida, Gainesville, 2Department of Statistics, University of Florida, Gainesville.

D. Lourenco1 and I. Misztal, University of Georgia, Athens.
### CSAS Graduate Student Poster Competition

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<td>Effect of dietary supplementation with linseed oil on the miRnome profile of the bovine mammary gland.</td>
<td>R. Li(^1), F. Beaudoin(^1), X. Zhao(^2), C. Lei(^2), and E. M. Ibeagha-Awemu(^1), (^1)Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, (^2)Northwest A&amp;F University, Xi’an, China, (^3)McGill University, St Ann De Bell, PQ, Canada.</td>
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<td>M058</td>
<td>Effect of co-expression of Lc and C1 flavanoid regulatory genes in alfalfa on nutritive value and ruminal methane production.</td>
<td>R. G. Heendeniya Vidanaral(^1), M. Y. Gruber(^1), Y. Wang(^2), D. A. Christensen(^1), J. J. McKinnon(^1), B. Coulman(^1), and P. Yu(^1), (^1)University of Saskatchewan, Saskatoon, SK, Canada, (^2)Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.</td>
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<td>M059</td>
<td>Predicting milk fat concentration from nutrient content and DCAD of the diet.</td>
<td>L. Fadul-Pacheco(^*), D. Pellerin, P. Y. Chouinard, and E. Charbonneau, Université Laval, Québec, QC, Canada.</td>
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<td>M060</td>
<td>Evaluation of methane prediction equations for beef cattle fed high forage or high concentrate diets.</td>
<td>P. Escobar(^1), K. A. Beauchemin(^1), and M. Oba(^1), (^1)University of Alberta, Lethbridge, AB, Canada, (^2)Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, (^3)Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.</td>
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<td>M061</td>
<td>Non-protein nitrogen improves feed efficiency of growing pigs fed a diet deficient in non-essential amino acid nitrogen.</td>
<td>W. D. Mansilla(^*), J. K. Htoo(^2), and C. F. de Lange(^1), (^1)University of Guelph, Guelph, ON, Canada, (^2)Evonik Industries AG, Hanau-Wolfgang, Germany.</td>
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<td>M062</td>
<td>Impact of the fatty acids in the diet on milk fat content: Analysis from a database of commercial farms.</td>
<td>H. Mannal(^*), P. Y. Chouinard, L. Fadul-Pacheco, D. Pellerin, and E. Charbonneau, Université Laval, Québec, QC, Canada.</td>
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<td>M063</td>
<td>Pregnancy and lambing rates in anestrous ewes bred to a new synchronization protocol and laparoscopic timed artificial insemination (TAI).</td>
<td>S. B. Turner(^*), M. B. Gordon(^1), T. Gowen(^1), J. A. Small(^1), and D. M. W. Barrett(^1), (^1)Faculty of Agriculture, Dalhousie University, Truro, NS, Canada, (^2)Agriculture and Agri-Food Canada, Truro, NS, Canada.</td>
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<td>M064</td>
<td>Effect of duration on feed and energy substrate on the digestive physiology of finishing feedlot cattle.</td>
<td>F. Joy(^*), J. J. McKinnon, S. Hendrick, and G. B. Penner, University of Saskatchewan, Saskatoon, SK, Canada.</td>
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<td>M065</td>
<td>A prepartum diet supplemented with rolled canola seed reduced pituitary sensitivity to GnRH in dairy cows during second week postpartum.</td>
<td>R. Salehi(^*), M. G. Colazo(^1), M. Oba(^1), and D. J. Ambrose(^1), (^1)University of Alberta, Edmonton, AB, Canada, (^2)Alberta Agriculture and Rural Development, Edmonton, AB, Canada.</td>
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<td>M066</td>
<td>Utilization of high lipid byproduct pellet in the finishing diet of feedlot steers to improve carcass traits and reducing feed costs.</td>
<td>F. Joy(^*), J. J. McKinnon(^1), P. Gorka(^2), and G. B. Penner(^1), (^1)University of Saskatchewan, Saskatoon, SK, Canada, (^2)University of Agriculture in Krakow, Krakow, Poland.</td>
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### Dairy Foods: Technical Poster Session 1: Cheese / Yogurt

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<td>Physicochemical and sensory characteristics of processed cheese manufactured from goat's milk fed diet supplemented with sunflower seed or sunflower oil.</td>
<td>A. G. Mohamed(^*), T. A. Morsy, and S. Kholif, National Research Center, Cairo, Egypt.</td>
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<td>Fatty acid profile of sheep cheeses that are commercialized in Chile.</td>
<td>E. Vargas-Bello-Pérez(^*), C. Ugalde, P. Toro-Mujica, R. Vera, and C. Aguilar, Pontificia Universidad Católica de Chile, Santiago, Chile.</td>
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<td>Investigating the impact of distillers dried grains with solubles on the quality of milk and swiss cheese.</td>
<td>V. Manimanna Sankarla(^*), E. D. Testroet, and S. Clark, Iowa State University, Ames.</td>
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<td>M070</td>
<td>Evaluation of unidentified structural features in hard, aged cheeses and soft, washed rind cheeses by powder X-ray diffractometry.</td>
<td>G. F. Tansman(^<em>), P. S. Kindstedt(^</em>), and J. M. Hughes(^1), (^1)Department of Nutrition and Food Sciences, University of Vermont, Burlington, (^2)Department of Geology, University of Vermont, Burlington.</td>
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<td>A. C. C. Ferreira(^*), R. L. Oliveira(^1), J. F. Vieira(^1), T. M. Silva(^1), A. M. Barbosa(^1), S. M. P. L. Jaeger(^1), and D. D. Amaral(^1), (^1)Universidade Federal da Bahia, Brazil, (^2)Universidade Federal da Bahia, Salvador, Brazil, (^3)Universidade do Recconcavol da Bahia-UFRB, Cruz das Almas, Brazil.</td>
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Microbial stress responses and gene expression during aging of cation-substituted full fat cheddar cheese.
B. Ganesan*, S. Muruganandam, and D. J. McMahon, Western Dairy Center, Utah State University, Logan.

Characteristics of yogurt manufactured using reconstituted yogurt cultured milk powder compared to yogurt powder.
L. Song*, and K. J. Aryana, 1Louisiana State University, Baton Rouge, 2Louisiana State University Agricultural Center, Baton Rouge.

Impacts of different types of exopolysaccharides on the physical and rheological properties of yogurts.
U. Pachekrepapol*, J. A. Lucy, and D. S. Horne, 1Department of Food Science, University of Wisconsin–Madison, 2Wisconsin Center for Dairy Research, Madison.

Substituting KCl for NaCl in fresh queso fresco.
D. L. Van Hekken*, and D. X. Ren, and M. H. Tunick, 1USDA, ARS, ERRC, Dairy & Functional Foods Research Unit, Wyndmoor, PA, 2Institute of Dairy Science, College of Animal Science, Zhejiang University, Hangzhou, P.R., China.

Effect of potassium sorbate and sodium benzoate concentrations on growth of cheese starter cultures.
D. Olson*, E. Gonzalez, M. Ponce, and K. J. Aryana, Louisiana State University Agricultural Center, Baton Rouge.

Influence of submicronization of sodium chloride on the sensory characteristics of surface salted cheese crackers.
M. Moncada*, C. Sabliov, C. Astete, and K. J. Aryana, Louisiana State University Agricultural Center, Baton Rouge.

Submicronization of sodium chloride and its effect on the physico-chemical and microbiological characteristics of surface salted cheese crackers.
M. Moncada*, C. Sabliov, C. Astete, and K. J. Aryana, Louisiana State University Agricultural Center, Baton Rouge.

Influence of various health beneficial spices on some characteristics of yogurt culture bacteria and Lactobacillus acidophilus and sensory acceptability of spicy probiotic yogurt.
M. Sánchez-Vega and K. J. Aryana*, Louisiana State University Agricultural Center, Baton Rouge.

Yogurt characteristics as effected by added lactose.
B. Mena and K. J. Aryana*, Louisiana State University Agricultural Center, Baton Rouge.

Influence of added lactose on some probiotic properties of yogurt culture bacteria.
B. Mena and K. J. Aryana*, Louisiana State University Agricultural Center, Baton Rouge.

Evaluation of the Perten Dough Lab for production of imitation mozzarella cheese.
A. Kommineni*, S. Patel, A. C. Biswas, C. Marella, and L. Metzger, 1Dairy Science Department, South Dakota State University, Brookings, 2Dairy Science Department, California Polytechnic State University, San Luis Obispo, 3Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Genome analysis of two Lactobacillus curvatus strains that have emerged as dominant non-starter lactic acid bacteria in cheese.
C. J. Oberg, T. S. Oberg, J. R. Broadbent, M. D. Culumber, D. J. McMahon, and J. L. Steele, 1Department of Microbiology, Weber State University, Ogden, UT, 2Department of Nutrition, Dietetics, and Food Sciences, Western Dairy Center, Utah State University, Logan, 3Western Dairy Center, Utah State University, Logan, 4University of Wisconsin-Madison.

Use of a water-in-oil-in-water (W/O/W) double emulsion to simulate the full-fat cheese physical properties in a 30% reduced-fat cheese.
L. Liu*, D. Clayton, and D. J. McMahon, 1Key Laboratory of Dairy Science, Ministry of Education, Northeast Agricultural University, Harbin, China, 2Western Dairy Center, Utah State University, Logan.

Forages and Pastures Posters I: Silages and Forages in Dairy Production Systems

The influence of wilting on the quality of Leucaena leucocephala silage.
T. Clavero* and R. Razz, 1Universidad Del Zulia, Maracaibo, Venezuela, 2Universidad del Zulia, Maracaibo, Venezuela.

Comparison of milk fatty acid profiles of dairy cows grazing cool-season perennial ryegrass or birdsfoot trefoil pasture on a commercial organic dairy farm.
R. G. Christensen*, J. S. Eun, V. Fellner, A. J. Young, and J. W. MacAdam, 1Utah State University, Logan, 2North Carolina State University, Raleigh.

Lactational response of Holstein cows to brown midrib or leafy-floury corn silage.

Production response of lactating cows to diets based on corn or forage sorghum silage produced from first or second harvest.
J. K. Bernard*, University of Georgia, Tifton.
1072 M089 Feeding strategy and pasture quality relative to nutrient requirements of grazing dairy cows in the northeastern U.S.
A. N. Hafta1, K. J. Soder1, A. F. Brito1, R. Kersbergen1, F. Benson1, H. Darby2, and M. D. Rubano2, 1USDA-Agricultural Research Service, University Park, PA, 2University of New Hampshire, Durham, 3University of Maine Cooperative Extension, Waldo, 4Cornell University Extension, Cortland, NY, 5The University of Vermont, Albans.

1073 M090 Use of biological additives to improve lactic fermentation tropical silages.
L. Bernal1, R. Herrera1, P. Avila1, H. Jimenez1, M. Cuchiño1, and S. D. Martens1, 1La Salle University, Bogotá, Colombia, 2Corpoica, Bogota, Colombia, 3International Center for Tropical Agriculture, Cali, Colombia, 4Saxon State Office for Environment, Agriculture and Geology, Department of Animal Production, Köllitsch, Germany.

1074 M091 Quality evaluation of five varieties of corn for silage production in crop-livestock-forest integration system in the Cerrado Region.
M. C. A. Santana1, A. A. Pinheiro1, V. A. Silva1, J. T. C. Pacheco1, A. C. Fernandes1, I. D. Carneiro1, V. C. Modesto1, and J. Cavali1, 1Emater, Goiânia, Brazil, 2UNESP, Jaboticabal, Brazil, 3Universidade Federal de Rondônia-Unir, Rondonia, Brazil.

1075 M092 Impact of hybrid and growing location on yield and composition of corn plants harvested for silage.
D. Bolinger1, L. Nazback1,1, F. N. Owens2, 1DuPont Pioneer, Perrinton, MI, 2DuPont Pioneer, Johnston, IA.

1076 M093 Impact of corn plant maturation and planting density on nutrient composition and potential milk yield.
L. Brown1, L. Nazback2, B. Redenius1, P. M. Walker1, and F. N. Owens2, 1DuPont Pioneer, Bloomington, IL, 2DuPont Pioneer, Johnston, IA, 3Illinois State University, Normal.

1077 M094 Gas production and volatile fatty acids of corn stover silage added with yeast culture and fermented apple pomace.
C. Rodriguez-Muela1, N. H. Ruiz1, P. F. Mancillas-Flores1, O. Ruiz-Barrera1, A. Corral1, C. Arzola-Alvarez1, A. Ramirez-Godinez1, and E. Santullano1, Universidad Autónoma de Chihuahua, Chihuahua, Mexico.

1078 M095 Effect of a chemical additive on fermentation and aerobic stability of high-moisture corn.
T. C. Da Silva1, M. L. Smith1, S. A. Polukis1, A. M. Barnard1, and L. Kung Jr.1, University of Delaware, Newark.

1079 M096 The effect of chemical additives with anti-fungal properties on the fermentation and aerobic stability of corn silage.
M. C. Windle1, C. Merrill1, M. C. N. Agarassui1, L. O. Rosa1, and L. Kung Jr.1, University of Delaware, Newark.

1080 M097 Effect of Lactobacillus plantarum MTD1, potassium sorbate or their combination on production of volatile organic compounds and aerobic stability of corn silage.
M. C. Windle1, C. Merrill1, M. L. Smith1, S. D. Hafner1, F. M. Mitloehner1, R. Franco1, and L. Kung Jr.1, 1University of Delaware, Newark, 2Hafner Consulting LLC, Washington, DC, 3University of California-Davis.

1081 M098 The effects of strains of yeasts or Lactobacillus buchneri 40788 on the fermentation, production of volatile organic compounds (VOCs), and aerobic stability of corn silage.
R. M. Savage1,1, M. C. Windle1, S. D. Johanningsmeier1, and L. Kung Jr.1, 1University of Delaware, Newark, 2USDA-ARS Food Science Research Unit, Raleigh, NC.

1082 M099 Isolation and identification of lactic acid bacteria in forage peanut silage.
L. D. Rufino1, E. S. Leandro1, K. G. Ribeiro1, H. C. Mantovan1, T. C. Silva1, and O. G. Pereira1, 1Universidade Federal de Vícosa, Vícosa, Minas Gerais, Brazil, 2Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

1083 M100 Evaluating top losses in Argentine corn silages.
L. O. Abdelhadi1, G. Marley1, and J. M. Barneix1, 1Est. El Encuentro, Research & Extension in Ruminant Nutrition, Brandsen, Buenos Aires, Argentina, 2Sil-All Global Product Manager, Gloucestershire, United Kingdom, 3Sil-All Argentine Product Manager, Lincoln, Buenos Aires, Argentina.

1084 M101 Corn silage analysis as influenced by sample size.
I. M. Malebana1, D. J. R. Cherney2, and W. J. Cox3, 1Agricultural Research Council, Pretoria, South Africa, 2Cornell University, Ithaca, NY.

1085 M102 In situ degradation characteristics of sorghum silage treated with fibrolytic enzymes.
A. Coronado1, K. C. McCuistion1, J. L. Foster1, G. Schuster1, and Z. Lopez1, 1Texas A&M University-Kingsville, 2Texas A&M AgriLife Research-Beeville Station, Beeville, 3Dow AgroSciences, Knoxville, TN.

1086 M103 Effect of ensiling time on fermentation profile and starch digestibility in whole plant corn silage from two different hybrid types.
L. F. Ferraretto1, R. D. Shaver1, S. Massie1, R. Singo1, D. M. Taysom1, and J. P. Brouillette4, 1University of Wisconsin-Madison, 2Renaissance Nutrition Inc, Roaring Springs, PA, 3Dairyland Laboratories Inc, Arcadia, WI, 4Dow AgroSciences, Mycogen Seeds, Indianapolis, IN.

1087 M104 Fermentation profile, chemical composition and microbial population in silages of Stylosanthes Campo Grande with microbial inoculant and pelletized citrus pulp.
W. F. D. Souza1, K. G. Ribeiro1, S. A. Santos1, T. C. Silva1, V. P. Silva1, and O. G. Pereira1, 1Universidade Federal da Bahia, Salvador, Brazil, 2Universidade Federal de Vícosa, Vícosa, Minas Gerais, Brazil, 3Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.
Recombined, late harvested ensiled alfalfa leaves and stems give comparable performance to normally harvested alfalfa silage.

R. D. Hatfield*, M. B. Hall*, R. E. Muck†, W. J. Radloff†, and K. J. Shinners†

U. S. Dairy Forage Research Center, USDA-ARS, Madison, WI, 1Biological Systems Engineering, University of Wisconsin-Madison.

Changes in the structural carbohydrates of corn stover silage added with yeast culture and fermented apple pomace.

N. H. Ruíz†, C. Rodríguez-Muela†, D. Díaz-Plascencia†, O. Ruíz-Barrera†, A. Corral†, A. Ramírez-Godínez†, and C. Arzola-Alvarez†

Universidad Autónoma de Chihuahua, Chihuahua, Mexico.

Effects of different additives on chemical composition, fermentation characteristics and aerobic stability of barley silage.

Y. Jo†, D. Kim†, H. Lee†, S. M. Amanullah†, S. C. Kim†, and I. H. Choi†

Division of Applied Life Science (BK21Plus, Insti. of Agri. & Life Sci.), Gyeongsang National University, Jinju, South Korea, 2Department of Companion Animal and Animal Resources Science, Jeonju University, Geumsan-gun, South Korea.

Effects of bacterial inoculation on the fermentation and aerobic stability of whole crop soybean silage.

B. D. Nkosi†, R. Meeske‡, T. Lunga†, T. F. Mutavhatsindi†, and I. M. Malebana†

ARC-Animal Production Institute, Irene, South Africa, 2Outeniqua Research Farm, Western Cape Department of Agric., George, South Africa.

With withdrawn by author.

Quality and fermentation profile of sugar cane silage treated with chemical and microbial additives.

L. L. Cardoso, M. I. Marcondes†, K. G. Ribeiro, O. G. Pereira, T. E. Silva, and D. G. Ferreira

Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

Graduate Student Competition: ADSA Dairy Foods Poster

The effect of native phospholipids on the flavor and flavor stability of bleached cheddar whey.

C. Park* and M. Drake, Southeast Dairy Foods Research Center, NCSU, Raleigh, NC.

The effect of norbixin destruction or removal on flavor and functionality of 80% whey protein concentrate.

Y. Qiu*, T. Smith, A. Foegeding, and M. Drake, Southeast Dairy Foods Research Center, NCSU, Raleigh, NC.

Storage and temperature effects on the solubility, maillard browning, and sensory characteristics of milk protein concentrates.

T. Smith*, R. Campbell, and M. Drake, Southeast Dairy Foods Research Center, NCSU, Raleigh, NC.

The salt, pH and thermostolerance of a novel nonstarter lactic acid bacterium that might be associated with slat defect in ripened cheddar cheese.

F. Ortakci†, J. R. Broadbent†, C. J. Oberg‡, and D. J. McMahon†

1Department of Nutrition, Dietetics, and Food Sciences, Western Dairy Center, Utah State University, Logan, 2Department of Microbiology, Weber State University, Ogden, UT, 3Western Dairy Center, Utah State University, Logan.

Role of protein interactions on microstructure and rheological properties of Greek-style yogurt.

G. H. Meletharayil†, H. A. Patel†, and S. G. Sutarjya†

South Dakota State University, Brookings, 2Dairy Science Department, South Dakota State University, Brookings.

Assessment of consumer perceptions and preferences regarding fluid milk at the beginning and end of printed code date.

M. E. Paterson†, Iowa State University, Ames.

Performance of cross-linked and calcium-reduced milk protein concentrate ingredients in model high-protein nutrition bars.

J. C. Banach†, S. Clark†, L. Metzger‡, and B. P. Lamsal†

Iowa State University, Ames, 2Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

The effects of post-exercise consumption of a Kefir beverage on performance and recovery during intensive endurance training.

K. V. O’Brien†, Louisiana State University, Baton Rouge.

Manufacture of high protein yogurts with low-Ca MPC.

A. Kommineni†, C. Marella*, A. C. Biswas†, and L. Metzger†

1Dairy Science Department, South Dakota State University, Brookings, 2Dairy Science Department, California Polytechnic State University, San Luis Obispo, CA, 3Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Effect of titanium dioxide, annatto and homogenisation on the translucency of reduced-fat cheddar cheese.

R. A. Ibanez†, P. L. H. McSweeney†

University College Cork, Cork, Ireland, 2University of Wisconsin-Madison.
Graduate Student Competition: ADSA Production Poster, MS

1139 M122 Effects of supplemental garlic (Allium sativum) powder and probiotics on diarrhea and immunoglobulin response in pre-weaned dairy calves.
T. W. Kekana*, University of Venda, Thohoyandou, South Africa.

1140 M123 Development of an application for touch-screen devices to capture defined calving-related events in dairy herds.
A. A. Barragan*, J. D. Workman, and G. M. Schuennemann, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus.

1141 M124 Effects of dietary crude protein levels during a twelve-week period on late-lactation dairy cow performance.
M. A. Quaassdorff*, T. Barros1, J. J. Olmos Colmenero2, M. J. Aguerre1, S. J. Bertics1, and M. A. Wattiaux1, 1University of Wisconsin-Madison, 2University of Guadalajara, Tepatilan, Mexico.

1142 M125 Patterns of circulating serotonin (5-HT), calcium, and glucose in lactating Jersey and Holstein dairy cows.

1143 M126 Rumen degradability and intestinal digestibility of protein and amino acids in canola meal.
N. Jayasinghe*, South Dakota State University, Brookings.

1144 M127 Estimate of serum immunoglobulin G concentration in Jersey calves using refractometry.
M. M. Spring1, K. M. Morrill1, A. L. Robinson1, and H. D. Tyler1, 1Iowa State University, Ames, 2Cornell University, Ithaca, NY.

1145 M128 Examination of pre-milking teat disinfectant contact times using the excised teat model.

1146 M129 The effects of feeding an algae supplement on milk yield, milk components, and dry matter intake.
M. E. Weatherly*, A. M. Gelman1, A. M. Lisenbee2, J. D. Clark1, D. L. Ray1, and J. M. Bewley1, 1University of Kentucky, Lexington, 2Altech, Inc., Nicholasville, KY.

1147 M130 Rumen morphology measurements in periruminant Holstein bull calves fed a fermentation extract of Aspergillus oryzae.
T. T. Yohe1, E. M. Dushad, K. M. O’Diam, and K. M. Daniels, Department of Animal Sciences, The Ohio State University, Wooster.

1148 M131 Response of dairy cows supplemented with antioxidants and/or chelated trace minerals to intra-mammary bacterial challenge.
R. O. Rodrigues1,2, M. O. Caldeira1, G. I. Zanton2, and M. R. Waldron1,3, 1University of Missouri, Columbia, 2Novus International, Inc., St. Charles, MO, 3Nutrition Professionals, Inc., Chilton, WI.

Graduate Student Competition: ADSA Production Poster, PhD

1149 M132 Effect of feeding diets with different type of carbohydrates on dry matter intake, rumen fermentation, and productivity of lactating dairy cows.
X. Gao*, J. Mewis, and M. Oba, University of Alberta, Edmonton, AB, Canada.

1150 M133 Propionate is a dominant inducer of bovine cytosolic phosphoenolpyruvate carboxykinase gene expression.
Q. Zhang*, S. L. Koser, and S. S. Donkin, Purdue University, West Lafayette, IN.

1151 M134 Slow-release urea, rumen-protected methionine, and histidine: Effects on expression and activation of the mTOR signaling pathway in skeletal muscle of dairy cows receiving a diet deficient in metabolizable protein.
F. Giallongo*, H. Sadri1, A. N. Hristov1, J. Werner1, C. Parys1, B. Sarem1, H. Sauerwein1, and C. Lang1, 1Department of Animal Science, The Pennsylvania State University, University Park, 2Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Bonn, Germany, 3Animal Resource Program, The Pennsylvania State University, University Park, 4Evonik Industries AG, Hanau, Germany, 5Department of Cellular and Molecular Physiology, Penn State College of Medicine, Hershey.

1152 M135 Attenuation of the integrated cortisol response following administration of oral firocoxib in preweaned calves prior to cauter disbudding.
M. L. Stock1, R. Gehring2, S. T. Millman1, C. Wang1, L. W. Widf2, L. A. Barth1, and J. F. Coetzee1, 1Iowa State University, Ames, 2Kansas State University, Manhattan, 3Pharmacology Analytical Support Team, Iowa State University College of Veterinary Medicine, Ames.

1153 M136 Effect of storage temperature on the bacterial growth and pH levels of bovine colostrum.
C. Cummins*, J. Lorenz*, and E. Kennedy*, 1Teagasc, Animal and Grassland Research and Innovation Center, Moorepark, Fermoy, Co. Cork, Ireland, 2School of Agriculture, Food Science & Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland, 3Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.
1154 M137 Interaction among energy status, retinol-binding protein and retinoids status in periparturient dairy cows: hepatic and adipose gene expression.  

1155 M138 The effect of prepartum housing on metabolic and reproductive health in dairy cows.  
C. L. Miltenburg* and S. J. LeBlanc, University of Guelph, Guelph, ON, Canada.

1156 M139 Intake, milk production, ruminal, and feed efficiency responses to DCAD in lactating dairy cows.  
M. E. Iwaniuk* and R. A. Erdman, University of Maryland, College Park

1157 M140 Hepatic metabolomics and transcriptomics in prepunatal dairy cows supplemented with Smartamine M and MetaSmart during the transition period.  
K. Shahzad*, J. S. Osorio1, D. N. Luchini2, and J. J. Loor1, 1University of Illinois at Urbana-Champaign, 2Adisseo S.A.S., Alpharetta, GA.

1158 M141 Detection of subclinical milk fever and ketosis in fresh dairy cows using rumination time, lying time, reticulorumen temperature, and neck activity.  
A. E. Sterrett1, B. A. Wadsworth1, R. J. Harmon1, M. Arnold1, J. D. Clark1, E. P. Aalseth2, D. L. Ray1, and J. M. Bewley1, 1University of Kentucky, Lexington, 2Earl P. Aalseth, Jr. Dairy Consulting, PLLC, Lake Stevens, WA.

1159 M142 Effects of stage of gestation and feeding regime on intake and apparent total tract digestibility in Holstein × Gyr dairy cows.  
P. P. Rotta1, S. C. Valadares Filho1, T. E. Engle1, L. F. Costa e Silva1, M. I. Marcondes2, F. S. Machado1, T. R. Gianbelli2, B. C. Silva1, and F. A. S. Silva1, 1Colorado State University, Fort Collins, 2Unividade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, 3Universidade Federal de Viçosa, Vícosa, Brazil, 4EMBRAPA, Juiz de Fora, Brazil, 5Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

1160 M143 Description of high cow premix recipes in California dairies.  
Y. Trillo1, A. Lago2, and N. Silva-del-Rio1, 1VMTRC, University of California, Tulare, 2DairyExperts, Tulare, CA.

Lactation Biology Poster I

1222 M144 Relationship between dry period length and production and reproduction in grazing Jersey and Holstein cows in Costa Rica.  

1223 M145 Effect of insulin on mRNA expression of genes related to milk synthesis in primary bovine mammary epithelial cells cultured in vitro.  
T. Qin1, H. Y. Wang1, D. P. Bu2, and H. B. Zhu1, 1Embryo Biotechnology and Reproduction 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.

1224 M146 Conjugated linoleic acid (CLA) trans-10, cis-12 decreases ACC-α gene expression in lactating mammary gland by decreasing specific transcripts from different promoters.  
D. E. Oliveira1, D. E. Bauman2, and K. J. Harvatine1, 1Santa Catarina State University, Lages, SC, Brazil, 2Cornell University, Ithaca, NY, 3Penn State University, State College.

1225 M147 Conjugated linoleic acid (CLA) affects in different ways acetyl-CoA carboxylase alpha (ACC-α) transcripts from different promoters in mammary and adipose tissue from lactating ewes.  
E. Ticiani1, M. Uri1, A. P. Povaluk1, M. V. Camera1, R. Ferreira1, L. C. Miletti1, K. J. Harvatine1, and D. E. Oliveira1, 1Santa Catarina State University, Lages, SC, Brazil, 2Santa Catarina State University, Chapecó, SC, Brazil, 3Penn State University, State College.

1226 M148 Effect of different hormones on β-casein and lactoferrin expression in mammary epithelial cells.  
W. Q. Li1, J. J. Yang2, X. M. Niu3, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 4College of Life Science, Henan Agricultural University, Zhengzhou, China.

1227 M149 Effects of methionyl-methionine on milk protein synthesis in bovine mammary gland.  
J. X. Yang1, H. Y. Liu1, C. H. Wang1, Q. B. Xu1, and J. X. Liu1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Zhejiang University, Hangzhou, China.

1228 M150 Effect of bta-mir-145 over-expression and down-expression on the other microRNA expression in primary bovine mammary epithelial cells.  
W. Q. Li1, D. P. Bu2, J. Q. Wang1, and X. M. Niu1, 1State Key Laboratory of Animal Nutrition, 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.
Stearic acid alters microRNA profiles in bovine mammary gland epithelial cells.
Y. G. Chai\textsuperscript{1}, X. M. Nan\textsuperscript{1}, D. P. Bu\textsuperscript{1}, J. J. Loor\textsuperscript{1}, and J. Q. Wang\textsuperscript{1}, \textsuperscript{1}State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, \textsuperscript{2}State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, \textsuperscript{3}University of Illinois at Urbana-Champaign.

The peroxisome proliferator-activated receptor gamma (PPAR\textgamma) agonist thiazolidinedione (TZD) does not overcome trans-10, cis-12 conjugated linoleic acid (CLA) inhibition of milk fat synthesis in lactating dairy ewes.
E. C. Sandri\textsuperscript{1}, E. M. Sandri\textsuperscript{2}, M. V. Camera\textsuperscript{1}, A. P. Povaluk\textsuperscript{1}, M. Urio\textsuperscript{1}, E. Ticiani\textsuperscript{1}, K. J. Harvatine\textsuperscript{3}, and D. E. Oliveira\textsuperscript{1}, \textsuperscript{1}Santa Catarina State University, Lages, SC, Brazil, \textsuperscript{2}Santa Catarina State University, Chapecó, SC, Brazil, \textsuperscript{3}Penn State University, State College.

Fatty acid synthase is essential for milk fat formation in goat mammary gland.
J. Zhu\textsuperscript{1}, J. Luo\textsuperscript{2}, Y. Sun\textsuperscript{1}, and H. Shi\textsuperscript{1}, \textsuperscript{1}Northwest A&F University, Yangling, China, \textsuperscript{2}Northwest A & F University, Yangling, China.

Meat Science & Muscle Biology Posters I

Proximate composition and physico-chemical characteristics of broiler fed varying levels of honey in their diet.
F. Patience Olusola\textsuperscript{1}, A. Victor O\textsuperscript{2}, O. Bayonle O\textsuperscript{2}, and O. Olumuyiwa Jacob\textsuperscript{2}, \textsuperscript{1}Osun State University, Osogbo, Nigeria, \textsuperscript{2}Osun State University, College of Agriculture, Osogbo, Nigeria.

Carcass and organ characteristics of broilers fed varying levels of honey.
A. Victor Olabisi\textsuperscript{1}, F. Patience Olusola, O. Olumuyiwa Jacob, and O. Kehinde O., Osun State University, Osogbo, Nigeria.

Ractopamine and immunocastration: Effects on enhanced pork loin.
A. F. S. I. de Fretas\textsuperscript{1,2}, D. S. Lucas\textsuperscript{1}, D. A. Fausto\textsuperscript{1}, S. F. N. Pertile\textsuperscript{1}, E. F. Delgado\textsuperscript{1}, N. S. Janzantti\textsuperscript{1}, and E. T. F. Silveira\textsuperscript{1}, \textsuperscript{1}UNESP, São José do Rio Preto, São Paulo, Brazil, \textsuperscript{2}IFMT, Campo Novo do Parecis, Mato Grosso, Brazil, \textsuperscript{3}UFF, Rio de Janeiro, Rio de Janeiro, Brazil, \textsuperscript{4}ESALQ / USP, Piracicaba, São Paulo, Brazil, \textsuperscript{5}UNESP, São José do Rio Preto-São Paulo, Brazil, \textsuperscript{6}ITAL, Campinas, São Paulo, Brazil.

Analysis of porcine myosin heavy chain isoforms by liquid chromatography and mass spectrometry.
G. D. Kim\textsuperscript{1,2}, E. Y. Jung\textsuperscript{2}, H. W. Seo\textsuperscript{2}, J. Y. Jeong\textsuperscript{3}, S. T. Joo\textsuperscript{4}, and H. S. Yang\textsuperscript{5}, \textsuperscript{1}Department of Food Science and Biotechnology, Kyungnam University, Changwon, South Korea, \textsuperscript{2}Division of Applied Life Science, Gyeongsang National University, Jinju, South Korea, \textsuperscript{3}Institute of Agriculture and Life Science, Gyeongsang National University, Jinju, South Korea, \textsuperscript{4}Department of Animal Science, Gyeongsang National University, Jinju, South Korea, \textsuperscript{5}Division of Applied Life Science, Gyeongsang National University, Jinju, South Korea.

Occurrence of dietary unsaturated fatty acids and their biohydrogenation products in muscles of non-ruminating foregut fermenters.
A. Schwarm\textsuperscript{1,2}, M. Kreuzer\textsuperscript{1}, F. Leiber\textsuperscript{1}, S. Ortman\textsuperscript{1}, and M. Claus\textsuperscript{1}, \textsuperscript{1}ETH Zurich, Institute of Agricultural Sciences, Zurich, Switzerland, \textsuperscript{2}ETH Zurich, Zurich, Switzerland, \textsuperscript{3}Research Institute of Organic Agriculture (FiBL), Frick, Switzerland, \textsuperscript{4}Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany, \textsuperscript{5}University of Zurich, Clinic for Zoo Animals, Exotic Pets and Wildlife, Zurich, Switzerland.

Effects of amino acid supplementation of reduced crude protein (RCP) diets on fatty acid compositions of subcutaneous fat and muscle.
A. N. Young\textsuperscript{1}, J. K. Apple, J. W. Yancey, T. M. Johnson, T. C. Tsai, and C. V. Maxwell, Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville.

Postmortem pH evolution in four muscles and onset, state and resolution of rigor mortis of guinea pigs (Cavia porcellus) carcass.
D. Núñez-Valle\textsuperscript{1}, L. P. Cevallos-Velastegui\textsuperscript{1}, A. Morales-delaNuez\textsuperscript{2}, N. Castro\textsuperscript{3}, A. Argüello\textsuperscript{4}, and D. Sánchez Macias\textsuperscript{5}, \textsuperscript{1}Agroindustrial Engineering, Universidad Nacional de Chimborazo, Riobamba, Ecuador, \textsuperscript{2}Facultad de Ciencia Pecuarias, Escuela Superior Politécnica de Chimbó, Riobamba, Ecuador, \textsuperscript{3}Department of Animal Science, Universidad de Las Palmas de Gran Canaria, Arucas, 35413, Las Palmas, Spain.

Water holding capacity and cooking losses of different muscles of guinea pigs (Cavia porcellus).
L. P. Cevallos-Velastegui\textsuperscript{1}, D. Núñez Valle\textsuperscript{1}, A. Morales-delaNuez\textsuperscript{2}, N. Castro\textsuperscript{3}, A. Argüello\textsuperscript{4}, and D. Sánchez Macias\textsuperscript{5}, \textsuperscript{1}Agroindustrial Engineering, Universidad Nacional de Chimbó, Riobamba, Ecuador, \textsuperscript{2}Facultad de Ciencia Pecuarias, Escuela Superior Politécnica de Chimbó, Riobamba, Ecuador, \textsuperscript{3}Department of Animal Science, Universidad de Las Palmas de Gran Canaria, Arucas, 35413, Las Palmas, Spain.
Nonruminant Nutrition: Amino Acid, Mineral and Energy Nutrition in Monogastrics

1288 M162 Calcium level and dEB affect the protein and mineral digestibility of lactating sows.
R. Davin*1, S. A. Guzmán-Pino1, D. Solà-Oriol1, E. G. Manzanilla1, and J. F. Pérez1, 1Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, 2Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain.

1289 M163 Early dietary amino acid restrictions and flaxseed oil supplementation on the leanness of pigs and quality of pork: Growth performance, serum metabolites, and carcass traits.
C. K. Adhikari1, L. I. Chiba1, S. D. Brožegé1, M. D. S. Vieira1, S. P. Rodning1, W. G. Bergen1, C. L. Bratcher1, and E. G. Welles1, 1Auburn University, Auburn, AL, 2Federal University of Rio Grande do Sul, Porto Alegre, Brazil.

1290 M164 Effects of supplementation with a commercial source of selenium in a laying hens' feeding system.
L. Betancourt*, Universidad de La Salle, Bogotá, Colombia

1291 M165 Correlating molecular spectroscopy and chemometrics to explore carbohydrate utilization of co-products from bio-fuel and bio-brewing processing.
L. Chen1, X. Zhang1, X. Huang1, and P. Yu1, 1Department of Animal Science, Tianjin Agricultural University, Tianjin, China, 2Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

1292 M166 Phosphorus utilization and sodium-dependent phosphate co-transporters gene expression in growing pigs fed low available phosphorus diets.
B. B. Pokharel1, C. M. Nyachoti1, and W. K. Kim1, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 2University of Manitoba, Winnipeg, MB, Canada, 3University of Georgia, Athens.

1293 M167 The impact of an inflammatory challenge and dietary omega-6 to omega-3 fatty acid ratios on protein deposition in nursery pigs.
L. Eastwood* and D. Beaulieu, Prairie Swine Centre, Inc., Saskatoon, SK, Canada.

1294 M168 Phosphorus digestibility in high protein canola meals, conventional canola meal, and soybean meal fed to growing pigs.
C. K. Parr*, Y. Liu, C. M. Parsons, and H. H. Stein, University of Illinois at Urbana-Champaign.

1295 M169 Effect of dietary energy level and weaning weight on growth performance and digestibility in weanling piglets.
M. D. S. Vieira1, A. M. L. Ribeiro1, A. D. M. Kessler1, L. I. Chiba*2, M. L. Somensi1, L. Bockor1, and L. G. Teixeira1, 1Federal University of Rio Grande do Sul, Porto Alegre, Brazil, 2Auburn University, Auburn, AL.

1296 M170 Egg quality of brown laying hens fed with different Met + Cys and chelate Cu levels.
J. E. D. Moraes1, C. C. Pizzolante1, A. P. O. Saccomani2, E. A. D. Oliveira3, S. K. Kakimoto4, J. C. Dadalt*5, and M. A. D. T. Neto5, 1APTA -Unidade de Pesquisa de Brotas-SAA-SP, Brotas, Brazil, 2Instituto de Zootecnia-APTA-SAA-SA, Nova Odessa, Brazil, 3Secretaria de agricultura de Brotas, Brotas, Brazil, 4Granja Kakimoto, Bastos, Brazil, 5University of São Paulo-USP, Pirassununga, Brazil.

1297 M171 Validation of net energy system of feed formulation in growing-finishing pigs fed barley based diets with alternative feed ingredients.
D. E Velayudhan* and C. M. Nyachoti, University of Manitoba, Winnipeg, MB, Canada.
1304  M178  **Effects of dietary tryptophan: Lysine ratio and sanitary conditions on performance of weaned pigs fed antibiotic-free diets.**  
B. Jayaraman*1, J. K. Hoo2, and C. M. Nyachoti1, 1University of Manitoba, Winnipeg, MB, Canada, 2Evonik Industries AG, Hanau-Wolfgang, Germany.

1305  M179  **Egg quality of brown layers fed with different levels of threonine and chelate zinc.**  
J. E. D. Moraes1, C. C. Pizzolante1, A. P. O. Saccoman1i, A. D. Oliveira1, S. K. Kakimoto1, J. C. Dadalt5, and M. R. A. Esteves5, 1APTA -Unidade de Pesquisa de Brotas-SAA-SP, Brotas, Brazil, 2Instituto de Zootecnia-APTA -SAA-SA, Nova Odessa, Brazil, 3Secretaria de agricultura de Brotas, Brotas, Brazil, 4Granja Kakimoto, Bastos, Brazil, 5University of São Paulo-USP, Pirassununga, Brazil.

1306  M180  **Tryptophan: Lysine ratio for pigs from 15 to 30 kg of body weight.**  
T. J. Pasquetti*1, P. C. Pozza2, I. Moreira2, L. M. Dias Huepa2, L. D. Castiglia2, M. R. Fachtinello2, L. A. C. Esteves5, V. R. C. Paula1, and S. W. Kim3, 1Universidade Estadual de Maringá, Bolsista CAPES, Maringá, PR, Brazil, 2Universidade Estadual de Maringá, Maringá, PR, Brazil, 3Department of Animal Science-FCAV/UNESP, Jaboticabal/SP, Brazil.

1307  M181  **Energy intake and nutrient digestibility in heavy finishing swine fed varying levels of soluble fiber.**  
D. J. Rodrigues*1, M. C. Thomaz1, U. D. S. Ruiz2, M. M. Lima2, M. S. F. Oliveira2, M. V. Maruyo6, F. F. Castro1, and E. Daniel1, 1Sao Paulo State University, Jaboticabal/SP, Brazil, 2Univ. Estadual Paulista-UNESP, Dracena, Brazil, 3Department of Animal Science-FCAV/UNESP, Jaboticabal/SP, Brazil.

1308  M182  **Amino acid digestibility in field peas, fish meal, corn, soybean meal, and soybean hulls.**  
J. K. Mathai* and H. H. Stein, University of Illinois at Urbana-Champaign.

1309  M183  **Lysine and tryptophan levels in diets for gilts from 15 to 30 kg of body weight.**  
T. J. Pasquetti1i, P. C. Pozza2, I. Moreira2, T. C. D. Santos2, D. Perondi3, C. D. L. Costa Filho2, W. Tanamati2, P. L. D. O. Carvalho1, and C. F. Muniz2, 1Universidade Estadual de Maringá, Bolsista CAPES, Maringá, PR, Brazil, 2Universidade Estadual de Maringá, Maringá, PR, Brazil, 3Department of Animal Science-FCAV/UNESP, Jaboticabal/SP, Brazil.

1310  M184  **Effects of mineral supplementation on the performance of nulliparous and multiparous does fed forage containing diets.**  
L. Verjel-Trigos1, I. Rodriguez-Carrascal1, and C. Ordóñez-Gomez1, 1Universidad Francisco de Paula Santander-Ocahui, Ocahui, Colombia, 2Universidad Nacional de Colombia, Bogotá, Colombia.

1311  M185  **Amino acid digestibility in oilseed meals fed to growing pigs.**  
C. S. Park*, A. R. Son, and B. G. Kim, Konkuk University, Seoul, South Korea.

1312  M186  **Standardized total tract digestibility of phosphorus in oilseed meals fed to growing pigs.**  
C. S. Park*1, Y. D. Jeong1, B. G. Kim1, and S. K. Park1, 1Konkuk University, Seoul, South Korea, 2Rural Development Administration, Suwon, South Korea.

1313  M187  **Standardized total tract digestibility of phosphorus in cereal grains and coproducts fed to growing pigs.**  
Y. D. Jeong1, C. S. Park2, B. G. Kim1, and S. K. Park1, 1Rural Development Administration, Suwon, South Korea, 2Konkuk University, Seoul, South Korea.

**Physiology and Endocrinology I**

1371  M188  **Comparison of endocrine changes, timing of ovulations, ovarian follicular growth, and efficacy associated with Estradubesynch and Heatsynch protocols in Murrah buffaloes (Bubalus bubalis).**  
R. Mirmahmoudi1 and B. S. Prakash1, 1Department of Animal Science, Faculty of Agriculture, University of Jiroft, Jiroft, Iran, 2National Dairy Research Institute, Karnal, India.

1372  M189  **Development of a novel strategy for synchronization of ovulation and fertility augmentation in cycling buffalo cows.**  
R. Mirmahmoudi1 and B. S. Prakash1, 1Department of Animal Science, Faculty of Agriculture, University of Jiroft, Jiroft, Iran, 2National Dairy Research Institute, Karnal, India.

1373  M190  **Maternal dietary effects on embryonic ovarian development in cattle.**  

1374  M191  **Effects of excessive energy intake and supplementation with chromium propionate on insulin resistance parameters in lactating dairy cows: I. Performance and weekly physiological measurements.**  
T. Leiva1, R. F. Cooke2, F. G. Dantas3, F. P. Santos1, A. P. Brandao1, J. Ranches1, A. C. Aboin1, and J. L. M. Vasconcelos1, 1UNESP-FMVZ, Botucatu, Brazil, 2Oregon State University-EOARC Burns.

1375  M192  **Association of monocyte chemoattractant protein-1 and vascular endothelial growth factor in subcutaneous and visceral adipose tissue of early lactating dairy cows.**  
S. Häussler1, C. Sacré1, P. Friedrichs1, S. Dänicke1, and H. Sauerwein1, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany.
1376 M193 Reactive oxygen metabolites (ROM) and advanced oxidation protein products (AOPP) as influenced by energy intake and niacin supplementation in the periparturient dairy cow.

H. Sadri1*, D. Nakov2, S. Dänicke3, U. Meyer3, R. Tienken1, and H. Sauwerwein4, 1Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany, 2Institute for Animal Biotechnology, University St. Cyril and Methodius, Skopje, Macedonia, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany, 4University of Bonn, Institute of Animal Science, Bonn, Germany.

1377 M194 The effect of aspirin on prostaglandin F2α secretion in lactating dairy cows during the luteal phase of the estrous cycle.

J. A. Spencer*, K. Steinskamp, B. Shafii, and A. Ahmadzadeh, University of Idaho, Moscow.

1378 M195 Association between oxidative stress through excessive fat accumulation and the number of mitochondrial DNA copies in adipose tissue of dairy cows.

L. Laubenthal1*, L. Locher2, J. Winkler1, U. Meyer3, J. Rehage2, S. Dänicke3, H. Sauwerwein1, and S. Häussler2, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2University for Veterinary Medicine, Foundation, Hannover, Germany, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany.

1379 M196 Telomere length shortening in response to an excessive fat accumulation in subcutaneous adipose tissue of dairy cows.

L. Laubenthal1*, L. Locher2, J. Winkler1, U. Meyer3, J. Rehage2, S. Dänicke3, H. Sauwerwein1, and S. Häussler2, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2University for Veterinary Medicine, Foundation, Hannover, Germany, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany.

1380 M197 Pregnancy per AI of high producing Holstein cows treated with norgestomet ear implant or progesterone intravaginal device.

H. Ayres1,2, C. M. Azevedo1, J. B. Solak1, O. Corso1, S. Soriano1, M. C. Wilthank2, and R. M. Ferreira1, 1MSD Animal Health, São Paulo, Brazil, 2Departamento de Reprodução Animal, USP, São Paulo, Brazil, 3Qualy Calf Consultoria Ltda, Venceslau, Brazil, 4Castrovet Consultoria Veterinária, Castro, Brazil, 5Fazenda Colorado, Araras, Brazil, 6University of Wisconsin-Madison.

1381 M198 Telomere length in different visceral and subcutaneous adipose tissue depots of overconditioned cows.

L. Laubenthal1*, L. Locher2, J. Winkler1, U. Meyer3, J. Rehage2, S. Dänicke3, H. Sauwerwein1, and S. Häussler2, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2University for Veterinary Medicine, Foundation, Hannover, Germany, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany.

1382 M199 Livability of buck spermatozoa after cold storage using egg yolk citrate extender.


1383 M200 Bedding surface does not alter circulating patterns of cortisol, corticosteroid-binding globulin, or free cortisol index in preweaned Jersey calves.

H. G. Kattesh1, C. A. Karman, B. E. Gillespie, P. D. Krawczel, and A. M. Saxton, University of Tennessee, Knoxville.

1384 M201 Niacin increases chemerin mRNA abundance in differentiated bovine preadipocytes in vitro.

C. Kopp1, H. Khallilvandi-Behtroozyar2*, H. Sauwerwein3, and M. Mielenz4*, 1Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Bonn, Germany, 2Department of Animal Science, Urmia University, Urmia, Iran, 3University of Bonn, Institute of Animal Science, Bonn, Germany, 4Leibniz Institute for Farm Animal Biology (FBN), Institute of Nutritional Physiology, Dummerstorf, Germany.

1385 M202 Macrophage infiltration into subcutaneous adipose tissue in overconditioned cows after excessive fat accumulation.

S. Häussler1, L. Laubenthal1, L. Locher2, J. Winkler1, U. Meyer3, J. Rehage2, S. Dänicke3, and H. Sauwerwein1, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2University for Veterinary Medicine, Foundation, Hannover, Germany, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany.


H. Sadri1, F. Giallongo2, A. N. Hristov2, C. Lang1, J. Werner1, C. Parys4, B. Saremi5, and H. Sauwerwein1, 1Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany, 2Department of Animal Science, The Pennsylvania State University, University Park, State College, PA, 3Department of Cellular and Molecular Physiology, Hershey Medical Center, Penn State College of Medicine, Hershey, 4Evonik Industries AG, Hanau, Germany, 5Evonik Industries AG, 63457 Hanau, Germany.

1387 M204 Antioxidant supplementation during in vitro maturation increased oocyte mitochondrial membrane potential and bovine embryo development.

B. C. D. S. Leão1, N. A. D. S. Rocha Fronghi, P. C. Dall’Acqua, and G. Z. Mingoti, University of Sao Paulo State (UNESP), Araçatuba, Brazil.

1388 M205 Hepatic and adipose mRNA expression of genes related to FGF21 in response to conjugated linoleic acid (CLA) supplementation in dairy cows during early lactation.

H. Sadri1, S. Dänicke2, J. Rehage1, and H. Sauwerwein1, 1Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany, 2Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany, 3University for Veterinary Medicine, Foundation, Hannover, Germany.
1389 M206 Effect of melatonin (MEL) or maternal nutrient restriction on vascularity of the ovine placenta.
K. A. Vonnahme1, M. E. Wilson1, S. Romero1, S. T. Dorsam1, J. Haring1, P. P. Borowicz2, D. A. Redmer3, and C. O. Lemley4,
1North Dakota State University, Fargo, 2West Virginia University, Morgantown, 3Mississippi State University, Mississippi State.

1390 M207 Follicle-stimulating hormone stimulates beta-catenin via protein kinase B in granulosa cells.
B. I. Gomez1, C. A. Gifford1, D. M. Hallford1, and J. Hernandez Gifford1, Oklahoma State University, Stillwater, 1New Mexico State University, Las Cruces.

1391 M208 Ileal tight junction gene expression in glucagon-like peptide 2-treated dairy bull calves with and without coccidiosis.
M. P. Walker1, E. E. Connor1, R. L. Baldwin1, and S. Kahl1, USDA-ARS, BFGL, Beltsville, MD, USDA-ARS, Bovine Functional Genomics Laboratory, Beltsville, MD, USDA-ARS, Beltsville, MD.

1392 M209 Effects of heat stress on the metabolic transcriptional profile of peripheral tissues in growing pigs.
M. Sanz Fernandez1, J. S. Johnson1, J. T. Seibert1, R. L. Boddicker1, S. C. Isom2, L. Cox2, J. W. Ross3, R. P. Rhoads1, and L. H. Baumgard1, Iowa State University, Ames, 1Utah State University, Logan, 1Virginia Tech, Blacksburg.

1393 M210 Effect of feeding high or low portions of concentrate during the transition period on serum adiponectin concentrations and mRNA expression of adiponectin and its receptors in subcutaneous and retroperitoneal fat of dairy cows.
P. Friedrichs1, M. Weber1, L. Locher2, S. Dänicke3, U. Meyer3, R. Tienken4, H. Sauerwein1, and M. Mielenz5, Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany, 2Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany, 3Leibniz Institute for Farm Animal Biology (FBN), Institute of Nutritional Physiology, Dummerstorf, Germany.

1394 M211 Heat stress affects insulin sensitivity in primary bovine adipocytes.
P. P. Faylon1, L. H. Baumgard1, R. P. Rhoads1, and D. M. Sparlock1, Iowa State University, Ames, 2Virginia Tech, Blacksburg.

1395 M212 mRNA expression of chemerin and its receptor in a subcutaneous and a visceral fat depot of dairy cows fed with high or low portions of concentrate during the transition period.
P. Friedrichs1, H. Khalilvandi-Behroozyan2, L. Locher3, S. Dänicke4, U. Meyer4, R. Tienken4, H. Sauerwein4, and M. Mielenz5, Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany, 1Department of Animal Science, Urmia University, Urmia, Iran, 2Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany, 3Leibniz Institute for Farm Animal Biology (FBN), Institute of Nutritional Physiology, Dummerstorf, Germany.

1396 M213 Individual trans monounsaturated fatty acids have distinct effects on lipogenesis in 3T3-L1 adipocytes.
P. Vahmani1, T. D. Turner1, P. D. Duff1, D. C. Rolland1, C. Mapiye2, W. J. Meadus1, and M. E. R. Dugan1, Agriculture & Agri-Food Canada, Lacombe, AB, Canada, 1Stellenbosch University, Stellenbosch, Western Cape, South Africa.

1397 M214 Modeling diurnal variation in ruminal temperature of beef cows.
B. H. Boehmer1 and R. P. Wettemann, Oklahoma Agricultural Experiment Station, Stillwater.

1398 M215 β-Hydroxybutyrate profile of high-yielding dairy cows of a Brazilian intensive system.
C. Bespalhok Jacometo1, J. Oliveira Feijó1, P. Mattei1, A. Marangon Oliveira1, E. Schmidt1, V. Coitinho Tabeleão1, C. Cassal Braun1, F. B. Del Pino1, S. Soriano1, and M. Nunes Corrêa1, Federal University of Pelotas, Pelotas, Brazil, 2Embrapa, Porto Velho-RO, Brazil, 3Fazenda Colorado, Araras, Brazil.

1399 M216 Analysis of transcription regulator gene networks in peripartal bovine liver during summer and spring seasons.
K. Shahzad1, H. Akbar1, L. Basiricò2, P. Morera2, U. Bernabucci2, and J. J. Loor1, University of Illinois, Urbana-Champaign, 2Università degli Studi della Tuscia, Viterbo, Italy.

Production, Management, and the Environment: Influence of Diet and Management on Health and Performance

1400 M217 A six-year study evaluating health, milk and milk quality in 427 dairy herds fed OmniGen-AF to dry and lactating cows.
O. Bewley1, T. Boyle1, M. Brady1, K. Brubaker1, J. D. Chapman1, T. Elliott1, L. O. Ely1, S. Fitzner1, A. E. Holland1, D. Larson1, R. Shaw1, and J. Ydstie1, Prince Agri Products, Inc., Quincy, IL, 2University of Georgia, Athens.

1401 M218 Crude glycerin as a replacement for dry ground corn in finishing diets for beef cattle: Economic analysis.
P. Del Bianco Benedetti1, P. V. R. Paulino1, M. I. Marcondes1, A. Facciola1, I. França Smith Maciel1, and M. Custódio da Silva1, Federal University of Viçosa, Viçosa, Brazil, 2University of Nevada, Reno, 3Nutron Alimentos Ltda, Campinas, Brazil.

1402 M219 Inhibition of rumen methanogenesis induced by Bioflavex and its pure flavonoid components under in vitro fermentation using rumen fluid from steers fed high concentrate diets.
A. R. Seradi1, J. Crespo2, D. Villalba1, and J. Balcells1, University of Lleida, Lleida, Spain, 1Interquim S. A. (Ferrer Health Tech), Barcelona, Spain.
1459 M220 Effects of trace mineral-fortified, limit-fed creep supplements on performance of beef calves (pre-weaning).
A. Saran Neto1, L. S. Caramalac2, P. G. M. D. A. Martins2, P. Moriel3, H. J. Fernandes3, and J. D. Arthington4, 1University of São Paulo, Pirassununga, Brazil, 2UF/IFAS Range Cattle Research and Education Center, Ona, FL, 3State University of Mato Grosso do Sul, Aquidauana, Brazil.

1460 M221 The effect of a maternal dietary yeast cell wall supplement during gestation on cow performance and calf growth and immunity.
M. C. Roberts1, S. E. Schmidt2, D. A. Neuendorff2, R. C. Vann3, N. C. Burdick Sanchez1, J. R. Corley1, J. A. Carroll1, T. H. Welsh, Jr2, and R. D. Randel2, 1Texas A&M AgriLife Research, Overton, 2Texas A&M University, College Station, 3Texas A&M Agrilife Research, Overton, 4MAFES-Brown Loam Experiment Station, Mississippi State University, Raymond, MS, 5USDA-ARS, Lubbock, TX, 6Lesaffre Feed Additives, Milwaukee, WI, 7USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 8Texas A&M University Department of Animal Science, College Station.

1461 M222 Effect of restricted feeding on body weight, some hematological and biochemical parameters in sheep and goats raised under semi-arid conditions.
E. B. Abdalla, Faculty of Agriculture, Ain Shams University, Cairo, Egypt.

1462 M223 Effects of trace mineral-fortified, limit-fed creep supplements on performance of beef calves (post-weaning).
A. Saran Neto1, L. S. Caramalac2, P. G. M. D. A. Martins2, P. Moriel2, H. J. Fernandes3, and J. D. Arthington4, 1University of São Paulo, Pirassununga, Brazil, 2UF/IFAS Range Cattle Research and Education Center, Ona, FL, 3State University of Mato Grosso do Sul, Aquidauana, Brazil.

1463 M224 Young beef calves preferentially consume supplements fortified with hydroxy vs. organic and sulfate sources of Cu, Zn, and Mn.
L. S. Caramalac1, H. J. Fernandes1, and J. D. Arthington1, 1UF/IFAS Range Cattle Research and Education Center, Ona, FL, 2State University of Mato Grosso do Sul, Aquidauana, Brazil.

1464 M225 Predicting dry matter intake of steers and heifers in the feedlot by using categorical and continuous variables.
O. Koskan1, H. Koknaroglu1, D. D. Loy1, and M. P. Hoffman1, 1Suleyman Demirel University, Isparta, Turkey, 2Iowa State University, Ames.

1465 M226 Comparison of high-performance dairy cows fed concentrates vs. those fed no concentrates over a period of 10 years.
P. L. Kunz1, M. Buergisser1, and M. Furger1, 1Bern University of Applied Sciences, Zollikofen, Switzerland, 2Agricultural Education and Advisory Centre Plantahof, Landquart, Switzerland.

1466 M227 Effect of Leukonostoc citreum SK2556 fermented Korean aged garlic extract (KAGE) on feed intake, production performance, egg quality, odor gas emission from feces, excreta microbiota and hematological profiles in laying hens.
D. Jung1, J. H. Cho, and I. H. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.

1467 M228 Effects of probiotics supplementation on growth performance, nutrient digestibility, carcass characteristics, meat quality, intestinal microflora and fecal noxious gas emission in broilers.
I. H. Kim1, Y. Lei, and S. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.

1468 M229 Effects of a symbiotic feed additive on milk quality and calving interval in Brazilian dairy herds.
R. D. Sainz1, E. A. Filgueiras2,3,4, C. U. Magnabosco4, P. H. Medes4, and K. S. Mendanha2, 1University of California-Davis, 2Universidade Federal de Goiás, Goiânia-GO, Brazil, 3Biofórmula Ltda, Goiânia-GO, Brazil, 4CAPES, Brasília-DF, Brazil, 5Embrapa Cerrados, Brasilia, Brazil.

1469 M230 Effects of injectable trace minerals at the start of the breeding season on attainment of pregnancy in commercial beef cows.
J. D. Arthington1, P. G. M. D. A. Martins1, P. Moriel1, and L. Havenga1, 1UF/IFAS Range Cattle Research and Education Center, Ona, FL, 2MultiMin USA, Ft. Collins, CO.

1470 M231 Withdrawn by author.

1471 M232 Cost analysis of feeding bermudagrass (Cynodon dactylon) or ryegrass (Lolium multiflorum) plus rye (Secale cereale) baleage based on nutrient composition and forage refusal of weaned crossbred beef calves.
R. M. Martin1, R. J. Pruitt2, B. Buttrey3, and R. Walker3, 1LSU AgCenter, School of Animal Sciences, Baton Rouge, LA, 2LSU AgCenter, Agricultural Economics and Agribusiness, Baton Rouge, LA, 3LSU AgCenter, Hill Farm Research Station, Homer, LA.

1472 M233 Evaluation of three copper sources on measures of forage utilization and copper status in beef cattle.
P. G. M. D. A. Martins2, O. F. R. Cunha2, G. P. Capatti2, A. Saran Neto2, J. M. B. Vendramini3, and J. D. Arthington1, 1UF/IFAS Range Cattle Research and Education Center, Ona, FL, 2University of São Paulo, Pirassununga, Brazil.

1473 M234 Comparison of camelina meal and DDGS in the diet of replacement beef heifers.
E. E. Grings, A. Sackey*, and G. A. Perry, South Dakota State University, Brookings.
Effects of prepartum evaporative cooling and vitamin E supplementation on immune function of Holstein cows during summer in Florida.
1Department of Animal Sciences, University of Florida, Gainesville, 2DSM, Eden Prairie, MN, 3Department of Animal Sciences, University of Florida, Gainesville.

Forages used in high producing cow rations in California.
Y. Trillo*, A. Lago, and N. Silva-del-Rio, 1VMTRC, University of California, Tulare, 2DairyExperts, Tulare, CA.

Evaluating on-farm methods for measuring dry matter content of potatoes.

Optimizing drying time of potatoes by food dehydrator and Koster Moisture Tester.

Withdrawn by author.

Validating a refractometer to evaluate Immunoglobulin G concentration in Jersey colostrum and the impact of multiple freeze-thaw cycles on evaluating colostrum quality.

Ruminant Nutrition Posters I

Metagenomic analysis of the rumen microbiome of dairy cows during the transition period.
D. W. Pitta*, S. Kumar, N. Indugu, R. Sinha, B. Veiccharelli, B. Bhukya, and J. Ferguson,
1University of Pennsylvania, Kennett Square, 2University of Pennsylvania, Philadelphia.

Peripartal supplementation of Smartamine M has positive effects on blood neutrophil activation in dairy cows.
J. S. Osorio*, P. JF, J. K. Drackley, D. N. Luchini, and J. J. Loor,
1University of Illinois at Urbana-Champaign, 2William H. Miner Agricultural Research Institute, Chazy, NY, 3Adisseo S.A.S., Alpharetta, GA.

Effect of a limited supply of phenylalanine, threonine, and tryptophan on mammary metabolism of dairy cows.
I. H. Iroshan*, H. Lapierre, and L. Doepel,
1University of Calgary, Calgary, AB, Canada, 2Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada.

Effects of supplementing rumen-protected Met and Lys on diets containing soybean meal or canola meal in lactating dairy cows.
G. A. Broderick* and A. Faciola,
1US Dairy Forage Research Center, Madison, WI, 2University of Wisconsin-Madison, 3University of Nevada, Reno.

Determination of the comparative bioavailability of lysine in two rumen-protected lysine products using the in vivo plasma lysine response method.
H. A. Tucker*, M. Miura, I. Shinzato, C. S. Ballard, and H. M. Dann,
1William H. Miner Agricultural Research Institute, Chazy, NY, 2Ajinomoto Co., Inc., Kawasaki, Japan, 3Ajinomoto Heartland Inc., Chicago, IL.

Impacts of feeding ruminally protected phenylalanine and/or methionine to early lactation cows fed diets containing high levels of canola meal.
N. Swanepoel*, P. H. Robinson, and L. J. Erasmus,
1University of California-Davis, 2University of Pretoria, Pretoria, South Africa.

Ruminal degradation and intestinal digestibility of crude protein and amino acids and correction for microbial contamination in rumen-undegradable protein.
H. A. Paz Manzano*, E. Castillo-Lopez, T. J. Klopfenstein, and P. J. Kononoff,
1University of Nebraska-Lincoln, 2University of Saskatchewan, Saskatoon, SK, Canada.

Validation of the bioavailability of the second generation Ajipro-L using the in vivo plasma lysine response method.
N. L. Whitehouse*, A. F. Brito, A. Crowther, A. B. D. Pereira, C. G. Schwab, I. Shinzato, and M. Miura,
1University of New Hampshire, Durham, 2Schwab Consulting, LLC, Boscobel, WI, 3Ajinomoto Heartland Inc., Chicago, IL, 4Ajinomoto Co., Inc., Kawasaki, Japan.

Comparison of duodenal nitrogen and amino acid flows in dairy cows fed a corn straw or mixed forage diet.
C. Qin*, P. Sun, D. P. Bu, J. Q. Wang, P. Zhang, and P. An,
1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Hunan Provincial Key Laboratory for Genetic Improvement of Domestic Animal, College of Animal Science and Technology, Hunan Agricultural University, Changsha, China.
Comparison of mammary amino acid utilization in dairy cows fed a corn straw or mixed forage diet.
C. Qin1,2, P. Sun1, D. P. Bu3, J. Q. Wang1,2, P. Zhang3, and P. An4, 1Heilongjiang Bayi Agricultural University, Daqing, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 3Hunan Provincial Key Laboratory for Genetic Improvement of Domestic Animal, College of Animal Science and Technology, Hunan Agricultural University, Changsha, China.

Plasma L-methionine and supplemental L-methionine precursor responses to rumen administration of a rumen-protected DL-methionine source or different levels of 2-hydroxy-4-methylthio-butanolic acid.

Effects of the ideal profiles of lysine, methionine, threonine, phenylalanine, histidine, and valine on milk protein synthesis gene network expression in bovine mammary epithelial cells.
S. Li1, W. Zhao3,4, A. Hosseini1, J. X. Liu1, and J. J. Loor2, 1Zhejiang University, Hangzhou, China, 2University of Illinois at Urbana-Champaign, 3Northwest A & F University, Yangling, China, 4University of Bonn, Bonn, Germany.

Changes in plasma methionine concentrations after administration of two different doses of rumen protected methionine.

Y. Miyazawa1, M. Miura2, F. Fujieda1, I. Shinzato3, S. W. Fessenden4, and M. D. Stern1, 1Ajinomoto Co., Inc., Kawasaki, Japan, 2Ajinomoto Co., Inc., Tokyo, Japan, 3Ajinomoto Heartland, Inc., Chicago, IL, 4University of Minnesota, St. Paul.

Histidine requirement of dairy cows determined by the indicator amino acid oxidation (AAO) technique.
D. R. Ouellet1, G. E. Lobley2, and H. Lapierre3, 1Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 2Rowett Institute of Nutrition and Health, University of Aberdeen, Aberdeen, United Kingdom, 3Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada.

Estimation of histidine requirement in lactating dairy cows.
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Effects of different protein sources on milk performance and amino acid profile in early lactating dairy cows.
X. Q. Zhou1,2, D. P. Bu1, Y. D. Zhang1, M. Zhao1, P. Sun1, and J. Q. Wang1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Northeast Agricultural University, Harbin, China.

Lipogenic gene network expression in bovine mammary epithelial cells in response to the “ideal” profile of Lys, Met, Thr, Phe, His, and Val.
S. Li1, W. Zhao3, A. Hosseini1, J. X. Liu1, and J. J. Loor2, 1University of Illinois at Urbana-Champaign, 2Zhejiang University, Hangzhou, China, 3Northwest A & F University, Yangling, China, 4University of Bonn, Bonn, Germany.

Rumen-protected methionine and choline supplementation during the transition period enhance the proinflammatory cytokine response of whole blood.
M. Vailati Riboni1,2, Z. Zhou2, D. N. Luchini1, A. Minuti1, E. Trevisi1, and J. J. Loor2, 1Università Cattolica del Sacro Cuore, Piacenza, Italy, 2University of Illinois at Urbana-Champaign, 3Adisseo S.A.S., Alpharetta, GA.

Amino acid analysis in dairy cow plasma by chloroformate derivatization and gas chromatography.
N. E. Lobos1, G. A. Broderick2, P. D. Carvalho1, D. N. Luchini1, R. D. Shaver1, A. H. Souza1, and M. C. Wiltbank3, 1Department of Dairy Science, University of Wisconsin-Madison, 2Broderick Nutrition & Research, LLC, Madison, WI, 3University of Wisconsin-Madison, 4Adisseo S.A.S., Alpharetta, GA, 5University of California, Cooperative Extension, Tulare.

Effects of supplementing limiting amino acids in diets with reduced CP on nitrogen excretion.
M. A. C. Daines1, G. A. Broderick2, and C. Parys3, 1University of Wisconsin-Madison, 2Broderick Nutrition & Research, LLC, Madison, WI, 3Evonik Industries AG, Hanau, Germany.

Effects of rumen-protected γ-aminobutyric acid on immune function and antioxidant status in heat-stressed dairy cows.
J. Cheng1,2,3, N. Zheng1,3,4, X. Sun1,2,3, D. P. Bu1, L. Pan1, and J. Wang2,3,4, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Anhui Agricultural University, Hefei, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China.

Effects of supplemental rumen-protected methionine and histidine on performance of lactating dairy cows.
W. D. Weich1, K. F. Kalscheur2, K. J. Herrick2, and K. E. Griswold1, 1South Dakota State University, Brookings, 2Kemin Industries, Inc., Des Moines, IA, 3Kemin Animal Nutrition & Health, Des Moines, IA.
1550 M264  **Canola meals from different plants over two production years differ in rumen-undegraded protein.**
G. A. Broderick², S. Colombini¹, A. Faciola¹, and M. A. Karshi¹, ¹Broderick Nutrition & Research, LLC, Madison, WI, ²University of Milan, Milan, Italy, ³University of Nevada, Reno, ⁴Kirikkale University, Kirikkale, Turkey.

1551 M265  **Rumen-undegradable protein of blood meal, canola meal, low-fat distillers dried grain with solubles, soybean meal, and expeller soybean meal determined using in situ and in vitro ammonia release procedures.**
H. A. Paz Manzano¹, T. J. Klopfenstein¹, and P. J. Kononoff², ²University of Nebraska-Lincoln.

1552 M266  **Sources of protein and protected methionine on in situ ruminal degradability of crude protein of feed ingredients.**
F. D. O. Scarpino van Cleef², J. M. Bertocco Ezequiel, E. Neves Muniç¹, R. L. Galati¹, and E. H. C. B. Van Cleef², ³UNESP, Jaboticabal, Brazil, ⁴CNPq, Brasilia, Brazil, ⁵Embrapa Tabuleiros Costeirros, Aracaju, Brazil, ⁶Federal University of Mato Grosso, Cuiaba, Brazil, ⁷FAPESP, Sao Paulo, Brazil.

1553 M267  **Supplementation of lysine and methionine in the starter concentrate or milk replacer of dairy calves.**
J. T. Silva¹, M. R. De Paula, G. Santos, G. Slanzon, and C. M. M. Bittar, University of Sao Paulo, Piracicaba, Brazil.

1554 M268  **Evaluating the plasma free amino acid dose-response method to determine the content of metabolizable methionine in a rumen-protected methionine supplement.**
N. L. Whitehouse², C. G. Schwab³, M. C. Blais¹, A. F. Brito¹, and B. K. Sloan¹, ¹University of New Hampshire, Durham, ²Schwab Consulting, LLC, Boscoebel, WI, ³Adisseo, Alpharetta, GA.

1555 M269  **Amino acids supplementation in the milk replacer for dairy calves.**
J. T. Silva¹, N. B. Rocha, E. Miqueo, T. Manzoni, G. Santos, S. Baldassin, and C. M. M. Bittar, University of Sao Paulo, Piracicaba, Brazil.

1556 M270  **Effects of maternal nutrition and arginine supplementation on characteristics of wool quality in offspring.**
J. L. Peine², P. P. Borowicz, J. S. Caton, and R. R. Redden, North Dakota State University, Fargo.

1557 M271  **Effects of maternal nutrition and rumen-protected arginine supplementation on postnatal lamb performance and organ mass.**
J. L. Peine¹, G. Jia, S. T. O’Rourke, L. P. Reynolds, and J. S. Caton, North Dakota State University, Fargo.

1558 M272  **Ultrasoundography for investigating the effect of supplementing whole milk with plant-derived complex carbohydrates on curd clearance through the abomasum of dairy calves.**
K. Singh¹, S. R. Leath¹, H. V. Henderson¹, T. J. Watson¹, D. Pacheco¹, and C. D. McMahan¹, ¹AgResearch Ltd, Ruakura Research Centre, Hamilton, New Zealand, ²AgResearch Ltd, Ruakura Research Centre, Hamilton, New Zealand, ³AgResearch Ltd, Grasslands, Palmerston North, New Zealand, Hamilton.

1559 M273  **Relationship between non-protein nitrogen and true protein in supplements during the post-weaning phase of Nellore steers in the dry-wet season transition.**
B. C. Carvalho¹, R. M. Fernandes², C. M. D. Almeida¹, N. M. Jerônimo¹, G. F. Bertí¹, C. G. C. Marcelino¹, M. H. Moretti³, I. M. de Oliveira³, F. D. D. Resende³, and G. R. Siqueira³, ¹Centro Universitário da Fundação Educacional de Barretos-Unifec, Barretos, Brazil, ²UNESP-FCAV, Jaboticabal, Brazil, ³Universidade Estadual Paulista, Jaboticabal, Brazil, ⁴APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil.

1560 M274  **Sulfur sources in supplement products and their influence upon amino acid profiles.**
F. P. Leonel¹, C. J. Silva¹, L. M. Moreira¹, J. M. Carvalho¹, J. C. Pereira¹, T. C. Nunes¹, and R. A. Vieira¹, ¹Federal University of São João del Rei (UFSJ), São João del Rei, Brazil, ²National University of Brasilia, Brasilia, Brazil, ³Federal University of Viçosa (UFV), Viçosa, Brazil, ⁴Federal University of Viçosa (UFV), Viçosa, Brazil, ⁵Norte Fluminense State University, Campos dos Goytacazes, Brazil.

1561 M275  **Slow-release urea in diets of crossbred lactating cows.**
F. P. Leonel¹, B. T. Santiago¹, S. D. J. Vilella¹, J. C. Carvalho¹, M. M. Assis², T. C. Nunes¹, and L. M. Moreira³, ¹Federal University of São João del Rei (UFSJ), São João del Rei, Brazil, ²Federal University of Vales do Jequitinhonha e Mucuri (UFVJM), Diamantina, Brazil, ³Federal University of Viçosa (UFV), Viçosa, Brazil.

1562 M276  **Passage rate and efficiency of microbial protein synthesis in bufaloes fed increasing levels of crude protein.**
E. Machado, L. M. Zeoula¹, E. H. Yoshimura, R. B. Samensari, N. W. Santos, B. C. Agustinho, L. D. M. Pereira, and S. C. Aguiar, Universidade Estadual de Maringá, Maringá, Brazil.

1563 M277  **Effects of test weight and processing method on in vivo intestinal digestibility of barley grain.**
Y. Zhao¹, S. Yan², Z. He³, U. Anie¹, M. L. Swift¹, T. A. McAllister¹, and W. Yang⁴, ¹Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ²College of Animal Science, Inner Mongolia Agricultural University, Hohhot, China, ³Alberta Agriculture and Rural Development, Lethbridge, AB, Canada, ⁴Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

1564 M278  **Using a fibrolytic enzyme to barley-based finishing diets containing wheat dried distillers grains with solubles: Ruminal fermentation, digestibility, and growth performance in feedlot steers.**
Z. He⁴, M. He¹, N. D. Walker³, T. A. McAllister¹, and W. Yang⁴, ¹Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ²Key Laboratory for Agro-Ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, The Chinese Academy of Sciences, Changsha, China, ³AB Vista Feed Ingredients, Marlborough, United Kingdom, ⁴Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.
Effects of forage intake to minimize the risk of subacute ruminal acidosis on performance of feedlot finishing cattle.
K. M. Koenig, G. E. Chibisa, G. B. Penner, and K. A. Beauchemin, Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB, Canada, University of Saskatchewan, Saskatoon, SK, Canada.

Saliva production and short-chain fatty acid absorption in beef cattle fed a low- or high-forage diet.
G. E. Chibisa, K. A. Beauchemin, and G. B. Penner, Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB, Canada, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, University of Saskatchewan, Saskatoon, SK, Canada.

Interactions between levels and source of energy supplementation in beef cattle.
J. R. R. Dórea, L. R. Dell Agostinho Neto, V. N. Gouvea, D. A. Fleury, A. V. Pires, and F. A. P. Santos, University of Sao Paulo, Piracicaba, Brazil, University of São Paulo-FMVZ/USP, Pirassununga, Brazil, University of São Paulo, Piracicaba, Brazil.

Digestibility and nitrogen efficiency of growing beef cattle fed diets containing different proportions of Stylosanthes Campo Grande and corn silages.
W. F. D. Souza, O. G. Pereira, K. G. Ribeiro, S. A. Santos, S. C. Valadares Filho, V. P. Silva, and M. C. N. Agarussi, Universidade Federal da Bahia, Salvador, Brazil, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, Instituto Nacional de Ciência e Tecnologia-Ciência Animal, Viçosa, Minas Gerais, Brazil, University of Delaware, Newark.

Influence of Macleaya cordata preparation on feedlot performance and carcass characteristics of finishing bulls.
R. Barajas, B. J. Cervantes, I. Rogge, A. Camacho, and L. R. Flores, FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico, Ganadera los Migueles, S.A. de C.V., Culiacan, Mexico, Phytobiotics Futterzusatzstoffe GmbH, Eltville, Germany.

Supply levels of multiple supplements for beef heifers on pasture during the dry season: Ruminal pH and ammonia nitrogen.

Comparison of commercially available lick tubs to daily by-product supplementation of calves grazing corn residue.
M. Jones, University of Nebraska-Lincoln.

Dry matter intake of supplemented cattle under grazing during the dry season.

Interaction between grazing management and energy supplementation on behavior of grazing beef cattle.
L. R. Dell Agostinho Neto, M. G. M. F. D. Santos, M. R. Lovaglio, D. F. A. Costa, J. R. R. Dórea, and F. A. P. Santos, University of Sao Paulo, Piracicaba, Brazil, University of Sao Paulo, Piracicaba, Brazil.

Supply levels of multiple supplements for beef heifers on pasture during the dry season: Intake and digestibility of nutrients.

Individual and additive value of conventional and non-conventional technologies in beef heifers housed and fed using a GrowSafe feeding system.
A. R. Harding, Oklahoma State University, Stillwater.

Effect of pregnancy and feeding level on voluntary intake, digestion and microbial N production in Nellore cows.

Growth and feed intake of Nellore steers fed whole corn diets containing feed antibiotics.

Effects of volume weight, precision processing and processing index on in vitro ruminal fermentation of dry-rolled barley grain.
Total tract NDF digestion predicted using rumen in vitro measures is related to commercial dairy in vivo total tract nutrient digestion.

J. P. Goeser*1,2 and C. R. Heuer1,2, 1Department of Dairy Science, University of Wisconsin-Madison, 2Rock River Laboratory, Inc, Watertown, WI.

Influence of fibrolytic enzyme supplements on production performance of lactating buffaloes in early lactation.

T. A. Morsy* and S. Kholif, National Research Center, Cairo, Egypt.

Effect of two exogenous fibrolytic enzyme preparations on rumen fermentation and in situ degradability kinetics in dairy cattle.

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Proteomic analysis of compositional differences between exogenous fibrolytic enzyme preparations that were effective or ineffective at improving forage digestibility.

J. J. Romero1,2, Z. Ma1, C. Silva-Sanchez2, and A. T. Adesogan1, 1Department of Animal Sciences, University of Florida, Gainesville, 2Proteomics, ICBR, University of Florida, Gainesville.

Effects of ensiling, exogenous protease addition and inoculation on ruminal in vitro starch digestibility in rehydrated corn.


Forage type and exogenous fibrolytic enzyme application rate effects on the digestibility of dairy cattle forages.

J. J. Romero1, Z. Ma1, E. G. Macias1, D. H. Garbuio1,2, and A. T. Adesogan1, 1Department of Animal Sciences, University of Florida, Gainesville, 2Department de Zootecnia, Universidad Nacional Agraria La Molina, Lima, Peru, 3Universidade Estadual Paulista, São Paulo, Brazil.

A meta-analysis on the effect of fibrolytic enzyme treatment of dairy cow diets.

K. G. Arriola*, A. T. Adesogan1, and M. C. Giurcanu2, 1University of Florida, Department of Animal Sciences, Gainesville, 2University of Florida, Department of Statistics, Gainesville.

Effects of forage particle size and corn oil supplementation related to milk fat depression in dairy cows consuming reduced-fat corn dried distillers grains with solubles.

H. A. Ramirez Ramirez* and P. J. Kononoff, University of Nebraska, Lincoln.

Impact of forage inclusion rate in a dry total mixed ration on the behavior and growth of growing dairy cattle.

M. J. Groen1,2, M. A. Steele3, and T. J. DeVries*, 1University of Guelph, Kemptville, ON, Canada, 2Wageningen University, Wageningen, Netherlands, 3Nutreco Canada, Guelph, ON, Canada.

Assessment of feeding high moisture corn grain with different qualities of alfalfa hay in high-forage lactation dairy diets.

A. W. Kelley, K. Neal, A. J. Young, and J. S. Eun*, Utah State University, Logan.

Replacing corn with soyhulls for late-lactation cows fed high-forage diets.

V. R. Moreira1, L. K. Zeringue2, C. Leonardi2, D. Schilling3, and M. E. McCormick2, 1LSU AgCenter School of Animal Sciences, Frankston, LA, 2LSU AgCenter, Frankston, LA, 3LSUHSC-School of Public Health-Biostatistics, New Orleans, LA.

Effects of different dietary forage sources on milk performance and amino acid profile in early lactating dairy cows.

X. Q. Zhou1,2, D. P. Bai1, Y. D. Zhang1, M. Zhao1, P. Sun1, and J. Q. Wang*, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Northeast Agricultural University, Harbin, China.

The partial replacement of corn silage by sugarcane silage plus crude glycerin and the effect of sensory feed additives for dairy cows.

O. F. Zacaroni1, 2F. F. Cardoso1, A. C. S. Melo1, R. F. Lima1, R. A. N. Pereira1,2 and M. N. Pereira1,2, 1Universidade Federal de Lavras, Lavras, Brazil, 2Better Nature Research Center, Ijaci, Brazil, 3Empresa de Pesquisa Agropecuaria de Minas Gerais, Lavras, Brazil.

Relative excretion of nitrogen from alfalfa silage, corn silage, corn grain and soybean meal in urine and feces by lactating dairy cows.


A sensory additive improves performance of dairy cows under heat stress.

F. Barugo*, S. Muñoz2, M. Candelas2, J. Vargas1, and I. Ipharraguerre1, 1Lucta S.A., Barcelona, Spain, 2Naplem, Durango, Mexico.

Performance and health of calves pre- and post weaning fed milk replacers with supplements for heat abatement in the summer months.

H. Chester-Jones*, University of Minnesota Southern Research and Outreach Center, Waseca.
Performance and health of calves pre- and post-weaning fed milk replacers with supplements for heat abatement in the summer months.
D. Schimek1, B. Ziegler1, D. Ziegler1, H. Chester-Jones2, and M. Raeth-Knight1, 1Hubbard Feeds Inc., Mankato, MN, 2University of Minnesota Southern Research and Outreach Center, Waseca, 3University of Minnesota, St. Paul.

Effect of supplementing heat stressed dairy cows with electrolytes on milk yield, composition, and blood metabolites.
C. J. Cabrera*, S. H. Ward, and A. J. Geiger, Mississippi State University, Mississippi State.

Average daily gain among calves fed a high plane of milk replacer during the pre-weaning period is not associated with improved reproductive efficiency or lactational performance in Holstein heifers.
M. D. Sellers*, C. R. Nightingale, and M. A. Ballou, Texas Tech University, Department of Animal and Food Sciences, Lubbock.

Response of rumen fermentation to urease inhibitor using dual-flow rumen simulation system.
P. P. Wang1, D. Jin1, J. Q. Wang2, D. P. Bu1, and S. Zhao1, 1State Key Laboratory of Animal Nutrition, 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, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Effects of four ruminant feed additives on in vitro ruminal fermentation kinetic gas production and degradability.
J. Li1, J. Q. Wang1, P. Sun1, F. D. Li1, and D. P. Bu1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China.

Comparison of omasal and reticulic sampling methods on ruminal nutrient outflow and digestion in lactating dairy cows.
S. M. Fredin1, L. F. Ferraretto1, M. S. Akins2, and R. D. Shaver1, 1University of Wisconsin-Madison, 2University of Wisconsin-Madison, Platteville.

Validation of a new approach to estimate total tract fiber digestibility from in vitro NDFD values.
F. Lopes1, K. Ruh1, D. K. Combs2, L. F. Ferraretto1, S. M. Fredin1, C. Arndt1, R. D. Shaver1, and L. E. Armentano1, 1University of Wisconsin-Madison, 2Department of Dairy Science University of Wisconsin-Madison.

The effects of supplementation with a blend of capsicum, cinnamaldehyde, and eugenol on milk production performance of dairy cows.
R. Blanck1, K. Vecht1, C. Oguey2, and E. H. Wall2, 1Bar-Magen, Emek Hefer, Israel, 2Pancosma, Geneva, Switzerland.

Stochastic analysis of the effects of variation in the effects of milk composition on the supply of metabolizable energy and protein in lactating dairy cows.

Extruded soybean meal increases feed intake and milk production in dairy cows.
T. Frederick1, F. Galliong1, J. Oh1, H. Weeks1, A. N. Hristov1, D. M. Knuffman1, and R. A. Fabin1, 1Department of Animal Science, The Pennsylvania State University, University Park, 2Fabin Bros. Farms, Indiana, PA.

Effect of inclusion of canola meal or wheat dried distillers grains with solubles on ruminal fermentation, omasal nutrient flow, and production performance in lactating Holstein dairy cows fed two levels of forage: Concentrate.
M. E. Walpole, G. E. Chiabisa, and T. Mutsangwa*, University of Saskatchewan, Saskatoon, SK, Canada.

Analysis of dipeptidyl peptidase IV from microbial metagenomic library in the rumen of dairy cow.
J. W. Zhao1, J. Q. Wang1, S. G. Zhao1, and D. P. Bu1, 1College of Animal Science and Technology of Inner Mongolia University for the Nationalities, Tongliao, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Modification of the feeding behavior of dairy cows through live yeast supplementation.
T. J. DeFries1 and E. Chevaux*, 1University of Guelph, Kemptville, ON, Canada, 2Lallemand Animal Nutrition, Milwaukee, WI.

The effect of supplementing dairy cows with a hydrolyzed yeast product (Progut Rumen) on milk production and somatic cell scores.
D. J. Gaffney1, M. R. Sheehy2, J. A. Vuorenmaa1, and A. G. Hafey4, 1Hankkija Oy/Suomen Rehu, Hyvinkää, Finland, 2Devinich Nutrition, Belfast, Northern Ireland, 3School of Veterinary Medicine, University College Dublin, Dublin, Ireland, 4School of Agriculture and Food Science, University College Dublin, Dublin 4, Ireland.

Effect of live yeast vs. sodium sesquicarbonate supplementation on milk yield and milk components in dairy cows.
M. B. de Ondarza1, E. Chevaux*, and A. Hall2, 1Paradox Nutrition, LLC, West Chazy, NY, 2Lallemand Animal Nutrition, Milwaukee, WI.
Milk production of dairy cows fed sugar cane silage based diets.
L. L. Cardoso, M. I. Marcondes, K. G. Ribeiro, O. G. Pereira, G. F. Bayao, and M. M. D. Castro, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

Fecal sample starch content deteriorates over time after sampling.
K. Haerter, J. P. Goers, and C. R. Heuer, University of Illinois at Urbana-Champaign, Rock River Laboratory, Inc, Watertown, WI, Department of Dairy Science, University of Wisconsin-Madison.

Effects of pH and incubation duration on the stability of the endoglucanase activity of seventeen exogenous fibrolytic enzyme preparations.
A. F. Campos, B. Y. Coy, K. G. Arriola, and A. T. Adesogan, São Paulo State University, Department of Animal Science, São Paulo, Brazil, University of Florida, Department of Animal Sciences, Gainesville, Department of Animal Sciences, University of Florida, Gainesville.

Evaluation of a source of α-amylase and a protease in the diet of lambs on nutrient intake and digestibility and blood parameters.
B. Quintana, L. C. Solorzano, and A. A. Rodriguez, University of Puerto Rico, Mayaguez, PR, DSM Nutritional Products, Parsippany, NJ.

Evaluation of a source of α-amylase and a protease in the diet of lambs on nutrient intake and digestibility and blood parameters.
B. Quintana, L. C. Solorzano, and A. A. Rodriguez, University of Puerto Rico, Mayaguez, PR, DSM Nutritional Products, Parsippany, NJ.

Utilization of industrial enzymes in the evaluation of neutral detergent insoluble fiber content in high-starch samples.
C. Batista Sampaio, D. I. Gomes, E. Detmann, S. de Campos Valadares Filho, H. Valentin Nunes Machado, and M. de Oliveira Franco, Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, Universidade Federal do Pará, Parauapebas, Pará, Brazil, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, Universidade Federal de São João Del Rei, São João Del Rei, Minas Gerais, Brazil.

In situ degradation and fermentation of a diet with an exogenous phytase for lambs.
L. H. Vallejo-Hernandez, G. Buendia-Rodriguez, J. E. Ramirez-Bribiesca, L. A. Miranda-Romero, M. M. Crosby-Galvan, and S. S. Gonzalez, Universidad Autónoma del Estado de Mexico, Toluca, Mexico, CENIDFyMA INIFAP, Queretaro, Mexico, Colegio de Postgraduados, Montecillo, Mexico, Universidad Autónoma de Chapingo, Chapingo, Mexico, Colegio de Postgraduados, Montecillo Estado de Mexico, Mexico.

Sources of sulfur in protein supplements and fiber degradability.
F. P. Leonel, C. J. Silva, L. M. Moreira, J. C. Pereira, J. M. Carvalho, J. C. Carvalho, R. A. Vieira, and M. M. Assis, Federal University of São João del Rei (UFSJ), São João del Rei, Brazil, National University of Brasilia, Brasilia, Brazil, Federal University of Viçosa (UFV), Viçosa, Brazil, Norte Fluminense State University, Campos dos Goytacazes, Brazil.

Effect of weight gain rates in the post-weaning phase and forage allowance in the finishing phase with high supplementation on performance of Nellore cattle.
V. A. C. Mota, G. F. Bertl, J. A. Alves Neto, R. M. Fernandes, P. H. Gonçalves, B. C. Carvalho, M. A. P. Alves, I. M. de Oliveira, F. D. D. Resende, and G. R. Siqueira, UNESP/FCAV, Jaboticabal, Brazil, Centro Universitário da Fundação Educacional de Barretos-Unifeb, Barretos, Brazil, Universidade Estadual Paulista, Jaboticabal, Brazil, UNESP-FCAV, Jaboticabal, Brazil, APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil.

Nutritional evaluation of Forage Kochia (Kochia Prostrata) as an alternative forage for beef cattle using a dual-flow continuous culture system.
E. Marostegan de Paula, L. Galoro da Silva, T. Shenkoru, Y. L. Yeh, J. Bunkers, and A. Faciola, University of Nevada, Reno.

Effect of using either barley straw or alfalfa hay on intake and digestibility in growing Simmental heifers fed high-concentrate diets.
A. Madruga, E. Mainau, J. L. Ruiz, X. Manteca, M. Rodriguez, L. A. González, and A. Ferret, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, Animal Nutrition and Welfare Service Department of Animal and Food Sciences Universitat Autònoma de Barcelona, Bellaterra, Spain, Animal Nutrition and Welfare Service Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, Centre for Carbon, Water and Food; Department of Plant and Food Sciences, Faculty of Agriculture and Environment; The University of Sidney, Camden, Australia.

Metabolism of nitrogenous compounds in beef cattle fed tropical forage supplemented with protein in the rumen, abomasum or both.
E. D. Batista, D. I. Gomes, L. M. A. Rufino, A. R. Lopes, S. C. Valadares Filho, M. F. Paulino, and E. C. Titgemeyer, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, Universidade Federal Rural da Amazônia, Parauapebas, Pará, Brazil, Kansas State University, Manhattan.
1623  M337  Effect of Amaferm on digestion of diets containing forages with high or low neutral detergent fiber digestibility.
A. B. Chestnut1, J. M. Aldrich, W. Hu, W. B. Fokkink, and H. G. Bateman, Proviinsi North America, Brookville, OH.

1624  M338  Differences in forage utilization between Bos taurus and Bos indicus steers fed low-quality forage and supplemented soybean meal.
M. de Oliveira Franco1,2, J. E. Sawyer1, J. R. Barber1, N. L. Bell2, E. Detmann1, and T. A. Wickersham1, 1Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, 2sponsored by CAPES, Brasília, Brazil, 3Texas AgriLife Research, College Station, 4Texas A&M University, College Station, 5Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

1625  M339  Impact of supplementation during the dry season on performance of young Nellore bulls in the post-weaning phase on pasture in the wet season.
I. M. de Oliveira1, M. H. Moretti1, A. D. Moreira1, J. A. Alves Neto1, R. M. Fernandes2, P. H. Gonçalves3, M. A. P. Alves4, G. F. Berti5, G. R. Siqueira1, and F. D. D. Resende1, 1APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, 2UNESP-FCAV, Jaboticabal, Brazil, 3Universidade Estadual Paulista, Jaboticabal, Brazil, 4Centro Universitário da Fundação Educacional de Barretos-Unifeb, Barretos, Brazil.

1626  M340  Use of modulators additives the ruminal fermentation in supplements high intake for finished bovines in pasture.
J. A. Alves Neto1, J. M. B. Benatti1, M. H. Moretti1, A. D. Moreira1, R. C. Silva1, I. M. de Oliveira2, P. H. Gonçalves3, M. A. P. Alves4, F. D. D. Resende1, and G. R. Siqueira1, 1Universidade Estadual Paulista, Jaboticabal, Brazil, 2APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, 3Centro Universitário da Fundação Educacional de Barretos-Unifeb, Barretos, Brazil.

1627  M341  Effects of heights of Marandu pastures and sources of energy supplements on the intake, digestibility of nutrients by young Nellore bulls during the rainy season.
A. A. Oliveira1, M. V. Azenha1, S. S. Santana1, A. L. S. Valente1, J. P. R. Costa2, T. T. Berchielli2, A. C. Ruggieri2, and R. A. Reis3, 1UNESP, Jaboticabal, Brazil, 2University of Sao Paulo State, Jaboticabal, Brazil.

1628  M342  Within laboratory repeatability of the in situ nylon bag method.
H. V. Laar1 and J. Doorenbos, Nutreco R&D, Boxmeer, Netherlands.

1629  M343  Comparison of fermentation kinetics of four feedstuffs using an in vitro gas production system and the ANKOM Gas Production System.
J. G. L. Regadas Filho1, L. O. Tedeschii1, M. A. Fonseca2, and L. F. L. Cavalcanti1, 1Universidade Federal de Vicosa, Vicosa, Brazil, 2Texas A&M University, College Station, 3Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.

1630  M344  The influence of source and quality of water and a water treatment system on the ruminal fermentation and nutrient digestibility of a total mixed ration using an in vitro gas production measurement system.
D. Casper1 and I. P. Acharya, South Dakota State University, Brookings.

1631  M345  Relationships between dry matter degradation, in vitro gas production and chemical composition of 15 feedstuffs.
Y. J. Xu, M. Zhao, and D. P. Bu1, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1632  M346  In vitro gas production and dry matter degradability of a high concentrate diet: Influence of exogenous enzymes level.
D. López1, J. F. Vázquez-Armijo1, A. F. Z. M. Sales1, J. Hernández1, R. Rojo1, and J. Cedillo1, 1Centro Universitario UAEM Temascaltepec, Temascaltepec, Mexico, 2Universidad Autónoma de Tamaulipas, Ciudad Victoria, Mexico, 3Universidad Autónoma del Estado de México, El Cerrillo Piedras Blancas, Mexico.

1633  M347  In vitro ruminal fermentation with three sources of inoculum in diets containing Acrocomia aculeata.
S. L. S. Cabral Filho1, L. S. Murata1, R. A. Mandarino1, C. Esfrávio de Souza1, D. Leornado Migotto1, F. Lopes da Silva1, J. Artemio Marín Beltrame1, and J. H. Bernardes Pereira1, 1University of Brasília, Brasília, Brazil, 2Universidade Federal de Minas Gerais, Barretos, Brazil, 3Universidade Federal de Minas Gerais, Brazil, 4Centro Universitário da Fundação Educacional de Barretos-Unifeb, Barretos, Brazil.

1634  M348  Relationship of protein structural conformation to protein functional property, buffer and water solubility, rumen digestive behaviors, and intestinal availability of common feed in ruminants.
Q. Peng1, N. A. Khan1, Z. Wang1, X. Huang1, and P. Yu1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Sichuan Agriculture University, Sichuan, China.

1635  M349  Carbohydrate-protein matrix structure impacts protein and other primary nutrient digestion in common prairie feeds with different soluble and insoluble fractions.
Q. Peng1, X. Huang1, Z. Wang1, and P. Yu1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Sichuan Agriculture University, Sichuan, China.

1636  M350  Performance and dry matter digestibility of finishing lambs fed diets with ground canola grains.
N. I. Ortega-Alvarez1, G. Buendia-Rodriguez1, J. A. Cuaron-Ibarquengoytia1, G. D. Mendoza-Martinez2, and S. S. Gonzalez-Muñoz3, 1Universidad Nacional Autonoma de Mexico, Mexico DF, Mexico, 2CENIDFyMA INIFAP, Queretaro, Mexico, 3Universidad Autonoma Metropolitana, Unidad Xochimilco, Mexico DF, Mexico, 4Colegio de Postgraduados, Montecillo Estado de Mexico, Mexico.
1637 M351 **Ruminal pH and epithelial function as affected by increasing compound feed supply in growing Holstein heifers.**
A. Navarro-Villa1, M. A. Steele2, J. A. Metcalf2, and J. Martin Tereso3, 1Nutreco Research and Development, Boxmeer, Netherlands, 2Nutreco Canada Agresearch, Guelph, ON, Canada.

1638 M352 **Metabolic characteristics of grazing Nellore bulls receiving concentrated supplementation with additives.**
J. A. C. Lima1,2, H. J. Fernandez3, E. P. Rosa4, L. S. Caramalac5, K. A. Silveira6, G. C. Silva7, B. D. D’Auria8, and A. Aguiar9, 1Federal University of Viçosa, Viçosa, Brazil, 2State University of Mato Grosso do Sul, Aquidauana, Brazil, 3University of Florida, Gainesville.

1639 M353 **Productive parameters, metabolic and economic viability of dairy cows supplemented with different levels of urea in diets based on sugar cane.**
R. C. D. Souza1, R. B. Reis2, F. C. F. Lopes3, J. M. Leão4, and M. H. F. Mourthé5, 1PUC Minas, Betim, Brazil, 2UFMG, Belo Horizonte, Brazil, 3Embrapa Gado de Leite, Juiz de Fora, Brazil, 4Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Brazil.

1640 M354 **Chia seed supplementation increases ruminal propionate concentration in alfalfa hay based diets evaluated in a dual-flow continuous culture system.**
J. Bunkers1, E. Marostegan de Paula L. Galoro da Silva, T. Shenkoru, Y. L. Yeh, B. Amorati, D. Holcombe, and A. Faciola, University of Nevada, Reno.

1641 M355 **Analysis of rumen motility patterns using a wireless telemetry system to characterize bovine reticuloruminval contractions.**
A. M. Eger1, K. R. McLeod2, J. L. Kloetz2, and D. L. Harmon3, 1University of Kentucky, Lexington, 2USDA-ARS, FAPRU, Lexington, KY.

1642 M356 **Use of grouped samples of orts does not compromise feed intake data in studies of confined cattle.**
D. Zanetti1, S. C. Valadares Filho2, M. V. C. Pacheco3, L. F. Prados4, E. Detmann5, L. A. Godoi6, F. C. Rodrigues7, R. C. D. O. Ribeiro1, J. M. D. Silva Júnior8, and S. A. Santos9, 1Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 3Universidade Federal de Viçosa, Viçosa, Brazil, 4Universidade Federal da Bahia, Salvador, Brazil.

1643 M357 **Three dimensional imaging of rumen tissue for morphometric analysis using micro-computed tomography.**
M. A. Steele1, F. Garcia2, M. Loverison3, K. Gordon4, J. A. Metcalf5, and M. Hurtig6, 1Nutreco Canada Agresearch, Guelph, ON, Canada, 2University of Guelph, Guelph, ON, Canada, 3University of Calgary, Calgary, AB, Canada.

1644 M358 **Kinetics of gas production of soybean meal, cotton seed meal and fish meal is affected using different zeolites.**
F. Kafilzadeh1, M. Karimi Zandi, and G. Taasoli2, Razi University, Kermanshah, Iran.

1645 M359 **Effects of zilpaterol hydrochloride on feedlot performance and carcass characteristics of hair-breed ram lambs.**
A. Mendoza-García1, R. Rojo-Rubio2, U. Macias-Cruz3, L. Avendaño-Reyes4, A. F. Z. M. Salemi5, M. A. Jaime6, and J. F. Vázquez-Armijo7, 1Universidad Autónoma del Estado de México, Temascaltepec, Mexico, 2Universidad Autónoma Del Estado De Mexico, Temascaltepec, Mexico, 3Universidad Autonoma De Baja California, Mexicali, Mexico, 4Universidad Autonoma De Baja California, Calexico, CA, 5Universidad Autónoma del Estado de México, El Cerrillo Piedras Blancas, Mexico.

1646 M360 **Effect of particle size upon dry matter intake and ruminal pH in goats fed with alfalfa hay and sorghum silage.**
D. Espurza1, R. Rodríguez1, G. Veliz1, C. Meza-Herrera2, and P. Robles-Trillo3, 1Universidad Autonoma Agraria Antonio Narro, Torreon, Mexico, 2Universidad Autonoma Chapingo, Unidad Regional Universitaria de Zonas Aridas, Bermejillo, Mexico.

1647 M361 **Milk composition of Murrah buffalo grazing on pasture in the Municipality of Taipu, Rio Grande do Norte, Brazil.**
J. M. D. Silva Júnior1, T. D. S. Martins1, R. M. D. Paula1, L. C. Alves1, D. Zanetti1, J. A. D. C. Lima2, L. F. Prados2, L. N. Renno2, G. J. Melo2, and W. G. D. Nascimento3, 1Federal University of Viçosa, Viçosa, Brazil, 2Universidade Federal de Viçosa, Viçosa, Brazil, 3Universidade Federal de Minas Gerais, Brazil.

1648 M362 **Performance and morphometry of the gastrointestinal tract of goats kept on pasture during the dry period of the semiarid Pernambuco.**

1649 M363 **Effects of replacing alfalfa hay and corn silage with corn straw in diets on milk production and composition of dairy cows.**
Y. Zhang1,2,3, N. Zheng1,2,3, D. P. Bu1, M. Zhao4, X. Q. Zhou4, and J. Wang1,2,3, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.
The use of favored or unfavored ingredients in starter feeds for preweaned calves.
M. Terre and A. Bach, IRTA, Caldes de Montbui, Spain, Department of Ruminant Production, IRTA, Caldes de Montbui, Spain.

Small Ruminant Poster I

A simple method to estimate feed required for maintenance of small ruminants.
A. L. Goetsch, R. Puchala, A. T. Dolebo, J. A. Gibson, Y. Tsukahara, and L. J. Dawson, American Institute for Goat Research, Langston University, Langston, OK, Center of Veterinary Health Sciences, Oklahoma State University, Stillwater.

Dermal application of PGF2α for estrus synchronization in goats: Preliminary feasibility.
C. E. Ferguson, A. T. Kesler, H. Nordberg, and J. Veillon, McNeese State University, Lake Charles, LA, University of Illinois at Urbana-Champaign.

Longissimus muscle fatty acid profile of crossbred Boer goat kids fed diets containing crude glycerin.
M. O. M. Parente, K. S. Rocha, H. N. Parente, E. M. Ferreira, R. D. C. R. Queiroga, A. S. M. Batista, R. M. S. Gomes, P. R. O. Silva, and J. S. Araújo, Universidade Federal do Maranho, Chapadinha, Brazil, Escola Superior de Agricultura Luiz de Queiroz-ESALQ/USP, Piracicaba, Brazil, Universidade Federal da Paraíba, João Pessoa, Brazil, Universidade do Vale do Acre, Sobral, Brazil.

Performance and carcass characteristics of finishing goat kids fed diets containing crude glycerin.

Effect of reducing dietary cation-anion difference on acid-base balance, plasma minerals level and anti-oxidative stress of female goats.
W. X. Wu and Y. Yang, College of Animal Science, Guizhou University, Guiyang, China.

Effect of dietary linseed supplementation on milk fatty acid profile in dairy goats with different alphaS1-casein (CSN1S1) genotype.
A. Nudda, G. Battacone, N. P. M. Macciotta, A. Fenu, and G. Pulina, Dipartimento di Agraria, University of Sassari, Sassari, Italy.

GIS hot-spot analysis of pasture utilization of two separate herds of goats over time.
T. A. Gibson, S. P. Hart, and R. Heinemann, American Institute for Goat Research, Langston University, Langston, OK, Kiamichi Forestry Research Station, Oklahoma State University, Idabel.

Model evaluation of methane emission from goats.
M. H. M. R. F. Fernandes, K. T. Resende, A. R. C. Lima, I. A. M. A. Teixeira, B. Biagioli, and T. F. V. Bompadre, UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, Brazil, UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, SP, Brazil.

The effect of some herbal plants on plasma metabolites of lactating goats.
K. Rezayazdi, F. Mirzaei, and M. Hosseinabadi, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, Animal Science Research Institute, Karaj, Iran, University of Tehran, Karaj, Iran.

Seasonal variation influences the semen characteristics and freezability in Xinong Saanen goat.
W. Wang, J. Luo, and S. Sun, Northwest A&F University, Yangling, China.

Goat kids of different genders change the proteic metabolism when subjected to feed restriction.
N. C. D. Silva, K. T. Resende, I. A. M. A. Teixeira, H. C. Bonfa, C. J. Harter, F. O. M. Figueiredo, R. F. Leite, and M. M. Freire, UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, SP, Brazil, Sao Paulo State University, Jaboticabal/SP, Brazil, UFAL, Maceio, AL, Brazil.

Effects of dietary chromium supplementation on performance, liver and blood metabolites of kids.
N. C. D. Silva, K. T. Resende, I. A. M. A. Teixeira, H. C. Bonfa, C. J. Harter, F. O. M. Figueiredo, R. F. Leite, and M. M. Freire, UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, SP, Brazil, UFV, Universidade Federal de Viçosa, Department of Animal Science, Viçosa, MG, Brazil, Sao Paulo State University, Jaboticabal/SP, Brazil, UFAL, Maceio, AL, Brazil.

Effects of Tasco on fecal egg counts and packed cell volume in meat goats.
<table>
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<tr>
<th>Session Number</th>
<th>Title</th>
<th>Authors and Affiliations</th>
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<tbody>
<tr>
<td>1913 M379</td>
<td>Pharmacokinetic processes of lithium used for food aversion in sheep and goats.</td>
<td>C. L. Manuelian, E. Albanell, A. M. Rovai, A. Salama, G. Caja, and R. Guttart, Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, Animal Production Research Institute, Dokki, Giza, Egypt.</td>
</tr>
<tr>
<td>1915 M381</td>
<td>Post-weaning performance by intact male F1 Kiko × Boer progeny from does selected based on parasite resistance: 1-year summary.</td>
<td>L. S. Wilbers, B. C. Shanks, J. D. Caldwell, W. M. Haslag, J. D. Walker, K. M. Jones, and A. L. Bax, Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO.</td>
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**Swine Species: Reproduction and Management**

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<tr>
<td>1937 M383</td>
<td>Dietary supplementation with organic or inorganic selenium and pyridoxine in gilts on gene expression in the porcine expanded blastocysts in vivo.</td>
<td>D. Bueno Dalto, S. Tsoi, I. Audet, M. Dyck, and J. J. Matte, Agriculture &amp; Agri-Food Canada, Sherbrooke, QC, Canada, Department of Animal Science, Universidade Estadual de Londrina, Brazil, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.</td>
</tr>
<tr>
<td>1938 M384</td>
<td>Comparing the growth curves of females and immuno castrated males in commercial conditions.</td>
<td>S. López-Vergé, G. Ibanez, and J. Gasas, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, Globosuininos Agropecuária S/A, Paraná, Brazil.</td>
</tr>
<tr>
<td>1941 M387</td>
<td>Comparison of fecal microbiota among healthy piglets during the weaning transition using barcoded 16S rDNA pyrosequencing.</td>
<td>J. P. Chae, E. A. Pajarillo, and D. K. Kang, Department of Animal Resources Science, Dankook University, Cheonan, South Korea.</td>
</tr>
<tr>
<td>1943 M389</td>
<td>Effects of parity and selection for uterine capacity on sow litter performance traits.</td>
<td>B. A. Freking, and J. L. Vallet, USDA ARS USMARC, Clay Center, NE, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.</td>
</tr>
<tr>
<td>1945 M391</td>
<td>Neither photoperiod in the farrowing room nor time of weaning affect nursery performance.</td>
<td>L. Eastwood, J. Shea, and D. Beaulieu, Prairie Swine Centre, Inc., Saskatoon, SK, Canada.</td>
</tr>
<tr>
<td>1947 M393</td>
<td>Oxidative stress is higher in replacement gilts than in multiparous sows.</td>
<td>J. Lapointe, C. Roy, and M. Lavoie, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.</td>
</tr>
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SYMPOSIA AND ORAL SESSIONS

Animal Health Symposium I:
Animal Health Research From the Perspective of Information Gaps
Chair: Theodore H. Elsasser, USDA, Agricultural Research Service
Sponsor: Elanco Animal Health

9:30 AM  Welcoming Remarks

9:35 AM  Animal health – From systems biology to translational research.
C. Gay*, USDA-ARS Office of National Programs, Beltsville, MD.

10:20 AM  Respiratory disease management in livestock- new challenges and knowledge gaps-what is critical on the horizon?
A. W. Confer*, Oklahoma State University, Stillwater.

11:05 AM  Break

11:20 AM  Metabolic and health consequences of heat stress: Knowledge gaps and opportunities.

12:05 PM  Ensuring good health and well-being in the aging equine population.
K. Malinowski*, R. C. Avenatti, and K. H. McKeever, Rutgers Equine Science Center, New Brunswick, NJ.

Beef Species Symposium: Making More, But Using Less: The Future of the U.S. Beef Industry with a Reduced Cowherd and the Challenge to Feed the U.S. and the World;
Session I. The U.S. Stocker and Feedlot Industries
Chair: Allison M. Meyer, Division of Animal Sciences, University of Missouri
Sponsor: Merck

9:30 AM  Nutritional strategies to improve efficiency in the stocker and feedlot industries in a consumer conscious market.
M. S. Kerley*, W. J. Sexten, and A. M. Meyer, University of Missouri, Columbia.

10:00 AM  What is the future of genetic selection and cattle sorting technologies in the stocker and feedlot industries?
R. L. Weaber*, Kansas State University, Manhattan.

10:30 AM  Beef quality vs. quantity in today’s market.
B. J. Johnson*, Texas Tech University, Lubbock.

11:00 AM  Economic considerations related to rebuilding the U.S. cowherd.
G. T. Tonsor*1 and L. L. Schulz2, 1Kansas State University, Manhattan, 2Iowa State University, Ames.

Breeding and Genetics: Applications and Methods in Animal Breeding-Dairy I
Chair: Jennifer M. Bormann, Kansas State University
Sponsor: 2505A

9:30 AM  Calculation and delivery of U.S. genomic evaluations for dairy cattle.
G. R. Wiggans*, T. A. Cooper*, P. M. VanRaden*, D. J. Null*, J. L. Hutchison*, O. M. Meland*, M. E. Tooker*, and H. D. Norman*, 1Animal Improvement Programs Laboratory, Agricultural Research Service, USDA, Beltsville, MD, 2USDA-ARS-AIPL, Beltsville, MD, 3Animal Improvement Programs Laboratory, Agricultural Research Service, United States Department of Agriculture, Beltsville, MD, 4Council on Dairy Cattle Breeding, Columbus, OH.

9:45 AM  An updated version of lifetime net merit incorporating additional fertility traits and new economic values.
J. B. Cole*1 and P. M. VanRaden*, 1Animal Improvement Programs Laboratory, Agricultural Research Service, United States Department of Agriculture, Beltsville, MD, 2USDA-ARS-AIPL, Beltsville, MD.

10:00 AM  Gains in reliability with genomic information in U.S. commercial holstein heifers.
F. A. Di Croce*, J. B. Osterstock, D. J. Weigel, and M. J. Lormore, Zoetis Inc., Kalamazoo, MI.
10:15 AM 155 Genome-wide association analysis in Italian Simmental cows for lactation curve traits using a low density (7K) SNP panel.
N. P. P. Macciotta1, D. Vicario2, C. Dimauro2, G. Gaspa3, M. Cellesi1, A. Puledda3, S. Sorbolini3, and P. Ajmone-Marsan2, 1Università di Sassari, Sassari, Italy, 2ANAPRI, Udine, Italy, 3Dipartimento di Agraria, Università di Sassari, Sassari, Italy, 4Università Cattolica del Sacro Cuore, Piacenza, Italy.

10:30 AM 156 Genetic parameters for pre-calving feed intake.
B. N. Shonka1 and D. M. Spurlock2, Iowa State University, Ames.

10:45 AM 157 Phenotypic and genetic correlations among milk energy output, body weight, and feed intake, and their effects on feed efficiency in lactating dairy cattle.
M. J. VandeHaar1, Y. Lu1, D. M. Spurlock2, L. E. Armentano1, K. A. Weigel1, R. F. Veerkamp4, M. Coffey1, Y. de Haas4, C. R. Staples4, E. E. Connor7, J. D. Hanigan8, and R. J. Tempelman1, 1Michigan State University, East Lansing, 2Iowa State University, Ames, 3University of Wisconsin-Madison, 4Animal Breeding and Genomics Centre, Wageningen UR Livestock Research, Wageningen, Netherlands, 5Scottish Agriculture College, Edinburgh, United Kingdom, 6Department of Animal Sciences, University of Florida, Gainesville, 7USDA-ARS, Bovine Functional Genomics Laboratory, Beltsville, MD, 8Virginia Polytechnic Institute and State University, Blacksburg.

11:00 AM 158 Benchmarking reproductive efficiency in commercial dairy herds in California.
A. H. Souza1, N. Silva-Del-Rio2, E. O. S. Batista3, W. VerBoort4, P. S. Baruselli3, and P. J. Ross2, 1University of California Cooperative Extension, Tulare, 2University of Sao Paulo-VRA, Sao Paulo, Brazil, 3University of California-Davis, 4Animal Breeding and Genomics Centre, Wageningen UR Livestock Research, Wageningen, Netherlands, 5Scottish Agriculture College, Edinburgh, United Kingdom.

9:30 AM 295 Introduction – Global challenges to a safe food supply.
R. J. Harmon1, University of Kentucky, Lexington.

9:45 AM 296 Raw milk–is it safe?
B. Jayarao1 and E. Hovingh, Penn State University, University Park.

10:45 AM 297 The shift from reaction to prevention for animal feedstuffs.
D. McChesney1, Food and Drug Administration, Washington, DC.

11:30 AM 298 Retailer perspective of food safety in international markets.
N. Dyenson1, Walmart Stores, Inc., Bentonville, AR.

Food Safety: Global Challenges to a Safe Food Supply
Chair: Robert J. Harmon, University of Kentucky
2102A

Forages and Pastures I: Silages
Chair: Kathy J. Soder, USDA-Agricultural Research Service
2104B

9:30 AM 304 Effect of corn silage hybrids differing in starch and NDF digestibility on lactation performance and total tract nutrient digestibility by dairy cows.
L. F. Ferraretto4, A. C. Fonseca4, C. J. Sniffen1, A. Formigoni4, and R. D. Shaver4, 1University of Wisconsin-Madison, 4Fencrest, LLC, Holderness, NH, 4Università di Bologna, Bologna, Italy.

9:45 AM 305 The interaction of drought stress and heat stress as determinant of dry matter yield and nutritional composition of corn whole-plant for silage.
G. Ferreira3, H. D. Behl1, E. Hokanson1, W. E. Thomason1, and C. D. Teutsch1, 1Department of Dairy Science, Virginia Polytechnic Institute and State University, Blacksburg, 2Department of Crop and Soil Environmental Sciences, Virginia Polytechnic Institute and State University, Blacksburg.

10:00 AM 306 Effects of different levels of corn silage and alfalfa hay on rumen pH, VFA and milk production in dairy cows.
A. Akbari-Afjani2, A. Zali1, M. Ganjkhanlou1, M. Dehghan-Banadaky1,2, and A. Emami1, 1University of Tehran, Tehran, Iran, 2University of Birjand, Birjand, Iran.

307 Withdrawn by author.
10:15 AM 308  Effects of dairy slurry on the nutritive value and fermentation characteristics of alfalfa silages.
W. K. Coblentz1, R. E. Muck2, M. A. Borchart1, W. E. Jokela1, M. G. Bertram1, and K. P. Coffey1, 1US Dairy Forage Research Center, Marshfield, WI, 2U. S. Dairy Forage Research Center, USDA-ARS, Madison, WI, 3University of Wisconsin, Arlington, 4University of Arkansas, Fayetteville.

10:30 AM 309  The effects of combination of lactic acid-producing bacteria and hydrolytic enzyme inoculants on ensiling characteristics of alfalfa and corn.
J. M. Chilson1, P. Rezamand, and M. E. Drewnoski, University of Idaho, Moscow.

10:45 AM 310  In vitro digestibility and gas production kinetic characteristics of corn stover treated by calcium oxide and stored under anaerobic condition.
H. T. Shi1, Z. J. Cao, S. L. Li, W. N. Shi, and Z. H. Wu, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

11:00 AM 311  Effects of calcium oxide level and moisture content on the in situ degradability of the alkali treated and anaerobically stored corn stover.
H. T. Shi1, S. L. Li, Z. J. Cao, Y. He, and Q. Zhou, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

11:15 AM 312  Effects of different silage forages on cecal fermentation in rabbits: In vitro gas production.
M. Gonzalez Ronquillo1, A. Zetina Sanchez2, O. Castelan Ortega2, and J. Romero Bernal2, 1Universidad Autonoma del Estado de Mexico, Toluca, Mexico, 2Universidad Autonoma del Estado de Mexico, Toluca, Mexico.

Graduate Student Competition: ADSA Dairy Foods Oral
Chair: Beth Briczinski, National Milk Producers Federation
3501C

9:30 AM
Welcoming Remarks

9:35 AM 325  Improving properties of acid skim milk gels by adjusting non-micellar to micellar protein ratio and controlling protein interactions.
G. H. Meletharayil1, H. A. Patel1, and S. G. Sutariya1, 1South Dakota State University, Brookings, 2Dairy Science Department, South Dakota State University, Brookings.

9:50 AM 326  Controlling the viscosity of milk concentrates through tailored casein-whey protein interactions.
S. G. Sutariya1, H. G. Patel1, T. Huppertz1,2, and G. H. Meletharayil1, 1South Dakota State University, Brookings, 2NIZO food research, Ede, The Netherlands, Ede, SD.

10:05 AM 327  Partial calcium depletion during membrane filtration impacts gelation of reconstituted milk protein concentrates.
H. Eshpari1,2, P. S. Tong1, and M. Corredig1, 1University of Guelph, Guelph, ON, Canada, 2California Polytechnic State University, San Luis Obispo, 3Department of Dairy Science, California Polytechnic State University, San Luis Obispo, 4Dept Food Science, University of Guelph, Guelph, ON, Canada.

10:20 AM 328  Utilizing whey protein isolate and polysaccharide complexes to stabilize aerated dairy gels.
E. C. O’Chiu1 and B. Vardhanabhuti, University of Missouri, Columbia.

S. Zhang2 and B. Vardhanabhuti, University of Missouri, Columbia.

10:50 AM
Break

11:00 AM 330  Evaluation of an adsorbent for the removal of aflatoxin M1 from contaminated milk.
E. D. Womack1, D. L. Sparks, A. Brown, and S. H. Ward, Mississippi State University, Mississippi State.

11:15 AM 331  Application of FT-IR and flow cytometry to evaluate the effect of sodium chloride on probiotic bacteria.
N. Shah and A. Gandhi1, The University of Hong Kong, Hong Kong.

11:30 AM 332  Genomic insights into high expolysaccharide-producing dairy starter bacterium Streptococcus thermophilus ASCC 1275.
N. Shah, Q. Wu1, and H. M. Tun, The University of Hong Kong, Hong Kong.

11:45 AM 333  Effectiveness of pulsed light treatment on the inactivation of pathogenic and spoilage bacteria on cheese surface.
J. Proulx1, L. Hu1, B. Miller1, G. Sullivan1, K. Paradis1, and C. I. Moraru1, 1Cornell University, Ithaca, NY, 2McGill University, Montreal, QC, Canada.
Graduate Student Competition: ADSA Production Oral, MS
Chair: Peter S. Erickson, University of New Hampshire
2505B

9:30 AM 334 Nutrient utilization and metabolism by lactating dairy cows fed high-forage diets with protein supplements.
K. Neal1, J. S. Eun1, A. J. Young2, and K. Mjoun1, 1Utah State University, Logan, 2Alltech, Brookings, SD.

9:45 AM 335 Individual and additive value of conventional and non-conventional technologies in beef steers housed in small research pens.
A. R. Harding1, Oklahoma State University, Stillwater.

10:00 AM 336 The effects of supplementing two pasteurized milk balancer products to pasteurized whole milk on the health and growth of dairy calves.
K. M. Glosson1, B. A. Hopkins1, S. Washburn1, S. Davidson1, G. Smith1, T. Earleywine2, and C. Ma1, 1University of Wisconsin-Madison, 2Land O’ Lakes Animal Milk Products, Shoreview, MN.

10:15 AM 337 Relationship between fertility and postpartum changes in body condition and body weight in lactating dairy cows.

10:30 AM 338 Effect of serum calcium status at calving on survival, health, and performance of post-partum dairy cows and calves.
A. Hunter1, M. G. Maquivar2, S. Bas1, T. A. Brick1, W. P. Weiss3, J. S. Velez4, H. Bothe5, and G. M. Schuenemann1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Department of Animal Sciences, Washington State University, Pullman, 3Department of Animal Sciences, The Ohio State University, Wooster, 4Aurora Organic Farms, Platteville, CO.

10:45 AM 339 Sodium salicylate decreases glucose turnover rate in periparturient dairy cows, likely through enhanced liver insulin sensitivity.
S. R. Montgomery1, L. Mamedova, A. J. Carpenter, and B. Bradford, Kansas State University, Manhattan.

11:00 AM 340 Effects of elevated subcutaneous fat stores on serum nonesterified and milk fatty acid profile and peripheral blood mononuclear cells gene expression of pro-inflammatory markers and production measures in periparturient dairy cows.
C. M. Scholte1, K. C. Ramsey2, C. Y. Tsai2, A. Hendrickson3, Z. M-Amiri1, B. Shafii4, and P. Rezamand1, 1University of Idaho, Moscow, 2Department of Animal Sciences, Pennsylvania State University, University Park, 3University of California, Davis, 4Aurora Organic Farms, Platteville, CO.

11:15 AM 341 Effect of prophylactic and therapeutic antibiotic administration on fecal excretion of antibiotic resistance genes by dairy cows.

11:30 AM 342 Effects of oscillating the crude protein content in dairy cow rations.
A. N. Brown1 and W. P. Weiss2, 1The Ohio State University, Wooster, 2Department of Animal Sciences, The Ohio State University, Wooster.

11:45 AM 343 Interaction among energy status, and retinoid status in periparturient dairy cows: Production, milk retinoid, and metabolic response.
K. C. Ramsey1, J. D. Blickenstaff2, C. Y. Tsai2, C. M. Scholte1, W. Price3, M. A. McGuire3, and P. Rezamand1, 1University of Idaho, Moscow, 2Department of Animal Sciences, Pennsylvania State University, University Park, 3University of California, Davis.

12:00 PM 344 Reproductive performance of timed artificial insemination and activity-based estrus detection.
K. A. Dolecheck1, W. J. Silvia1, G. Heersche Jr1, and J. M. Bewley1, University of Kentucky, Lexington.

12:15 PM 345 Energy content of reduced-fat distillers grains for lactating dairy cows.
A. Foth1, G. Garcia Gomez2, T. Brown-Brand3, H. C. Freethy3, and P. J. Kononoff4, 1University of Nebraska-Lincoln, 2ARS-USD, Clay Center, NE, 3USDA, ARS, U.S. MARC, Clay Center, NE.

12:30 PM 346 Relationship Between digestibility and residual feed intake in lactating Holstein cows fed high and low starch diets.
S. E. Burczynski1, J. P. Boerman1, A. L. Lock1, M. S. Allen1, and M. J. VandeHaar1, Michigan State University, East Lansing.

12:45 PM 347 Evaluation of the effects of vitamin D and toll-like receptor signaling pathways on expression of antibacterial β-defensin genes in bovine neutrophils and mammary epithelial cells.
K. E. Merriman1 and C. D. Nelson1, Department of Animal Sciences, University of Florida, Gainesville.
Horse Species Symposium: Advances in Equine Stem Cell Biology
Chair: Josie Coverdale, Texas A&M University

9:30 AM  382  Developmental progenitor cells of articular chondrocytes.  
J. N. MacLeod*, University of Kentucky, Lexington.

10:20 AM  383  Understanding the link between inflammation and muscle satellite cells in the horse.  
S. A. Reed*, Department of Animal Science, University of Connecticut, Storrs.

11:10 AM  384  Use of mesenchymal stem cells in bone repair.  
K. E. Govoni*, Department of Animal Science, University of Connecticut, Storrs.

Meat Science and Muscle Biology
Chair: Nick K. Gabler, Iowa State University

9:30 AM  419  Changes to the muscle proteome during acute heat stress are dependent on predominant fiber type.  

9:45 AM  420  Relationship of fat quality to meat quality traits of pork.  
E. D. Testroet*, C. Yoder, C. Bustos, S. M. Lei, D. C. Beitz, and T. J. Baas, Iowa State University, Ames.

10:00 AM  421  Effects of dietary level of dried citrus pulp on growth, feed efficiency, carcass merit, and lean quality of finishing pigs.  

10:15 AM  422  Effects of zilpaterol hydrochloride and implants in beef heifers I: Feedlot performance, carcass characteristics, and intramyocellular lipid accumulation.  

10:30 AM  423  Effects of zilpaterol hydrochloride and implants in beef heifers II: Aging effects on Warner-Bratzler shear force, collagen solubility, and fiber cross-sectional area.  

10:45 AM  424  Effect of zilpaterol hydrochloride on carcass composition, subprimal yield, and meat quality of Nellore heifers.  
N. R. B. Cônsolo*, R. S. Goulart, F. Rodriguez, M. O. Frasseto, R. A. P. Maciel, J. F. Penso, and L. F. P. Silva, 1University of Sao Paulo, Pirassununga, Brazil, 2MSD Saúde Animal, Sao Paulo, Brazil, 3University of Sao Paulo, Sao Paulo, Brazil.

11:00 AM  425  Effects of duration of vitamin C supplementation on growth performance, carcass traits, and protein degradation of the longissimus thoracis of steers fed a 0.31 or 0.59% sulfur diet.  

11:15 AM  426  Interaction of various inclusion levels of dietary vitamin D2 enriched yeast cell wall with zilpaterol hydrochloride on dry matter intake and post mortem tenderness in feedlot steers.  

11:30 AM  427  Zinc methionine alters muscle and adipose gene expression and protein concentration of calf-fed Holstein steers fed zilpaterol hydrochloride.  
J. E. Hergenreder*, J. O. Baggerman, M. E. Branine, and B. J. Johnson, 1Texas Tech University, Lubbock, 2Zinpro Corporation, Eden Prairie, MN.

11:45 AM  428  Muscle fiber and color characteristics of different locations within beef Longissimus lumborum steaks.  

12:00 PM  429  In utero manipulation of muscle development in beef cattle fetuses.  
M. S. Duarte*, M. P. Gionbelli, P. Paulino, N. V. L. Serão, S. E. Facioni, S. de Campos Valadares Filho, and M. Dut, 1Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2Instituto Nacional de Ciência e Tecnologia-Ciência Animal, Viçosa, Minas Gerais, Brazil, 3Universidade Federal De Vicosa, Vicosa-MG, Brazil, 4Iowa State University, Ames, 5Universidade Federal de Viçosa, Viçosa, Brazil, 6Washington State University, Pullman.
Nonruminant Nutrition:
Nutrient Requirements of Monogastrics and Amino Acid Digestibility of Feedstuffs
Chair: Joshua Jendza, BASF Corporation

2503

9:30 AM 435 Determination of additivity of apparent and standard ileal digestibility of amino acids in different ingredients for mixed diets fed to growing pigs.
P. Xue*, D. Ragland, and L. Adeola, Purdue University, West Lafayette, IN.

9:45 AM 436 Effects of dietary threonine: Lysine ratio and sanitary conditions on performance and plasma urea nitrogen of weaned pigs fed antibiotic-free diets.
B. Jayaraman*, J. K. Htoo, and C. M. Nyachoti1, 1University of Manitoba, Winnipeg, MB, Canada, 2Evonik Industries AG, Hanau-Wolfgang, Germany.

10:00 AM 437 Estimated lysine requirement of 25 to 50 kg growing gilts.
J. K. Mathaï and H. H. Stein, University of Illinois at Urbana-Champaign.

10:15 AM 438 Homocysteinemia, growth performance and immune responses in suckling and weanling piglets.

10:30 AM 439 Leucine supplementation of a restricted protein diet improves lean growth in neonatal pigs.
D. A. Columbus*, J. Steinhoff-Wagner1, A. Suryawar1, M. Kao1, A. Hernandez-Garcia1, C. Boutry1, H. V. Nguyen1, M. L. Fiorotto1, and T. A. Davis2, 1Children's Nutrition Research Center, Baylor College of Medicine, Houston, TX, 2USDA/ARS-Children's Nutrition Research Center, Baylor College of Medicine, Houston, TX, 3Neonatology, Baylor College of Medicine, Houston, TX.

10:45 AM 440 Optimal sulfur amino acid to lysine ratio for weaned pigs fed antibiotic-free diets and raised under clean and unclean conditions.
R. K. Kahindi*, M. C. Nyachoti, and J. K. Htoo, 1University of Manitoba, Winnipeg, MB, Canada, 2Evonik Industries AG, Hanau-Wolfgang, Germany.

11:00 AM Break

11:15 AM 441 Energy concentration and amino acid digestibility in two sources of canola meal fed to growing pigs.
N. W. Jaworski*, Y. Liu, and H. H. Stein, University of Illinois at Urbana-Champaign.

11:30 AM 442 Amino acid digestibility in processed soybean products and rapeseed products fed to weanling pigs.
D. M. D. L. Navarro*, Y. Liu1, T. S. Bruun2, and H. H. Stein1, 1University of Illinois at Urbana-Champaign, 2Danish Pig Research Centre, Copenhagen, Denmark.

11:45 AM 443 Standardized ileal crude protein and amino acid digestibility of eight wheat genotypes fed to growing pigs.
P. Rosenfelder1*, H. K. Spindler1, K. E. B. Knudsen1, H. Jørgensen1, N. Sauer1,2, J. K. Htoo, M. Eklund1, and R. Mosenthin1, 1University of Hohenheim, Institute of Animal Nutrition, Stuttgart, Germany, 2Aarhus University, Department of Animal Science, Tjele, Denmark, 3Landwirtschaftliche Untersuchungs-und Forschungsanstalt Speyer, Speyer, Germany, 4Evonik Industries AG, Hanau-Wolfgang, Germany.

12:00 PM 444 Digestible phosphorus requirement of 20-kg pigs – A cooperative study.
O. Adeola*, M. J. Azain1, S. D. Carter1, T. D. Crenshaw1, M. J. Estienne1, B. J. Kerr, M. D. Lindemann1, C. V. Maxwell1, P. S. Miller1, M. C. Shannon1, E. van Heugten1, and N. A. S-106112, 1Purdue University, West Lafayette, IN, 2University of Georgia, Athens, 3Oklahoma State University, Stillwater, 4University of Wisconsin-Madison, 5Virginia Tech Tidewater AREC, Suffolk, 6USDA-ARS, Ames, IA, 7University of Kentucky, Lexington, 8Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, 9University of Nebraska-Lincoln, 10University of Missouri-Columbia, 11North Carolina State University, Raleigh, 12Swine Nutrition Committee and Nutritional Systems for Swine to Increase Reproductive Efficiency Committee, West Lafayette, IN.

12:30 PM 446 The flow of inositol phosphate esters and phytate phosphorus in the proximal and distal parts of the digestive tract of broilers receiving diets adequate in available phosphorus and supplemented with high levels of phytase.
L. A. Beeson*, C. L. Walk1, and O. Olukosi1, SRUC, Ayr, United Kingdom, 2AB Vista Feed Ingredients, Marlborough, United Kingdom.
Physiology and Endocrinology:
Pregnancy, Placentation and Reproductive Health in Ruminants
Chair: Gregoy Bedecarrats, University of Guelph

2103C

9:30 AM  486  Bioinformatics analysis of mammary gland and liver transcriptome in response to an intra-mammary E. coli lipopolysaccharide challenge in early-lactation dairy cattle.
A. Minuti1, D. E. Graugnard2, E. Trevisi3, and J. J. Loor4, 1Università Cattolica del Sacro Cuore, Piacenza, Italy, 2University of Illinois at Urbana-Champaign.

9:45 AM  487  The role of pH and progesterone on bovine uterine protein secretion in response to maternal recognition, interferon-tau.
J. A. Spencer5, J. K. Austen6, K. G. Carnahan7, and A. Ahmadzadeh8, 1University of Idaho, Moscow, 2Department of Animal Science, University of Wyoming, Laramie.

10:00 AM  488  Hepatic steroid inactivating enzymes, hepatic portal blood flow, and corpus luteum blood perfusion in lactating dairy cattle.
C. G. Hart9, B. E. Voelz, K. E. Brockus, and C. O. Lemley, Mississippi State University, Mississippi State.

10:15 AM  489  Effects of supplementing Holstein heifers with dietary melatonin during late gestation on growth and cardiovascular measurements of offspring.
K. E. Brockus9, C. G. Hart, S. H. Ward, and C. O. Lemley, Mississippi State University, Mississippi State.

10:30 AM  490  Uterine blood flow, calf, and placental weights from beef cows supplemented during late gestation.

10:45 AM  491  Possible markers of uterine and metabolic health in transition dairy cows.
G. Esposito10, A. Chapwanya11, E. C. Webb12,13, and P. C. Irons1,2, 1Department of Production Animal Studies, Faculty of Veterinary Sciences, University of Pretoria, Onderstpoort, South Africa, 2Institute of Food, Nutrition and Well-being University of Pretoria, Pretoria, South Africa, 3Department of Animal and Wildlife Sciences, Faculty of Natural and Agricultural Sciences, University of Pretoria, Pretoria, South Africa.

11:00 AM  492  Pregnancy-induced changes in metabolome and proteome in ovine uterine flushings.

11:15 AM  493  Syncytin expression in uterine endometrium and fetal membranes during early pregnancy in sheep.

11:30 AM  494  Effect of postpartum treatment with non-steroidal anti-inflammatory drugs (NSAID) on reproductive performance and removal from the herd in dairy cattle through mid-lactation.
A. J. Carpenter9, C. M. Ylioja1, C. F. Vargas Rodriguez2, L. G. D. Mendonça3, L. Mamedova4, J. F. Coetzee5, L. Hollis6, R. Gehring7, and B. Bradford8, 1Department of Animal Sciences and Industry, Kansas State University, Manhattan, 2Pharmacology Analytical Support Team, Iowa State University College of Veterinary Medicine, Ames, 3Department of Clinical Sciences, Kansas State University, Manhattan.

11:45 AM  495  Biology and molecular signatures of elongating preimplantation conceptuses in dairy cows.
E. S. Ribeiro9, L. F. Greco1, R. S. Bisinotto1, F. S. Lima2, W. W. Thatcher3, and J. E. P. Santos4, 1Department of Animal Sciences, University of Florida, Gainesville, 2University of Florida, Gainesville.

12:00 PM  496  Modulation of the immune system during post-partum uterine infection.
C. G. Walker9, S. Meier10, J. R. Roche11, M. D. Mitchell12, and C. Burke13, 1DairyNZ, Auckland, New Zealand, 2DairyNZ, Hamilton, New Zealand, 3University of Queensland, Queensland, Australia, 4Dairy NZ Ltd, Hamilton, New Zealand.

12:15 PM  497  Carryover effects of postpartum diseases on early conceptus development in dairy cows.

12:30 PM  546  The effect of preovulatory concentration of estradiol and length of proestrus on pregnancy rate to timed-AI and embryo transfer in beef cows.
L. H. Cruppe9, R. S. Cipriano2, F. M. Abreu3, M. L. Mussard4, K. J. Wells5, G. E. Fogle6, B. R. Harstine5, M. D. Utt4, G. A. Bridges4, and M. L. Day4, 1The Ohio State University, Columbus, 2UniSalesiano, Araçatuba, Brazil, 3Select Sires Inc, Plain City, OH, 4University of Minnesota, Grand Rapids.
Ruminant Nutrition I: Feedlot Nutrition
Chair: Anna Taylor, South Dakota State University
2103A

9:30 AM  589  Feed performance and diet digestibility of feed efficiency-ranked beef steers fed corn or roughage-based diets and finished with corn or byproduct-based diets.
J. R. Russell1, N. O. Minton2, W. J. Sexten2, M. S. Kerley2, and S. L. Hansen2, 1Iowa State University, Ames, 2University of Missouri, Columbia.

9:45 AM  590  Effects of processing of treated corn stover and distillers grains on intake and digestibility of feedlot diets.
J. L. Harding2, M. L. Jolly, J. C. MacDonald, and G. E. Erickson, University of Nebraska-Lincoln.

10:00 AM  591  Effects of dietary glycerin inclusion at 0%, 5%, 10%, and 15% of dry matter on energy metabolism and nutrient balance in finishing beef steers.
K. E. Hales3, A. P. Foote3, T. Brown-Brandl3, and H. C. Freely4, 3USDA-ARS-MARC, Clay Center, NE, 4USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, 3ARS-USDA, Clay Center, NE, 4USDA, ARS, U.S. MARC, Clay Center, NE.

10:15 AM  592  Intake and digestibility of diets without forage in Nellore and Angus young bulls.
M. M. Ladeira1, J. R. R. Carvalho1, M. L. Chizzotti2, D. R. Casagrande1, P. D. Teixeira1, M. C. L. Alves1, R. A. Gomes1, and L. A. Silveira1, 1Universidade Federal de Lavras, Lavras, Brazil, 2Universidade Federal de Viçosa, Viçosa, Brazil.

10:30 AM  593  A survey of dry-rolled corn particle size and fecal starch in U.S. feedlots.
E. Schwandt*, Kansas State University, Manhattan.

10:45 AM  594  Effects of feeding zilpaterol hydrochloride on feedlot performance and carcass characteristics of Nellore bulls and steers.

11:00 AM  595  Effects of Next Enhance concentrations in finishing diets on performance and carcass characteristics of yearling feedlot cattle.
C. J. Bittner1, G. E. Erickson1, K. H. Jenkins2, M. K. Luebbe2, G. I. Zanton3, and M. A. Andersen1, 1University of Nebraska-Lincoln, 2University of Nebraska, Scottsbluff, 3Novus International, Inc., St. Charles, MO.

11:15 AM  596  Effects of plane of nutrition during late gestation and weaning age on transcriptome profiles of Longissimus muscle in Simmental x Angus offspring.
S. Moisa*, L. M. Shoup, D. W. Shike, and J. J. Loor, University of Illinois at Urbana-Champaign.

11:30 AM  597  Post-natal nutritional management alters transcription regulator gene networks in Longissimus muscle of Angus x Simmental offspring.
S. Moisa*, L. M. Shoup, D. W. Shike, and J. J. Loor, University of Illinois at Urbana-Champaign.

11:45 AM  598  Effect of ractopamine hydrochloride and dietary protein content on performance and carcass traits of Nellore bulls.
N. R. B. Cônsolo1, F. Rodriguez1, M. O. Frasseto1, R. A. P. Maciel2, V. Rizzi3, and L. F. P. Silva3, 1University of Sao Paulo, Pirassununga, Brazil, 2University of Sao Paulo, Sao Paulo, Brazil, 3Ouro Fino, Cravinhos, Brazil.

12:00 PM  599  Effect of 300 or 400 mg daily of ractopamine hydrochloride on growth performance and carcass characteristics of finishing steers during the last 14, 28, or 42 days.
C. J. Bittner1, D. B. Burken1, G. E. Erickson1, and N. A. Pyatt2, 1University of Nebraska-Lincoln, 2Elanco Animal Health, Greenfield, IN.

12:15 PM  600  Comparison of the total tract digestibility in feedlot cattle fed barley grain treated with lactic and citric acid.
M. Nematpoor1, K. Rezayazdi1, and M. Dehghan-Banadaky2, 1University of Tehran, Karaj, Iran, 2Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran.

Ruminant Nutrition II: Models, Starch; Forages, Dairy
Chair: Mary Beth Hall, US Dairy Forage Research Center
2103B

9:30 AM  601  Using a dynamic metabolic model to investigate differences in metabolic patterns among lactating animals.
L. Oliveira1, H. Kimbali2, J. P. McNamara1, and A. Fix2, 1Sao Paulo State University, Sao Paulo, Brazil, 2Washington State University, Pullman.
9:45 AM 602  A dynamic, mechanistic model of metabolism in adipose tissue of lactating dairy cattle.  
J. P. McNamara*1, K. Huber2, and A. Kenez*3, 1Washington State University, Pullman, 2University of Hannover, Hannover, Germany.

10:00 AM 603  Total volatile fatty acid concentrations are unreliable estimates of treatment effects on in vivo ruminal fermentation.  
M. B. Hall*1, T. D. Nennich2, and P. H. Doane1, 1U. S. Dairy Forage Research Center, USDA-ARS, Madison, WI, 2Purdue University, West Lafayette, IN, 3ADAM Research, Decatur, IL.

10:15 AM 604  Effects of diets differing in starch, fiber, and fatty acid concentrations on milk production and energy partitioning.  
J. P. Boerman1, S. E. Burczynski2, and A. L. Lock, Michigan State University, East Lansing.

10:30 AM 605  Propionic acid decreased meal size and feed intake compared with glycerol when infused abomasally in cows in the postpartum period.  
L. B. Gauldron-Duarte and M. S. Allen, Michigan State University, East Lansing.

10:45 AM 606  Responses to starch infusion on milk synthesis in low yield lactating dairy cows.  
Y. Zou*1, Z. Yang, Y. Guo, S. Li, and Z. J. Cao, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

11:00 AM 607  The effect of starch digestibility of two corn silage varieties on lactation performance in dairy cows.  
E. E. Klingensmith*1, L. Harthan1, and M. D. Hanigan, 1Virginia Tech, Blacksburg.

11:15 AM 608  Effects of calcium oxide treated corn stover as a partial replacement for corn silage, Chinese wildrye or concentrate on milk yield and composition of dairy cows.  
H. T. Shi*1, S. L. Li, Z. J. Cao, and Y. Q. Wu, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

11:30 AM 609  Effects of dried sugar beet pulp as a replacement for corn silage on performance of dairy cows.  
G. R. Ghorbani*1, N. Naderi, A. Sadeghism, and I. Sadrearhami, Isfahan University of Technology, Isfahan, Iran.

11:45 AM 610  Effect of feeding different types of sugars on rumen fermentation and productivity of lactating dairy cows.  
X. Gao* and M. Oba, University of Alberta, Edmonton, AB, Canada.

12:00 PM 611  Effects of alfalfa and cereal straw as a forage source on nutrient digestibility, rumen microbial protein synthesis, and lactation performance in lactating dairy cows.  
B. Wang1, S. Y. Mao2, H. J. Yang1, Y. M. Wu1, J. K. Wang1, S. L. Li5, Z. M. Shen2, and J. X. Liu1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Nanjing Agricultural University, Nanjing, China, 3China Agricultural University, Beijing, China, 4State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, 5Zhejiang University, Hangzhou, China.

12:15 PM 612  Feeding lactating dairy cattle long hay separate from the TMR can maintain DMI during incidents of low rumen pH.  
A. D. Kmickewycz* and A. J. Heinrichs, The Pennsylvania State University, University Park.

Swine Species Mini-Symposium: Opportunities and Challenges with the Use of Carbohydrase and Protease Enzymes in Swine Formulations

Chair: John F. Patience, Iowa State University  
Sponsor: JBS United & EAAP

9:30 AM 741  EAAP-ASAS Speaker Exchange Presentation: Opportunities and challenges with the use of carbohydrase and protease enzymes in swine formulations.  
R. T. Zijlstra*1, T. A. Woyengo1, Z. Nasir1, and E. Beltranena1,2, 1University of Alberta, Edmonton, AB, Canada, 2Alberta Agriculture and Rural Development, Edmonton, AB, Canada.

10:10 AM  Discussion

Swine Species: Reproduction and Management

Chair: Charles Starkey, American Proteins, Inc.

9:30 AM 741  Betaine supplementation in maternal diet modulates the epigenetic regulation of hepatic gluconeogenic genes in neonatal piglets.  
D. Cai*1, Y. Jia, H. Song, S. Sui, J. Lu, Z. Jiang, and R. Zhao, Nanjing Agricultural University, Nanjing, China.
10:45 AM 743  Rearing system affects the efficiency of oleic acid deposition in Duroc x Iberian pigs.
D. Solà-Oriol¹, S. López-Vergé², E. Varella³, A. C. Barroeta⁴, and J. Gasa⁵, ¹Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, ²Tecnología & Vitaminas, S.L., Alforja, Spain.

11:00 AM 744  Effects of sugar beet pulp on reproductive performance of gestation sows.

11:15 AM 745  Utilizing meta-analyses to generate prediction equations for pork carcass back, belly, and jowl fat iodine value.
C. B. Paulk¹, J. R. Bergstrom², M. D. Tokach³, S. S. Dritz⁴, D. D. Burnett⁵, J. M. DeRouchey⁵, R. D. Goodband⁶, J. L. Nelson⁷, and J. M. Gonzalez⁸, ¹Kansas State University, Manhattan, ²DSM Nutritional Products, Inc., Parsippany, NJ.

11:30 AM 746  The effects of copper source (copper sulfate or methionine hydroxy analogue chelate; Mintrex) on growth performance, carcass characteristics, and barn cleaning time in finishing pigs.
K. F. Coble¹, J. M. DeRouchey¹, M. D. Tokach¹, S. S. Dritz⁵, B. Lawrence⁵, J. Escobar⁵, J. C. Woodworth⁶, R. D. Goodband⁷, and N. Boettger⁸, ¹Kansas State University, Manhattan, ²Novus International, St. Charles, MO.

11:45 AM 747  Immunocastration affects testicular mass, serum concentrations of testosterone, and average daily gain of boars.
D. Lugar¹, S. Clark¹, S. Callahan¹, L. Wittish¹, and M. Estienne³, ¹Virginia Tech, Blacksburg, ²Virginia-Maryland Regional College of Veterinary Medicine, Blacksburg, ³Virginia Tech, Suffolk.

12:15 PM 748  New perspectives to the enterotoxigenic E. coli F4 infection model in weanling piglets in relation to the susceptibility genotypes and bacterial shedding.

ADSA-SAD Undergraduate Student Paper Competition: Dairy Foods
Chair: Dale R. Olver, The Pennsylvania State University
2208

11:00 AM 14  Dairy fats: The good, the bad, and the ugly.

11:15 AM 15  Differences in bovine and caprine cheese production.
K. Wolf* and J. M. Bewley, University of Kentucky, Lexington.

11:30 AM 16  Do current regulations for raw milk cheeses ensure consumer safety?

11:45 AM 17  Applications for functional dairy starter cultures.
G. G. FitzPatrick* and D. R. Olver, The Pennsylvania State University, University Park.

Graduate Student Competition: ADSA Southern Section Oral
Chair: Jeffrey M. Bewley, University of Kentucky
2104B

12:00 PM 359  Changes in activity and milk components around onset of clinical mastitis.

12:15 PM 360  Predicting impending calving using automatically collected measures of activity and rumination in dairy cattle.

CSAS Graduate Student Oral Competition
Chair: Cornelis F.M. de Lange, University of Guelph
2505A

1:00 PM 212  Effects of butyrate during subacute ruminal acidosis on VFA transport capacity in the rumen epithelium of holstein dairy cows.
A. H. Laarman¹, L. Dionissopoulos¹, O. AlZahal², S. L. Greenwood², M. A. Steele³, and B. W. McBride³, ¹University of Guelph, Guelph, ON, Canada, ²Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, ³University of Vermont, Burlington, ⁴Nutreco Canada, Guelph, ON, Canada.
Nutrient composition and degradation characteristics of anthocyanidin containing alfalfa transformed with Lc, C1 and Le x C1 regulatory genes.
R. G. Heendeniya Vidanaral, M. Y. Gruber, Y. Wang, D. A. Christensen, J. J. McKinnon, B. Coulman, and P. Yu,
1University of Saskatchewan, Saskatoon, SK, Canada, 2Agriculture and Agri-Food Canada, Saskatoon, SK, Canada,
3Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

Comparative analyses of the bovine rumen microbiota using RNA and targeted DNA-based sequencing approaches.
F. Li, X. Sun, G. Henderson, F. Cox, P. H. Janssen, and L. L. Guan,
1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada,
2University of Alberta, Edmonton, AB, Canada, 3AgResearch Limited, Grasslands Research Centre, Palmerston North, New Zealand.

Effect of pelleting at different conditions on ruminal degradation kinetics and intestinal digestion of canola meal in dairy cattle.
X. Huang and P. Yu,
Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

Evaluation of corn and barley varieties in backgrounding grazing programs for beef calves.
S. A. McMillan, B. Lardner, J. J. McKinnon, K. Larson, and G. B. Penner,
1University of Saskatchewan, Saskatoon, SK, Canada, 2Western Beef Development Centre, Humboldt, SK, Canada.

Transcriptomic analysis of rectal-anal junction tissue from super-shedders vs cattle negative for E. coli O157:H7.
O. Wang, G. Liang, X. Sun, B. Selinger, K. Stanford, G. S. Plastow, T. A. McAllister, and L. L. Guan,
1University of Alberta, Edmonton, AB, Canada, 2University of Lethbridge, Lethbridge, AB, Canada,
3Alberta Agriculture and Rural Development, Lethbridge, AB, Canada, 4Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

Influence of steeping DDGS on growth performance and digestive function in liquid fed weanling pigs.
M. Wiseman, J. Zhu, D. Wey, and C. F. de Lange,
University of Guelph, Guelph, ON, Canada.

Selection of hybrid bromegrass for increased NDF digestibility.
C. L. Rosser, B. Coulman, and G. B. Penner,
1University of Saskatchewan, Saskatoon, SK, Canada, 2Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

Effect of feeding different sources of nitrogen on performance of growing pigs fed diets deficient in non-essential amino acid nitrogen.
W. D. Mansilla, J. K. Hoo, and C. F. de Lange,
1University of Guelph, Guelph, ON, Canada, 2Evonik Industries AG, Hanau-Wolfgang, Germany.

Comparison of winter feeding systems for the evaluation of beef cow performance, reproductive efficiency and system costs.
D. Jose, G. B. Penner, J. J. McKinnon, K. Larson, and B. Lardner,
1University of Saskatchewan, Saskatoon, SK, Canada, 2Western Beef Development Centre, Humboldt, SK, Canada.

Dietary supplementation with excess leucine transiently improved whole body nitrogen retention in young pigs challenged with bacterial lipopolysaccharide.
M. Rudar and C. F. de Lange,
University of Guelph, Guelph, ON, Canada.

The relationship between trailer motion and carcass bruising in market cows during transport.
C. E. Kehler, K. H. Ominski, L. L. Connor, T. G. Crowe, and K. S. Schwartzkopf-Genswein,
1University of Manitoba, Winnipeg, MB, Canada, 2Agriculture and Agri-Food Canada, Lethbridge, AB, Canada,
3University of Saskatchewan, Saskatoon, SK, Canada.

Impact of reducing dietary crude protein concentration on serum lysine concentration and lysine utilization efficiency in lactating sows.
L. A. Huber, C. F. de Lange, U. K. Larsen, D. Chamberlin, and N. L. Trottier,
1University of Guelph, Guelph, ON, Canada, 2Aarhus University, Foulum, Denmark, 3Michigan State University, East Lansing.

Diurnal variations in enteric methane emissions from non-lactating dairy cows offered diets differing in forage to grain ratio.
1University of Manitoba, Winnipeg, MB, Canada, 2Department of Animal Science, University of Manitoba,
Winnipeg, MB, Canada, 3Department of Medical Microbiology and Infectious Diseases, Winnipeg, MB, Canada.

Long-term supplementation of diets with 3-nitrooxypropanol resulted in a sustained reduction in methane production in beef cattle.
A. Romero-Perez, E. K. Okine, S. M. McGinn, L. L. Guan, M. Oba, S. M. Duval, and K. A. Beauchemin,
1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada,
2Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB, Canada,
3DSM Nutritional Products France, Research Centre for Animal Nutrition and Health, Saint Louis Cedex, France.
Measuring animal productivity and rumen efficiency from extensively overwintered beef cows on the Canadian Prairies.

Adding sera enriched in PUFA with different n-6/n-3 ratio advanced bovine in vitro embryo development from both high- and inferior-quality oocytes.
R. Salehi*, A. Ruiz-Sanchez, M. G. Colazo, M. Oba, M. Dyck, and D. J. Ambrose, 1University of Alberta, Edmonton, AB, Canada, 2Alberta Agriculture and Rural Development, Edmonton, AB, Canada, 3Alberta Agriculture and Rural Development, Livestock Research Branch, Edmonton, AB, Canada.

ADSA Southern Section Symposium:
Strategies for Housing Dairy Animals in the Southeast
Chair: Jeffrey M. Bewley, University of Kentucky

Photoperiod management of dairy cattle: Considerations and applications.
G. E. Dahl*, University of Florida, Gainesville.

Impacts of heat stress on cow and calf.
S. Tao*, G. E. Dahl, and J. K. Bernard, 1University of Georgia, Tifton, 2University of Florida, Gainesville.

Implications of overstocking on the behavior, health, and productivity of dairy cows in the Southeast.
P. D. Krawczel*, The University of Tennessee, Knoxville.

Managing heat stress in dairy calves and heifers: Housing considerations.
S. H. Ward*, Mississippi State University, Mississippi State.

Compost bedded pack barns as a lactating cow housing system for the Southeast.
J. M. Bewley*, R. A. Black, F. A. Damasceno, E. A. Eckelkamp, G. B. Day, and J. L. Taraba, 1University of Kentucky, Lexington, 2University of Tennessee, Knoxville, 3Federal University of Mato Grosso, Campus Rondonópolis, Brazil.

Discussion

ADSA-SAD Undergraduate Student Paper Competition: Dairy Production
Chair: Kasim H. Ingawa, North Carolina State University

Dairy cow welfare: Bridging the gap.
E. A. Morabito* and J. M. Bewley, University of Kentucky, Lexington.

The effects of overcrowding on the behavior of lactating dairy cows in free-stall housing systems.
S. F. Templeton*, R. A. Black, and P. D. Krawczel, University of Tennessee, Knoxville.

A polled future.
M. Richard* and C. C. Williams, 1Louisiana State University, Baton Rouge, 2LSU AgCenter, Baton Rouge, LA.

The future role of metabolomics in dairy science.
A. E. Kraus*, K. J. Harvatine, and D. R. Olver, Pennsylvania State University, University Park.

Break

Polled genetics: Benefits, detriments and identification of polled dairy cattle.

Crossbreeding-Is it a good option?
R. J. Yarbrough* and S. Washburn, North Carolina State University, Raleigh.
ADSA-SAD Undergraduate Student Paper Competition: Original Research
Chair: Dale R. Olver, The Pennsylvania State University
2210

2:00 PM 24  Weaning age impacts growth, feed intake and behavioral indicators of stress in Holstein calves fed a high plane of nutrition.
H. E. Brown1*, E. C. Eckert1, K. E. Leslie1, T. J. DeVries1, and M. A. Steele2, 1University of Guelph, Guelph, ON, Canada, 2Nutreco Canada, Guelph, ON, Canada.

2:15 PM 25  Effects of AICAR, rapamycin, and non-essential amino acids on cell signaling in bovine mammary tissue.

2:30 PM 26  Within-day alteration of ration starch fermentability had no effect on feed intake, total-tract neutral detergent fiber digestibility, and milk fat concentration of cows in late lactation.
B. C. Oglesby1* and M. S. Allen, Michigan State University, East Lansing.

2:45 PM 27  Growth of periruminant Holstein bull calves fed a fermentation extract of Aspergillus oryzae.

3:00 PM Break

3:15 PM 29  Case study: Effect of alley floor scraping frequency on environmental mastitis-causing pathogen counts.

3:30 PM 30  Dry matter intake and efficiency in lactating Holstein cows grouped by direct genomic values for feed utilization.
I. W. Haagen1* and C. D. Dechow, The Pennsylvania State University, University Park.

3:45 PM 31  Can prior subjection to pre-heating enhance the heat tolerance of mesophilic bacterial cultures?
R. E. Brown1* and K. J. Aryana1, 1Louisiana State University, Baton Rouge, 2Louisiana State University Agricultural Center, Baton Rouge.

4:00 PM 416  Use of the RatLoft in laboratory conditions decreases pup mortality in lactating mice.

Animal Health I: Models of Disease and Stress
Chairs: Stanislaw Kahl, USDA, Agricultural Research Service and Kasey M. Moyes, Department of Animal and Avian Sciences, University of Maryland
2502

2:00 PM 64  Heat stress as a model to study the effect of a gut health concept (Presan-Fx) on the intestinal barrier function of weaning piglets.
P. J. Roubos1 and Y. M. Han, Nutreco Research & Development, Boxmeer, Netherlands.

2:15 PM 65  A dual challenge of corticotropin releasing hormone and vasopressin alters immune cell profiles in beef heifers.
J. A. Carroll1*, N. C. Burdick Sanchez1, J. O. Buntyn1, S. E. Sieren1, S. J. Jones2, and T. B. Schmidt3, 1USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 2University of Nebraska, Department of Animal Science, Lincoln, 3University of Nebraska-Lincoln.

2:30 PM 66  Investigating innate immune response differences between Angus and Holstein cattle with the dermal fibroblast model.
A. L. Benjamin1*, W. J. Weber2, S. D. McKay1, B. A. Crooker2, and D. E. Kerr3, 1University of Vermont, Burlington, 2University of Minnesota, Saint Paul.

2:45 PM 67  Predictive models of lameness in dairy cows achieve high sensitivity and specificity with force measurements in three dimensions.
J. T. Dunthorn1*, R. M. Dyer1, U. Tusch1, N. Naechal1, P. Rajkondavar1, and G. Steingraber1, 1Step Analysis, Baltimore, MD, 1University of Delaware, Newark, 2University of Maryland, Baltimore County, Baltimore, 3BouMatic, Madison, WI.

3:00 PM 68  Performance trends in commercial livestock populations in the United States before and subsequent to the inclusion of genetically modified feed in livestock diets.
A. L. Van Eenennaam1*, University of California-Davis.

3:15 PM 69  Evaluation of a brix refractometer to estimate serum immunoglobulin G concentration in neonatal dairy calves.
S. M. Deelen1, T. L. Ollivett1, D. M. Haines2, and K. E. Leslie3*, 1University of Guelph, Guelph, ON, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada.
3:30 PM  70  Associations of serum haptoglobin in newborn dairy calves with future health, growth and mortality up to 4 months of age.
C. F. Murray1, C. Windeyer2, T. F. Duffield3, K. M. Waalderbos1, and K. E. Leslie4, 1University of Guelph, Guelph, ON, Canada, 2University of Calgary, Calgary, AB, Canada.

3:45 PM  71  Dynamics of culling for Jersey, Holstein, and crossbred cows in large multi-breed herds.
P. J. Pineda5, A. Daniels1, J. Shumaker6, and A. De Vries7, 1Texas A&M AgriLife Research, Amarillo, 2Circle H Head-quarters LLC, Dalhart, TX, 3Magnolia Veterinary Services, Amarillo, TX, 4University of Florida, Gainesville.

4:00 PM  72  Relationship of ocular and rectal temperatures to indicators of stress in mature horses.
M. J. Anderson1, J. L. Lucia, K. J. Stutts, M. M. Beaverly, and S. F. Kelley, Sam Houston State University, Huntsville, TX.

4:15 PM  73  Enhancement of the acute phase response to lipopolysaccharide in feedlot steers supplemented with OmniGen-AF.
N. C. Burdick Sanchez1, J. O. Buntyn2, J. A. Carroll1, T. Wistuba3, K. DeHaan2, S. E. Sieren2, S. J. Jones2, and T. B. Schmidt1, 1USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 2University of Nebraska, Department of Animal Science, Lincoln, 3Prince AgriProducts Inc., Quincy, IL.

4:30 PM  74  Age dependent changes in heifer fibroblast DNA methylation and LPS-induced gene expression.
B. B. Green1, S. D. McKay, and D. E. Kerr, University of Vermont, Burlington.

4:45 PM  75  Effect of trace mineral supplementation on clinical signs, immune response variables, and mineral balance of calves following exposure to bovine viral diarrhea virus and subsequent Mannheimia haemolytica infection.
B. K. Wilson3, G. I. Zanton2, D. L. Step1, R. W. Fulton1, A. W. Confer1, C. L. Maxwell1, C. A. Gifford1, C. R. Krehbiel1, and C. J. Richards1, 1USDA-ARS Fort Keogh Livestock and Range Research Laboratory, Miles City, MT, 2University of Nebraska, West Central Research and Extension Center, North Platte.

Beef Species Symposium: Making More, but Using Less: The Future of the U.S. Beef Industry with a Reduced Cowherd and the Challenge to Feed the U.S. and the World;
Session II. The Cow-Calf Industry
Chair: Allison M. Meyer, University of Missouri
Sponsor: Merck

2:00 PM  121  Where can we support more cows? Overview of the beef cowherd and land use.
J. A. Paterson1, National Cattlemen's Beef Association, Centennial, CO.

2:30 PM  122  How can we improve replacement heifers as we rebuild the cowherd?
S. L. Lake1, University of Wyoming, Laramie.

3:00 PM  123  Can we improve cow efficiency or manipulate feeding strategies to reduce inputs?
H. C. Freetly1, USDA, ARS, U.S. MARC, Clay Center, NE.

3:30 PM  124  Can we build the cowherd by increasing longevity of females?
A. Roberts1, M. Peterson1, and R. N. Funston1, 1USDA, ARS Fort Keogh Livestock and Range Research Laboratory, Miles City, MT, 2University of Nebraska, West Central Research and Extension Center, North Platte.

4:00 PM  125  Can we develop a cow-less cowherd? Beef production without mature cows.
G. E. Seidel1, Colorado State University, Fort Collins.

Dairy Foods Symposium:
Advances in Delivery of Dairy Ingredients for Health and Functional Benefits
Chair: David R. McCoy, Dairy Research Institute
Sponsor: Dairy Research, Inc.

2:00 PM  233  Market opportunities for dairy proteins.
A. Bienvenue*, U.S. Dairy Export Council, Arlington, VA.

2:30 PM  234  Using charged membranes to improve dairy protein ingredients.
M. Etzel1, University of Wisconsin-Madison.

3:00 PM  235  Emerging uses of new dairy ingredients in cheese, yogurt, beverages and other products.
L. Metzger1, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.
3:30 PM 236 An update on carrier and delivery systems using casein micelles from bovine milk.
F. Harte*, University of Tennessee, Knoxville.

4:00 PM 237 Protein modification for health benefits.
J. A. Lucey*, Department of Food Science, University of Wisconsin-Madison.

### Dairy Foods: Technical Oral Session: Cheese / Yogurt / Ice Cream
Chair: Frederico Harte, Penn State University
3501D

2:00 PM 238 Microbial production of conjugated linoleic acid (CLA): Development of functional dairy products- an overview
S. Abd El Ghani* and W. K. Bahgaat, National Research Centre, Giza, Cairo, Egypt.

2:15 PM 239 Chemical and organoleptic characteristics of cheese from dairy cows supplemented with soya and partially hydrogenated vegetable oils.
E. Vargas-Bello-Pérez1, G. Íñiguez-González2, K. Fehrman-Cartes2, and P. C. Garnsworthy3, 1Pontificia Universidad Católica de Chile, Santiago, Chile, 2The University of Nottingham, Loughborough, United Kingdom.

2:30 PM 240 Comparison of the effect of Holstein-Friesian and Jersey milk on cheddar cheese production.
J. H. Bland*, C. C. Fagan, and A. S. Grandison, University of Reading, Reading, United Kingdom.

2:45 PM 241 Adding citrate to ice cream mix for enhanced protein functionality.
A. Gilbert, J. Prost, and H. D. Goff*, University of Guelph, Guelph, ON, Canada.

3:00 PM 242 The nutritional value of kishk: Dried wheat fermented milk Egyptian native dairy food.
S. Abd El Ghani1* and W. K. Bahgaat2, 1National Research Centre, Dairy Department, Giza, Cairo, Egypt, 2National Research Centre, Giza, Cairo, Egypt.

3:15 PM 243 Bacterial community shifts in geriatric subjects in response to probiotic intervention revealed by high throughput DNA sequencing.
G. H. Meletharayil1, S. Senan2*, P. Jashbhai2, and C. G. Joshi3, 1South Dakota State University, Brookings, 2SMC College of Dairy Science, Anand Agricultural University, Anand, India, 3Faculty of Veterinary Science, Anand Agricultural University, Anand, India.

3:30 PM 244 Microbial population dynamics during aging of cheddar cheese.
B. Ganesan*, C. Brothersen, and D. J. McMahon, Western Dairy Center, Utah State University, Logan.

3:45 PM 245 The influence of protein content of milk protein concentrates on the rheological properties of Greek style acid skim milk gels.
G. H. Meletharayil1*, H. A. Pate2, and T. Huppertz1, 1South Dakota State University, Brookings, 2Dairy Science Department, South Dakota State University, Brookings.

4:00 PM 246 Investigating the refrigerated performance shelf-life of high pressure treated, reduced sodium, low moisture part skim mozzarella cheese.
M. Ozturk1*, S. Govindasamy-Lucey2, Y. Lu3, J. J. Jaeggé4, M. E. Johnson5, and J. A. Lucey2,3, 1University of Wisconsin-Madison, 2Wisconsin Center for Dairy Research, Madison, 3University of Wisconsin-Madison.

4:15 PM 247 Impact of potassium substitution for sodium on pH, proteolysis, organic acids, and microbial populations during storage of cheddar cheese.
D. J. McMahon1*, C. J. Oberg2,3, M. Drake4, N. Farkye5, L. V. Moyes, and M. R. Arnold5, 1Western Dairy Center, Utah State University, Logan, 2Department of Microbiology, Weber State University, Ogden, UT, 3Western Dairy Center, Utah State University, Ogden, 4Southeast Dairy Foods Research Center, North Carolina State University, Raleigh, 5Dairy Products Technology Center, California Polytechnic State University, San Luis Obispo.

### Graduate Student Competition: ADSA Production Oral, PhD
Chair: Peter S. Erickson, University of New Hampshire
2505B

2:00 PM 348 Antioxidant activity after in vitro gastrointestinal digestion of cheese containing catechins encapsulated within liposomes.
A. Rashidinejad1,2, D. Everett1, J. Birch1, and D. Sun-Waterhouse1, 1University of Otago, Dunedin, New Zealand, 2Riddet Institute, Palmerston North, New Zealand.
2:15 PM  349  Effects of mineral salts and calcium chelating agents on the functionalities of milk protein concentrate prepared by ultrafiltration.
X. Luo*, L. Ramchandran, and T. Vasiljevic, Victoria University, Melbourne, Australia.

F. Giallongo1*, J. Oh1, T. Frederick1, H. Weeks1, A. N. Hristov1, H. Lapierre2, R. A. Patton1, A. Gehman1, and C. Parys2, 1Department of Animal Science, The Pennsylvania State University, University Park, 2Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 3Tittany Dairy Nutrition Inc., Mifflinburg, PA, 4Alltech Inc., Nicholasville, KY, 5Evonik Industries AG, Hanau, Germany.

2:45 PM  351  Effect of dietary phosphorus on intestinal P absorption in growing Holstein steers.

3:00 PM  352  A survey of calving andcolostrum management practices on Irish dairy farms.
C. Cammins1, C. R. Sayers1, I. Lorenz2, and E. Kennedy3, 1Teagasc, Animal and Grassland Research and Innovation Center, Moorepark, Fermoy, Co. Cork, Ireland, 2School of Agriculture, Food Science & Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland, 3Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.

3:15 PM  353  Effects of supplementing lipid-encapsulated echium oil on lactational responses and milk fatty acid composition.
M. Bainbridge1*, A. L. Lock2, and J. Kraft3, 1University of Vermont, Burlington, 2Michigan State University, East Lansing, 3Department of Animal Science, University of Vermont, Burlington.

3:30 PM  354  Effects of dietary crude protein level on nitrogen use efficiency and urinary nitrogen excretion during a twelve-week period in late lactation dairy cows.
T. Barros1*, M. A. Quaas2, J. J. Olmos Colmenero2, M. J. Aguerre3, S. J. Bertics1, and M. A. Wattiaux1, 1University of Wisconsin-Madison, 2University of Guadalajara, Tepatilan, Mexico.

3:45 PM  355  Evaluation of a handheld device for the detection of β-hydroxybutyrate pre-calving in dairy cattle.
E. H. Tatone*, J. L. Gordon, J. L. LeBlanc, and T. F. Duffield, University of Guelph, Guelph, ON, Canada.

4:00 PM  356  Effects of dietary nitrate supplementation on enteric methane and nitrous oxide emissions from beef cattle.
C. J. Neumeier1*, Q. Wang1, A. R. Castillero1, Y. Zhao1, Y. Pan1, and F. M. Mitloehner1, 1University of California-Davis, 2University of California Cooperative Extension, Merced.

4:15 PM  357  Early pair housing influences the feeding behavior and development of dairy calves.

4:30 PM  358  Epigenetic differences of cows classified with biased antibody and cell mediated immune response traits.
M. A. Paibomesai1* and B. Mallard2, 1University of Guelph, Guelph, ON, Canada, 2Dept Pathobiology, University of Guelph, Guelph, ON, Canada.

Graduate Student Competition: ADSA-ASAS Northeast Section Oral
Chair: Kristen E. Govoni, Department of Animal Science, University of Connecticut
Sponsor: ADSA-ASAS Northeast Section
2104B

2:00 PM  361  Glucose metabolism by bovine neutrophils characterized by mass spectrometry and [13C6]glucose.
Y. Qu1*, B. J. Bequette1, T. H. Elsasser1, and K. M. Moyes1, 1Department of Animal and Avian Sciences, University of Maryland, College Park, 2USDA/ARS Growth Biology Lab, Beltsville, MD.

2:15 PM  362  Exploring the molecular diversity and density of the rumen microbiome within the Impala (Aepyceros melampus melampus) from Pongola, South Africa.
L. M. Cersosimo1*, B. St-Pierre1, W. van Hoven1, and A. D. G. Wright1, 1University of Vermont, Burlington, 2University of Pretoria, Pretoria, South Africa.

2:30 PM  363  Effects of ground flaxseed on milk production, milk composition, and methane emissions in organically-managed Jersey cows during the grazing season.
B. J. Isenberg1*, A. F. Brito1, A. B. D. Pereira1, N. L. Whitehouse1, R. B. Standish1, and K. J. Soder2, 1University of New Hampshire, Durham, NH, 2USDA-Agricultural Research Service, University Park, PA.

2:45 PM  364  Farm-level evaluation of implementing feeding best management practices (BMP) on Pennsylvania dairy farms.
3:00 PM 365  The impact of dairy advisory teams on farm improvement in Pennsylvania dairies.  

3:45 PM 367  Effect of dietary supplementation of Capsicum extract on feed intake, milk production and composition, rumen fermentation, and rumen microbial populations in dairy cows.  
J. Oh1, F. Giallongo1, H. L. Weeks2, T. W. Frederick1, A. N. Hristov1, and E. H. Wall2, 1Department of Animal Science, The Pennsylvania State University, University Park, 2Pancosma, Geneva, Switzerland.

Horse Species

Chair: Josie Coverdale, Texas A&M University

2:00 PM 385  Effects of high starch and sugar diets on postprandial inflammatory proteins in horses.  

2:30 PM 387  Age-related effects on markers of inflammation and cartilage metabolism in response to an intra-articular lipopolysaccharide challenge.  
M. K. Kahn1, J. Coverdale1, J. L. Lucia1, C. E. Arnold1, R. A. Dabareiner1, A. Bradbery1, A. A. Millican1, and T. H. Welsh Jr4, 1Texas A&M University, College Station, 2Sam Houston State University, Huntsville, TX, 3Clemson University, Clemson, SC, 4Department of Animal Science, Texas A&M University, College Station.

2:45 PM 388  The effect of restricted diet and slow-feed hay nets on body weight and morphometric measurements in adult horses.  

3:00 PM 389  Influence of diet fortification on mature horses at maintenance: Performance characteristics.  
J. L. Lucia1, D. L. Parker1, M. J. Anderson1, K. J. Stutts1, M. M. Beverly1, S. F. Kelley1, and E. D. Lamprecht1, 1Sam Houston State University, Huntsville, TX, 2Cargill Incorporated, Elk River, MN.

3:15 PM 390  The effect of small-square feeder design on hay waste, herd weight change, and economics during outdoor feeding of adult horses.  

3:30 PM 391  Influence of ambient temperature and relative humidity on recovery from exercise in young horses.  
J. L. Lucia1, K. S. Carlison1, M. J. Anderson1, K. W. Walter1, K. J. Stutts1, M. M. Beverly1, and S. F. Kelley1, 1Sam Houston State University, Huntsville, TX, 2Truman State University, Kirksville, MO.

3:45 PM 392  Commercial application of the follicular ablation technique in mares.  
S. E. Buist1, A. K. Sexten, D. M. Grieger, C. A. Blevins, J. S. Stevenson, and J. M. Kouba, Kansas State University, Manhattan.
**Lactation Biology I**

Chairs: Monique Rijnkels, Baylor College of Medicine and Rupert M. Bruckmaier, Veterinary Physiology, Vetsuisse Faculty, University of Bern

2:00 PM 404 Temporal alterations to milking frequency, immediately post-partum, modifies expression of milk synthesis and apoptosis genes in the mammary glands of grazing dairy cows.

T. M. Grala¹, J. K. Kay², J. R. Roche³, A. G. Rius², and C. V. Phyn²;¹DairyNZ, Auckland, New Zealand, ²DairyNZ, Hamilton, New Zealand.

2:15 PM 405 Dietary anion-cation difference and day length differently affect milk calcium secretion pathways.

M. Boutinaud¹, A. Bondon¹, A. Narcy², C. Hurtaud³, M. Johan³, J. Couedon¹, and P. Lamberton³;¹INRA, Saint Gilles, France, ²INRA, Nouzilly, France, ³INRA, Le Rheu, France.

2:30 PM 406 Infusion of a 5-hydroxy-L-tryptophan (5-HTP) to late-lactation cows impacts circulating calcium and glucose concentrations.

J. Laporta¹, S. A. E. Moore¹, A. P. Prichard¹, M. Olsen¹, B. P. Schnell¹, S. R. Weaver¹, C. R. Cronicke¹, R. M. Bruckmaier², and L. L. Hernandez²;¹University of Wisconsin-Madison, ²Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

2:45 PM 407 The dopamine antagonist domperidone increases prolactin concentration and milk production in dairy cows.

P. Lacasse² and S. Ollier, Dairy and Swine R&D Centre, Sherbrooke, QC, Canada.

3:00 PM 408 Compensatory feeding of gestating gilts does not affect mammary development of their offspring at puberty.

C. Farmer³,² M. F. Palin³, and Y. Martel-Kennes³;²Agriculture and Agri-Food Canada, Dairy and Swine R & D Centre, Sherbrooke, QC, Canada, ³La COOP Fédérée, Animal Nutrition Division, St-Romuald, QC, Canada.

3:15 PM 409 Comparative 2D-DIGE proteomic analysis of mammary epithelial cells during lactation reveals protein signatures for lactation persistency and milk yield.


3:30 PM 410 Milk protein synthesis is regulated by lysine and branched chain amino acid deficiencies in lactating bovine mammary glands.

J. Doelman¹,² R. V. Curtis², M. Carson¹, J. J. M. Kim², J. P. Cant², and J. A. Metcalf¹;¹Nutreco Canada Agresearch, Guelph, ON, Canada, ²Department of Animal & Poultry Science, University of Guelph, Guelph, ON, Canada.

3:45 PM 411 Lysine and BCAA deficiencies decrease abundances of S6K and eIF2Bα in the mammary glands of lactating dairy cows.

J. Doelman¹, R. V. Curtis², M. Carson¹, J. J. M. Kim², J. A. Metcalf², and J. P. Cant²;¹Nutreco Canada Agresearch, Guelph, ON, Canada, ²Department of Animal & Poultry Science, University of Guelph, Guelph, ON, Canada.

**Nonruminant Nutrition:**

**Nutrient Digestibility of Ingredients for Monogastric Diets**

Chair: Cornelis F.M. de Lange, University of Guelph

2:00 PM 447 Digestible, metabolizable, and net energy in diets containing 0, 15, or 30% wheat bran fed to growing pigs.

N. W. Jaworski¹,², D. Liu¹,², D. Li¹,², and H. H. Stein¹;¹University of Illinois at Urbana-Champaign, ²State Key Lab of Animal Nutrition, China Agricultural University, Beijing, China, ³Ministry of Agriculture Feed Industry Centre, Beijing, China.

2:15 PM 448 Effects of feeding barley on growth performance and diet nutrient digestibility of weaned pigs.

Z. Nasir¹, M. G. Young¹, M. L. Swift¹, E. Beltranena¹, and R. T. Zijlstra¹;¹University of Alberta, Edmonton, AB, Canada, ²Gowans Feed Consulting, Wainwright, AB, Canada, ³Alberta Agriculture and Rural Development, Lethbridge, AB, Canada, ⁴Alberta Agriculture and Rural Development, Edmonton, AB, Canada.

2:30 PM 449 Nutrient profile and in vitro digestibility of tubers in swine.

U. P. Tiwari¹, A. K. Singh, H. M. Zaleski, and R. Jha;¹University of Hawaii at Manoa, Honolulu.

2:45 PM 450 Nutritional enhancement of dried distillers grains with solubles via sporobolomyces roeseus fermentation.

J. M. Wilson¹;¹Kansas State University, Manhattan.
3:00 PM 451 Performance of pigs fed diets containing canola meal produced from high protein or conventional varieties of canola seeds.
Y. Liu*, T. Maison, and H. H. Stein, University of Illinois at Urbana-Champaign.

3:15 PM 452 Physio-chemical and nutritional composition of sorghum (sorghum bicolor) as potential food and feed for humans and poultry.
M. Mabelebele1,2* and P. Iji1, 1University of Limpopo, Polokwane, South Africa, 2University of New England, Armidale, Australia.

3:30 PM Break

3:45 PM 453 Comparative digestibility of energy and nutrients in feed ingredients fed to sows and growing pigs.
J. E. Lowell*, Y. Liu, and H. H. Stein, University of Illinois at Urbana-Champaign.

4:00 PM 454 Performance and nutrient digestibility of weaned rabbits fed cooked albizia seed meal (Albizia sp) as replacement for full-fat soybean meal.
A. R. Asafa* and P. Agbaye, Lagos State Polytechnic, Ikorodu, Nigeria.

4:15 PM 455 Nutritional evaluation of raw anthonotha macrophylla seed meal as a replacement for soybean meal in the diet of broiler chickens.
A. H. Akinmutimi*, Michael Okpara University of Agriculture, Umudike, Umuahia, Nigeria.

4:30 PM 456 Effect of graded levels of defatted green microalgal inclusion into broiler diets on growth performance and digestibility.

4:45 PM 457 Effects of duration of mixing diets with high inclusion of cereal grain co-products on growth performance and carcass measurements in finishing pigs.
M. E. Morts*, J. D. Hancock, K. L. Kohake, and J. D. McAtee, Kansas State University, Manhattan.

Ruminant Nutrition III: Lipids/Fats Dairy
Chair: Jong-Su Eun, Utah State University
2103A

2:00 PM 613 Performance of and digestion in calves fed conventional, moderate, and aggressive milk replacer programs.

2:15 PM 614 Performance of and digestion in calves fed two levels of milk replacer and functional ingredients.

2:30 PM 615 The effect of solid feed diet on the oral and cross-sucking behavior of pre-weaned dairy calves.
J. K. Margerison* and C. Hansen, Massey University, Palmerston North, New Zealand.

2:45 PM 616 Development of a modified accelerated milk replacer feeding program through 8 weeks of age.
B. M. Strayer1, D. Ziegler2, D. Schimek1, B. Ziegler1, H. Chester-Jones1, J. L. Anderson1, K. F. Kalscheur1, and D. Casper1, 1South Dakota State University, Brookings, 2University of Minnesota Southern Research and Outreach Center, Waseca, 3Hubbard Feeds Inc., Mankato, MN.

3:00 PM 617 Amino acid supplementation of calf milk replacers containing bovine plasma protein.
S. Y. Morrison1, K. A. Myers1, A. E. Volland1, P. Cardoso1, J. M. Campbell1, and J. K. Drackley1, 1University of Illinois at Urbana-Champaign, 2APC, Inc., Ankeny, IA.

3:15 PM 618 The use of highly digestible corn grain in calf starters when calves are fed an accelerated milk replacer.
D. Casper1, S. Srivastava1, M. Kirk1, S. Harris1, K. Koone1, and B. M. Strayer1, 1South Dakota State University, Brookings, 2Masters Choice, Ankeny, IA.

3:30 PM 619 Intensive milk feeding in calves affects growth performance, metabolic and endocrine traits, but not rumen development.
H. M. Hammon1, J. Maciej1, J. Gruse1, E. Wirthgen1, R. Zitnan1, M. Piechotta1, and A. Hoeftlich1, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2Ligandis GbR, Gülzow, Germany, 3National Centre of Agriculture and Food Nitra, Kosice, Slovakia, 4University of Veterinary Medicine, Hannover, Germany.

3:45 PM 620 Fish oil supplementation on growth and health of pre-weaning dairy calves.
R. Panivivat*, P. Sopannarat1, and S. Sriwichai2, 1Kasetsart University, Bangkok, Thailand, 2Dairy Promotion and Organization of Thailand, Saraburi, Thailand.

4:00 PM 621 The effects of corn silage inclusion in pre-weaned calf diets.
S. I. Kehoe1, S. L. Retz1, T. J. Pogueba1, K. Dill-McFarland1, and G. Suen1, 1University of Wisconsin-River Falls, 2University of Wisconsin-Madison.
4:15 PM  622  Growth performance and health of dairy calves fed with *Schizochytrium* sp.
R. Panivivat* and K. Taboonpong, Kasetsart University, Bangkok, Thailand.

4:30 PM  623  Growth performance, health, and immunocompetence of preweaning dairy calves fed with stevioside.
R. Panivivat*, C. Boonkaewwan*, and S. Srivichat*, 1Kasetsart University, Bangkok, Thailand, 2Dairy Promotion and Organization of Thailand, Saraburi, Thailand.

4:45 PM  624  An evaluation of a calf-side betahydroxybutyrate test in dairy calves fed a high plane of nutrition and weaned at six versus eight weeks of age.
H. E. Brown*, E. C. Eckert*, M. A. Steele*, T. J. DeVries*, and K. E. Leslie*, 1University of Guelph, Guelph, ON, Canada, 2Nutreco Canada Agresearch, Guelph, ON, Canada.

Ruminant Nutrition Symposium:
The Rumen Microbiome and Nutritional Health and Production
Chair: Rick Kohn, University of Maryland
2103B

2:00 PM  625  How to use data on the microbiome to improve our understanding of nutrition.
J. L. Firkins* and Z. Yu, The Ohio State University, Columbus.

2:45 PM  626  The microbiome and health.
G. B. Penner*, E. Khafipour*, J. C. Plaizier*, and L. L. Guan, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 3Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

3:30 PM  627  Use of genomics and transcriptomics to identify strategies to lower ruminal methanogenesis.

4:15 PM  628  Increasing condensed corn distillers solubles alters the rumen microbiome of beef cattle.
J. C. McCann*, S. A. Alqarni*, J. R. Segers*, D. W. Shike, and J. J. Loor*, 1University of Illinois at Urbana-Champaign, 2University of Georgia, Tifton.

4:30 PM  629  The microbiome composition of the hindgut is altered following weaning in dairy calves: Impact of different weaning strategies.
S. C. Li*, M. A. Steele*, P. Azevedo*, M. Carson*, J. C. Plaizier*, H. Derakhshani*, and E. Khafipour*, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 2Nutreco Canada Agresearch, Guelph, ON, Canada, 3Department of Medical Microbiology and Infectious Diseases, Winnipeg, MB, Canada.

4:45 PM  630  Effects of different dry period managements on rumen microbiome composition.
H. Khazanehei*, S. Li*, J. C. Plaizier*, and E. Khafipour*, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 2Department of Medical Microbiology and Infectious Diseases, Winnipeg, MB, Canada.
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Animal Health: Calf Health


856 T003 Effects of added spray-dried whole colostrum and spray-dried plasma on veal calf health and performance. D. Wood², R. Blome, and J. Sowinski, Animix, Juneau, WI.

857 T004 Holstein calves fed non-saleable milk that was pasteurized or raw had decreased incidence of abnormal feces and hematolology measures than calves fed accelerated milk replacer. L. E. Hulbert¹, J. A. Noel², S. C. Trombetta¹, S. R. Montgomery¹, G. A. Hanzlicek², and B. J. Bradford³, ¹Department of Animal Sciences and Industry, Kansas State University, Manhattan, ²Kansas State University, University Park, ³Diagnostic Medicine Pathobiology, College of Veterinary Medicine, Kansas State University, Manhattan.

858 T005 Effects of Celmanax supplementation to prepartum dairy cows on colostrum quality and the subsequent growth and health of their calves. C. Campos-Granados⁴, A. Rojas-Bourrilhon⁴, and C. C. Elrod⁴, ⁴University of Costa Rica, San Jose, Costa Rica, ⁵Vi-COR, Inc., Mason City, IA.

859 T006 Maternal energy status during mid-gestation affects the immune response in the resultant beef offspring. A. R. Taylor¹, D. A. Mohrhauser¹, R. Neiger¹, E. J. Blom¹, K. R. Underwood¹, R. H. Pritchard¹, A. E. Wertz-Lutz², B. P. Holland³, and A. D. Weaver⁴, ¹South Dakota State University, Brookings, ²ADM Alliance Nutrition, Inc., Quincy, IL, ³Merck, Volga, SD, ⁴South Dakota State University, Rapid City.

860 T007 Comparison of ivermectin and extended-release eprinomectin deworming treatment on stocker and subsequent feedlot performance and carcass characteristics of fall-born Angus heifers. C. A. Clark¹, B. J. Dedrickson¹, J. L. Sorensen¹, and P. J. Gun¹, ¹Armstrong Memorial Research and Demonstration Farm, Iowa State University, Lewis, ²Merial, Duluth, GA, ³Iowa State University, Ames.

861 T008 Effect of rumen and fecal inocula from calves fed either milk replacer or whole milk fed on intestinal cells and digestive tract microbiota. M. Terré¹, S. Genís¹, C. Yunta¹, A. Bach², and A. Aris³, ¹IRTA, Caldes de Montbui, Spain, ²Department of Ruminant Production, IRTA, Caldes de Montbui, Spain.

862 T009 The effect of four antiseptic compounds on umbilical cord healing and infection rates in the first 24 hours in dairy calves from a commercial herd. A. L. Robinson¹, L. L. Timms, K. Stalder, and H. D. Tyler, Iowa State University, Ames.

863 T010 Relationship between birth weight and calving ease with passive transfer of immunoglobulins in neonatal beef calves. J. J. Gaspers², G. Stokka², B. W. Neville¹, and C. R. Dahlen¹, ¹North Dakota State University, Fargo, ²North Dakota State University, Cooperstown, ³North Dakota State University, Streeter.

ASAS Undergraduate Student Poster Competition

885 T011 Effects of supplementing Holstein heifers with dietary melatonin during late gestation on serum antioxidant capacity and anti-Müllerian hormone of offspring. B. O. Fleming², K. E. Brockus, C. G. Hart, and C. O. Lemley, Mississippi State University, Mississippi State.
Effects of electrostatic particle ionization on hog barn air quality, emissions and pig growth performance.
K. N. Card\textsuperscript{1}, J. A. De Jong\textsuperscript{1}, J. M. DeRouche\textsuperscript{1}, P. J. Tomlinson\textsuperscript{1}, M. J. Baumgartner\textsuperscript{2}, and Z. Liu\textsuperscript{1}, \textsuperscript{1}Kansas State University, Manhattan, \textsuperscript{2}BEI Ag Solutions, Oliva, MN.

Effects of different cooling interventions on stationary livestock trailers at a commercial packing plant.
M. Heiller\textsuperscript{1}, L. Edwards-Callaway\textsuperscript{2}, R. Bailey\textsuperscript{2}, N. Pudenz\textsuperscript{2}, M. Klassen\textsuperscript{2}, M. J. Ritter\textsuperscript{2}, A. Dezeureu\textsuperscript{2}, and P. J. Rincker\textsuperscript{2}, \textsuperscript{1}Iowa State University, Ames, \textsuperscript{2}JBS, Greeley, CO.

Effects of poor maternal nutrition during gestation on gene expression in liver of offspring.

Interleukin-1\textbf{β} decreases myoblast fusion in vitro.
B. E. Sullivan\textsuperscript{1} and S. A. Reed\textsuperscript{2}, \textsuperscript{1}University of Connecticut, Storrs, \textsuperscript{2}Department of Animal Science, University of Connecticut, Storrs.

Sperm maturation (capacitation) but not progesterone reduces the abundance of a receptor for ovudict glycans.
R. A. Winters\textsuperscript{1}, E. Silva\textsuperscript{1}, and D. J. Miller, University of Illinois at Urbana-Champaign.

Gene set enrichment analysis of residual feed intake in Hereford cattle.
L. D. Kidder\textsuperscript{1}, A. Wojtowicz\textsuperscript{2}, J. F. Taylor\textsuperscript{3}, C. M. Seabury\textsuperscript{4}, K. A. Johnson\textsuperscript{5}, and H. L. Neibergs\textsuperscript{6}, \textsuperscript{1}Washington State University, Pullman, \textsuperscript{2}Purdue University, West Lafayette, \textsuperscript{3}University of Missouri, Columbia, \textsuperscript{4}Texas A&M University, College Station.

pH fluctuations in the hindgut of horses relative to meal feeding.
K. M. DeLano\textsuperscript{1}, T. L. Douthit\textsuperscript{1}, A. Reeg\textsuperscript{1}, N. M. Bello\textsuperscript{1}, M. E. Gordon\textsuperscript{2}, and K. Williamson\textsuperscript{2}, \textsuperscript{1}Kansas State University, Manhattan, \textsuperscript{2}Purina Animal Nutrition, LLC, Gray Summit, MO.

Oral supplementation with vitamin E and fertility in young bulls raised in Brazilian middlewest.

Polymelia in Holstein cattle.
K. D. Moss\textsuperscript{1}, F. Avila\textsuperscript{1}, B. M. Marron\textsuperscript{1}, T. Raudsepp\textsuperscript{1}, J. Beever\textsuperscript{1}, M. Neupane\textsuperscript{1}, S. Parish\textsuperscript{1}, J. Kiser\textsuperscript{2}, B. Cantrell\textsuperscript{2}, and H. L. Neibergs\textsuperscript{2}, \textsuperscript{1}Washington State University, Pullman, WA, \textsuperscript{2}Texas A&M University, College Station, \textsuperscript{3}University of Illinois at Urbana-Champaign, \textsuperscript{4}Washington State University, Pullman.

Effect of supplementation of the middle and freezing with vitamin “E” about: The feasibility and quality of frozen bovine semen.
R. D. Almeida\textsuperscript{1}, L. K. Hatamoto-Zervoudakis, M. F. C. Filho, J. T. Zervoudakis, P. P. Tsuneda, and T. B. Castaldeli, Federal University Of Mato Grosso, Cuiaba, Brazil.

The effects of cutting height and plant maturity on yield and nutritional value of brome forage.
M. A. Woolsoncroft\textsuperscript{1}, S. R. Duncan, A. J. Sexten, and A. K. Sexten, Kansas State University, Manhattan.

Cattle requiring multiple treatments for bovine respiratory disease exhibit decreased capacity to protect against histone cytotoxicity.
J. Matera\textsuperscript{1}, B. K. Wilson, J. Hernandez Gifford, C. R. Krehbiel, and C. A. Gifford, Oklahoma State University, Stillwater.

Development of a non-invasive system for monitoring dairy cattle sleep.
J. M. Klefot\textsuperscript{1}, J. L. Murphy, K. D. Donohue, B. F. O’Hara, M. E. Lhamon, and J. M. Bewley, University of Kentucky, Lexington.

Associative effects of feeding varying levels of soyhulls to lambs consuming grass hay.

Adding post-extraction algal residue (pear) to cattle finishing diets reduces the quantity of fecal volatile chemicals often associated with feedlot malodors.
H. R. Voegele\textsuperscript{1}, C. R. Kerth\textsuperscript{1}, T. A. Wickersham\textsuperscript{2}, J. C. Hoffman\textsuperscript{1}, and T. J. Luckemeyer\textsuperscript{1}, \textsuperscript{1}Texas A&M University Animal Science Department, College Station, \textsuperscript{2}Texas A&M University, College Station.

Treatment response to bovine respiratory disease in beef stocker calves was not positively affected when using isoflupredone acetate as ancillary therapy.
C. E. Crews\textsuperscript{1}, J. G. Powell\textsuperscript{2}, E. B. Kegley\textsuperscript{2}, J. L. Reynolds\textsuperscript{2}, and J. A. Hornsby\textsuperscript{2}, \textsuperscript{1}University of Arkansas, Fayetteville, \textsuperscript{2}Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville.
903  T029  The effects of stage of production and implant exposure on feedlot performance, carcass characteristics, and relative mRNA gene expression.
K. E. Larrabee*, B. C. Bernhard, C. L. Maxwell, B. K. Wilson, S. Roberts, and C. R. Krehbiel, Oklahoma State University, Stillwater.

904  T030  The effects of corn silage diets on intestinal morphology in dairy calves.

**Beef Species: Feedlot and Stocker**

905  T031  The effect of good or poor residual feed intake sires on feedlot heifer performance and carcass characteristics.
K. M. Retallick*, D. B. Faulkner, and D. W. Shike, 1California Polytechnic State University, San Luis Obispo, CA, 2University of Arizona, Oro Valley, 3University of Illinois at Urbana-Champaign.

906  T032  Feed efficiency and carcass traits for Nellore young bulls fed processed soybean grains.

907  T033  Supplementing beef cattle finishing diets containing wheat distillers grain with feed enzymes to decrease the ratio of n-6/n-3 fatty acids in meat.
Z. He*, Y. Zhao, N. D. Walker, K. A. Beauchemin, T. A. McAllister, and W. Yang, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Key Laboratory for Agro-Ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, The Chinese Academy of Sciences, Changsha, China, 3College of Animal Science, Inner Mongolia Agricultural University, Hohhot, China, 4AB Vista Feed Ingredients, Marlborough, United Kingdom, 5Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

908  T034  Effects of fat level in distillers grain on finishing feedlot performance and carcass traits.
V. L. Anderson* and C. L. Engel, 1North Dakota State University, Carrington, 2Carrington Research Extension Center, North Dakota State University, Carrington.

909  T035  Effects of zilpaterol hydrochloride feeding time on Nellore bulls performance and carcass characteristics.
A. C. R. Dos Santos*, M. Caetano, R. S. Goulart, S. B. Pflanzer, S. Luz e Silva, and D. P. D. Lanna, 1University of Sao Paulo / ESALQ, Piracicaba, Brazil, 2current address University of Adelaide, Roseworthy, Australia, 3MSD Saúde Animal, Sao Paulo, Brazil, 4University of Campinas / FEAC, Campinas, Brazil, 5University of Sao Paulo / FZEA, Pirassununga, Brazil.

910  T036  Influence of calcium depletion and repletion on beef tenderness of steers fed zilpaterol hydrochloride.
J. O. Carothers*, South Dakota State University, Brookings.

911  T037  Using early ultrasound measurements to predict beef carcass quality grade.
J. K. Smith*, S. P. Greiner, and M. A. McCann, Virginia Tech, Blacksburg.

912  T038  Influence of breed on the sensory meat quality and consumer acceptability in extensively reared beef.

913  T039  Evaluation of growth and performance characteristics prior to entering the feedlot as an indicator for contracting Bovine Respiratory Disease.
S. Miller*, M. D. Garcia, R. Walker, T. Page, and K. W. Harborth, 1Louisiana State University, Baton Rouge, 2LSU, Baton Rouge, LA, 3LSU AgCenter, Homer.

914  T040  Maximizing profit in a feedlot enterprise using systems analysis thinking and linear programming.

**Breeding and Genetics: Applications and Methods in Animal Breeding-Dairy II**

943  T041  Genome-wide association study on dairy cow mortality in three U.S. regions.
S. Tsuruta*, I. Misztal, and T. J. Lawlor, 1University of Georgia, Athens, 2Holstein Association USA Inc., Brattleboro, VT.

944  T042  Multiple-breed genomic evaluations by using a reduced pool of SNP-markers.
945 T043 Determination of single nucleotide polymorphisms associated with subclinical ketosis in Jersey cattle. R. T. Fugate1, L. H. Dauten2, G. R. Wiggans2, and H. M. White4, 1University of WI, Madison, WI, 2University of Connecticut, Storrs, 3Animal Improvement Programs Laboratory, Agricultural Research Service, USDA, Beltsville, MD, 4Department of Dairy Science University of Wisconsin-Madison.

946 T044 Multi-trait, multi-breed conception rate evaluations. P. M. VanRaden1, J. R. Wright4, C. Sun1, J. L. Hutchinson1, and M. E. Tooker1, 1Animal Improvement Programs Laboratory, USDA-ARS, Beltsville, MD, 2National Association of Animal Breeders, Columbia, MO.

947 T045 Genome-wide genotyping-by-sequencing (GBS) and association analysis of saturated and monounsaturated fatty acids in bovine milk identifies novel markers in Canadian Holstein cows. E. M. Ibeagha-Awemu1, S. O. Peters2, I. G. Imumorin3, and X. Zhao4, 1Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 2Berry College, Mount Berry, GA, 3Cornell University, Ithaca, NY, 4McGill University, St Ann De Bell, PQ, Canada.

948 T046 Peroxisome proliferator-activated receptor gamma isoforms alter lipogenic gene networks in goat mammary epithelial cells. H. Shi1, J. Luo3, D. Yao1, and J. Zhu1, 1Northwest A & F University, Yangling, China, 2Northwest A & F University, Yangling, China.

949 T047 Association between polymorphisms in the IGF-I, GHR and STAT5A genes and the interval from calving to conception and milk production in Holstein cows. L. Hax1, A. Schneider, C. Bespalhok Jacometo, P. Mattei, T. da Silva, G. Farina, and M. Nunes Corrêa, Federal University of Pelotas, Pelotas, Brazil.

950 T048 A polymorphism within the prolactin gene is associated with milk production in Holstein dairy cows managed under summer heat stress conditions in northwest Mexico. P. Luna1, Instituto Tecnologico de Sonora, Ciudad Obregon, Mexico.

Breeding and Genetics: Application and Methods in Animal Breeding-Poultry

951 T049 Regulation of microRNAs in necrotic enteritis infected two genetically disparate chicken lines. Y. H. Hong1, Chung-Ang University, Anseong-Si, South Korea.

952 T050 Changes in variance of top SNP windows over generations under selection for three traits in broiler chicken. B. D. Fragomeni1, I. Misztal2, D. Lourenco3, I. Aguilar2, and R. Hawken1, 1University of Georgia, Athens, 2Instituto Nacional de Investigación Agropecuaria, Las Brujas, Uruguay, 3Cobb-Vantress Inc., Siloam Springs, AR.

953 T051 Relationship between laying frequency and egg sizes in quail. O. T. Abanikannda1, O. N. Ottun, and A. O. Leigh, Lagos State University, Ojo-Lagos, Nigeria.

954 T052 Phenetic classification of six bird species based on the proximate and mineral composition of their eggs. O. T. Abanikannda1, O. N. Ottun, and A. O. Leigh, Lagos State University, Ojo-Lagos, Nigeria.

955 T053 Effect of shell thickness on quail chick pip-out at hatching. O. T. Abanikannda1, A. O. Leigh, and O. N. Ottun, Lagos State University, Ojo-Lagos, Nigeria.

956 T054 Weight changes in quail eggs during incubation. O. T. Abanikannda1, O. N. Ottun, and A. O. Leigh, Lagos State University, Ojo-Lagos, Nigeria.

Companion Animals: Companion Animal Nutrition

969 T055 Influence of velocity on Weimaraner trotting stride mechanics. L. Carlisle1, M. C. Nicodemus1, and K. Slater2, 1Mississippi State University, Mississippi State, 2Banfield Pet Hospital, Houston, TX.

970 T056 Effects of dietary resistant starch on the fasted plasma metabolome of healthy adult dogs. A. N. Beloshapka1, K. L. Pappan2, and K. S. Swanson1, 1Department of Animal Sciences, University of Illinois at Urbana-Champaign, 2Metabolon, Inc., Durham, NC.

971 T057 In vitro effect of diets added with fructooligosaccharides and differing in their protein content and digestibility on dog fecal microbiota. G. Biagi1, M. Grandi, and C. Pinna, Department of Veterinary Medical Sciences, University of Bologna, Ozzano Emilia, Italy.

972 T058 The modified Atwater equation does not accurately predict diet ME value of premium food in adult cats. K. D. Berendt1, A. K. Shoveller2, M. Guevara2, and R. T. Zijlstra1, 1University of Alberta, Edmonton, AB, Canada, 2Procter & Gamble Pet Care, Mason, OH.
Association of idiopathic epilepsy with a novel locus in the Belgian Shepherd.
A. M. Oberbauer* and J. M. Belanger, University of California-Davis.

Amino acid and mineral concentrations of whole grains and grain byproducts used in pet foods.
A. N. Beloshapka1, P. R. Buff, and K. S. Swanson1, 1Department of Animal Sciences, University of Illinois at Urbana-Champaign, 2The Nutro Company, Franklin, TN.

Metabolic phenotyping using mass spectrometry-based metabolomics: A cross-sectional pilot study of lean and overweight domestic cats.
R. E. Cokely1, G. R. Seiler1, and J. W. McFadden1,2, 1West Virginia University, Morgantown, 2Johns Hopkins University, Baltimore, MD.

Effects of dietary energy restriction on the hunting behavior and home-range size of free-ranging domestic cats.
A. N. DeGrave*, S. K. Carignan, and S. E. Kitts-Morgan, Berry College, Mount Berry, GA.

Differences in the cerebral cortex metabolome of young adult and geriatric dogs.
M. R. C. de Godov1, K. L. Pappar1, and K. S. Swanson1, 1Department of Animal Sciences, University of Illinois at Urbana-Champaign, 2Metabolon, Inc., Research Triangle Park, NC, 3Department of Veterinary Clinical Medicine, University of Illinois at Urbana-Champaign.

Use of gelatin as a strengthening agent in dry extruded pet food.
A. Simmons*, C. G. Aldrich1, T. Zhou1, M. Remund1, T. Putarov2, S. Alavi1, E. Maichel1, and C. K. Jones1, 1Kansas State University, Manhattan, 2Sao Paulo State University, Sao Jose do Rio Preto, Brazil.

Dairy Foods: Technical Poster Session II: Analytical / Processing

Incidence of thermoduric bacteria and spores on selected midwest dairy farms.
K. P. Buchner*, S. Anand, and A. D. Garcia1, 1Dairy Science Department, South Dakota State University, Brookings, 2Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Withdrawn by author.

Mechanisms and ways for improving heat stability of micellar casein concentrates.
S. G. Sutariya1, H. G. Patel, and G. H. Meletharayil, South Dakota State University, Brookings.

Influence of carboxymethylcellulose molecular weight on physicochemical properties and stability of whey protein-stabilized emulsions.
S. Zhang* and B. Vardhanabhuti, University of Missouri, Columbia.

Induction of pitting on stainless steel 304 and 316 by bacillus sporothermodurans.
S. Gupta* and S. Anand, 1South Dakota State University, Brookings, 2Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Protective effect of lactic acid bacteria against H2O2-induced oxidative stress in Caco-2 cells.
S. Liu1, C. Man2, X. Peng1, W. Zhou1, M. Guo4, and Y. Jiang1,2,3, 1Department of Food Science, Northeast Agricultural University, Harbin, China, 2Synergetic Innovation Center of Food Safety and Nutrition, Harbin, China, 3National Dairy Engineering and Technology Research Center, Northeast Agricultural University, Harbin, China, 4University of Vermont, Burlington.

Fatty acid composition of cultured butter with probiotic Lbc. Acidophilus la-5 produced in winter time.
O. Tsisyryk1, L. Musy1, O. Golubits2, and S. Shkaruba1, 1Lviv National University of Veterinary Medicine and Biotechnologies, Lviv, Ukraine, 2Ukrmetrstandart, Kyiv, Ukraine.

Development of dairy products enriched with healthy lipids.
J. Moats*1,2, M. Epp3, and D. Christensen2, 1O&T Farms Ltd., Regina, SK, Canada, 2University of Saskatchewan, Saskatoon, SK, Canada.

Evaluation of dulce de leche produced with different starch.
F. Silva1, H. Ferreira2, M. Pinto1, R. Stephant1, A. Carvalho3, and Perrone1, 1Federal University of Viçosa, Viçosa, Brazil, 2Gemacom Tech, Juiz de Fora, Brazil, 3Fedral University of Viçosa, Viçosa, Brazil.

Rheological behaviors of edible casein-based packaging films under extreme environmental conditions, using humidity-controlled dynamic mechanical analysis.
S. Akkurt1, L. M. Bonnaillie2, H. Zhang, and P. M. Tomasula2, 1Rutgers University, Department of Food Science, New Brunswick, NJ, 2Dairy & Functional Foods Research Unit, Eastern Regional Research Center, Agricultural Research Service, United States Department of Agriculture, Wyndmoor, PA.

Evaluation of a laboratory-scale batch crystallizer for lactose isolation from deproteinized whey.
S. Beckman*, S. Anand, and L. Metzger, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.
Dispersibility, suspension ability, solubility, and gelation properties of rehydrated frozen highly concentrated micellar casein.

Y. Lu¹, D. J. McMahon*¹, and L. Metzger², ¹Western Dairy Center, Utah State University, Logan, ²Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

**Extension Education**

Potential bull buyers perceive increased value to their operations when purchasing bulls from the Florida Bull Test.


300 D Grazing Discovery Farm.

T. R. Troxel¹, M. S. Gadberry¹, J. A. Jennings¹, S. M. Jones¹, K. J. Simon¹, J. G. Powell¹, D. S. Hubbell, III¹, and J. D. Tucker¹, ¹Department of Animal Science, University of Arkansas, Little Rock, 2Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, 2University of Arkansas Livestock and Forestry Research Station, Batesville.

Case study: Fermentation profile, physical form, and starch digestibility of whole-plant corn silage harvested with novel processing.

L. F. Ferraretto¹, L. M. Vanderwerff*², and R. D. Shaver¹, ¹University of Wisconsin-Madison, 2University of Wisconsin-Madison.

Initial assessment of producers’ experiences, perceptions and attitudes about mastitis and bulk tank somatic cell count management in the Southeast.

S. M. Schexnayder¹, P. D. Krawczel¹, M. Fly¹, L. E. Garkovich², C. S. Petersson-Wolfe³, J. M. Bewley², S. H. Ward³, G. M. Pighetti¹, R. A. Almeida¹, M. Arnold³, S. C. Nickerson¹, A. DeVries³, and S. P. Oliver¹, ¹The University of Tennessee, Knoxville, 2University of Kentucky, Lexington, 3Virginia Tech University, Blacksburg, 4Mississippi State University, Mississippi State, 5University of Georgia, Athens, 6University of Florida, Gainesville.

The status of milk quality at the start of the Southeast Quality Milk Initiative.

G. M. Pighetti¹, C. S. Petersson-Wolfe³, J. M. Bewley², S. C. Nickerson¹, S. H. Ward³, A. DeVries³, P. D. Krawczel¹, R. A. Almeida¹, M. Fly¹, S. M. Schexnayder¹, L. E. Garkovich², M. Arnold³, and S. P. Oliver¹, ¹The University of Tennessee, Knoxville, 2University of Kentucky, Blacksburg, 3University of Kentucky, Lexington, 4University of Georgia, Athens, 5Mississippi State University, Mississippi State, 6University of Florida, Gainesville.

Hedonic pricing models for Angus bulls sold at auction following performance testing at Oklahoma Panhandle State University.

D. L. Stephens², P. K. Camfield¹, and T. C. Schroeder³, ¹Oklahoma Panhandle State University, Goodwell, OK, 2Kansas State University, Manhattan.

Survey of management practices used in the implementation of artificial insemination and estrous synchronization programs in the united states.

S. K. Johnson¹ and G. Dahlke², ¹Kansas State University, Colby, 2Iowa State University, Ames.

Effect of on-farm dairy Beef Quality Assurance (BQA) training on worker knowledge of BQA and welfare-related practices.

A. E. Adams², J. K. Ahola¹, M. Chahine², A. L. Ohlheiser³, and I. N. Roman-Muniz², ¹Colorado State University, Fort Collins, 2University of Idaho, Twin Falls.

Monetary impact of heat stress on dairy and beef industries in the US.


Phosphorus status of grazing beef cattle in Virginia’s Chesapeake Bay watershed.

S. J. Neil¹, K. J. Mize, D. D. Harmon, J. K. Smith, and M. A. McCann, Virginia Polytechnic Institute and State University, Blacksburg.

Assessment of farm nutrient management and phosphorus supplementation practices of beef cattle producers in Virginia’s Chesapeake Bay watershed.

S. J. Neil¹, K. J. Mize, D. D. Harmon, J. K. Smith, and M. A. McCann, Virginia Polytechnic Institute and State University, Blacksburg.

An economic impact decision support tool for farm specific estimation of not covering horizontal silos storing corn silage.

Food Safety

1053 T093 Regulatory process for food additives used in animal foods.
S. A. Benz1, R. Christensen1, and M. G. Alevyusse2, 1Center for Veterinary Medicine, FDA, Woodbine, MD, 2Nutrition & Labeling Team, Center for Veterinary Medicine, FDA, Rockville, MD.

1054 T094 Persistence of Escherichia coli O157:H7 in feces from cattle fed diets with or without wet distillers grains with solubles.
E. D. Berry*, J. E. Wells, and V. H. Varel, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.

1055 T095 Characterization of Shiga toxin-producing Escherichia coli isolated from feces of cattle in commercial feedlots.
T. W. Alexander*, T. A. McAllister, K. Stanford, and E. Topp, 1Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Alberta Agriculture and Rural Development, Lethbridge, AB, Canada, 3Agriculture and Agri-Food Canada, London, ON, Canada.

1056 T096 Development of an ultrasensitive aptasensor for the detection of aflatoxin B1.
X. Guo1,2,3, F. Wen4, N. Zheng1,2,3, Q. Luo1, and J. Wang4, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Yangzhou University, Yangzhou, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1057 T097 Cytotoxicity induced by ochratoxin A, zearalenone and α-zearalenol: Effects of individual and combined treatment.
H. Wang1,2,3, N. Zheng1,2, S. Li1,2, F. Li1, and J. Wang1,2,3, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China, 3Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 4College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China.

1058 T098 Efficacy of various levels of mycotoxin adsorbent to reduce aflatoxin M1 levels in milk of lactation cows fed aflatoxin B1.
M. Dehghan Banadaky1, R. Motameny2, and S. Parhizkar3, 1Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, 2Azad University, Tehran, Iran, 3University of Tehran, Karaj, Iran.

1059 T099 Inhibitory activity of Staphylococcus aureus against Lactococcus spp. isolated from artisanal Minas cheese.
F. F. Angelo1, L. M. Fonseca2,3, and M. A. V. P. Brito4, 1Universidad Federal da Paraíba/CTDR, João Pessoa, Brazil, 2Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil, 3University of Wisconsin-Madison/CAPES Est. Senior 18183-12-3, 4EMBRAPA Gado de Leite (CNPGL), Juiz de Fora, Brazil.

1060 T100 Microbiological quality and safety of commercial local yogurt products in Giza Governorate- Egypt.
M. M. Motawee1 and S. A. Ibrahim1, 1National Organization for Drug Control and Research, Giza- Egypt, Egypt, 2North Carolina A&T State University, Greensboro.

1061 T101 Stability of 10 β-lactam antibiotics in raw milk under different storage conditions.
H. Wang1,2,3, N. Zheng1,2, F. Wen1,2, H. Wang2, and J. Wang1,2,3, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Yangzhou University, Yangzhou, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1062 T102 Risk warning of veterinary drug residues in raw milk based on Shewhart Control Chart.
R. Han1,2,3, N. Zheng1,2, Z. Yu2,3, S. Li1,2, Y. Zhang1,2, X. Zhou1, and J. Wang1,2,3, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2College of Food Science and Engineering, Qingdao Agricultural University, Qingdao, China, 3Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China.
Stability of flavonoids in grape seed and grape marc meal extract (GSGME).

Effect of lysozyme or antibiotics on fecal zoonotic pathogens in nursery pigs.

Thermophilic spore forming bacilli: Attachment and biofilm formation on stainless steel.
M. C. Enes Ribeiro1, G. Theodore Walsh1, M. Lucia Gigante1, and R. Jimenez-Flores2; 1Faculty of Food Engineering, University of Campinas, Campinas, SP, Brazil, 2Dairy Products Technology Center, California Polytechnic State University, San Luis Obispo.

The consumer profile of certified beef in the XXI century.

Identification of horsemeat presence in beef commercial butcheries using the polymerase chain reaction (PCR) technique.
G. Aranda-Osorio*, Universidad Autonoma Chapingo, Chapingo, Mexico.

Forages and Pastures Posters II: Forages in Beef Production Systems

Reducing winter feeding needs in southern Arkansas through the use of best management grazing principles.
B. Stewart1, P. Beck1, L. Sullivan1, M. Sims1, and J. Jennings2, 1University of Arkansas SWREC, Hope, 2Department of Animal Science, University of Arkansas, Little Rock.

Bale diameter and feeder design effects on hay waste.
D. J. Tomczak*, N. E. Mertz, and W. J. Sexten, University of Missouri, Columbia.

Forage and shade type effects on stocker heifers’ performance.
G. Scaglia*, LSU AgCenter, Jeanerette.

Monensin supplementation levels effects on rumen fluid and blood parameters of steers receiving warm-season grass.
J. M. B. Vendramini1, R. F. Cooke2, A. D. Aguiar1, O. F. R. Cunha1, A. C. J. Pereira1, P. D. S. Ferreira1, and C. B. Zac-titti1, 1University of Florida/IFAS Range Cattle Research and Education Center, Ona, 2Oregon State University-EOARC Burns, 3Elanco Animal Health, Greenfield, IN.

Polymers molecularly imprinted with ergotamine: Recognition properties to template and related alkaloids.

Silage and hay of Stylosanthes Campo Grande associated or not to corn silage: Nutrient intake and performance of beef cattle.
L. D. Rufino1, K. G. Ribeiro1, S. C. Valadares Filho1, 2, R. M. Martins1, T. F. Bernardes1, J. A. G. Azevedo1, and O. G. Pereira2, 1Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 3Department of Animal Sciences, University of Florida, Gainesville, 4Universidad Federal de Lavras, Lavras, Minas Gerais, Brazil, 5Universidade Estadual de Santa Cruz, Ilheus, Bahia, Brazil.

Evaluation of nutrient intake, in situ disappearance, and fermentation characteristics of fermented Chaffhaye with alfalfa hay and prairie grass hay in steers.
K. K. Guatam*, B. S. Obeidat, S. J. Trojan, and M. A. Ballou, Department of Animal and Food Sciences, Texas Tech University, Lubbock.

Ruminal fermentation characteristics of beef steers grazing grass monocultures versus low- and high-tannin grass-legume mixtures.
C. T. Noviandi1, 2, T. J. Bingham1, J. S. Eun1, D. R. ZoBell1, B. L. Waldron1, and M. D. Peel1, 1Utah State University, Logan, 2Universitas Gadjah Mada, Yogyakarta, Indonesia, 3Forage and Range Research Laboratory, USDA-ARS, Logan, UT.

Agronomic assessment and beef cattle nutrition suitability of 31 forage type annual crops in the Peace Region of Alberta.
T. A. Omokanye1, M. Hobin1, I. A. Adeyinka2, and M. Benoit1, 1Peace Country Beef & Forage Association, Grande Prairie Regional College, Fairview, AB, Canada, 2National Animal Production Research Institute, Shika-Zaria, Nigeria.
Growth & Development Poster I

1161 T117 Body weight adjustments for feeding status and pregnant or non-pregnant condition in beef cows*. M. P. Gionbelli1, 2, M. S. Duarte1, S. C. Valadares Filho1, 2, E. Detmann1, 2, M. L. Chizzotti1, 3, T. R. Gionbelli1, F. C. Rodrigues1, D. Zanetti1, and M. G. Machado1, 1Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2Instituto Nacional de Ciência e Tecnologia-Ciência Animal, Viçosa, Minas Gerais, Brazil.

1162 T118 Changes in performance and immune response in dairy calves offered milk replacer or raw milk. C. Yunta1, A. Bach1, 2, and M. Terré1, 2, IRTA, Caldes de Montbui, Spain, 3Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 4ICREA, Barcelona, Spain.


1164 T120 Comparison of radial immunodiffusion and enzyme-linked immunosorbent assay for quantification of bovine IgG in colostrum and plasma. A. M. Smith, S. L. Gelsinger*, C. M. Jones, and A. J. Heinrichs, The Pennsylvania State University, University Park.

1165 T121 Effect of fish oil and thyme on nutrient digestibility, chewing activity, and rumen metabolites of Mahabadi goat kids. A. Hozhabri1, M. Ganjkhanlou1, A. Zali1, A. Emami2, A. Akbari-Afjani3, and M. Dehghan-Banadaky1, 1University of Tehran, Tehran, Iran, 2University of Birjand, Birjand, Iran, 3University of Zanjan, Zanjan, Iran.

1166 T122 Effect of heat treatment and bacterial population of colostrum on passive transfer of IgG. S. L. Gelsinger* and A. J. Heinrichs, The Pennsylvania State University, University Park.

1167 T123 Effect of omega-3 fatty acids and thyme essence on carcass traits of Mahabadi kids. A. Hozhabri1, A. Zali1, M. Ganjkhanlou1, A. Emami2, A. Akbari-Afjani3, and M. Dehghan-Banadaky1, 1University of Tehran, Tehran, Iran, 2University of Birjand, Birjand, Iran, 3University of Zanjan, Zanjan, Iran.

1168 T124 Effect of stage of pregnancy, maternal feeding level and fetal sex on fetal gut length in Holstein×Zebu cows*. T. R. Gionbelli1, 3, P. P. Rotta1, C. M. Veloso1, 3, M. P. Gionbelli1, 3, S. de Campos Valadares Filho1, 3, M. A. Novaes1, J. V. Souza1, J. S. Santos1, L. C. Lacerda1, and C. S. Cunha1, 1Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2Instituto Nacional de Ciência e Tecnologia-Ciência Animal, Viçosa, Minas Gerais, Brazil.

1169 T125 Intrauterine position affects fetal weight and crown-rump length throughout gestation. Y. D. Jang1, Y. L. Ma, and M. D. Lindemann, University of Kentucky, Lexington.

1170 T126 Milk diet but not quercetin intake affects postprandial glucose metabolism in neonatal calves. J. Gruse1, S. Görs1, W. Otten1, J. M. Weitzel1, S. Wolffram2, C. C. Metges1, and H. M. Hammon1, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2Institute of Animal Nutrition and Physiology, University of Kiel, Kiel, Germany.

1171 T127 Ontogenic gene expression profiles in pig hepatogenesis. J. Kwintkiewicz2, T. J. Caperna1, T. G. Ramsay1, H. D. Guthrie2, C. C. Talbot2, L. L. Schreier1, and L. A. Blomberg2, 1USDA-ARS-BARC, Beltsville, MD, 2The Johns Hopkins School of Medicine, Baltimore, MD.

1172 T128 Production of bioactive porcine mutant myostatin propeptide/Fc fusion protein in Escherichia coli. S. B. Lee1, S. K. Park2, and Y. S. Kim1, 1University of Hawaii, Honolulu, 2National Institute of Animal Science, RDA, Suwon, South Korea.

1173 T129 Short- and medium-term changes in performance and metabolism of dairy calves offered different amounts of milk replacer. C. Yunta1, M. Terré1, and A. Bach1, 2, 3, IRTA, Caldes de Montbui, Spain, 4ICREA, Barcelona, Spain, 5Department of Ruminant Production, IRTA, Caldes de Montbui, Spain.

1174 T130 Stabilization of intestinal mast cells at weaning improves performance of early-weaned pigs. A. Merer1, M. G. Tedo1, J. Charve1, A. J. Moeser1, and I. R. Ipharraguerre1, 1Lucta S.A., Montornés del Vallés, Spain, 2North Carolina State University, Raleigh.


1176 T132 The effects of feeding strategy and housing management on intake and growth performance of Holstein calves from birth through weaning. H. M. Gauthier1, S. E. Williams1, D. M. Shenk1, C. S. Ballard1, K. M. Morrill2, and H. M. Dann1, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2Cornell University, Ithaca, NY.
1177 T133 The impact of in utero heat stress and nutrient restriction on progeny body composition.  

1178 T134 Weight, height and relative accuracy indicators as a management tool for reducing age at first breeding and calving of dairy heifers.  
M. Duplessis1,2, R. Lacroix3, R. I. Cuen, D. E. Santschi2, and D. M. Lefebvre1, 1Université Laval, Département des Sciences Animales, Québec, QC, Canada, 2Fafacta, Ste-Anne-de-Bellevue, QC, Canada, 3McGill University, Department of Animal Science,  Ste-Anne-de-Bellevue, QC, Canada.

1179 T135 Growth and health of pre-weaned Holstein dairy heifers fed PROTERNATIVE SF in combination with LEVU-CELL S.  
D. L. Gadeken1, A. D. Garcia2, F. Diaz-Royón3, T. Erickson1, and A. Aguilar1, 1South Dakota State University, Brookings, 2Dairy Science Department, South Dakota State University, Brookings, 3Lallemand, Martinsville, IN.

Horse Species I

1198 T136 Glucose-insulin homeostasis and characterization of proteins involved in glucose uptake signaling in equine skeletal muscle.  
R. C. Avenatti1, K. Malinowski, and K. H. McKeever, Rutgers Equine Science Center, New Brunswick, NJ.

1199 T137 Splanchnic extraction of phenylalanine in adult Thoroughbred mares fed two different levels of threonine.  
S. Tanner, T. Barnes, K. Cybulak, and K. L. Urschel1, University of Kentucky, Lexington.

1200 T138 Effects of a docosahexaenoic acid -rich algae supplement on plasma amino acid levels in healthy, mature horses after prolonged treatment with dexamethasone.  

1201 T139 Evaluating the expression of microRNA miR-1 and miR-133 in the muscle of horses fed a docosahexaenoic acid -rich algae supplement after prolonged dexamethasone treatment.  

1202 T140 The effects of abrupt dietary alterations on equine cecal pH.  
A. Reeg1, T. Douthit1, K. M. DeLano1, M. E. Gordon1, M. M. Raghavendra Rao2, and K. Williamson1, 1Kansas State University, Manhattan, 2Purina Animal Nutrition, LLC, Gray Summit, MO.

1203 T141 Utilizing fecal pH to predict cecal pH in the equine.  
C. J. Douthit1, T. Douthit1, A. Reeg1, N. M. Bello1, M. E. Gordon1, and K. Williamson1, 1Kansas State University, Manhattan, 2Purina Animal Nutrition, LLC, Gray Summit, MO.

1204 T142 Comparison of ultrasound transducers to determine rump fat thickness in mature horses at maintenance.  
K. J. Stutts1, J. L. Lucia, M. J. Anderson, M. M. Beverly, and S. F. Kelley, Sam Houston State University, Huntsville, TX.

1205 T143 On-farm tapeworm testing in horses.  
N. C. Whitley1, R. Kaplan2, K. Moulton1, S. B. Routh1, R. Franco1, and R. K. Splan3, 1North Carolina A&T State University, Greensboro, 2Univieristy of Georgia, Athens, 3Virginia Tech, Middleburg.

International Animal Agriculture: International Animal Production

1213 T144 Handbook for livestock research on smallholder farms in developing countries.  
A. L. Goetsch1, American Institute for Goat Research, Langston University, Langston, OK.

1214 T145 Reproductive performance in United Kingdom Holstein dairies by geographic region.  
J. Hildon1, C. Vergara2, and H. Lopez3, 1Genus ABS, Stapeley, United Kingdom, 2ABS Global, DeForest, WI, 3ABS Global Inc., DeForest, WI.

1215 T146 Crossbreeding effects for body weight and carcass characteristics in a 3-breed diallel cross.  
D. Norris1, L. Tyasi2, and J. Ng’ambi3, 1University of Limpopo, Polokwane, South Africa, 2University of Limpopo, Sovenga, South Africa.

1216 T147 Total bacteria counting profile of raw milk in Minas Gerais state according to the storage system.  
A. G. Fernandes1, L. M. Fonseca2, M. P. Cerqueira1, M. O. Leite2, M. C. P. Oliveira2, R. M. Longo2, G. C. Ribeiro2, C. F. A. M. Penna1, and M. R. Souza2, 1Ministry of Agriculture, Belo Horizonte, Brazil, 2Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil, 3University of Wisconsin-Madison/CAPES Est.Senior 18183-12-3.
Reproductive performance in Chilean Holstein dairies by geographic region.  
F. Arias1, H. Lopez2, R. Krauss2, and C. F. Vergara1, 2  
1ABS Chile Ltda, Santiago, Chile, 2ABS Global Inc., DeForest, WI.

In vitro fermentation and digestion characteristics of shrubs Leucophyllum frutescens and Zanthoxylum fagara browsed by white-tailed deer (Odocoileus virginianus Texanus).  
A. MS1, C. S. MA*, 2, G. C. M1, G. R. H2, and R. L. RG. 3  
1Universidad Juárez del Estado de Durango, Durango, Mexico, 2Universidad Autónoma de Nuevo León, Linares, Nuevo León, Mexico, 3Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Nuevo León, Mexico.

Characterization of goat foraging and body condition in Jhadol Block, Udaipur, India.  
M. Valentine*, Cornell University, Ithaca, NY.

K. C. McRoberts1, D. Parsons2, C. F. Nicholson3, L. V. Nam4, and D. J. R. Cherney5  
1Cornell University, Ithaca, NY, 2University of Tasmania, Hobart, Australia, 3The Pennsylvania State University, University Park, 4Hue University of Agriculture and Forestry, Hue, Vietnam.

Selenium concentration in blood, milk and urine in grazing Jersey herds in Costa Rica.  
A. Saborío-Montero*, M. Alfaro-Cascante1, F. Granados-Chinchilla2, and A. Molina-Alvarado1  

Effect of the inclusion of plant extracts, vitamins and their association on biological efficiency, carcass length, total beef cuts, tissue composition and carcass muscularity of Nellore cattle.  
M. B. Silva1, A. M. Jorge, F. D. Resende1, G. R. Siqueira1, G. F. Berti1, J. M. B. Benatti1, C. L. Francisco1, and D. C. M. Silva1  
1Universidade Estadual Paulista-FMVZ, Botucatu, Brazil, 2Universidade Federal de Lavras, Lavras, Brazil, 3Universidade Federal de Viçosa, Viçosa, Brazil.

Pearson’s correlation between fatty acid profile and gene expression of transcription factors and lipogenic enzymes in the muscle of young bulls fed soybean or cottonseed, with or without vitamin E.  
M. M. Ladeira1, D. M. Oliveira1, A. Chalfun Junior1, M. L. Chizzotti2, P. D. Teixeira1, and T. C. Coelho1  
1Universidade Federal de Lavras, Lavras, Brazil, 2Universidade Federal de Viçosa, Viçosa, Brazil.

Effect of functional oils and high levels of glycerine in the diet of Purunã bulls finished in a feedlot on fatty acid composition in the longissimus muscle grilled.  
F. Zawadzki*, D. C. Rivaroli2, A. Guerrero1, J. A. Torrecillas1, C. A. Fugita1, J. Torrent1, and I. N. D. Prado1  
1State University of Maringá, Maringá, Brazil, 2Universidade Estadual Paulista-FMVZ, Botucatu, Brazil, 3Oligo Basics USA LLC, Chanhassen, MN.

Effects of dietary rolled barley grain processed by lactic and citric acid on meat quality in feedlot cattle.  
M. Nematpoor1, K. Rezayazdi2, and M. Dehghan-Banadaky3  
1University of Tehran, Karaj, Iran, 2Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, 3University of Tehran, Tehran, Iran.

Natural additives in the diet of bulls (Angus vs. Nellore) finished in feedlot: Fatty acids composition.  

Effects of tannins extract addition in to the diet on physicochemical characteristics of meat from finishing bulls.  
B. O. Lopez1, M. A. Mariezcurrena2, M. D. Mariezcurrena2, and R. Barajas1  
1Universidad Autónoma del Estado de México, Toluca, Mexico, 2Universidad Autónoma de Estado de México, Toluca, Mexico, 3FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico.

Effect of polymorphisms in the DECR1 and LDHB genes on beef color stability.  
J. D. Neal*, J. W. Buchanan, and R. G. Mateescu, Oklahoma State University, Stillwater.

Meat quality in yearling bulls fattened in three production systems from Mexican dry tropic.  
G. Corral-Flores1, C. Rodriguez-Muela1, A. Flores-Maristelarena1, J. A. Ramírez-Godínez1, F. S. Solorio2, and C. R. Duran1  
1Universidad Autónoma de Chihuahua, Chihuahua, Mexico, 2Universidad Autónoma de Yucatán, Merida, Mexico, 3Universidad Autónoma de Chihuahua, Chihuahua, Mexico.
Effect of diet without forage on beef quality in Bos taurus and Bos indicus young bulls.
M. L. Chizzotti, P. D. Teixeira, M. M. Ladeira, J. R. R. Carvalho, K. C. Busato, R. A. Gomes, A. C. Rodrigues, and M. C. L. Alves, Universidade Federal de Viçosa, Viçosa, Brazil, Universidade Federal de Lavras, Lavras, Brazil.

Prediction of lamb carcass backfat thickness by skinfold measurement.
H. A. Ricardo and R. O. Roça, Grande Dourados Federal University (UFGD), Dourados, Brazil, São Paulo State University (FCA/UNESP), Botucatu, Brazil.

Carcass traits and meat quality of goat kids supplemented with chromium-methionine.
A. Emami, M. Ganjkhanlou, A. Zali, and M. Dehghan-Banadaky, University of Birjand, Birjand, Iran, University of Tehran, Tehran, Iran.

Effect of high level of copper on meat quality in Iranian Mahabadi goat kids.
M. Ganjkhanlou, A. Zali, A. Hatefi, A. Emami, A. Akbari-Afjani, and M. Dehghan-Banadaky, University of Tehran, Tehran, Iran, University of Birjand, Birjand, Iran, University of Zanjan, Zanjan, Iran.

Effect of fish oil and thyme on meat quality and meat oxidative stability of Mahabadi kids.
A. Hozhabri, M. Ganjkhanlou, A. Zali, A. Emami, A. Akbari-Afjani, and M. Dehghan-Banadaky, University of Tehran, Tehran, Iran, University of Birjand, Birjand, Iran, University of Zanjan, Zanjan, Iran.

Effect of fish oil and thyme on performance, blood metabolites, meat sensory of Mahabadi kids.
A. Hozhabri, A. Zali, M. Ganjkhanlou, A. Emami, A. Akbari-Afjani, and M. Dehghan-Banadaky, University of Tehran, Tehran, Iran, University of Birjand, Birjand, Iran, University of Zanjan, Zanjan, Iran.

Milk Protein and Enzymes

Separation and quantification of major milk proteins in different species by reversed phase high performance liquid chromatography.
L. Ma, D. P. Bu, J. Q. Wang, and J. T. Chen, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Size distribution of casein micelles in milk from dairy cows with different crossbreeding levels of Holstein-Zebu cattle.
D. R. Freitas, M. M. Santoro, F. N. Souza, C. V. Ladeira, M. O. Leite, C. F. A. M. Penna, S. A. Diniz, M. X. Silva, J. P. Haddad, L. M. Fonseca, and M. P. Cerqueira, Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil.

Comparative analysis of immunoglobulin and lactoferrin in bovine milk from different species.
J. T. Chen, L. Ma, J. Q. Wang, Y. X. Yang, and D. P. Bu, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China.

Effect of thermal conditions on the concentration of biological active whey protein in cow milk.
J. T. Chen, L. Ma, D. P. Bu, Y. X. Yang, and J. Q. Wang, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China.

Effect of extraction methods on the 2-DE map of whey proteome in cow milk.
J. T. Chen, L. Ma, D. P. Bu, Y. X. Yang, and J. Q. Wang, Heilongjiang Bayi Agricultural University, Daqing, China, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Effect of metabolic acidosis in lactating dairy cows on concentration of milk proteins.

Process optimization for production of whey protein hydrolysate from cheese whey having antioxidant property.
A. S., B. Mann, R. Sharma, and R. Bajaj, National Dairy Research Institute, Karnal, India.

The effect of heat and extraction technique on β-lactoglobulin hydrolysis.
C. Kembel and R. Jimenez-Flores, California Polytechnic State University, San Luis Obispo, Dairy Products Technology Center, California Polytechnic State University, San Luis Obispo.

Evaluation of the viscosity profile during simulated conditions of thermal processing.
A. Souza, L. C. Junior, R. Stephani, M. Pinto, A. Carvalho, Perrone, and R. Costa, Gemacom Tech, Juiz de Fora, Brazil, EPAMIG, Juiz de Fora, Brazil, Federal University of Viçosa, Viçosa, Brazil, Federal University of Viçosa, Viçosa, Brazil.

Viscosity measurement of solutions composed by whey protein using a rapid viscosity analyser (RVA).
M. Alves, M. Martins, P. H. Junior, R. Moreira, G. Mendes, M. Pinto, Perrone, and A. Carvalho, Federal University of Viçosa, Viçosa, Brazil, Federal University of Viçosa, Viçosa, Brazil.
Nonruminant Nutrition:
The Impact of Feed Additives on the Health and Performance of Swine and Poultry

1314 T177 Evaluating the toxicity of metabolites derived from the trichothecene biotransformation using Biomin BBSH 797 in vitro.
S. Schaubinger1, and U. Hofstetter2, 1BIOMIN Holding GmbH, Herzogenburg, Austria, 2Biomin Holding GmbH, Herzogenburg, Austria.

1315 T178 Effects of dietary supplementation of β-mannanase on ileal digestibility of fiber and viscosity of jejunal digesta in nursery pigs fed corn and soybean meal-based diets.
I. Park1, T. J. Pasquetti1,2, and S. W. Kim1, 1North Carolina State University, Raleigh, 2Bolsista do, CNPq, Brazil.

1316 T179 Effects of dietary supplementation of selenium-enriched probiotics on productive performance and intestinal microflora of weaning piglets raised under high ambient temperature.
C. Lv1, T. Wang2, S. F. Liao3, and K. Huang4, 1Nanjing Agricultural University, Nanjing, Jiangsu, China, 2Mississippi State University, Mississippi State.

1317 T180 Growth performance and carcass characteristics of pigs fed high-fiber diets supplemented with Bacillus spp. expressing multi-enzyme activities.
A. Owusu-Asiedu1, R. Lizardo1, J. Brufau1, and A. Awati1, 1DuPont Industrial Biosciences-Danisco Animal Nutrition, Marlborough, Wiltshire, United Kingdom, 2IRTA-Mas de Bover, Tarragona, Spain.

1318 T181 Effects of star anise (Illicium verum) on growing performance and antioxidant status of sows and nursing piglets.
G. Y. Wang1, C. Yang2, Y. X. Guo3, Z. Yang4, and Y. Wang5, 1College of Animal science, Shandong Agricultural University, Tai-an, China, 2College of Life Science, Shandong Agricultural University, Tai-an, China, 3College of Animal Science, Shandong Agricultural University, Tai-an, China, 4Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

1319 T182 The effects of Calibrin-Z or a Calibrin-Z-based blended product on post-weaning performance of nursery pigs.
S. L. Johnston1, E. Chi1, S. Ching2, R. Cravens1, and O. Adeola3, 1Amlan International, Chicago, IL, 2Purdue University, West Lafayette, IN.

1320 T183 Nutrient digestibility of rice bran, with or without exogenous enzymes, for weaned piglets.

1321 T184 The improvements in growth, bone mineral status and nutrient digestibility in pigs following the addition of phytase is accompanied by modifications in ileal nutrient transporters.
S. Vigors1, T. Sweeney2, D. N. Doyle1, C. J. O’Shea1, and J. V. O’Doherty1, 1School of Agriculture and Food Science, University of College Dublin, Dublin, Ireland, 2College of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland.

1322 T185 Effects of bromelain supplementation on growth performance, nutrient digestibility, blood profiles, fecal microbial shedding, fecal score, and fecal noxious gas emission in weaning pigs.
M. M. Hossain1, H. L. Li, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

1323 T186 Effect of nutrifen supplementation with different levels of metabolic energy on growth performance, nutrient digestibility, meat quality, blood profile, excreta microflora, and excreta gas emission of broiler chickens.
H. Shin, A. Hosseindoust, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

1324 T187 Effect of fermented organic rare earth (ORE) on growth performance, nutrient digestibility, blood profiles, meat quality, relative organ weight, excreta microflora, and noxious gas emission in broiler chickens.
Y. Liu, S. D. Upadhaya, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

1325 T188 Apparent total tract digestibility and ileal digestibility of dry matter, nitrogen, energy and amino acids in conventional, Bacillus subtilis fermented and enzyme treated soybean meal fed to weaning pigs.
H. Yun, E. Balolong Jr., and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

1326 T189 Effect of bromelain supplementation on growth performance, nutrient digestibility, blood profiles, meat quality, relative organ weight, excreta microflora and noxious gas emission in sows and piglets.
M. Jung, Y. Lei, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

1327 T190 Effect of CALSPORIN on growth performance, nutrients digestibility, organ weight, meat quality and excreta and intestinal microflora and slurry noxious gas emission in broiler chickens.
H. Beak, H. L. Li, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

1328 T191 Evaluation of Korean aged garlic extract (AGE) by Leukonostoc citreum SK2556 on production achievement, meat quality, relative organ weight, targeted Escherichia coli colony, slurry gas emission and hematological profiles in broilers.
J. W. Park, S. D. Upadhaya, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.
The effect of vitality mineral liquid complex on production performance, nutrient digestibility, blood characteristics, egg quality and excreta microflora in laying hens.

M. Mohammadi Gheisar, J. P. Lee, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

Effects of nutrifén on growth performance, nutrient digestibility, blood profiles, fecal microflora, fecal gas emission, and fecal score in weaning pigs.

D. Jung*, H. L. Li, and I. H. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.

Effect of rare earth element-yeast on egg production, nutrient digestibility, egg quality, blood profiles, excreta gas emission, and excreta microbiota in laying hens.

J. H. Cho*, L. Cai, and I. H. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.

Effects of Bacillus subtilis on growth performance, relative organ weight, meat quality, salmonella population, and blood profiles in broilers.

J. H. Cho*, M. Begum, and I. H. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.

The effect of salicornia herbacea and dendropanax morbifera on the growth performance, meat quality, fecal microbial population and fecal noxious gas emission in broilers.

J. P. Lee, M. M. Hossain, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

The effect of Salmonella inhibitors supplementation on egg production, egg quality, blood profiles, and excreta salmonella in laying hens.

J. H. Cho*, H. Shin, and I. H. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.

Feed additives affect RNA expression in the brush border membrane in broilers.

M. F. Fernandez Alarcon1*, J. P. Steibel2,3, L. S. Antonio4, R. Luneo1, G. Baldissera1, R. L. Furlan1, and L. R. Furlan5, 1Department of Animal Morphology and Physiology, Sao Paulo State University, Jaboticabal, SP, Brazil, 2Michigan State University, East Lansing, 3Department of Fisheries and Wildlife, Michigan State University, East Lansing, 4Department of Biological Sciences – Biochemistry, University of São Paulo, Bauru, SP, Brazil, 5Aquaculture Center, Sao Paulo State University, Jaboticabal, SP, Brazil.

Apparent digestibility of wheat bran nutrients with or without exogen enzymes addition in weaned piglets.


Evaluating the effects of Salicornia extract on performance, egg quality and blood profile of laying hens.

I. H. Kim*, H. L. Li, and M. M. Hossain, Department of Animal Science, Dankook University, Cheonan, South Korea.

Effect of material bioconversion natural complex on the growth performance, nutrient digestibility, fecal microbiota, fecal score, fecal moisture and pH in weanling pigs.

M. Jung, Y. Lei, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.

Effects of microencapsulated Enterococcus fecalis and enzyme supplementation on piglet response to an Escherichia coli (K88) challenge.

H. S Chen1,2, D. E Velayudhan1, A. K Li3, Y. Z Feng2, D. Liu2, Y. L Yin4, and C. M. Nyachoti1, 1University of Manitoba, Winnipeg, MB, Canada, 2Institute of Animal Husbandry, Harbin, China, 3Academy of State Administration of Grain, Beijing, China, 4Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, China.

Sodium alginate addition improves water stability and utilization of extrudated feed for farmed saltwater crocodiles (C. porosus).

M. Francis1, T. J. Wester2,3, P. C. H. Morel1, and B. H. P. Wilkinson2, 1Institute of Veterinary, Animal and Biomedical Sciences, Massey University, Palmerston North, New Zealand, 2Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand.

Impact of allicin on enzyme activity, cytokine secretion, and gene expression dynamics in oxidative- and endotoxin-stressed porcine intestinal epithelial cells.

N. L. Horn1,2, G. Miller1, K. M. Ajuwon1, and O. Adeola1, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2Biomatrix, Princeton, MN.

Evaluation of a new probiotic strain of Bifidobacterium longum subsp. infantis CECT 7210 to improve health status of weaning piglets orally inoculated with Salmonella Typhimurium.

E. Barba-Vidal1, L. Castillejos2, V. F. Buttow Roll1, M. Rivera3, J. A. Moreno Muñoz4, and S. Martin-Orías3, 1Animal Nutrition and Welfare Service Department of Animal and Food Sciences Universitat Autònoma de Barcelona, Bellaterra 08193, Spain, 2Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra 08193, Spain, 3Department of Animal Science, Faculty of Agronomy Elisau Maciel, Federal University of Pelotas, Pelotas, Brazil, 4Laboratorios Ordesa S. L., Parc Científic de Barcelona, Barcelona, Spain.

A standardized blend of capsicum oleoresin, cinnamaldehyde and carvacrol improves performance of lactating sows.

C. Oguey1 and C. Bruneau1,2, 1Pancosma, Geneva, Switzerland, 2Pancosma, Saint-Hyacinthe, QC, Canada.
1344 T207 Zilpaterol hydrochloride improves growth performance of meat producer Japanese quails.  
*H. Davila-Ramos and J. C. Robles-Estrada*, Universidad Autonoma de Sinaloa, Culiacan, Mexico.

1345 T208 Effects of increasing levels of curcumin on growth performance and immune response of nursery pigs.  

1346 T209 Mannan oligosaccharides and β-glucan in diets for weaned piglets.  
*U. V. Luna*, J. G. Caramori Junior*, G. S. S. Corrêa*, S. D. Assis†, E. Brusamarello†, J. C. R. Ribas†, M. A. Souza†, A. B. Corrêa†, B. S. Vieira†, E. Rovaris†, and S. A. P. V. Barbosa†, 1Federal University of Mato Grosso, Cuiabá, Brazil, 2Federal University of Mato Grosso, Cuiaba, Brazil.

**Physiology and Endocrinology: Physiology and Endocrinology II**

1400 T210 Fertility of lactating dairy cows treated with gonadotropin-releasing hormone at estrus, 5 d after AI, or both, during summer heat stress.  
*L. G. D. Mendonça*, F. M. Mantelo†, and J. S. Stevenson2, 1Department of Animal Sciences and Industry, Kansas State University, Manhattan, 2Kansas State University, Manhattan.

1401 T211 Luteolysis and pregnancy outcome in 5-day Resynch dairy cows after 1 or 2 injections of prostaglandin F2α.  
*J. S. Stevenson*, S. L. Pulley, and S. L. Hill, Kansas State University, Manhattan.

1402 T212 Now being presented in the Physiology & Endocrinology Symposium, Wednesday, July 23 at 4:30 pm.

1403 T213 Characterization of luteal dynamics in lactating dairy cows for 32 days after synchronization of ovulation and timed artificial insemination.  
*A. Ricci†1, P. D. Carvalho1, M. C. Amundson1, and P. M. Fricke1, 1Department of Dairy Science, University of Wisconsin-Madison, 2University of Wisconsin-Madison.

1404 T214 Influence of fat supplementation on LH pulses and fsh concentration in Nellore Heifers.  

1405 T215 Pregnancy outcomes based on pregnancy-associated glycoproteins in milk and serum during the first trimester of gestation in Holstein dairy cows.  
*A. Ricci†1, P. D. Carvalho1, M. C. Amundson1, S. Koller*, R. H. Fournadine1, L. Vincen1, and P. M. Fricke1, 1Department of Dairy Science, University of Wisconsin-Madison, 2University of Turino, Turino, Italy, 3University of Wisconsin-Madison, 4IDEXX Laboratories, Inc, Westbrook, ME, 5AgSource Laboratories, Verona, WI.

1406 T216 Comparison of two gonadorelin formulations and two luteolytic agents on pregnancy rates in beef cattle synchronized with a 5-d CO-Synch + CIDR program.  
*S. Bas†*, T. A. Brick†, G. Starkey†, G. Messerschmidt†, A. A. Barragan†, G. M. Schuenemann†, and M. L. Day†, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2The Ohio State University, Columbus.

1407 T217 Rams treated with testosterone induce sexual activity in anovulatory Dorper adult sheep.  
*L. M. Tejada*, Universidad Autónoma Agraria Antonio Narro, Torreón, Mexico.

1408 T218 Regulation in vivo and in vitro of G Protein-Coupled Receptor 34 (GPR34) mRNA in ovarian granulosa cells of cattle and its role in steroidogenesis.  
*L. J. Spicer*, J. A. Williams*, L. F. Schutz†, M. L. Toty†, N. B. Schreiber†, and J. Gilliam2, 1Oklahoma State University, Stillwater, 2Oklahoma State University Center for Veterinary Health Sciences, Stillwater.

1409 T219 Interaction between a mammary immune response to lipopolysaccharide and luteal function in lactating dairy cows.  
J. Luettgenau†, O. Wellnitz†, R. M. Bruckmaier2, and H. Bollwein2, 1Clinic of Reproductive Medicine, Vetsuisse Faculty University of Zurich, Zurich, Switzerland, 2Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

1410 T220 Influence of maternal nutrient restriction and realimentation on vascularity of bovine placenta.  
*B. R. Mordhorst*, L. E. Camacho†, C. O. Lemley†, P. B. Borowicz†, D. A. Redmer†, K. C. Swanson†, and K. A. Vonahnme†, 1North Dakota State University, Fargo, 2University of Arizona, Tucson, 3Mississippi State University, Mississippi State.

1411 T221 Lyso phosphatic acid (LPA) activates ERK1/2-P90RSK signaling in porcine trophoblast cells.  
*J. Kim*, J. Lee, J. Sung, H. Bang, Y. Sung, Y. Choi, and J. Kim, Dankook University, Cheonan, South Korea.

1412 T222 Relationship between dry-matter intake and subclinical endometritis in healthy postpartum dairy cows.  
*A. H. Souza*, P. D. Carvalho, A. R. Dresch, L. M. Vieira, K. S. Hackbart†, R. D. Shaver†, and M. C. Wiltbank, 1University of California Cooperative Extension, Tulare, 2University of Wisconsin-Madison, 3Department of Dairy Science, University of Wisconsin-Madison, 4University of Sao Paulo-VRA, Sao Paulo, Brazil.
1413 T223 The effect of the initial GnRH and dose of PGF$_{2\alpha}$ on pregnancy rate to TAI in beef heifers submitted to the 5-d CO-Synch + CIDR program.
L. H. Cruppe*, S. L. Lake, F. M. Abreu, S. G. Kruse, S. L. Bird, K. Heaton, B. R. Harstine, M. L. Day, and G. A. Bridges, 1The Ohio State University, Columbus, 2University of Wyoming, Laramie, 3University of Minnesota, Grand Rapids, 4Utah State University, Logan.

1414 T224 Use of a CIDR in the 5-day CO-Synch estrous synchronization protocol improves pregnancy rates to timed artificial insemination.
G. A. Bridges, R. P. Lemenager, E. Taylor, and P. J. Gunn, 1University of Minnesota, Grand Rapids, MN, 2Purdue University, Lafayette, IN, 3Iowa State University, Ames.

1415 T225 Incidence of ovulation to GnRH at onset of 5-d CO-Synch + CIDR and impact on reproductive responses.

1416 T226 The use of 5-d CO-Synch+CIDR and 7-d EB+CIDR synchronization programs in Nellore females.
M. V. C. Ferraz Jr., A. V. Pires, M. V. C. Biehl, R. Sartori, J. R. S. Gonçalves, E. M. Moreira, M. H. Dos Santos, L. H. Cruppe, and M. L. Day, 1University of São Paulo-FMVZ/USP, Pirassununga, Brazil, 2University of São Paulo-ESALQ/USP, Piracicaba, Brazil, 3Iowa State University, Grand Rapids, 4The Ohio State University, Columbus.

1417 T227 The efficacy of different PGF$_{2\alpha}$ treatments to promote luteolysis on D 7 or D 9 of the estrous cycle in nonlactating Nellore cows.
M. V. Biehl, A. V. Pires, L. H. Cruppe, M. V. C. Ferraz Jr., R. Sartori, A. D. B. Ribeiro, J. A. Faleiro Neto, J. R. S. Gonçalves, and M. L. Day, 1University of São Paulo-ESALQ/USP, Piracicaba, Brazil, 2The Ohio State University, Columbus, 3University of São Paulo-FMVZ/USP, Pirassununga, Brazil, 4Experimental Station Hildegard Georgina Von Pritzelwitz, Londrina, Brazil, 5The Ohio State University, Columbus.

1418 T228 Effect of timing of artificial insemination and estrus expression using sexed semen on pregnancy rates in Holstein dairy cows.
S. E. Crego, E. L. Larimore, and G. A. Perry, South Dakota State University, Brookings.

1419 T229 Evaluation of the hypothalamic kisspeptin system throughout the estrous cycle in gilts.
E. S. Jolitz and J. A. Clapper, South Dakota State University, Brookings.

1420 T230 Levels of IGF-1, thyroxine, triiodothyronine and cortisol in yearling bulls in feedlot or silvopastoral system.

1421 T231 Meta-analysis of the effect of estrus expression before fixed-time AI on conception rates in beef cattle.
B. N. Richardson, S. L. Hill, J. S. Stevenson, G. D. Djira, and G. A. Perry, 1South Dakota State University, Brookings, 2Kansas State University, Manhattan.

1422 T232 Comparison of estrus parameters in nulliparous heifers by two automated activity monitoring systems.

1423 T233 Cryopreserved sperm quality in young Brangus bulls raised on pasture and supplemented with vitamin E.

1424 T234 Addition of vitamin C extender and post-cryopreservation semen quality in bulls.

1425 T235 Concentrations of progesterone during early follicular development and pregnancy rate to AI in beef cows.

1426 T236 Tocopherol in bovine semen cryopreservation extender: Fertility and oxidative stress.
### Production, Management, and the Environment: Management and Heat Stress

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<td>1429 T239</td>
<td>Concentrations of heavy metals in the whole raw milk of dairy cows under different management systems and country of origin: A meta-analytical study.</td>
<td>G. Zvierczowski and B. N. Ametaj. Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.</td>
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<td>1434 T244</td>
<td>Effect of spatial orientation and shade on internal environment of a wooden 3-calf hutch.</td>
<td>J. D. Allen and L. W. Hall. Northwest Missouri State, Maryville, MO. The University of Arizona, Tucson.</td>
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<td>1494</td>
<td>Extending the interval from Presynch to initiation of Ovsynch in a Presynch-Ovsynch protocol did not reduce fertility of lactating dairy cows not detected in estrus that received timed artificial insemination.</td>
<td>J. O. Giordano*, M. J. Thomas, G. K. Catucumba*, and M. D. Currier, Department of Animal Science, Cornell University, Ithaca, NY, Dairy Health and Management Services, LLC, Lowville, NY.</td>
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<td>Mortality and herd turnover rates in large dairy herds in the Upper Midwest USA.</td>
<td>T. Evink* and M. I. Endres, University of Minnesota, Saint Paul.</td>
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<td>G. Ghorbani*, and A. Ahangaran, Isfahan University of Technology, Isfahan, Iran, Isfahan University of Technology, Isfahan, Iran.</td>
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<td>1503</td>
<td>Comparative study between 5% copper sulfate and a β-ionone and limonene solution in a split footbath.</td>
<td>A. C. Thompson* and J. M. Bewley, University of Kentucky, Lexington.</td>
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**Ruminant Nutrition Posters II**

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<td>1651</td>
<td>In vitro assessment of Saccharomyces cerevisiae cell fractions (YCF) using bovine epithelial cells and macrophages.</td>
<td>Z. Li*, Q. You*, F. Ossa*, P. Mead*, and N. A. Karrow*, University of Guelph, Guelph, ON, Canada, Lallemend Inc., Montreal, QC, Canada, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.</td>
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Pre- and post-weaning performance and health of calves fed milk replacers with two protein concentrations and two feeding rates.
B. M. Strayer*, D. Ziegler*, D. Schimek, B. Ziegler, M. Raeth-Knight, H. Chester-Jones, and D. Casper, South Dakota State University, Brookings, University of Minnesota Southern Research and Outreach Center, Waseca, MN, Hubbard Feeds Inc., Mankato, MN, University of Minnesota, St. Paul.

The effect of dietary supplementation of artificial sweetener on performance of milk-fed calves.

The effect of supplementation with a blend of capsicum, carvacrol, and cinnamaldehyde on performance of milk-fed calves.

Effect of milk replacer solids content on intake, growth and fecal characteristics of Holstein calves.

Pre- and post weaning performance and health of dairy calves fed all-milk protein milk replacers or partially replacing milk protein in milk replacers with plasma, wheat proteins and soy protein concentrate.
D. Ziegler*, H. Chester-Jones, B. Ziegler, D. Schimek, M. Raeth-Knight, and D. L. Cook, University of Minnesota Southern Research and Outreach Center, Waseca, Hubbard Feeds Inc., Mankato, MN, University of Minnesota, St. Paul, Milk Products, Chilton, WI.

Effect of Radix Bupleuri herbal supplementation on diversity of the bacterial community and cellulolytic bacteria in the rumen of lactating dairy cows analyzed by DGGE and RT-PCR.

The effect of soluble propolis in milk on the performance of Holstein suckling calves.
P. Peravian*, K. Rezayazdi, and G. Nehzati, University Of Tehran, Tehran, Iran, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, University Of Tehran, Karaj, Iran.

Supplementation of lysine and methionine for dairy calves on a step down milk-replacer feeding program.
J. T. Silva*, G. Santos, N. B. Rocha, E. Miqueo, T. Manzoni, and C. M. M. Bittar, University of Sao Paulo, Piracicaba, Brazil.

Response of newborn calves to injectable vitamins A, D and E.
D. B. Snider*, J. Gaska, D. E. Gockowski, and R. L. Stuart, Iowa State University, Ames, Gaska Dairy Health Services, Columbus, WI, North Ridge Veterinary Svc, Sturgeon Lake, MN, StuArt Products Inc, Bedford, TX.

Fecal scores, hemagiosmetry and blood metabolites of diarrheic calves fed concentrate containing sugar cane molasses or glucose syrup as a replacement for corn.
M. C. Soares, G. G. O. Nápoles, C. E. Oltramari, J. T. Silva, M. R. De Paula, and C. M. M. Bittar, University of Sao Paulo, Piracicaba, Brazil, University of Santa Catarina State, Chapecó, Brazil.

Fecal scores, hemagiosmetry and blood parameters of diarrheic calves fed concentrate containing citrus pulp as a replacement for corn.
M. C. Soares, C. E. Oltramari, J. T. Silva, M. R. De Paula, M. P. Gallo, and C. M. M. Bittar, University of Sao Paulo, Piracicaba, Brazil, University of Santa Catarina State, Chapecó, Brazil.

Effect of diet particle size on sorting, eating rate, rumen pH and digestibility in dairy heifers.

Fatty acid profiles of longissimus dorsi from Nelore cattle on pasture supplemented with crude glycerin and whole cottonseed.

Performance and carcass attributes of Nelore heifers fed with zilpaterol hydrochloride.
N. R. B. Cónsol, R. S. Goulart, F. Rodriguez, M. O. Frasseto, J. M. Souza, L. F. P. Silva, and V. B. Ferrari, University of Sao Paulo, Pirassununga, Brazil, MSD Saíde Animal, Sao Paulo, Brazil.

Carcass characteristics of Nelore steers fed whole corn diets containing feed antibiotics.
Fatty acids ratio of loin from lambs fed with increasing levels of crude glycerin in feedlot.
C. M. Cunha¹, A. R. M. Fernandes², H. A. Ricardo³, L. V. C. Girão⁴, R. O. Roça⁵, L. O. Seno⁶, M. A. P. Orrico Junior⁷, J. C. S. Osório⁸, and F. M. Vargas Junior⁹, ¹Granade Dourados Federal University (UFGD), Dourados, Brazil, ²Uberlândia Federal University (UFU), Uberlândia, Brazil, ³São Paulo State University (FCA/UNESP), Botucatu, Brazil.

Performance and carcass finish of finishing lambs fed diets with safflower meal.
P. A. Meneses-Tapia¹, G. Buendia-Rodriguez², F. E. Martínez-Castañeda³, C. G. Peñuelas-Rivas⁴, and S. S. González-Muñoz⁵, ¹Universidad Autónoma del Estado de Mexico, Toluca, Mexico, ²CENIDP; MA INIFAP, Queretaro, Mexico, ³Colecio de Postgraduados, Monteceilo Estado de Mexico, Mexico.

Quality traits of longissimus muscle of two genetic groups fed with crude glycerin.
I. M. de Oliveira¹, J. P. I. S. Monnerat², N. V. L. Serão³, M. S. Duarte⁴, V. R. M. Couto⁵, S. C. Valadares Filho⁶, M. L. Chizzotti⁷, and P. V. R. Paulino⁸, ¹APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, ²Universidade Federal de Viçosa, Viçosa, Brazil, ³São Paulo State University, Urbanba, ⁴Universidade Federal de Viçosa, Viçosa, Brazil, ⁵Minas Gerais, Brazil, ⁶Universidade Federal de Goiás, Goiânia, Brazil, ⁷Nutron Alimentos Ltda, Campinas, Brazil.

Effects of corn processing method and dietary starch level on finishing performance of Nellore bulls.
M. Caetano¹, R. S. Goulart¹, S. Luz e Silva², J. S. Drouillard³, R. Cocera³, S. M. S. Duarte⁴, C. G. Peñuelas-Rivas⁵, and D. P. D. Lanna*¹, ¹University of Sao Paulo / ESAQ, Piracicaba, Brazil, ²current address University of Adelaide, Roseworthy, Australia, ³MSD Saide Animal, Sao Paulo, Brazil, ⁴University of Sao Paulo / FZEA, Pirassununga, Brazil, ⁵Kansas State University, Manhattan.

Effect of wheat dried distillers grains with soubles inclusion and fibrolytic enzyme supplementation on ruminal fermentation and digestibility in beef heifers fed backgrounding diet.
Z. He*¹,², N. D. Walker³, T. A. McAllister³, and W. Yang³, ¹Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ²Key Laboratory for Agro-Ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, The Chinese Academy of Sciences, Changsha, China, ³AB Vista Feed Ingredients, Marlborough, United Kingdom, ⁴Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

Increasing condensed corn distillers solubles affects gene expression in rumen epithelial tissue.
J. C. McCann¹, S. Alqarni¹, J. R. Segers², D. W. Shike³, and J. J. Loor¹, ¹University of Illinois at Urbana-Champaign, ²University of Georgia, Tifton.

Crude glycerin as an energy source in finishing beef diets.
P. Del Bianco Benedetti¹,², P. V. R. Paulino¹, M. I. Marcondes¹, A. Faciola¹, I. França Smith Maciel¹, and M. Custódio da Silva¹, ¹Federal University of Viçosa, Viçosa, Brazil, ²University of Nevada, Reno, ³Nutron Alimentos Ltda, Campinas, Brazil.

Supplements containing different crude glycerin concentration does not affect the intake and digestibility of Nellore grass-fed beef.
E. San Vito¹, L. Maneck Delevatti, E. E. Dalanttonia, J. F. Lage, M. B. Abra, C. S. Ribeiro Júnior, L. R. Simonetti, M. Machado, and T. T. Berchielli¹, Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, ²Universidade Estadual Paulista “Júlio de Mesquita Filho” / UNESP, Jaboticabal, Brazil, ³Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, ⁴University of Sao Paulo State, Jaboticabal, Brazil.

Whole cottonseed and crude glycerin for nelore cattle on pasture: Intake and digestibility of nutrients.
A. J. Possamai¹, J. T. Zervoudakis², L. K. Hatamoto-Zervoudakis³, A. S. Oliveiera³, E. R. Donida³, P. I. J. L. R. Silva¹, A. C. Barboza¹, R. G. D. P. Junior², and J. W. Koscheck⁴, ¹UFMT, Cuiabá, Brazil, ²Federal University Of Mato Grosso, Cuiabá, Brazil, ³University of Illinois at Urbana-Champaign, ⁴UFMT, Sinop, Brazil, ⁵Nutron Alimentos Ltda, Campinas, Brazil.

Crude glycerin in multiple supplements for beef cattle in grazing: pH and ammoniacal nitrogen.
R. G. D. P. Junior¹, A. J. Possamai¹, J. T. Zervoudakis¹, L. D. S. Cabral¹, L. K. Hatamoto-Zervoudakis³, A. C. Barboza¹, L. B. D. Freira¹, J. B. Azevedo³, and A. S. Oliveiera³, ¹Federal University Of Mato Grosso, Cuiabá, Brazil, ²University of Sao Paulo State, Jaboticabal, Brazil.

Grain processing methods and concentration of corn silage NDF in the finishing diet of Nellore bulls.
C. Sitta¹, D. A. Fleury¹, J. D. Souza¹, F. Batistel¹, W. F. Angolini¹, M. A. P. Meschiatti¹, N. C. G. Barbosa¹, G. G. Rosa¹, B. A. V. Arthur¹, P. D. Andrade¹, A. Paro¹, A. C. Aoki¹, M. R. R. Soares¹, and F. A. P. Santos¹, ¹University of Sao Paulo, Piracicaba, Brazil, ²University of Sao Paulo, Piracicaba, Brazil.
Effect of corn processing methods and dietary concentrations of sugarcane bagasse fiber on finishing Nellore bulls performance.
A. H. F. Melo\textsuperscript{1,2}, D. F. A. Costa\textsuperscript{2}, C. A. B. Delveaux\textsuperscript{1}, J. D. Souza\textsuperscript{3}, F. Batistel\textsuperscript{4}, D. C. Basto\textsuperscript{5}, P. R. Gabarra\textsuperscript{1}, A. C. Aoki\textsuperscript{6}, and F. A. P. Santos\textsuperscript{2}, 1University of Sao Paulo, Piracicaba, Brazil, 2University of Sao Paulo, Piracicaba, Brazil.

Predicting ruminal and total tract starch digestion as influence by changes in density of steam-flaked corn: Flake thickness, enzymatic reactivity, fecal starch.
M. A. Franco\textsuperscript{7,8}, J. F. Calderon-Cortes\textsuperscript{9}, L. Corona\textsuperscript{10}, A. Plascencia\textsuperscript{3}, and R. A. Zinn\textsuperscript{4}, 1UNAM, Mexico City, Mexico, 2UABC, Mexicali, Mexico, 3UABC, Mexicali, Mexico, 4University of California-Davis, El Centro.

Intake and performance of crossbred dairy calves fed spineless cactus in transition.
R. Gomes\textsuperscript{1}, M. F. S. Queiroz\textsuperscript{1,2}, S. Gonzaga Neto\textsuperscript{1}, R. G. Costa\textsuperscript{1}, J. S. Oliveira\textsuperscript{1}, G. O. Mendes\textsuperscript{1}, R. L. Galati\textsuperscript{1}, and G. R. Beltrão da Cruz\textsuperscript{1}, 1University of Paraíba, CCA/UFPB, Areia, Brazil, 2University of Mato Grosso-DZER/UFMT, Cuiabá, Brazil, 3University of Paraíba-CCA/UFPB, Areia, Brazil, 4University of Paraíba-CCHSA/UFPB, Bananeiras, Brazil.

Carcass characteristics of crossbred dairy calves fed spineless cactus in transition.
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Effect of chitosan and soybean oil combination on ruminal fermentation and milk yield and composition of dairy cows.
T. A. Del Valle\textsuperscript{1}, F. C. R. D. Santos\textsuperscript{1}, P. G. D. Paiva\textsuperscript{1}, E. F. Jesus\textsuperscript{2}, F. Zanferari\textsuperscript{1}, M. K. Kametani\textsuperscript{1}, A. G. B. V. B. Costa\textsuperscript{1}, and F. P. Rennó\textsuperscript{1}, 1School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, Brazil, 2School of Agricultural and Veterinary Sciences of UNESP, Jaboticabal, Brazil.

Growth performance and total tract nutrient digestion for Holstein heifers precision-fed diets high in distillers grains with different forage particle size.

Comparison of efficiency of energy use in Holstein and Jersey dairy cows offered diets containing reduce fat distillers grains RFDDGS.
G. Garcia Gomez\textsuperscript{1,2}, A. Foth\textsuperscript{1}, P. J. Kononoff\textsuperscript{1}, T. Brown-Brandl\textsuperscript{2}, and H. C. Freetly\textsuperscript{1}, 1University of Nebraska-Lincoln, 2ARS-USDA, Clay Center, NE.

Effects of feeding canola meal (CM) and wheat dried distillers grains with solubles (W-DDGS) as the major protein source in low or high crude protein diets on ruminal nitrogen utilization, omasal nutrient flow, and milk production in dairy cows.
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Performance, digestibility, and blood acid-base balance of dairy cows in response to the replacement of corn by crude glycerin.
O. F. Zacaroni\textsuperscript{1}, F. F. Cardoso\textsuperscript{1}, R. A. N. Pereira\textsuperscript{2,3}, and M. N. Pereira\textsuperscript{1,3}, 1Universidade Federal de Lavras, Lavras, Brazil, 2Empresa de Pesquisa Agropecuária de Minas Gerais, Lavras, Brazil, 3Better Nature Research Center, Ijaci, Brazil.

Effects of crude glycerin supplementation on fatty acids composition of milk fat from primiparous lactating cows on irrigated tropical pasture.
M. C. A. Santana\textsuperscript{1,2}, H. A. Santana Junior\textsuperscript{1}, M. P. Figueiredo\textsuperscript{1}, E. O. C. Santana\textsuperscript{1}, G. A. Filho\textsuperscript{1}, C. B. Figueiredo\textsuperscript{1}, M. S. Maciel\textsuperscript{1}, and J. I. Simionato\textsuperscript{1}, 1Emater, Goiânia, Brazil, 2Universidade Estadual do Piauí, Corrente, Brazil, 3Universidade Estadual do Sudoeste da Bahia, Vitória da Conquista, Brazil, 4Universidade Estadual do Sudoeste da Bahia, Itapetinga, Brazil, 5Universidade Estadual de Londrina, Londrina, Brazil.

Effect of grain processing and fat supplementation on ruminal pH dynamics of cows grazing a tropical pasture.
J. D. Souza\textsuperscript{1}, F. Batistel\textsuperscript{1}, E. Miqueo\textsuperscript{1}, P. D. Andrade\textsuperscript{1}, M. M. V. Silva\textsuperscript{1}, C. Sitta\textsuperscript{1}, and F. A. P. Santos\textsuperscript{2}, 1University of Sao Paulo, Piracicaba, Brazil, 2University of Sao Paulo, Piracicaba, Brazil.

Grain processing and fat supplementation on milk yield and milk composition of dairy cows grazing a tropical pasture.
F. Batistel\textsuperscript{1}, J. D. Souza\textsuperscript{1}, M. R. R. Soares\textsuperscript{1}, C. S. M. Motta\textsuperscript{1}, E. Miqueo\textsuperscript{1}, and F. A. P. Santos\textsuperscript{2}, 1University of Sao Paulo, Piracicaba, Brazil, 2University of Sao Paulo, Piracicaba, Brazil.

Effect of grain type (corn versus milo), particle size (600 versus 1000 microns) and steam-flaked corn on productive and metabolite responses of early lactating Holstein cows.
E. Mahjoubi\textsuperscript{1}, J. R. Johnson\textsuperscript{2}, B. J. Bradford\textsuperscript{2}, and M. J. Brouk\textsuperscript{1}, 1Department of Animal Science, University of Zanjan, Zanjan, Iran, 2Department of Animal Sciences and Industry, Kansas State University, Manhattan.
1694  T307  Effect of concentrate source (cottonseed vs. barley) on milk performance and fatty acids profile of spring calving Holstein-Friesian cows feeding an indoors silage regime.
A. I. Roca-Fernández* and A. González-Rodríguez, Agrarian Research Centre of Mabegondo, La Coruña, Spain.

1695  T308  Ruminal starch degradation of maize silage affected by ensiling time and dry matter content.
J. Doorenbos1 and H. V. Laar, Natreco R&D, Boxmeer, Netherlands

1696  T309  Relationship of in vitro starch digestion to corn kernel measurements from farms in Michigan.
D. Bolinger1, L. Nuback1, and F. N. Owens1,2,2 DuPont Pioneer, Perrinton, MI, 2DuPont Pioneer, Johnston, IA.

1697  T310  Effect of particle size and time of rumen fluid collection on in vitro starch digestibility of corn and sorghum.
E. Raffrenato1,2, L. J. Erasmus1, W. A. van Niekerk1, and C. Engelbrecht1,1 University of Pretoria, Pretoria, South Africa, 2Stellenbosch University, Stellenbosch, South Africa.

1698  T311  Effect of reducing dietary starch on lactation performance, and ruminal parameters of dairy cows: A meta-analysis.

1699  T312  Effect of rehydration and silage storage period of corn with medium vitreous endosperm on chemical composition and dry matter in situ degradability.
M. A. Arcari1, C. Martins1, J. Gonçalves1, D. Sousa1,2, T. Tomazi1, L. F. P. Silva1, and M. Veiga dos Santos1,1 University of São Paulo, Pirassununga, Brazil, 2University of São Paulo, Pirassununga, Brazil.

1700  T313  Factors affecting 7 hour starch digestibility on conventional corn silage, BMR corn silage, and high moisture corn grain.

1701  T314  Glycerol exacerbates effects of sorghum-based tannins extract on in vitro fermentative activity of mixed ruminal microorganisms.
E. San Vito1, T. J. Herald2, P. Gadgil2, and J. S. Drouillard3, 1Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 2USDA-ARS Grain Quality, and Structure Research Unit, Manhattan, KS, 3Kansas State University, Manhattan.

1702  T315  Use of byproducts from corn industry and citric acid on dairy heifers diet.
I. D. C. Hermisdorff, R. M. Dos Santos*, M. F. Gonçalves, A. M. França, M. Visoná-Oliveira, H. Nogueira, A. Santos, and I. C. Ferreira, Universidade Federal de Uberlândia, Uberlândia, Brazil.

1703  T316  Monensin increases endotoxin concentration in an in vitro rumen fermentation model.
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1704  T317  Effect of a calcareous algae and monensin on feed intake and rumen parameters of cattle fed abruptly high concentrate diets.
R. Ferreira Carvalho1, A. P. S. Silva1, M. Rezende Mazor1, C. A. Zotti1, L. Silva Oliviera1, S. Luz e Silva1, and P. R. Leme1, 1University of Sao Paulo / FZEA, Pirassununga, Brazil, 2University of Sao Paulo, Pirassununga, Brazil.

1705  T318  Effect of post-extraction algal residue supplementation on the rumen microbiome of steers consuming low-quality forage.
J. C. McCann1, M. L. Drewrey1, W. E. Pinchak1, J. E. Sawyer4, and T. A. Wickersham2, 1University of Illinois at Urbana-Champaign, 2Texas A&M University, College Station, 3Texas A&M Agrilife Research, Vernon, 4Texas AgriLife Research, College Station.

1706  T319  Effect of concentrate diets contrasting in fatty acid profiles on lamb performance, carcass characteristics, fatty acid composition and wool production.
S. J. Meade1,2, A. V. Chaves2, M. He2, and T. A. McAllister3,1 The University of Sydney, Sydney NSW, Australia, 2Agriculture and Agri-Food Canada, Leitchbridge, AB, Canada.

1707  T320  Feed value for ruminants of newly developed black and yellow type of canola seeds.
K. Theodoridou1, P. Yu2,3, H. Xin1, and X. Huang1, 1University Of Saskatchewan, Department Animal And Poultry Science, Saskatoon, SK, Canada, 2Department of Animal Science, Tianjin Agricultural University, Tianjin, SK, China, 3University of Saskatchewan, Saskatoon, SK, Canada.

1708  T321  could lactic acid treatment decrease in vitro gas production of barley grain.
M. Dehghan Banadaky1, A. Zali1, M. Ganjkhani2, K. Rezayazdi1, M. Nematpoor1, and A. Laki1, 1Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, 2University of Tehran, Karaj, Iran, 3Department of Animal Science, University of Tehran, Karaj, Tehran, Iran.

1709  T322  microwave irradiation induced changes in protein inherent structure, protein chemical profile, protein subfractions and digestive behavior of different types of new hulless barley in the rumen and intestine of dairy cows.
X. Yan1,2, N. Khain1, X. Huang1, and P. Yu1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Jilin Academy of Agricultural Sciences, Jilin, China.
1710 T323 Protein and energy availability of sorghum wet distiller grains without solubles in comparison to the parental grain. M. D. L. A. Bruni¹ and A. I. Trujillo¹, ¹Facultad de Agronomía Universidad de la Republica, Paysandu, Uruguay, ²Facultad de Agronomía, Universidad de la Republica, Montevideo, Uruguay.

1711 T324 Effect of crude glycerin on dry matter and nutrient digestibility of feed ingredients in dairy cows. F. D. O. Scarpino van Cleef¹,², J. M. Bertocco Ezequiel¹, J. Borsari Dourado Sancanari¹, and E. H. C. B. Van Cleef¹,², ¹UNESP, Jaboticabal, Brazil, ²CNPq, Brasilia, Brazil.

1712 T325 Positive effect of fat supplementation in the early postpartum period can continue throughout lactation after fat supplementation ceases. M. Garcia¹, L. F. Greco¹, W. W. Thatcher², J. E. P. Santos², and C. R. Staples², ¹Department of Animal, and Avian Sciences, University of Maryland, College Park, ²Department of Animal Sciences, University of Florida, Gainesville.

1713 T326 Sources and levels of rumen protected fat on energy balance of dairy cows grazing a tropical pasture. F. Batiset¹, J. D. Souza¹, and F. A. P. Santos¹, ¹University of Sao Paulo, Piracicaba, Brazil, ²University of Sao Paulo, Piracicaba, Brazil.

1714 T327 Saturated fat supplementation interacts with dietary forage NDF concentration during the postpartum period in Holstein cows: Energy balance, nutrient digestibility, and metabolism. P. Piantoni¹, A. L. Lock, and M. S. Allen, Michigan State University, East Lansing.

1715 T328 Production performance parameters of early lactation Iranian Holstein cows fed diets containing high levels of palmitic acid or Ca-salt of unsaturated fatty acids. H. Khalilvandi-Behroozyar¹, M. Dehghan Banadak², K. Rezayazdi², and M. Ghaffarzadeh¹, ¹Department of Animal Science, Urmia University, Urmia, Iran, ²Department of Animal Science, University of Tehran, Karaj, Tehran, Iran.

1716 T329 Characterization of the role of long-chain fatty acids in the regulation of lipogenic gene expression via LXRα in goat mammary epithelial cells. W. Zhao¹,², J. Luo¹, P. Dove¹, and J. J. Loor¹, ¹Northwest A & F University, Yangling, China, ²University of Illinois at Urbana-Champaign, ³University of Ljubljana, Domzale, Slovenia.

1717 T330 Effects of feeding protected unsaturated fatty acids (Persia Fat) on milk fatty acid profile of Iranian Holstein dairy cows. H. Khalilvandi-Behroozyar¹, M. Dehghan Banadak², K. Rezayazdi², and M. Ghaffarzadeh¹, ¹Department of Animal Science, Urmia University, Urmia, Iran, ²Department of Animal Science, University of Tehran, Karaj, Tehran, Iran.

1718 T331 Milk yield and milk fat responses to increasing levels of stearic acid supplementation of dairy cows. J. P. Boerman¹ and A. L. Lock, Michigan State University, East Lansing.

1719 T332 Effect of different dietary fatty acid profiles on individual milk fatty acid yields by dairy cattle fed diets with less than 3% total fatty acids. C. M. Stockel and L. E. Armentano¹, University of Wisconsin-Madison.


1721 T334 Effect of coconut oil and lauric acid on omasal nutrient flow and microbial protein synthesis in dairy cows. A. Faciola¹ and G. A. Broderick¹, ¹University of Nevada, Reno, ²Broderick Nutrition & Research, LLC, Madison, WI.

1722 T335 Supplementation of lemongrass oil and a mixture of garlic and ginger oil improved in vitro feed digestion. A. Nannot¹, W. Suksumbo¹, and W. Yang¹, ¹Suranaree University of Technology, Muang, Thailand, ²Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

1723 T336 Use of lemongrass oil for manipulation of ruminal fermentation using Rusitec technique. A. Nannot¹, W. Suksumbo¹, and W. Yang¹, ¹Suranaree University of Technology, Muang, Thailand, ²Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

1724 T337 Effect of tea oil and sunflower oil on rumen fermentation, milk composition and rumen microbial population in water buffaloes fed elephant grass-based diets. C. Yang¹, X. Liang¹, S. Wei¹, X. Liang², S. Li¹, C. Zou¹, B. Yang¹, and L. Li¹, ¹Buffalo Research Institute, Chinese Academy of Agricultural Sciences, Nanning, China, ²Buffalo Research Institute, The Chinese Academy of Agricultural Sciences, Nanning, China.

1725 T338 Effects of echium and flaxseed oil on ruminal fatty acid metabolism in vitro. L. Jin¹,², C. Li¹, M. He², Y. Wang³, T. W. Alexander¹, and T. A. McAllister¹, ¹Department of Animal Science and Technology, Northeast Agricultural University, Harbin, China, ²Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, ³Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.
Effects of linseed oil and propolis additives on protozoa population in dairy cows.
E. H. Yoshimura1, L. M. Zeoula1, R. Franzolin2, N. W. Santos2, E. Machado1, B. C. Agustinho1, L. D. M. Pereira1, and F. Alves1, 1Universidade Estadual de Maringá, Maringá, Brazil, 2Universidade de São Paulo Faculdade de Zootecnia e Engenharia de Alimentos, Pirassununga-SP, Brazil.

Effect of linoleic and linolenic acid sources supplementation on in vitro rumen fermentation characteristics and microbial diversity.
S. M. Amanullah1, S. C. Kim1, D. Kim1, H. Lee1, Y. Joo1, and I. H. Choi2, 1Division of Applied Life Science (BK21Plus, Insti. of Agri. & Life Sci.), Gyeongsang National University, Jinju, South Korea, 2Department of Companion Animal and Animal Resources Science, Joongbuk University, Gumi, South Korea.

Intake and daily gain of grazing Nellore bulls receiving concentrated supplementation with additives.
J. A. C. Lima1,2, H. J. Fernandes1, M. F. Paulino1, E. P. Rosa1, L. S. Caramalac1, K. A. Silva1, G. C. Silva1, and A. Aguiar1, 1Federal University of Viçosa, Viçosa, Brazil, 2State University of Mato Grosso do Sul, Aquidauana, Brazil, 3University of Florida, Gainesville.

Effects of concentrate level and combined use of virginiamycin and salinomycin on nutrient intake and digestibility of Nellore steers.
A. J. C. Nuñez1, V. V. Almeida1, I. E. Borges1, F. Pinesi1, F. T. Mercado1, S. L. Silva1, P. R. Leme1, and J. C. M. Nogueira Filho1, 1Department of Animal Science-FZEA/USP, Pirassununga/SP, Brazil, 2Department of Animal Science-FCAV/UNESP, Jaboticabal/SP, Brazil.

A meta-analysis of effects of feeding nitrate on toxicity, production, and enteric methane emissions in ruminants.
C. Lee* and K. A. Beauchemin, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

Methane production of Nellore young bulls on pasture in the rainy season supplemented with crude glycerin associated energy sources.
A. José Neto1, L. G. Rossi1, A. F. Ribeiro1, B. R. Vieira1, I. Pena Carvalho de Carvalho2, E. E. Dalantonia2, A. S. Gómez1, and T. T. Berchielli1, 1Universidade Estadual Paulista “Julio de Mesquita Filho”, Jaboticabal, Brazil, 2Universidade Estadual Paulista, Jaboticabal, Brazil, 3Universidade Estadual Paulista “Julio de Mesquita Filho” / UNESP, Jaboticabal, Brazil, 4Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, Sao Paulo, Brazil, 5Universidade Estadual Paulista Julio de Mesquita Filho-UNESP, Jaboticabal, Brazil.

Effects of encapsulated nitrate on toxicity, feed intake and feed consumption rates in beef cattle.
C. Lee*, R. C. Araujo1, K. M. Koenig4, and K. A. Beauchemin1, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2GRASP Ind. & Com. LTDA, Curitiba, Brazil, 3EW|Nutrition GMBH, Visbek, Germany, 4Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB, Canada.

Effects of the combined use of virginiamycin and salinomycin on rumen fluid kinetics of Nellore steers.
A. J. C. Nuñez1, V. V. Almeida1, F. Pinesi1, I. E. Borges1, F. T. Mercado1, S. L. Silva1, P. R. Leme1, and J. C. M. Nogueira Filho1, 1Department of Animal Science-FZEA/USP, Pirassununga/SP, Brazil, 2Department of Animal Science-FCAV/UNESP, Jaboticabal/SP, Brazil.

Monensin, virginiamycin and functional oils on rumen health of Nellore cattle fed high concentrate diets without adaptation.
A. P. dos Santos Silva1, R. Ferreira Carvalho2, C. A. Zotti2, M. Rezende Mazon1, L. Silva Oliviera1, S. Luz e Silva1, and P. R. Leme1, 1University of Sao Paulo, Pirassununga, Brazil, 2University of Sao Paulo / FZEA, Pirassununga, Brazil.

Effects of grain source and monensin level on site and extent of digestion in feedlot heifers.
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Effects of different doses of sodium monensin on rumen tissue histology of feedlot cattle.
A. L. Rigueiro1, A. C. J. Pinto1, M. C. Pereira1, D. H. Watanabe2, C. A. Oliveira1, T. V. Carrara2, D. D. Estevame1, D. P. Silva1, F. T. Pereira1, and D. D. Millen1, 3Sao Paulo State University (UNESP), Dracena campus, Dracena, Brazil, 2Sao Paulo State University (UNESP), Botucatu campus, Botucatu, Brazil, 4Supported by Sao Paulo State Foundation (FAPESP), Sao Paulo, Brazil.

Effects of different doses of sodium monensin on rumin tissue histology and selective consumption by feedlot cattle.
A. H. Watanabe1, M. C. Pereira1, J. Silva1, T. V. Carrara1, A. L. Rigueiro1, L. A. Tomaz2, D. P. Silva1, D. V. Vicari1, A. C. J. Pinto1, D. D. Estevame1, M. D. Arrigoni1, and D. D. Millen1, 1Sao Paulo State University (UNESP), Dracena campus, Dracena, Brazil, 2Sao Paulo State University (UNESP), Botucatu campus, Botucatu, Brazil, 3Supported by Sao Paulo State Foundation (FAPESP), Sao Paulo, Brazil.
Feeding monensin or essential oils in high corn or byproduct finishing diets for nellore bulls.

The effect of a citrus extract rich in flavonoids (Bioflavex) and its main components on rumen fermentation and microbial population under in vitro system using steers fed high concentrate diet as rumen liquor donors.

Use of a citrus flavonoids extract (Bioflavex) to improve rumen fermentation efficiency and performance in steers consuming high concentrate diets.
A. R. Seraj, B. A. Refat, A. Jimeno, J. Crespo, and J. Balcels, University of Lleida, Lleida, Spain, University of Zaragoza, Zaragoza, Spain.

Effect of blend Enterococcus faecium plus Saccharomyces cerevisiae in different doses on intake and digestibility of steers in feedlot.

Effect of doses at Enterococcus faecium and Saccharomyces cerevisiae on ruminal parameters responses of feeder cattle.

Influence of soybean meal supplementation with tannins extracted from pistachio hulls on performance and feed efficiency of Holstein bulls.
A. Jolazadeh, M. Dehghan Banadaky, and K. Rezayazdi, University of Tehran, Karaj, Iran, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran.

Depression of rumen ammonia and protozoal population of Holstein bulls fed soybean meal treated with tannins extracted from pistachio hulls.
A. Jolazadeh, M. Dehghan Banadaky, and K. Rezayazdi, University of Tehran, Karaj, Iran, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran.

Could soybean meal supplementation with crude extract of pistachio hulls change the blood metabolites of Holstein bulls?
M. Dehghan Banadaky, A. Jolazadeh, K. Rezayazdi, and N. Yahdani, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, University of Tehran, Karaj, Iran.

Effect of saikosaponin on rumen gas production, volatile fatty acid concentrations and microbial populations in vitro.
L. Pan, D. P. Bu, J. Q. Wang, B. Cheng, and X. Z. Sun, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Methane production from dairy cows fed red clover- or corn silage-based diets supplemented with linseed oil.
C. Benchard, F. Hassanat, R. Gervais, and R. Martineau, Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada, Université Laval, Québec, QC, Canada.

Replacing alfalfa with panicked-tick clover or sericea lespedeza in a dairy diet decreases ruminal methane but not total gas production.
H. D. Naumann, S. A. Armstrong, M. A. Fonseca, B. D. Lambert, and L. O. Tedesch, University of Missouri, Columbia, Prince Agri Products, Inc, Quincy, IL, Oregon State University, Corvallis, Texas A&M University, College Station, Texas A&M AgriLife Research, Stephenville, Tarleton State University, Stephenville, TX.

Effects of forage source and NDF concentration on methane emissions and milk production of dairy cows.

Changes of rumen methanogen diversity associated with different types of forage and protein in diets.

Effect of cashew nut shell liquid on lactation performance and rumen methane production in dairy cows.
A. F. Branco, F. Giallongo, T. Frederick, H. Weeks, J. Oli, and A. N. Hristov, Universidade Estadual de Maringá, Paraná, Brazil, Department of Animal Science, The Pennsylvania State University, University Park.
Metabolism of dairy cows as affected by dietary starch level and supplementation with monensin during early lactation.
M. M. McCarthy 1,2, T. Yasui 1, C. M. Ryan 1, S. H. Pelton 1, G. D. Mechor 2, and T. R. Overton 1, 1Cornell University, Department of Animal Science, Ithaca, NY, 2Elanco Animal Health, Greenfield, IN.

Effect of dietary monensin supplementation and amino acid balancing on lactation performance by dairy cows.
A. L. Hagen 1,2, L. F. Ferrareto 1, R. D. Shaver 1, and R. Martin 2, 1University of Wisconsin-Madison, 2Vita Plus Corporation, Madison, WI.

Effects of beta-extract of Humulus lupulus (hops) on fermentation by rumen microorganisms in continuous culture.
S. W. Fessenden 1, I. J. Salfer, and M. D. Stern, University of Minnesota, Saint Paul.

Evaluation of Celmanax SCP on lactational performance and ruminal fermentation of Holstein dairy cows fed corn silage based diets with a moderate starch content.
H. M. Dann 1, P. Ji 1, K. W. Cotanch 1, C. S. Ballard 1, R. J. Grant 1, and C. C. Elrod 2, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2Yi-COR, Inc., Mason City, IA.

Effects of Bacillus subtilis and yeast cell wall on diarrhea incidence and immune function of dairy calves.
J. Freitas 1, University of Parana, Palotina, Brazil.

Effects of Bacillus subtilis and yeast cell wall on diarrhea incidence and immune function of dairy calves.
J. A. Freitas 1, V. Souza 2, J. C. De Souza 3, C. Nozawa 4, and P. Pinto 1, 1University of Parana, Palotina, Brazil, 2University of Sao Paulo, Piracicaba, Brazil, 3University of South of Mato Grosso, Aquidauana, Brazil, 4University of Londrina, Londrina, Brazil, 5University Federal de Parana, Palotina, Brazil.

Effects of different doses of Bacillus subtilis natto on in vitro rumen fermentation parameters.
J. Li 1,2, D. P. Bu 1, J. Q. Wang 1,2, P. Sun 1, and F. D. Li 1, 1Heilongjiang Bayi Agricultural University, Daqing, 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.

An on-farm application of feed probiotics to increase total tract starch digestibility (TTSD) in high producing, lactating dairy cows.
W. L. Braman 1, K. A. Bryan, and J. E. Kurtz, Chr. Hansen Animal Health and Nutrition, Milwaukee, WI.

Effect of feeding yeast extract (YC) on lactation performance of dairy cows fed diets differing in rumen fermentability.

Milk fatty acid profile in cows fed red clover or alfalfa based diets differing in rumen-degradable protein supply.
M. Leduc 1, P. Y. Chouinard 1, R. Gervais 1, E. Baumann 1, Y. Lebeuf 1, and G. Tremblay 2, 1Université Laval, Québec, QC, Canada, 2Agriculture and Agri-Food Canada, Soils and Crops Research and Development Centre, Quebec, QC, Canada.

Use of virginiamycin and monensin sodium in diets of confined beef steers.
F. R. Camilo 1, A. M. Mobiglia 1, R. K. Grizzuto 2, J. A. Alves Neto 3, M. Q. Manella 4, F. F. D. Resende 2, G. R. Siqueira 2, and J. J. R. Fernandes 5, 1Escola de Veterinária e Zootecnia da UFG, Goiânia, Brazil, 2APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, 3Universidade Estadual Paulista, Jaboticabal, Brazil, 4Phibro Animal Health Corporation, Guarulhos, Brazil, 5University Federal de Goiás, Goiânia, Brazil.

Global network for the development of nutrition-related strategies for mitigation of methane and nitrous oxide emissions from ruminant livestock.
A. N. Hristov 1,2, E. Kebreab 2, Z. T. Yu 1, C. Martin 1, M. Eugène 1, D. R. Yáñez –Ruiz 1, K. J. Shingfield 2, S. Ahvenjärvi 6, P. O’Kiefe 4, C. K. Reynolds 8, K. J. Hammond 2, J. Dijkstra 9, A. Bannink 10, A. Schweim 11, and M. Kreuzer 12, 1Department of Animal Science, The Pennsylvania State University, University Park, 2University of California-Davis, 3The Ohio State University, Columbus, 4INRA, Clermont-Ferrand, France, 5Estacion Experimental del Zaidin, CSIC, Granada, Spain, 6MTE AgriFood Research, Animal Production Research, Jokioinen, Finland, 7Animal and Grassland Research and Innovation Centre, Teagasc, Dunsany, Ireland, 8University of Reading, Reading, United Kingdom, 9Animal Nutrition Group, Wageningen University, Wageningen, Netherlands, 10Animal Nutrition, Wageningen UR Livestock Research, Lelystad, Netherlands, 11ETH Zurich, Institute of Agricultural Sciences, Zurich, Switzerland, 12ETH Zurich, Zurich, Switzerland.

Effect of oat grain variety on methane emissions from mature sheep.
J. M. Moorby 1, H. R. Fleming, and S. A. Cowan, Aberystwyth University, Aberystwyth, United Kingdom.

Effect of acetate, propionate and pH on aqueous concentration and gaseous methane and hydrogen production in continuous culture.
S. Ghimire 1, B. A. Wenner 2, R. A. Kohn 1, J. L. Firkins 1, and M. D. Hanigan 1, 1Virginia Polytechnic Institute and State University, Blacksburg, 2The Ohio State University, Columbus, 3University of Maryland, College Park.
1766  T379  Ruminal parameters of confined steers fed with diets containing virginiamycin and monensin sodium.
F. R. Camilo1, A. M. Mobiglia1, G. F. Bert2, N. M. Jerônimo3, R. K. Grizotto2, M. Q. Manella4, F. D. D. Resende2, G. R. Siqueira2, and J. R. R. Fernandes5, 1Escola de Veterinária e Zootecnia da UFG, Goiânia, Brazil, 2Centro Universitário da Fundação Educacional de Barretos-Unifeb, Barretos, Brazil, 3APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, 4APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, 5Universidade Federal de Goiás, Goiânia, Brazil.

1767  T380  Ruminal parameters of young Nellore bulls in a feedlot fed Yea-Sacc8417 live yeast, monensin and their combination.
J. M. B. Benatti2, N. M. Geronimo2, J. A. Alves Neto1, J. M. de Oliveira3, A. D. Moreira2, C. L. Francisco4, G. R. Siqueira2, and F. D. D. Resende3, 1Universidade Estadual Paulista, Jaboticabal, Brazil, 2UNIFEB, Barretos, Brazil, 3APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, 4Universidade Estadual Paulista-FMVZ, Botucatu, Brazil.

1768  T381  Optimal ratio of combined origanum essential oils to reduce methane emissions under in vitro ruminal fermentation.
A. Castañeda-Correa1, A. Corral-Luna1, F. A. Rodriguez-Almeida1, L. De la Torre-Saenz2, R. Silva-Vázquez1, L. Carlos-Valdez3, H. Gutiérrez-Bañuelos4, and O. Ruiz-Barrera1, 1Universidad Autonoma de Chihuahua, Chihuahua, Mexico, 2CIMAV, Chihuahua, Mexico, 3CIRENA, Salta, Mexico, 4Universidad Autonoma de Zacatecas, Zacatecas, Mexico.

1769  T382  Effect of phytoogenic feed additives on performance parameters and health of bull calves under commercial conditions.
C. Schieder1, T. Steiner1, and M. Friedrichkeit1, 1BIOMIN Holding GmbH, Herzogenburg, Austria, 2Commercial farm, Reisenberg, Austria.

1770  T383  Efficacy of Propionibacterium strains in mitigating methane emissions from beef heifers fed a high forage diet.
D. Vyas1, A. Alazzeh1, S. M. McGinn2, O. M. Harstad1, H. Holo2, T. A. McAllister3, and K. A. Beauchemin4, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB, Canada, 3Department of Animal and Aquacultural Sciences, Norwegian University of Life Sciences, Ås, Norway, 4Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

1771  T384  Effect of a commercially probiotic on in vitro gas production of alfalfa hay and barley grain.
S. Payandeh1, F. Kafizadeh2, E. Maleki3, G. Tuasoli1, and A. Kamysb1, 1Razi University, Kermanshah, Iran, 2University of Columbia, Columbia.

1772  T385  Lactobacillus brevis YM 3-30, a γ-amino butyric acid producing bacteria, decreases blood endotoxin level of Hanwoo cattle.
S. S. Lee1, B. S. Ku1, L. L. Mamuad1, S. H. Kim1, C. D. Jeong1, Y. J. Choi1, A. P. Soriano1, K. Lee1, and K. K. Park1, 1Sunchon National University, Suncheon, South Korea, 2The Ohio State University, Columbus, 3Konkuk University, Seoul, South Korea.

1773  T386  Probiotic levels, chemical composition and fermentative characteristics in the solid state fermentation of paper sludge for ruminant feeding.
O. Ruiz-Barrera1, Y. Castillo-Castillo2, C. Rodriguez-Muela1, L. M. Carrillo-Chan1, C. Arzola-Alvarez1, J. Lopez-Morones1, and A. Corral-Luna2, 1Universidad Autónoma de Chihuahua, Chihuahua, Mexico, 2University of Ciudad Juarez, Chihuahua, Mexico.

1774  T387  Lactobacillus brevis YM 3-30, a γ-amino butyric acid producing bacteria, increases antioxidant concentration and reduces biogenic amines.
S. S. Lee1, B. S. Ku1, L. L. Mamuad1, S. H. Kim1, C. D. Jeong1, Y. J. Choi1, A. P. Soriano1, K. Lee1, and K. K. Park1, 1Sunchon National University, Suncheon, South Korea, 2The Ohio State University, Columbus, 3Konkuk University, Seoul, South Korea.

1775  T388  Effects of lactobacilli and fibrolytic enzymes on chemical composition, fermentation traits, conservation characteristics and in situ digestibility of mixed cereal silage.
L. Jin1, L. Duniere1, Y. Wang2, and T. A. McAllister2, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

1776  T389  Use of Yea-Sacc8417 live yeast, monensin and their combination in diets for young Nellore bulls in a feedlot.
J. M. B. Benatti1, N. M. Geronimo2, J. A. Alves Neto1, R. C. Silva1, I. M. de Oliveira3, A. D. Moreira2, C. L. Francisco4, G. R. Siqueira2, and F. D. D. Resende3, 1Universidade Estadual Paulista, Jaboticabal, Brazil, 2UNIFEB, Barretos, Brazil, 3APTA-Agência Paulista de Tecnologia dos Agronegócios, Colina, Brazil, 4Universidade Estadual Paulista-FMVZ, Botucatu, Brazil.

1777  T390  Effects of lactobacilli and fibrolytic enzymes on ensiling as well as in vitro and in situ digestibility of of barley silage.
L. Jin1, L. Duniere1, Y. Wang2, and T. A. McAllister2, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

1778  T391  Effect of direct-fed microbials and monensin on in vitro fermentation of a high-forage substrate.
S. Wingard1, E. S. Vanzant, D. L. Harmon, and K. R. McLeod, University of Kentucky, Lexington.
SYMPOSIA AND ORAL SESSIONS

Animal Health Symposium II-Optimizing disease response modeling

Chair: Thomas R. Overton, Department of Animal Science, Cornell University
Sponsor: Elanco Animal Health
2502

9:30 AM Welcoming Remarks
9:35 AM 76 Understanding animal-to-animal variation in disease management.  
D. E. Kerr*, University of Vermont, Burlington.
10:20 AM 77 Can the genetic selection for improved immune response be tailored to expand the efficacy of disease management interventions.  
B. Mallard*, Department of Pathobiology, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.
11:05 AM Break
11:10 AM 78 Selecting pharmacological interventions through rapid screening motifs and proper cell models.  
E. Zudaire*, NIH-NCI, Bethesda, MD.
11:55 AM 79 Managing animal health from an aquaculture perspective.  
C. A. Shoemaker*, B. R. LaFrentz, D. Xu, and D. Zhang, USDA-ARS, Aquatic Animal Health Research Unit, Auburn, AL.

ARPAS Symposium: Customer/Consumer Confidence In The Livestock Industry-Ethics

Chair: Jack E. Garrett, QualiTech, Inc.
Sponsor: ARPAS
2102B

9:30 AM 102 Perspectives on business ethics in a new-age feed industry.  
L. D. Bunting*, ADM Alliance Nutrition, Lubbock, TX.
10:10 AM 103 Customer/consumer confidence in the livestock industry – Ethics: University perspective.  
M. L. Galyean*, Texas Tech University, Lubbock.
10:50 AM 104 Veterinary perspective.  
C. D. Ashworth*, Elanco Dairy Business, Fort Smith, AR.
11:30 AM 105 Regulatory definitions, processes, and functionality assessment for animal food.  
M. G. Alewynse¹ and S. A. Benz², ¹Center for Veterinary Medicine, Olney, MD, ²Center for Veterinary Medicine, FDA, Woodbine, MD.

Beef Species: Cow-calf

Chair: Patrick J. Gunn, Iowa State University
2104B

9:30 AM 126 Changes in body composition during winter gestation of mature beef cows grazing different herbage allowances of native pastures.  
9:45 AM 127 Prepartum supplement level and age of weaning: I. Effects on pre- and postpartum beef cow performance and calf performance through weaning.  
10:00 AM 128 Prepartum supplement level and age of weaning: II. Effects of developmental programming on performance and carcass composition of steer progeny.  
10:15 AM 129 Efficiency and performance of primiparous Angus cows raised in a range system.
J. S. Lemes1, C. C. Brauner2, R. Z. Vaz1, and M. A. Pimentel1, 1Universidade Federal de Pelotas, Pelotas, Brazil, 2Federal University of Pelotas, Pelotas, Brazil.

10:30 AM 130 Effect of an injectable trace mineral on reproductive performance of beef cows grazing irrigated pasture.
C. J. Brasche1, J. B. Hall2, and M. E. Drewnoski1, 1University of Idaho, Moscow, 2University of Idaho, Carmen.

10:45 AM 131 Effect of injectable trace mineral supplementation in yearling bulls on serum and semen trace mineral levels and reproductive parameters.
A. A. Kirchhoff* and K. E. Fike, Kansas State University, Manhattan.

11:00 AM 132 Effect of an injection of a fat soluble vitamin mix (E, A, and D) to newborn beef calves on markers of cell oxidative damage and calf performance.
W. A. Sutton* and M. E. Drewnoski, University of Idaho, Moscow.

11:15 AM 133 Relationships between maintenance energy EPD and performance measures of progeny from Red Angus sires divergent for maintenance energy EPD.
C. M. Welch1, S. E. Speidel2, D. H. Crews1, J. K. Ahola1, J. B. Hall1, W. Price1, and R. A. Hill1, 1University of Idaho, Moscow, 2Colorado State University, Department of Animal Sciences, Fort Collins, 3Colorado State University, Fort Collins, 4University of Idaho, Carmen.

11:30 AM 134 Effects of breeding system of origin (natural service or artificial insemination) on growth, attainment of puberty, and pregnancy rates in crossbred beef heifers.
M. R. Schook2, P. L. Steichen1, V. R. G. Mercadante2, G. C. Lamb3, B. W. Neville1, and C. R. Dahlen1, 1North Dakota State University, Fargo, 2University of Florida, Marianna, 3North Dakota State University, Streeter.

11:45 AM 135 Simulation and economic analysis of beef cattle natural service and induced twinning via embryo transfer following AI breeding and two cull management systems.
D. G. Aherin1, P. J. Ebert, J. R. Shearer, R. L. Weaber, J. M. Bornam, D. W. Moser, and M. D. MacNeil, Kansas State University, Manhattan.

12:00 PM 136 The indirect effects of horn flies and sire breed on calf preweaning and postweaning performance traits.
A. R. Mays1, M. A. Brown2, and C. F. Rosenkrans3, 1Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, AR, 2ARS, USDA, Grazinglands Research Laboratory, El Reno, OK, 3University of Arkansas, Fayetteville.

Companion Animals: Companion Animal Nutrition and Pet Food Processing

Chair: George C. Fahey, University of Illinois at Urbana-Champaign
Sponsor: ASAS Foundation: Fahey Appreciation Club

180 Withdrawn by author.

9:45 AM 181 Indirect calorimetry, real-time interstitial glucose monitoring and blood sampling to determine effects of low, medium and high glycemic index cat foods.
K. D. Berendt1, A. K. Shoveller2, and R. T. Zijlstra1, 1University of Alberta, Edmonton, AB, Canada, 2Procter & Gamble Pet Care, Mason, OH.

10:00 AM 182 The effect of extrusion and elevated storage temperatures on vitamin retention in pet food.
A. K. Mooney*, Kansas State University, Manhattan.

10:15 AM 183 Effects of processing on water soluble B-vitamins in a canned cat diet.
S. DeNoya*, G. Aldrich, and C. K. Jones, Kansas State University, Manhattan.

10:30 AM Break

10:45 AM 184 Feeding frequency and dietary water content affect voluntary physical activity in young lean adult female cats.
M. R. C. de Godoy1, K. Ochi2, L. F. de Oliveira Mateus1, A. C. C. de Justino1, and K. S. Swanson1,2,1Department of Animal Sciences, University of Illinois at Urbana-Champaign, 2Nippon Pet Foods Co. Ltd, Tokyo, Japan, 3Department of Animal Sciences University of São Paulo State, Jaboticabal, Brazil, 4Division of Nutritional Sciences, University of Illinois at Urbana-Champaign, 5Department of Veterinary Clinical Medicine, University of Illinois at Urbana-Champaign.

11:00 AM 185 Effects of graded dietary resistant starch concentrations on apparent total tract macronutrient digestibility, fecal characteristics, and fecal fermentative end-products in healthy adult dogs.
A. N. Beloshapka1 and K. S. Swanson, Department of Animal Sciences, University of Illinois at Urbana-Champaign.

11:15 AM 186 Evaluation of common analysis methods for oxidation in rendered protein meals used to produce pet foods.
M. Gray*, G. Aldrich, and C. K. Jones, Kansas State University, Manhattan.
Broken beans (*Phaseolus vulgaris*) use on extruded diets for cats.

B. P. Neto1, F. C. Sa2, N. Musco2, A. P. Marria1, B. Agya1, B. A. Kamimura1, R. S. Vasconcellos1, and A. C. Carciofi5, 1Universidade Estadual de Maringa, Maringá, Brazil, 2Sao Paulo State University, Jaboticabal, Brazil, 3Università degli Studi di Napoli Federico II, Napoli, Italy, 4Universidade de Campinas, Campinas, Brazil, 5Sao Paulo State University-UNESP, Jaboticabal, Brazil.

### Comparative Gut Physiology Symposium: Session I

**Chairs: David M. Bravo, Pancosma SA, Thomas B. McFadden, University of Missouri and John Furness, University of Melbourne**

**Sponsor: Pancosma SA**

2103A

**9:30 AM**

Introductory Remarks

**9:45 AM**

Integrated responses to feeding, comparative aspects.

*J. Furness*, University of Melbourne, Parkville, Australia.

**10:15 AM**

Expression of nutrient transporter mRNA in the jejunum of high and low efficiency steers.

H. C. Cunningham1, Z. T. L. Gray1, S. I. Paisley1, K. J. Austin1, K. M. Cammack1, and A. M. Meyer2, 1Department of Animal Science, University of Wyoming, Laramie, 2Division of Animal Sciences, University of Missouri, Columbia.

**10:30 AM**

Comparative physiology of glucagon-like peptide 2-Implications and applications for production and health of ruminants.

E. E. Connor1, M. P. Walker2, C. M. Evcok-Clover2, T. H. Elsasser2, and S. Kahl2, 1USDA-ARS, Bovine Functional Genomics Laboratory, Beltsville, MD, 2USDA-ARS, BFGL, Beltsville, MD, 3USDA, Agricultural Research Service, Beltsville, MD.

**11:00 AM**

Differential subcellular and cellular storage of glp-1 and pyy, and its implications.

J. Furness1, H. J. Cho1, S. Kosari1, and D. M. Bravo2, 1University of Melbourne, Parkville, Australia, 2Pancosma SA, Geneva, Switzerland.

**11:15 AM**

The role of the microbiome in gut immune system development in newborn and mature cattle.

P. J. Griebel1, N. Malmuthuge2, G. Liang2, M. Zhou2, and L. L. Guan2, 1Vaccine, and Infectious Disease Organization, University of Saskatchewan, Saskatoon, SK, Canada, 2University of Alberta, Edmonton, AB, Canada.

**11:45 AM**

The effects of intentionally-induced leaky gut on metabolism and production in lactating Holstein dairy cows.

S. K. Stoakes1, M. Abuajamieh1, D. B. Snider1, M. V. Sanz Fernandez1, J. S. Johnson1, P. J. Gorden1, N. K. Gahler1, H. B. Green1, K. M. Schoenberg1, and L. H. Baumgard1, 1Iowa State University, Ames, 2Elanco Animal Health, Indianapolis, IN.

### CSAS Symposium: Understanding Feeding Behaviour to Improve Animal Well-being and Productivity

**Chair: Cornelis F.M. de Lange, Department of Animal and Poultry Science, University of Guelph**

**Sponsor: CSAS, EAAP**

2101

**9:30 AM**

Introduction

**9:35 AM**

The psychology and sociology of feeding behaviour.

*J. J. Villalba*, Utah State University-Agricultural Experiment Station, Logan.

**10:10 AM**

Physiological mechanisms controlling feeding behavior.

M. S. Allen* and P. Piantoni, Michigan State University, East Lansing.

**10:45 AM**

Feeding behavior, productivity and welfare of dairy cows.


**11:20 AM**

Good eating habits lead to good growth and welfare of dairy calves.

T. J. DeVries*, University of Guelph, Kemptville, ON, Canada.

**11:55 AM**

EAAP – CSAS Speaker Exchange Presentation: Feeding behaviour, productivity and welfare of sows.

S. Edwards*, University of Newcastle, Newcastle Upon Tyne, United Kingdom.
**Dairy Foods Symposium:**
Protein Functionality In Cheese Systems: Natural, Process Cheese And Analogs
Chair: Rodrigo Roesch, Schreiber Foods
3501C

9:30 AM 248 Commercial and functional considerations when formulating foods with dairy proteins.  
*T. McCarthy*, Schreiber Foods, Green Bay, WI.

9:50 AM 249 A model for the formation of the aggregated network in process cheese products that can be used to predict functional properties.  
*L. Metzger*, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

10:10 AM 250 Autocatalytic multistage gel formation reaction in dairy based systems in relation to compositional factors.  
*U. Kulozick*, Technische Universität München, Freising-Weihenstephan, Germany.

11:30 AM 251 Protein functionality in processed cheese – Fundamental principles and practical observations.  
*D. C. Reid*, Fonterra Research and Development Centre, Palmerston North, New Zealand.

11:50 AM 252 Impact of emulsifying salts on milk proteins and process cheese properties.  
*J. A. Lucey*, University of Wisconsin-Madison.

**Extension Education**
Chair: Amy E. Radunz, University of Wisconsin-River Falls  
Sponsor: AnimalSmart.org
2505B

9:30 AM 286 Developing, marketing and branding mobile apps for the horse industry.  
*K. L. Martinson*¹, *R. J. Coleman*², and *M. E. McCue*³, ¹University of Minnesota, Saint Paul, ²University of Kentucky, Lexington.

9:45 AM 287 Calving management education program for dairy and beef workers and producers.  
*L. G. D. Mendonça*¹, *L. Hollis*¹, *J. M. Zeller*¹, and *J. P. Harner*¹, ¹Department of Animal Sciences and Industry, Kansas State University, Manhattan, ²Department of Biological and Agricultural Engineering, Kansas State University, Manhattan.

10:00 AM 288 Premium beef semen on dairy calculator.  
*G. Lopes*¹ and *V. Cabrera*¹, ¹Accelerated Genetics, Baraboo, WI, ²University of Wisconsin-Madison.

10:15 AM 289 A decision support tool to estimate the economic potential of SCC hot sheet data.  
*D. T. Nolan*¹ and *J. M. Bewley*, University of Kentucky, Lexington.

10:30 AM 290 The Kentucky master stocker program.  
*J. W. Lehmkuhler*¹, *W. R. Burris*², *S. R. Smith*, Jr¹, *G. Halich*¹, *K. Burdine*¹, *M. Arnold*¹, *S. F. Higgins*¹, *A. Gumbert*¹, and *K. Laurent*¹, ¹University of Kentucky, Lexington, ²University of Kentucky, Princeton.

10:45 AM 291 The North Dakota Beef Industry Survey; enterprise management, risk factors, and risk management strategies of beef cattle operations.  
*D. N. Black*¹, *J. C. Hadrich*¹, *G. P. Lardy*¹, and *C. R. Dahlen*¹, ¹North Dakota State University, Fargo, ²Colorado State University, Fort Collins.

**Forages And Pastures Symposium: Use Of Marginal Lands And Fibrous Byproducts In Efficient Beef And Dairy Production Systems**
Chair: Jeff Lehmkuhler, University of Kentucky
2104A

9:30 AM 313 Improving efficiency of production in pasture/range based beef and dairy systems.  
*J. T. Mulliniks*¹, *A. G. Rus*², *M. A. Edwards*¹, *K. B. Branley*¹, *S. R. Edwards*¹, and *R. L. Nave*¹, ¹University of Tennessee, Crossville, ²Present address: University of Tennessee, Knoxville, ³University of Tennessee, Knoxville.

10:10 AM 314 Forage breeding programs aimed at increasing productivity of marginal lands.  
*M. Casler*®, USDA-ARS, Madison, WI.
10:50 AM  

Break

11:10 AM 315  

Improving soil health and productivity on marginal lands using managed grazing livestock.  
R. R. James* and J. Bisinger, Iowa State University, Ames.

11:50 AM 316  

Optimizing the use of fibrous residues in beef and dairy diets.  
J. C. MacDonald*, G. E. Erickson, P. J. Kononoff, and T. J. Klopfenstein, University of Nebraska-Lincoln.

International Animal Agriculture: Internation Animal Production  
Chair: Fernando R. Valdez, Kemin Industries, Inc.  
3501F

9:30 AM 396  

Effect of high nutrient density diets on growth performance, feed efficiency, age at puberty and feeding economics in Nili-Ravi buffalo heifers.  
M. Abdullah*, K. Javed1, Z. M. Iqbal1, M. Saadullah1, M. A. Jabbar1, and A. U. Haque2, 1University of Veterinary and Animal Sciences, Lahore, Pakistan, 2Buffalo Research Institute, Fattoki, Pakistan.

9:45 AM 397  

Environment concerns and waste management strategies of pig production in China.  
J. Peng1, L. Liu2, and L. Huang1, 1Jiangxi Agricultural University, Nanchang, China, 2Jiangxi Department of Agriculture, Nanchang, China.

10:00 AM 398  

Identification of barriers of Bahamian agriculture production: An assessment of stakeholder needs.  
S. J. Trojan1, M. T. Brashears2, S. Morales3, A. Echeverry1, and M. Brashears1, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Department of Agriculture Education and Communications, Texas Tech University, Lubbock.

10:15 AM 399  

Diet-induced shifts in the rumen microbiome of Mehshana Buffalo (Bubalus bubalis).  
D. W. Pitta1, S. Kumar*1, B. Veiccharelli1, N. Parmar2, and C. Joshi2, 1University of Pennsylvania, Kennett Square, 2Anand Agriculture University, Anand, India.

Nonruminant Nutrition Symposium: Functional Amino Acids:  
New Paradigm Shifts in Understanding Animal Protein Nutrition  
Chair: Guoyao Wu, Texas A&M University  
Sponsor: Ajinomoto Heartland, Inc.  
2504

9:30 AM  

Welcoming Remarks

9:35 AM 458  

Amino acid signaling for embryonic and fetal development.  
G. Wu*, F. Bazer, R. Burghardt, G. Johnson, M. C. Satterfield, and X. Wang, Texas A&M University, College Station.

10:10 AM 459  

Leucine: A potent nutrient signal for protein synthesis in neonates.  
T. A. Davis1*, M. L. Fiorotto1, A. Suryawan1, and D. Columbus1, 1USDA/ARS-Children’s Nutrition Research Center, Baylor College of Medicine, Houston, TX, 2Baylor College of Medicine, CNRC, Houston, TX.

10:45 AM 460  

Tryptophan: Functions beyond protein synthesis.  
S. W. Kim* and Y. Shen, North Carolina State University, Raleigh.

11:20 AM 461  

New insights into sulfur amino acid function in gut health and disease.  
D. G. Burrun*, USDA-ARS Children’s Nutrition Research Center, Houston, TX.

11:55 AM 462  

Glutamate and glutamine: Nonessential or essential amino acid.  
M. Watford*, Rutgers, New Brunswick, NJ.

Physiology And Endocrinology:  
Interrelationships Between Environmental, Metabolic And Physiological Processes I  
Chair: Brian Keith Whitlock, Auburn University  
2105

9:30 AM 498  

Insulin sensitivity of the lipid metabolism of precalving dairy cows across a range of BCS.  
J. De Koster* and G. Opsomer, Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Ghent, Belgium.
Effect of ractopamine hydrochloride and zilpaterol hydrochloride on the electrocardiogram and blood lactate in finishing steers.
D. A. Frese*, C. Reinhardt†, S. J. Barlte†, D. N. Rethorst†, B. S. Bawa†, J. D. Thomason†, G. H. Loneragan‡, and D. Thomson†, 1Kansas State University, Manhattan, 2Texas Tech University, Lubbock.

Expansion and evaluation of a dynamic, mechanistic model of nutritional and reproductive processes in dairy cattle.
J. P. McNamara* and S. L. Shields†, 1Washington State University, Pullman, 2Elanco Inc, Pasco, WA.

Metabolic, paracellular permeability, and immune gene expression in ruminal epithelium during the transition period in dairy cattle.
A. Minuti*, S. Alqarni‡, P. Cardoso§, E. Trevisi*, and J. J. Loor§, 1Università Cattolica del Sacro Cuore, Piacenza, Italy, 2University of Illinois, Urbana-Champaign.

Energy expenditure is lower in efficient compared to inefficient lactating dairy cattle.
K. DiGiacomo*, L. C. Maret‡, W. J. Wules‡, B. J. Hayes‡, F. R. Dunseha‡, and B. J. Leury‡, 1The University of Melbourne, Parkville, Australia, 2The Department of Environment and Primary Industries, Victoria, Ellinbank, Australia, 3The Department of Environment and Primary Industries, Bundanoor, Australia.

Supplementation of OmniGen-AF during the receiving period modulates the metabolic response to a lipopolysaccharide challenge in feedlot steers.
N. C. Burdick Sanchez*, J. O. Buntyn†, J. A. Carroll†, T. Wistuba†, K. DeHaan†, S. E. Sieren†, S. J. Jones†, and T. B. Schmidt†, 1USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 2Department of Animal Science, University of Nebraska-Lincoln, 3Prince Agri Products Inc, Quincy, IL, 4Prince AgriProducts Inc., Quincy, IL, 5University of Nebraska-Lincoln.

Supplementation of Saccharomyces cerevisiae modulates the metabolic response to a lipopolysaccharide challenge in feedlot steers.
T. B. Schmidt*, J. O. Buntyn†, N. C. Burdick Sanchez*, E. Chevaux†, K. Barling‡, S. E. Sieren†, S. J. Jones†, and J. A. Carroll†, 1University of Nebraska-Lincoln, 2Department of Animal Science, University of Nebraska-Lincoln, 3USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 4Lallemand Animal Nutrition, Milwaukee, WI, 5Lallemand Animal Nutrition, Iola, TX.

Circulating amino acids and biomarkers of metabolism and inflammation during the peripartal period in cows with different liver functionality index (LFI).
Z. Zhou*, J. J. Loor*, F. Piccioli-Capelli†, G. E. Lobley‡, and E. Trevisi*, 1University of Illinois at Urbana-Champaign, 2Università Cattolica del Sacro Cuore, Piacenza, Italy, 3Rowett Institute of Nutrition and Health, University of Aberdeen, Aberdeen, United Kingdom.

Peripheral leukocytic responses to ultraviolet radiation in pre-pubertal rabbits fed a turmeric-supplemented diet.
V. A. Togun*, Ladoke Akintola University of Technology, Ogbomoso, Nigeria.

Regulation of adipogenesis and key adipogenic gene expression by retinoic acid in 3T3-L1 preadipocytes.
S. Ji*, M. Da†, and R. A. Hill†, 1University of Idaho, Moscow, 2Washington State University, Pullman.

Cholesterol metabolism, transport and hepatic regulation during negative energy balance in early and mid-lactation in dairy cows.
J. J. Gross*, E. C. Kessler*, C. Albrecht†, and R. M. Bruckmaier†, 1Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland, 2Institute of Biochemistry and Molecular Medicine, University of Bern, Bern, Switzerland, 3Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

Non-targeted plasma metabolic profile at early and late lactation in parity 1 dams with diverging body composition at weaning.
L. A. Rempel* and J. R. Miles, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.

Ruminant Nutrition IV: Lipids and Fats
Chair: Jong-Su Eun, Utah State University
2103B

Effect of sunflower seed or sunflower oil as diet supplement on milk production, milk composition and milk fatty acid profile in lactating goats.
T. A. Morsy*, S. Kholif†, O. Matloup†, and A. Abu Elella*, 1National Research Center, Cairo, Egypt, 2Animal Production Research Institute, Agriculture Research Center, Cairo, Egypt.

The relationship between human daily requirements of CLA, the potential enrichment of milk through cow’s nutrition and daily human consumption.
A. Siurana* and S. Calsamiglia, Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain.
10:00 AM 633 Tolerance study of rumen protected conjugated linoleic acid on dairy cows during the transition and early lactation period.
Z. H. Wei\*, J. S. Shen\*, J. X. Liu\*, Y. J. Zhang\*, and Y. Jiang\*, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Zhejiang University, Hangzhou, China, 3BASF (China) Company Ltd., Shanghai, China.

10:15 AM 634 Effect of different dietary fat supplements on milk odd and branched chain fatty acids in dairy cows.
E. Baumann\*, P. Y. Chouinard, Y. Lebeuf, and R. Gervais, Université Laval, Québec, QC, Canada.

10:30 AM 635 Feeding incremental levels of ground flaxseed increased n-3 fatty acids and conjugated linoleic acids in organically-managed Jersey cows.
A. F. Brito\*, J. Kraft\*, T. L. Resende\*, A. B. D. Pereira\*, K. J. Soder\*, D. H. Woitschach\*, and R. B. Reis\*, 1University of New Hampshire, Durham, NH, 2Department of Animal Science, University of Vermont, Burlington, 3Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 4USDA-Agricultural Research Service, University Park, PA, 5Universidade Federal de Viçosa, Viçosa, Brazil.

10:45 AM 636 Lactational responses to palmitic acid supplementation when substituted for soyhulls or corn grain.

11:00 AM 637 Interaction between culture pH and corn oil concentration on NDF digestibility and biohydrogenation of unsaturated fatty acids in batch culture.
Y. Sun\*, M. S. Allen, and A. L. Lock, Michigan State University, East Lansing.

11:15 AM 638 Feed intake and production responses of lactating dairy cows when commercially available fat supplements are included in diets: A meta-analysis.
J. P. Boerman\* and A. L. Lock, Michigan State University, East Lansing.

11:30 AM 639 Effect of dietary fat source on milk production and milk composition in early lactation cows in a continuous trial design.
G. Ma\*, J. H. Harrison\*, E. Block\*, and L. VanWieringen\*, 1Washington State University, Pullman, 2Washington State University, Puyallup, 3Church and Dwight Animal Nutrition, Ewing, NJ, 4Washington State University, Sunnyside.

11:45 AM 640 Farm survey: Milk fatty acid composition measured by mid-infrared.

12:00 PM 641 The effects of high rates protected fat in rations of high yielding dairy cows on production efficiency and digestibility.
U. Moallem\*, E. Frank\*, J. Luo\*, A. Hosseini\*, and A. Arieli\*, 1Institute of Animal Science, Volcani Center, Bet Dagan, Israel, 2Faculty of Agriculture, Hebrew University, Rehovot, Israel.

12:15 PM 642 Long chain fatty acids alter expression of genes involved in lipid metabolism in goat mammary epithelial cells partly through PPARγ.
W. Zhao\*, M. Bionaz\*, J. Luo\*, A. Hosseini\*, P. Dove\*, and J. J. Loor\*, 1Northwest A & F University, Yangling, China, 2University of Illinois at Urbana-Champaign, 3Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, 4University of Bonn, Bonn, Germany, 5University of Ljubljana, Domzale, Slovenia.

Ruminant Nutrition V: Methane Beef/Dairy
Chair: Shawn Archibeque, Colorado State University

2103C

9:30 AM 643 Methane emissions from lactating and dry dairy cows fed diets differing in forage source and NDF concentration.
K. J. Hammond\*, D. J. Humphries, L. A. Crompton, P. Kirton, C. Green, and C. K. Reynolds, University of Reading, Reading, United Kingdom.

9:45 AM 644 Effects of cysteamine on ruminal fermentation parameters and methane production of water buffalo by in vitro gas production method.
C. Zou\*, Y. L. Huang\*, X. Liang\*, S. J. Wei\*, B. Lin\*, C. J. Yang\*, and X. W. Liang\*, 1Buffalo Research Institute, The Chinese Academy of Agricultural Sciences, Nanning, China, 2Buffalo Research Institute, Chinese Academy of Agricultural Sciences, Nanning, China.

10:00 AM 645 Effect of lowered pH and increased passage rate on methane and volatile fatty acid production from continuous culture.
B. A. Wenner\*, F. Batistel\*, J. D. Souza\*, T. J. Hackmann\*, and J. L. Firkins\*, 1The Ohio State University, Columbus, 2University of São Paulo, Piracicaba, Brazil, 3University of São Paulo, Piracicaba, Brazil, 4University of Florida, Gainesville.

10:15 AM 646 Effects of encapsulated nitrate on nitrogen utilization and enteric methane emissions in beef cattle.
C. Lee\*, R. C. Araujo\*, K. M. Koenig\*, and K. A. Beauchemin\*, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2GRASP Ind. & Com. LTD, Curitiba, Brazil, 3Nutrition GMBH, Visbek, Germany, 4Agriculture and Agri-Food Canada, Lethbridge Research Centre, Lethbridge, AB, Canada.
Correspondence between in vitro and in vivo rumen methane production obtained with different starch sources and starch levels.

B. Hatew1, J. W. Cone1, W. F. Pellikaan1, S. C. Podesta1, W. H. Hendriks1, A. Bannink2, and J. Dijkstra1, 1Animal Nutrition Group, Wageningen University, Wageningen, Netherlands, 2Wageningen UR Livestock Research, Wageningen University and Research Centre, Lelystad, Netherlands.

The potential benefit of corn dried distillers’ grain (co)products (DDG) in the mitigation of methane production in cattle: An in vivo analysis.

M. A. Fonseca1, L. F. L. Cavalcanti2, J. G. L. Regadas Filho3, T. R. Callaway4, G. E. Carstens1, T. A. Wickershnam1, and L. O. Tedeschi1, 1Texas A&M University, College Station, 2Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 3Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 4USDA-ARS, College Station, TX.

Effects of including vincamycin in feedlot diets containing monensin under commercial conditions in Mexico.

M. Gorocica1, A. Gonzalez-Asif1, and S. C. Loerch1, 1Phibro Animal Health, Merida, Mexico, 2SuKarne Agroindustrial, Culiacan, Mexico, 3The Ohio State University, Wooster.

Effects of extracts of Perilla frutescens (seeds) on in vitro rumen fermentation, methanogenesis and microbial population.

M. Liu1, J. X. Liu2, and J. K. Wang1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Zhejiang University, Hangzhou, China.

Effects of feeding chitosan on nutrient digestibility in beef heifers.


Effect of Saccharomyces cerevisiae fermentation product (XP) on energetic efficiency of diet fed to high producing dairy cows during the hot season.


The effects of learning communities and pro-active advising on performance of first semester students.


Changes in the perceptions of students involved in a traditional meat science course.

M. J. Anderson*, J. L. Lucia, K. J. Stutts, M. M. Beverly, and S. F. Kelley, Sam Houston State University, Huntsville, TX.

Student and evaluator perceptions of an oral equine “Speed Selling” exercise.

J. S. McCann*, Virginia Tech, Blacksburg.

Efficacy of iCEV incorporation into a general animal science undergraduate classroom.

R. J. Rathmann* and R. A. Ritz, Texas Tech University, Lubbock.

Impact of the male on meat production: A case scenario in swine.

J. J. Parrish* and J. L. Susko-Parrish, University of Wisconsin-Madison.

Incorporating writing-intensive assignments in an animal science production course.

S. J. Trojan*, C. Meyers2, and N. Hudson3, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Texas Tech University, Lubbock.

Improved student achievement through gamification and the flipped classroom.


Impact of student engagement activities on student performance on a short assessment.

O. N. Genther* and S. L. Hansen, Iowa State University, Ames.
11:30 AM 770  The impact of implementing interactive exam review strategies on student satisfaction and exam scores.
D. T. Masser, J. M. Falk, and A. Ahmadzadeh*, University of Idaho, Moscow.

11:45 AM 771  Integrating teaching and extension: Swine production.
H. M. Zaleski*, University of Hawaii at Manoa, Honolulu.

12:00 PM 772  Teaching companion animal management: Perspective from a livestock nutritionist.
J. L. Wahrmund*, Texas A&M University-Commerce.

12:15 PM 773  A comparative veterinary course for pre-veterinary students.
A. P. Fidler*, University of Arkansas, Fayetteville.

**ADSA Foundation Symposium:**
**Meeting the Present and Future Demand for Employees with a PhD in Dairy Science**

*Chair: Mike Socha, Zinpro Corporation*

**Sponsor: ADSA Foundation**

2102A

2:00 PM  Welcoming Remarks

2:10 PM 1  Current problems with funding PhD programs.
L. H. Baumgard* and M. G. Hogberg, Iowa State University, Ames.

2:35 PM 2  Current situation for finding qualified people with a PhD; an industry perspective, dairy production.
W. C. Weldon*, Elanco Animal Health, Greenfield, IN.

3:00 PM 3  Current Situation for finding qualified people with a PhD; an industry perspective, dairy foods.
C. Allen*, Kraft Foods, Glenview, IL.

3:25 PM 4  Current situation for finding qualified people with PhDs; an academic perspective.
V. V. Mistry*, South Dakota State University, Brookings.

3:50 PM 5  Short term employment opportunities in industry for people pursuing graduate degrees.
C. Johnson*, Land O’ Lakes, Inc., Arden Hills, MN.

4:15 PM  Discussion

4:45 PM  Reception

**Animal Behavior & Well-Being I**

*Chair: Heather M. Dann, William H. Miner Agricultural Research Institute*

2505B

2:00 PM 32  Associations between bovine respiratory disease complex and the probability and latency of group-reared neonatal dairy calves to approach a novel object or stationary person.
M. C. Cramer* and A. L. Stanton, University of Wisconsin-Madison.

2:15 PM 33  Effect of concentrate feeder design on feeding behavior in Holstein bulls fed high-concentrate diets.
M. Verdu*, A. Bach, and M. Devant, 1IRTA-Department Ruminant Production, Caldes Montbui-Barcelona, Spain,
2Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 3IRTA-Department of Ruminant Production,
Caldes De Montbui, Spain.

2:30 PM 34  The effect of respiratory disease on lying behavior in Holstein dairy calves.
T. L. Ollivett1, K. E. Leslie2, D. V. Nydam2, T. F. Duffield1, G. Zobel1, J. Hewson1, and D. F. Kelton1, 1University of
Guelph, Guelph, ON, Canada, 2Cornell University, Department of Population Medicine and Diagnostic Sciences,
Ithaca, NY, 3University of British Columbia, Vancouver, BC, Canada, 4Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

2:45 PM 35  Freestall housing during the dry period altered lying time but did not affect milk quality or energy balance compared to pasture.
R. A. Black2, H. M. Dann2, and P. D. Krawczel1, 1University of Tennessee, Knoxville, 2William H. Miner Agricultural Research Institute, Chazy, NY.
3:00 PM 36 Health of dairy calves when using automated feeders in the Midwest USA.
M. Jorgensen¹, A. Adams Progar², S. Godden¹, H. Chester-Jones³, J. Rushen⁴, A. M. de Passille⁵, and M. I. Endres⁶,
¹University of Minnesota, Saint Paul, ²University of Minnesota Southern Research and Outreach Center, Waseca, MN,
³University of British Columbia, Agassiz, BC, Canada.

3:15 PM 37 Effect of heat retaining covers on calf hutch temperature during cold weather.
J. A. Haberman*, T. H. Friend, and W. Binton, Texas A&M University, College Station.

3:30 PM 38 Modeling the effect of reflective film calf hutch covers on reducing heat loss.
W. Binton* and T. H. Friend, Texas A&M University, College Station.

Animal Health II: Host – Microbial Interactions: Detection and Intervention
Chair: Charles C. Elrod, Vi-COR, Inc.
2502

2:00 PM 80 Alterations in the response of pigs to Salmonella Typhimurium when provided Enterobacter cloacae.
J. R. Donaldson¹, J. A. Carroll², N. C. Burdick Sanchez², J. W. Dailey², T. B. Schmidt³, T. R. Callaway³, and J. G. Wilson⁴,
¹Mississippi State University, Mississippi State, ²USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, ³University of
Nebraska-Lincoln, ⁴USDA-ARS, College Station.

2:15 PM 81 Adhesion of Escherichia coli in piglets and association of phenotypes to known candidate genes in South African
breeds.
N. S. Chaora*, Agricultural Research Council, Pretoria, South Africa.

2:30 PM 82 Effect of metaphylaxis on production responses and antimicrobial usage in high-risk steers.
A. B. Word¹, T. A. Wickersham¹, G. Mays¹, L. A. Trubenbach¹, and J. E. Sawyer³, ¹Texas A&M University, College Sta-
tion, ³Texas AgriLife Research, College Station.

2:45 PM 83 PR-39 ameliorates Salmonella Typhimurium-induced intestinal epithelial barrier dysfunction.
X. Xi*, Institute of Feed Science, Zhejiang University, HangZhou, China.

3:00 PM 84 Quantification of microbial populations in organic and inorganic dairy cattle bedding materials.
R. F. Rowbotham¹, T. L. Peters², T. M. Walker², and P. L. Ruegg², ¹Grande Cheese Company, Brownsville, WI, ²De-
partment of Dairy Science, University of Wisconsin-Madison.

3:15 PM 85 Prevalence of bovine mastitis pathogens in bulk tank milk.
Y.-L. Bi¹, E. J. Cao¹, W. Sun¹, Y. Qin¹, and S.-L. Li¹, ¹State Key Laboratory of Animal Nutrition, College of Animal
Science and Technology, China Agricultural University, Beijing, China, ²Hipra, Avda. La Selva, No.135 17170-Amer
(Girona) Spain, Girona, Spain.

3:30 PM 86 Modulation of the acute phase response in feedlot steers supplemented with Saccharomyces cerevisiae.
J. O. Buntyn¹, N. C. Burdick Sanchez², J. A. Carroll², E. Chevaux³, K. Barling³, S. E. Sieren³, S. J. Jones³, and T. B.
Schmidt³, ²Department of Animal Science, University of Nebraska-Lincoln, ³USDA-ARS, Livestock Issues Research
Unit, Lubbock, TX, ²Lallemand Animal Nutrition, Milwaukee, WI, ³Lallemand Animal Nutrition, Iola, TX, ³University of
Nebraska-Lincoln.

3:45 PM 87 Performance evaluation of calves with diarrhea in different systems supplemented with yeast culture plus enzymati-
cally hydrolyzed yeast cell wall.
V. R. Rabassa⁴, B. Scherer⁴, F. B. Del Pino⁴, C. C. Brauner⁴, F. M. Gonçalves⁴, R. F. S. Raimondo⁴, E. G. Xavier⁴, C.
C. Elrod⁵, and M. Nunes Corrêa⁵, ¹Universidade Federal de Pelotas, Pelotas, Brazil, ²Federal University of Pelotas,
Pelotas, Brazil, ³Granjas 4 Irmãos, Rio Grande, Brazil, ⁴Vi-COR, Inc., Mason City, IA.

4:00 PM 88 Variations in the survival of Listeria monocytogenes to grow in bile from porcine gallbladders.
J. G. Wilson¹, S. J. White, and J. R. Donaldson, Mississippi State University, Mississippi State.

4:15 PM 89 Yeast probiotics vary in their potential to bind to gram positive or gram negative bacteria.
G. Posadas¹, J. A. Carroll¹, J. R. Corley¹, A. Lawrence¹, and J. R. Donaldson¹, ¹Mississippi State University, Mississi-
pue State, ²USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, ³Lesaffre Feed Additives, Milwaukee, WI.

4:30 PM 90 An analysis of Giardia lamblia and Cryptosporidium parvum in bucket Calves at The University of Findlay’s Animal
Science Barn.
S. M. Waibel¹, F. D. McCarthy, R. M. Wood, and B. Henderson-Dean, The University of Findlay, Findlay, OH.
Beef Cattle Reproduction Symposium: Rebuilding the U.S. Cowherd: Rethinking the Way Industry Selects and Develops Replacements

Chair: David J. Patterson, University of Missouri

2:00 PM 112 Rebuilding the U.S. cowherd: Rethinking the way industry selects and develops replacements.
D. S. Brown and D. J. Patterson, University of Missouri, Columbia.

2:45 PM 113 Physiology and endocrinology of puberty in Heifers.
J. Atkins, K. G. Pohler, and M. F. Smith, American Simmental Association, Bozeman, MT; University of Missouri, Columbia.

3:15 PM 114 Beef heifer replacement considerations related to breed and biological type.
A. L. Van Eenennaam, University of California-Davis.

3:45 PM 115 Nutritional development and the target weight debate.
J. B. Hall, University of Idaho, Carmen.

4:15 PM 116 Management strategies for adding value to replacement beef heifers: A working model-the Missouri Show-Me-Select Replacement Heifer Program.
D. J. Patterson, J. M. Thomas, D. S. Brown, J. E. Decker, W. J. Sexten, and S. E. Poock, University of Missouri, Columbia; University of Missouri-College of Veterinary Medicine, Columbia.

Beef Species: Stocker and Feedlot

Chair: Judson T. Vasconcelos, Merck & Co

2:00 PM 137 Effect of crude protein levels and metaphylaxis on growth and performance of newly received stocker calves.
T. J. Braud, B. B. Karisch, D. R. Smith, R. Vann, and S. G. Genova, Mississippi State University, Mississippi State; MAFES-Brown Loam, Mississippi State University, Raymond.

2:15 PM 138 Effect of growth rate and placement weight of stocker-feeder cattle on subsequent finishing performance and carcass characteristics: A meta-analysis.
P. A. Lancaster, C. R. Krehbiel, and G. W. Horn, Oklahoma State University, Stillwater.

2:30 PM 139 Performance impacts of feeding bermudagrass (Cynodon dactylon) or ryegrass (Lolium multiflorum) plus rye (Secale cereale) baleage to weaned crossbred beef calves.
R. M. Martin, R. Walker, B. Buttrey, and C. C. Williams, Louisiana State University, Baton Rouge; LSU AgCenter, School of Animal Sciences, Baton Rouge; LSU AgCenter, Hill Farm Research Station, Homer, LA.

2:45 PM 140 Early metabolic imprinting for improvements in finishing feed efficiency and beef carcass characteristics.
J. K. Smith, M. D. Hanigan, S. P. Greiner, and M. A. McCann, Virginia Tech, Blacksburg.

3:00 PM 141 Linear and non-linear estimates of the efficiency of metabolizable energy use for maintenance and gain in beef cattle.
C. A. Old and H. A. Rossow, A3 Cattle Company, Le Grand, CA; VMTRC, University of California, Tulare.

3:15 PM 142 Relationships among feeding behaviors and performance traits of growing and finishing phase Red Angus cattle.
M. McGee, C. M. Welch, J. A. Ramirez, G. E. Carstens, W. Price, J. B. Hall, and R. A. Hill, University of Idaho, Moscow; Texas A&M University, College Station; University of Idaho, Carmen.

3:30 PM 143 Phenotypic relationships between residual measurements of finishing feed efficiency and visceral organ mass of backgrounded beef steers.
Breeding and Genetics: Genetic and Genomic Methods

Chair: John B Cole, Animal Improvement Programs Laboratory, Agricultural Research Service, United States Department of Agriculture

2:00 PM 163 Evaluation of predictive ability of Cholesky factorization of genetic relationship matrix for additive and non-additive genetic effect using Bayesian regularized neural network.
H. Okut¹, D. Gianola², K. A. Weigel³, and G. J. M. Rosa⁴, ¹University of Yuzuncu Yil, Van, Turkey, ²University of Wisconsin-Madison.

2:15 PM 164 Using recursion to compute the inverse of the genomic relationship matrix.
I. Misztal¹, A. Legarra², and I. Aguilar³, ¹University of Georgia, Athens, ²INRA, Castanet-Tolosan, France, ³INIA, Las Brujas, Uruguay.

2:30 PM 165 Advantage of supernodal methods in restricted maximum likelihood when dense matrices are involved in a coefficient matrix of mixed model equations.
Y. Masuda¹,², S. Tsuruta², and I. Misztal², ¹Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Japan, ²University of Georgia, Athens.

2:45 PM 166 Use of genomic recursions and APY algorithm for single-step GBLUP analyses with large number of genotypes.
B. D. Fragomeni¹, I. Misztal¹, D. Lourenco¹, S. Tsuruta¹, and Y. Masuda¹,², ¹University of Georgia, Athens, ²Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Japan.

3:00 PM 167 Genetic prediction accounting for residual heteroskedasticity.
Z. Ou¹, R. J. Tempelman², J. P. Steel³, C. W. Ernst², R. O. Bates², and N. M. Bello¹, ¹Kansas State University, Manhattan, ²Michigan State University, East Lansing.

3:15 PM 168 Are past generations contributing to evaluations on young genotyped animals?
D. Lourenco¹, I. Misztal¹, S. Tsuruta¹, I. Aguilar², T. J. Lavelor¹, S. Forzi², and J. J. Weller³, ¹University of Georgia, Athens, ²INIA, Las Brujas, Uruguay, ³Holstein Association USA Inc., Brattleboro, VT, ³Genus Plc, Hendersonville, TN.

3:30 PM 169 Use of linear models with normal, student-t or slash distributed error for the analysis of quantitative traits.
B. Mestav¹, K. Kizilkaya², and S. O. Peters³, ¹Canakkale Onsekiz Mart University, Canakkale, Turkey, ²Adnan Mendezes University, Aydin, Turkey, ³New Mexico State University, Mount Berry, GA.

Companion Animals Symposium:
Companion Animals and Sustainability: Today’s Impact on the Future

Chair: Maria R. C. de Godoy, University of Illinois

Sponsor: ASAS Foundation: George Fahey Appreciation Club

2:00 PM 188 Introductory remarks

2:10 PM 189 Nutritional sustainability of pet foods.
R. A. Carter¹, P. R. Buff², K. S. Swanson², T. P. Yount¹, and J. H. Kersey¹, ¹The Nutro Company, Franklin, TN, ²Department of Animal Sciences, University of Illinois at Urbana-Champaign.

2:40 PM 189 How sustainability influences ingredient sourcing, quality and safety.
D. L. Meeker*, National Renderers Association, Alexandria, VA.

3:10 PM 190 Break

3:25 PM 191 Sustainability of non-traditional companion animals.
G. Ballam*, Purina Animal Nutrition, St Louis, MO.

3:55 PM 191 Sustainable ecosystems: Free-ranging cats and their effect on wildlife populations.
S. E. Kitts-Morgan*, E. I. Parsons, and K. A. Hilburn, Berry College, Mount Berry, GA.

4:25 PM 192 Future aspects and perceptions of companion animal nutrition and sustainability.
K. S. Swanson², Department of Animal Sciences, University of Illinois at Urbana-Champaign.
Comparative Gut Physiology Symposium: Session II
Chairs: David M. Bravo, Pancosma SA, Thomas B. McFadden, University of Missouri and John Furness, University of Melbourne
Sponsor: Pancosma SA

2:00 PM 204 Manipulating goblet cell function to protect against enteric infection.
M. Wlodarska*, University of British Columbia, Vancouver, BC, Canada.

2:30 PM 205 Nutritional immunology in swine.
Y. Liu1, D. M. Bravo2, and J. Pettigrew1, 1University of Illinois at Urbana-Champaign, 2Pancosma SA, Geneva, Switzerland.

2:45 PM 206 Mucosal IgA responses to members of the gut microbiota in healthy vs. malnourished Malawian children.
A. Kau*, Center for Genome Sciences & Systems Biology, St-Louis, MO.

H. Lillehoj*, ARS USDA, Beltsville, MD.

3:45 PM 208 Effect of dietary supplementation of Capsicum extract on immune responses, blood cell counts, blood chemistry, and oxidative stress markers in lactating dairy cows.
J. Oh1, S. Walsumib1, F. Giallongi1, H. L. Weeks1, T. W. Frederick1, A. N. Hristov1, J. L. Pate1, R. J. Elias2, L. Tao1, and E. H. Wall1, 1Department of Animal Science, The Pennsylvania State University, University Park, 2Department of Food Science, The Pennsylvania State University, University Park, 3Pancosma, Geneva, Switzerland.

4:00 PM 209 Host-microbiome interactions during gut development across species: The role of milk.
T. B. McFadden*, University of Missouri, Columbia.

4:30 PM Panel Discussion

Dairy Foods: Technical Oral Session: Analytical / Processing
Chair: Chenchaiah Marella, Cal Poly

3501D

2:00 PM 257 Modification of the functionality of micellar casein concentrates by changing the structure of casein micelles using high pressure processing.
C. I. Moraru1, M. Walkling-Ribeiro1, I. Aprodu2, and M. V. Karwe3, 1Cornell University, Ithaca, NY, 2Dunarea de Jos University, Galati, Romania, 3Rutgers University, New Brunswick, NJ.

2:15 PM 258 Microfiltration (MF) of milk protein concentrate using ceramic membranes: Determination of limiting flux and serum protein (SP) removal at 8, 9 or 10% protein in the recirculation loop.
E. E. Hurt1,2, M. C. Adams1, and D. M. Barbano2, 1Cornell University, Ithaca, NY, 2Northeast Dairy Foods Research Center, Ithaca, NY.

2:30 PM 259 Impact of membrane channel diameter on limiting flux and serum protein removal during milk protein concentrate microfiltration.
M. C. Adams1, E. E. Hurt, and D. M. Barbano, Cornell University, Ithaca, NY.

2:45 PM 260 Using membrane filtration techniques to fractionate acid whey into value added ingredients.
B. Chen1, K. E. Smith, J. A. Lucey, R. Kalscheuer, and M. Molitor, University of Wisconsin-Madison.

3:00 PM 261 Polymerization of lactose to polylactose by twin-screw extrusion.
T. C. Schoenfuss*, C. E. Tyl, and E. M. Reid, University of Minnesota, St. Paul.

3:15 PM 262 A proficiency test system to improve laboratory and method performance and produce reference values for component calibration samples for infrared milk analysis.

3:30 PM 263 A relatively rapid method for the estimation of the amount of exopolysaccharide produced by lactic acid bacteria during milk fermentation.
S. N. Khanal1* and J. A. Lucey1, 1University of Wisconsin-Madison, Department of Food Science, 2University of Wisconsin-Madison, 3Wisconsin Center for Dairy Research, Madison.
3:45 PM 264 Raw milk quality in the dairy industry: Compositional changes correlated with somatic cell counts.  
C. R. T. Júnior¹, G. C. Ribeiro², R. M. Longo³, M. C. P. P. Oliveira⁴, L. M. Fonseca⁵, M. O. Leite⁶, and M. P. Cerqueira⁷, ¹Ministry of Agriculture, Poços de Caldas, Brazil, ²Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil, ³University of Wisconsin-Madison/CAPES Est. Senior 18183-12-3.

4:00 PM 265 The effect of immunoglobulins and somatic cells on the gravity separation of fat, bacteria, and spores in pasteurized whole milk.  

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**Dairy Foods Symposium: Milk Protein-Hydrocolloid Interactions: Recent Impacts**  
Chair: Karen Schmidt, Kansas State University  
Sponsor: EAAP

2:00 PM 253 Exopolysaccharides from lactic acid bacteria- a world of opportunities.  
A. Hassan*, South Dakota State University, Brookings.

2:35 PM 254 EAAP-ASAS Speaker Exchange Presentation: A tale of in-body magnetic resonance imaging of foods and gut feelings.  
L. Marciani*, University of Nottingham, Nottingham, United Kingdom.

3:10 PM 255 Functionality and structure of hydrocolloids in dairy foods.  
H. D. Goff*, University of Guelph, Guelph, ON, Canada.

3:45 PM 256 Impact of starch on milk protein functionality in food applications.  
M. E. Yildiz*, Ingredion, Bridgewater, NJ.

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**Horse Species: Developmental Programming: Applications in the Horse**  
Chair: Tom Hoagland, University of Connecticut  
Sponsor: EAAP

2:00 PM 393 Developmental programming in agriculturally relevant species: An overview.  
K. A. Vonnahme*, North Dakota State University, Fargo.

2:50 PM 394 EAAP-ASAS Speaker Exchange Presentation: Glucocorticoid programming of development during early life.  
A. Fowden¹, G. A. Valenzuela², J. K. Jellyman², N. B. Holdstock³, and A. J. Forhead⁴, ¹University of Cambridge, Cambridge, England, ²University of Cambridge, Cambridge, United Kingdom, ³University of Cambridge, Cambridge, United Kingdom, ⁴University of Cambridge, Cambridge, United Kingdom.

3:40 PM 395 Nutritional programming and the impact on mare and foal performance.  
J. Coverdale⁵*, C. J. Hammer⁶, and K. W. Walter⁷, ⁵Texas A&M University, College Station, ⁶North Dakota State University, Fargo, ⁷Truman State University, Kirksville, MO.

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**Lactation Biology II**  
Chair: Monique Rijnkels, Baylor College of Medicine and Mark A McGuire, University of Idaho

2:00 PM 412 Intramammary glucocorticoid during a mammary immune response to lipopolysaccharide modulates the blood-milk barrier.  
O. Wellnitz⁸*, S. K. Wall⁹, M. Saudenova⁹, and R. M. Bruckmaier⁸, ⁸Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland, ⁹Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland.

2:15 PM 413 Milk prolactin response after experimental infection with different coagulase-negative staphylococci in dairy heifers.  
K. Piccart¹*, S. Piepers¹, J. Verbeke¹, N. Melo de Sousa², J. F. Beckers², and S. De Vliegher¹, ¹Ghent University, Ghent, Belgium, ²University of Liège, Liège, Belgium.

2:30 PM 414 Regulation of nuclear IGFBP-3 in response to intrinsic apoptotic stress in bovine mammary epithelial cells.  
A. Agostini-Dreyer, A. E. Jetz, and W. S. Cohick¹, Rutgers, the State University of NJ, New Brunswick.
2:45 PM 415 Cellular composition of water buffalo mammary gland and its proliferation status during dry and mastitis.  
School of Animal Biotechnology, GADVASU, Ludhiana, Punjab-141 004, India.  
Department of Veterinary Anatomy, GADVASU, Ludhiana, Punjab-141 004, India.  
Now presented in ADSA-SAD Undergraduate Competition: Original Research, Monday, July 21, at 4:00 pm, in room 2210.

Addition of glycerol to lactating cow diets stimulates milk protein yield to a greater extent than addition of corn grain.  
D. L. Bajramaj, R. V. Curtis, J. J. M. Kim, V. R. Osborne, T. Wright, and J. P. Cant.  
University of Guelph, Guelph, ON, Canada.  
Department of Animal & Poultry Science, University of Guelph, Guelph, ON, Canada.  
University of Guelph/OMAF, Guelph, ON, Canada.

Glucose does not stimulate milk protein yield of dairy cows when essential amino acids are in excess supply.  
K. Nichols, M. Carson, J. J. M. Kim, J. A. Metcalf, J. P. Cant, and J. Doelman.  
Department of Animal & Poultry Science, University of Guelph, Guelph, ON, Canada.  
Nutreco Canada Agresearch, Guelph, ON, Canada.

3:15 PM 513 Responses to an insulin challenge in dairy cows classed as efficient or inefficient based on residual feed intake (RFI) during mid lactation and the dry period.  
The University of Melbourne, Parkville, Australia.  
The Department of Environment and Primary Industries, Victoria, Ellinbank, Australia.  
The Department of Environment and Primary Industries, Bundoora, Australia.

3:30 PM 515 Effects of repeated short-term feed-restrictions and LPS induced systemic inflammation on metabolism and performance in dairy cows.  
Veterinary Physiology, Vetsuisse Faculty of Bern, Bern, Switzerland.  
Agroscope, Institute for Livestock Sciences ILS, Postier, Switzerland.  
Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

4:00 PM 517 Effects of protein supplementation frequency on metabolic responses associated with reproduction of beef cows.  
Oregon State University-EOARC Burns, Faculdade de Medicina Veterinária e Zootecnia, UNESP – Univ. Estadual Paulista, Botucatu, Brazil.  
South Dakota State University, Brookings.
A vaccine-induced acute-phase reaction increases plasma leptin concentrations in beef cattle.
R. Marques\textsuperscript{1}, R. F. Cooke\textsuperscript{1}, B. I. Cappellozza\textsuperscript{1}, T. Guarnieri Filho\textsuperscript{1,2}, M. M. Reis\textsuperscript{1}, D. H. Keisler\textsuperscript{3}, and D. W. Bohnert\textsuperscript{1}, \\
\textsuperscript{1}Oregon State University-EOARC Burns, \textsuperscript{2}Faculdade de Medicina Veterinária e Zootecnia, UNESP – Univ. Estadual Paulista, Botucatu, Brazil, \textsuperscript{3}University of Missouri-Division of Animal Sciences, Columbia.

A prepartum diet supplemented with rolled sunflower seed increased calf weight, the incidence of dystocia andcolostrum immunoglobulin content in Holstein cows.
R. Salehi\textsuperscript{1}, M. G. Colazo\textsuperscript{1}, M. Oba\textsuperscript{1}, and D. J. Ambrose\textsuperscript{1}, \textsuperscript{1}University of Alberta, Edmonton, AB, Canada, \textsuperscript{2}Alberta Agriculture and Rural Development, Edmonton, AB, Canada.

Effect of altering the dietary ratio of n-6 to n-3 fatty acids on luteolytic mechanism in dairy cows.
L. F. Greco\textsuperscript{1}, J. T. Neves Neto\textsuperscript{2}, A. Pedricio\textsuperscript{2}, F. S. Lima\textsuperscript{2}, R. S. Bisinotto\textsuperscript{1}, N. Martinez\textsuperscript{1}, E. S. Ribeiro\textsuperscript{1}, W. W. Thatcher\textsuperscript{1}, C. R. Staples\textsuperscript{3}, and J. E. P. Santos\textsuperscript{1}, \textsuperscript{1}Department of Animal Sciences, University of Florida, Gainesville, \textsuperscript{2}University of Florida, Gainesville, \textsuperscript{3}Department of Animal Sciences, University of Florida, Gainesville.


Chair: J. Scott Radcliffe, Purdue University

Effect of breed type and pasture type on methane emissions from weaned lambs offered fresh grasses.
M. D. Fraser, H. R. Fleming, V. J. Theobald, and J. M. Moorby\textsuperscript{1}, Aberystwyth University, Aberystwyth, United Kingdom.

Effects of dietary nitrate supplementation on enteric methane and nitrous oxide emissions from beef cattle.
C. J. Neumeier\textsuperscript{1,2}, Q. Wang\textsuperscript{1}, A. R. Castillo\textsuperscript{2}, Y. Zhao\textsuperscript{1}, Y. Pan\textsuperscript{1}, and F. M. Mitloehner\textsuperscript{1}, \textsuperscript{1}University of California-Davis, \textsuperscript{2}University of California Cooperative Extension, Merced.

Comparison of active flux and passive concentration measurements of methane concentrations from cattle.
P. Huhtanen\textsuperscript{1}, E. H. Cabezas Garcia\textsuperscript{1}, S. R. Zimmerman\textsuperscript{2}, and P. R. Zimmerman\textsuperscript{1}, \textsuperscript{1}Swedish University of Agricultural Sciences (SLU), Umea, Sweden, \textsuperscript{2}Swedish University of Agricultural Sciences, Umea, Sweden, \textsuperscript{3}C-Lock Inc, Rapid City, SD.

Methane emission intensities by Holstein and Holstein x Jersey crossbreed lactating cows in two Brazilian grazing systems.
A. Berndt, A. P. Lemes, L. A. Romero, T. C. Alves, A. M. Pedroso\textsuperscript{1}, A. D. F. Pedroso, and P. P. A. Oliveira, EMBRAPA, São Carlos, Brazil.

Comparison between the sulfur hexafluoride tracer technique and the portable automated head chamber system for measurements of enteric methane fluxes in mid-lactation Holstein cows.
A. B. D. Pereira\textsuperscript{1}, C. D. Dorich\textsuperscript{1}, A. F. Brito\textsuperscript{1}, R. K. Varner\textsuperscript{1}, and R. Martinez\textsuperscript{1}, \textsuperscript{1}University of New Hampshire, Durham, NH, \textsuperscript{2}Agriculture and Agri-Food Research and Development Centre, Sherbrooke, QC, Canada.

Nitrogen use efficiency and carbon footprint by beef cattle limit-fed co-product feedstuffs.
W. B. Smith\textsuperscript{1}, K. P. Coffey\textsuperscript{2}, R. T. Rhein\textsuperscript{1}, E. B. Kegley\textsuperscript{1}, D. Philipp\textsuperscript{1}, J. D. Caldwell\textsuperscript{3}, and A. N. Young\textsuperscript{1}, \textsuperscript{1}Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, \textsuperscript{2}University of Arkansas, Fayetteville, \textsuperscript{3}Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO.

Ruminant Nutrition VI: Amino Acids/Dairy

Chair: Hellen Lapierre, Agriculture & Agri-Food Canada

Effect of rumen-protected lysine supplementation of corn-protein based diets fed to lactating dairy cows.
N. E. Lobos\textsuperscript{1,4}, G. A. Broderick\textsuperscript{2}, and M. A. Wattiaux\textsuperscript{3}, \textsuperscript{1}Department of Dairy Science, University of Wisconsin-Madison, \textsuperscript{2}Broderick Nutrition & Research, LLC, Madison, WI, \textsuperscript{3}University of Wisconsin-Madison.

Effects of a rumen protected lysine (AjiPro-L) supplementation on peripartum disease, reproduction and lactational performance of dairy cows.
J. E. Nocek\textsuperscript{1}, A. Haruno\textsuperscript{2}, M. Miura\textsuperscript{2}, T. Takagi\textsuperscript{2}, I. Shinzato\textsuperscript{3}, and T. Fujieda\textsuperscript{2}, \textsuperscript{1}Spruce Haven Farm and Research Center, Auburn, NY, \textsuperscript{2}Ajinomoto Co., Inc., Tokyo, Japan, \textsuperscript{3}Ajinomoto Heartland, Inc., Chicago, IL.

Effect of strategic ration balancing with use of Prolak and USA-Lysine on the efficiency of milk protein production and environmental impact.
J. H. Harrison\textsuperscript{1}, J. Jarrett\textsuperscript{1}, Y. Chen\textsuperscript{1,2}, L. VanWieringen\textsuperscript{1}, B. Chalupa\textsuperscript{1}, F. Sun\textsuperscript{1}, P. Ndegwa\textsuperscript{1}, D. Wilks\textsuperscript{2}, and H. S. Joo\textsuperscript{3}, \textsuperscript{1}Washington State University, Pullman, \textsuperscript{2}Prince Agri, Quincy, IL, \textsuperscript{3}Washington State University, Pullman, \textsuperscript{4}Washington State University, Sunnyside, \textsuperscript{5}University of Pennsylvania, New Bolton Center, \textsuperscript{6}EPL Feeds, Dixie, WA.
2:45 PM  658  Effect of strategic ration balancing with use of Prolak and MetaboLys on the efficiency of milk protein production and environmental impact.

P. Ndegwa1, J. H. Harrison2, D. Wilks3, L. VanWieringen4, Y. Chen5, W. Chalupa1, F. Sun1, and H. S. Jou6, 1Washington State University, Pullman, 2Washington State University, Payapullup, 3EPL Feeds, Dixie, WA, 4Washington State University, SunnySway, 5University of Pennsylvania, New Bolton Center.

3:00 PM  659  Evaluation of diets formulated with soybean-based products, blood meal, or rumen-protected lysine to meet MP lysine demands of lactating dairy cows.

W. D. Weich1, K. F. Kalscheur2, K. J. Herrick2, and F. R. Valdez2, 1South Dakota State University, Brookings, 2Kemin Industries, Inc., Des Moines, IA.

3:15 PM  660  The plasma free amino acid dose response technique: A proposed approach for determining lysine bioavailability of ruminally-protected lysine products.

N. L. Whitehouse1, A. F. Brito1, and C. G. Schwab2, 1University of New Hampshire, Durham, NH, 2Schwab Consulting, LLC, Boscobel, WI.

3:30 PM  661  Effects of maternal nutrition and rumen-protected arginine supplementation on pregnant and non-pregnant ewe and postnatal lamb serum amino acids.

J. L. Peine1, G. Jia1, M. Kapphahn1, S. T. O’Rourke1, A. M. Meyer2, L. P. Reynolds2, and J. S. Caton2, 1North Dakota State University, Fargo, 2Division of Animal Sciences, University of Missouri, Columbia.


A. C. Fonseca1, S. M. Fredin1, L. F. Ferraretto1, P. L. Utterback2, C. M. Parsons2, and R. D. Shaver1, 1University of Wisconsin-Madison, 2University of Illinois at Urbana-Champaign.

4:00 PM  663  Performance by Holstein steers offered hay and supplement with or without added methionine.

A. L. Bax1, J. D. Caldwell1, L. S. Wilbers1, B. C. Shank1, T. Hampton2, S. E. Beits2, Y. Liang2, and G. I. Zanton2, 1Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, 2Novus International, Inc., St. Charles, MO.

4:15 PM  664  Effects of feeding slow release NPN and microbial fermentation extracts on lactation performance of high-producing dairy cows.

F. Díaz-Royón1, A. D. Garcia1, K. F. Kalscheur2, and K. Mjoun1, 1Dairy Science Department, South Dakota State University, Brookings, 2South Dakota State University, Brookings, 3Alltech, Brookings, SD.

4:30 PM  665  Concentration of soluble non-ammonia nitrogen and related transporter expression in non-mesenteric gastrointestinal tracts of dairy cows.

Y. M. Xie1, Q. B. Xu1, Y. M. Wu1, and J. X. Liu1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Zhejiang University, Hangzhou, China.

4:45 PM  666  Role of proton-coupled oligopeptide transporter 1 in small peptide absorption in the bovine forestomach.

Q. B. Xu1, Y. M. Wu1, H. Y. Liu1, and J. X. Liu1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Zhejiang University, Hangzhou, China.

Small Ruminant
Chair: R. R. Redden, North Dakota State University
2104A

2:00 PM  724  Rumen microbial species associated with feed efficiency in sheep fed a forage-based diet.

K. M. Cammack1, M. Ellisson2, G. C. Conant3, W. R. Lamberson1, R. Cockram1, and K. J. Austin1, 1Department of Animal Science, University of Wyoming, Laramie, 2University of Wyoming, Laramie, 3University of Missouri, Columbia, 4Virginia Polytechnic Institute and State University, Blacksburg.

2:15 PM  725  Rationing late gestation ewes using a net energy or metabolisable energy rationing system: Impacts on ewe and lamb performance.

F. Campion1, F. McGovern, A. G. Fahey, and T. M. Boland, School of Agriculture and Food Science, University College Dublin, Dublin 4, Ireland.

2:30 PM  726  Determining growth performance implications on meat goat kids fed soybean hull or corn based pelleted diets.


2:45 PM  727  Early supplementation of alfalfa to starter diets improves the pre- and post-weaning performance of lambs.

B. Yang1, B. He1, S. S. Wang1, J. X. Liu1, and J. K. Wang1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Zhejiang University, Hangzhou, China.
3:00 PM  728  Performance and reproductive measurements of Katahdin ewes and fall-calving Angus cows grazing stockpiled toxic tall fescue under a mixed or sequential grazing scheme – 2 year summary.
R. E. Daugherty Jr.*, J. D. Caldwell, B. C. Shanks, C. L. Boeckmann, C. A. DeOrrnellis, and A. L. Bax, Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO.

3:15 PM  729  Reducing dietary cation-anion difference increased gastrointestinal calcium binding proteins-D9k expression level of transition goats for plasma calcium absorption.
W. X. Wu* and Y. Yang, College of Animal Science, Guizhou University, Guiyang, China.

3:30 PM  730  Hematological and serum chemical profiles in lambs fed sericea lespedea.
M. Acharya1, J. M. Burke2, J. E. Miller3, T. H. Terrill4, E. Smyth5, G. Huff6, E. B. Kegley7, K. P. Coffey8, and C. F. Rosenkrans9, 1University of Arkansas, Fayetteville, AR, 2USDA-ARS, Booneville, AR, 3Louisiana State University, Baton Rouge, 4Fort Valley State University, Fort Valley, GA, 5USDA, Agriculture Research Service, Fayetteville, AR, 6Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville.

3:45 PM  731  Comparison of white blood cell phagocytic efficiency in two genotypes of Katahdin sheep.
S. Azarpajouh*, T. Wu, and A. L. Bax, Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO.

4:00 PM  732  Short-term effects of divergent selection for parasite resistance in F1 Kiko × Boer doe progeny.
C. L. Thomas1,2, B. C. Shanks1, J. D. Caldwell1, L. S. Wilbers1, K. L. Basinger1, B. Weyers1, and W. R. Lamberson2, 1Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO, 2University of Missouri, Columbia, 3Kansas State University, Manhattan.

4:15 PM  733  Milk production and characteristics of lactation curve in dairy sheep and their crosses in Mexico.
J. C. Angeles Hernandez1, D. A. Solis Guzman1, M. Gonzalez Ronquillo2, A. H. Ramirez Perez2, and S. Angeles campos3, 1Universidad Nacional Autonoma de Mexico, Mexico, 2Universidad Autonoma del Estado de Mexico, Toluca, Mexico.

4:30 PM  734  Goats of Arkansas & Missouri: A production survey.
K. F. Cole*, B. M. Onyango1, J. A. Pennington1, C. A. Clifford-Rathert1, C. Hoegeman1, and E. L. Walker1, 1Missouri State University, Springfield, 2Lincoln University, Jefferson City, MO, 3Department of Agriculture and Environmental Sciences, Lincoln University, Jefferson City, MO.

Production, Management, and the Environment: Animal Health: A Retrospective Look
Chair: Robert J. Collier, University of Arizona
2102B

3:30 PM  553  Antibiotic use in period 2005-2012 in dairy herds in the Netherlands, with outlook to some other countries.
A. Kuipers*1 and H. Wemmenhove2, 1Expertise Centre for Farm Management and Knowledge Transfer, Wageningen UR, Wageningen, Netherlands, 2Livestock Research Wageningen UR, Lelystad, Netherlands.

3:45 PM  554  Retrospective analysis of body energy content profiles of dairy cows with different production and metabolic diseases during the transition period.
G. L. Smith1, M. G. Chagunda1, C. J. Ashworth1, and N. C. Friggens1, 1Scottish Rural University College (SRUC), Edinburgh, United Kingdom, 2The Roslin Institute, University of Edinburgh, Edinburgh, United Kingdom, 3Institut National de la Recherche Agronomique (INRA), Paris, France.

4:00 PM  555  Update on animal health concerns of recombinant bovine somatotropin (rbST): Meta-analysis of use in dairy cows.
N. St. Pierre1, G. A. Milliken1, D. E. Bauman1, R. J. Collier*1, J. S. Hogan1, J. K. Shearer1, K. L. Smith1, and W. W. Thatcher2, 1The Ohio State University, Columbus, 2Kansas State University, Manhattan, 3Cornell University, Ithaca, NY, 4The University of Arizona, Tucson, 5The Ohio State University, Wooster, 6Iowa State University, Ames, 7Department of Animal Sciences, University of Florida, Gainesville.

4:15 PM  556  Trends in U.S. milk quality based on bulk-tank somatic cell counts.

4:30 PM  557  Somatic cell counts, mastitis infection prevalence, and mastitis pathogen distribution in compost bedded pack and sand freestall farms.

4:45 PM  558  Corn silage management practices on California dairies.
J. M. Heguy1, D. Meyer2, and N. Silva-del-Rio1, 1UCCE Stanislaus and San Joaquin Counties, Modesto, CA, 2Department of Animal Science, University of California-Davis, 3VMTRC, University of California, Tulare.
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POSTER PRESENTATIONS

Animal Behavior & Well-Being Posters II

802  W001 Relationship between hair cortisol concentration and previous performance and feeding behavior in Holstein bulls fed high-concentrate diets.
M. Verdu1, A. Bach1, and M. Devant1, 1IRTA-Department Ruminant Production, Caldes Montbui-Barcelona, Spain, 2Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 3IRTA-Department of Ruminant Production, Caldes De Montbui, Spain.

803  W002 Competition in the milk-feeding stage affects post-weaning feeding behavior of pair-housed dairy calves.
E. K. Miller-Cushon1, R. Bergeron2, K. E. Leslie1, G. J. Mason1, and T. J. DeVries1, 1University of Guelph, Kemptville, ON, Canada, 2University of Guelph, Alfred, ON, Canada, 3University of Guelph, Guelph, ON, Canada.

804  W003 Effect of exposure to individual ration components on feed sorting of dairy heifers.
E. K. Miller-Cushon1, J. P. Vogel2, and T. J. DeVries1, 1University of Guelph, Kemptville, ON, Canada, 2Dalhousie University, Truro, NS, Canada.

805  W004 Relationships of temperament, behavior, and growth of performance tested bulls.
S. A. Lockwood1, H. G. Kattesh, P. D. Krawczel, J. B. Wilkerson, J. D. Rhinehart, D. Kirkpatrick, and A. M. Saxton, University of Tennessee, Knoxville.

806  W005 The efficacy of bridging stimuli during acquisition of an operant task and the use of food-based positive reinforcement training on unwanted oral investigative behaviors in horses, Equus caballus.
M. R. LaFollette1, K. A. Cloonan, and K. W. Walter, Truman State University, Kirksville, MO.

807  W006 Towards a better understanding of foraging behavior to boost the expression of conditioned preferences for low-quality foods.
F. H. Catanese1, R. A. Distel1, and J. J. Villalba2, 1Universidad Nacional del Sur, Bahia Blanca, Argentina, 2Utah State University-Agricultural Experiment Station, Logan.

808  W007 Effects of bedding frequency on lying behavior of weaned calves.
M. Terré1 and A. Bach2, 1IRTA, Caldes de Montbui, Spain, 2Department of Ruminant Production, IRTA, Caldes de Montbui, Spain.

809  W008 Behavior of pigs infected with Salmonella and fed diets containing a probiotic or a physiological promoter.
V. F. Buttow Roll1, E. Barba-Vidal1, L. Castillejos1, X. Manteca2, and S. Martin-Oriarz1, 1Department of Animal Science, Faculty of Agronomy Eliseu Maciel, Federal University of Pelotas, Pelotas, Brazil, 2Animal Nutrition and Welfare Service Department of Animal and Food Sciences Universitat Autònoma de Barcelona, Bellaterra 08193, Spain, 3Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra 08193, Spain.

810  W009 Effect of oral meloxicam on indicators of pain following band castration in beef calves.
S. Marti1, M. J. Jelinski1, L. C. Dorin1, E. D. Janzen1, M. E. Olson1, B. J. Ralston1, and K. S. Schwartzkopf-Genswein1, 1Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Veterinary Agri-Health Services, Airdrie, AB, Canada, 3University of Calgary, Calgary, AB, Canada, 4Alberta Veterinary Laboratories, Calgary, AB, Canada, 5Alberta Agriculture and Rural Development, Calgary, AB, Canada.

811  W010 Integrating animal science and human medicine: Development of a novel porcine model for calcium oxalate stone formation.
B. P. Trojan1, S. J. Trojan2, A. Navetta3, S. Filleur1, and T. Nelius1, 1Texas Tech University Health Sciences Center, Lubbock, 2Texas Tech University, Department of Animal and Food Sciences, Lubbock.

812  W011 Effects of group size and social rank on welfare and performance of gestating sows in a group-housing system with floor feeding.
Y. Li1 and L. Wang, University of Minnesota, West Central Research and Outreach Center, Morris, MN.

813  W012 Grazing and feedlot performance, and carcass quality measurements of beef cattle surgically castrated at different stages of maturity with or without analgesia.
E. A. Backes1, A. C. Brown1, E. B. Kegley2, J. T. Richerson2, H. D. Hughes2, M. L. Thomas1, K. Anschutz1, and J. G. Powell1, 1Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, AR, 2Department of Agricultural Sciences, West Texas A&M University, Canyon.
Evaluation of a disposition scoring system in pen-raised white-tailed deer.  
K. J. Stutts*, J. L. Lucia, M. J. Anderson, M. M. Beverly, and S. F. Kelley, Sam Houston State University, Huntsville, TX.

Objective movement of calf-fed Holstein steers fed in confinement.  
J. A. Reed1, N. May2, T. McEvers1, L. A. Walters1, J. P. Hutcherson2, and T. E. Lawrence3, 1West Texas A&M University, Canyon, 2Merck Animal Health, Summit, NJ, 3West Texas A&M University, Canyon.

A competitive and unpredictable feeding environment disrupts feeding and social behavior of pre-partum dairy cows.  
K. Proudfoot*, D. Weary2, and N. von Keyserlingk2, 1The Ohio State University, Columbus, 2The University of British Columbia, Vancouver, BC, Canada.

Effects of within dyad weight variation on competition, feed intake, and milk production of dairy cows sharing feeding gates.  

Impact of feeding and housing strategy on calf performance and behavior.  
S. H. Ward*, K. Parker, and K. Hart, Mississippi State University, Mississippi State.

Communicating farm animal welfare science: Wisconsin dairy producers’ attitudes toward and interest in cow welfare.  
C. Skasa1, S. Turner1, and A. L. Stanton*2, 1University of Wisconsin- Eau Claire, 2University of Wisconsin-Madison.

Effect of transportation stress on cytokine gene expression, hematocrit biometry and blood chemistry in heifers.  
B. Avila*, J. Kawas, D. Zamora, and H. Fimbres, Universidad Autónoma de Nuevo León, Escobedo, Nuevo León, Mexico.

Flight speed as predictor of cattle ability to adapt to feedlots.  
D. R. Soares*, J. N. S. G. Cyrillo1, A. C. Sant’Anna1, T. S. Valente4, K. S. Schwartzkopf-Genswein1, and M. J. R. Paranhos da Costa1, 1Bolsista do CNPq-Brasil. Programa de Pós-Graduação em Zootecnia, Faculdade de Ciências Agrárias e Veterinárias, UNESP, 14.884-900, Jaboticabal-SP, Brazil, 2Centro APTA Bovinos de Corte, Instituto de Zootecnia, Sertãozinho-SP, Brazil, 3Departamento de Zootecnia, Faculdade de Ciências Agrárias e Veterinárias, UNESP, 14.884-900, Jaboticabal-SP, Brazil, 4Programa de Pós-Graduação em Genética e Melhoramento Animal, Faculdade de Ciências Agrárias e Veterinárias, UNESP, 14.884-900, Jaboticabal-SP, Brazil, 5Agrociência Bovina de Corte de ALTO PRODUTIVIDADE, Faculdade de Ciências Agrárias e Veterinárias, UNESP, 14.884-900, Jaboticabal-SP, Brazil.

Influence of pen-shade on respiratory rate and panting score in two breed types of growing bull-calves.  
A. Camacho*, B. J. Cervantes3, L. R. Flores2, J. J. Lomeli1, J. A. Romo1, and R. Barajas4, 1FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico, 2Ganadera los Miguels, S.A. de C.V., Culiacan, Mexico.

Association among residual feed intake, residual body weight gain, residual intake and body weight gain and temperament of Nellore cattle.  
C. L. Francisco*, A. M. Jorge2, A. M. Castilhos1, F. D. Resende1, J. M. B. Benatti1, M. B. Silva1, and R. F. Cooke1, 1Universidade Estadual Paulista-FMVZ, Botucatu, Brazil, 2Faculdade de Medicina Veterinária e Zootecnia, Universidade Estadual Paulista, Botucatu-SP, Brazil, 3Agência Paulista de Tecnologia dos Agronegócios-APTA, Colina, Brazil, 4Universidade Estadual Paulista-FCAV, Jaboticabal, Brazil, 5Oregon State University-EOARC Burns.

Association among peripartum health parameters, cud chewing and activity.  
D. N. Liboreiro*, K. S. Machado1, P. Basso Silva2, M. M. Filho1, G. Franco3, A. E. Barreto3, M. I. Endres2, and R. C. Chebel1, 1Department of Veterinary Population Medicine, University of Minnesota, St. Paul, 2University of Minnesota, Saint Paul, 3Department of Veterinary Population Medicine, St Paul, MN.

Animal welfare policies in South Korea.  
D. H. Kim1, J. H. Jeon2, S. H. Moon3, M. J. Kim4, D. M. Ha5, H. S. Park6, N. Whitley7, and S. H. Oh8, 1Gyeongnam National University of Science and Technology, Jinju, South Korea, 2National Institute of Animal Science, Sunwon, South Korea, 3Konkuk University, Chungju, South Korea, 4Seongwoon Livestock Production, Geochang, South Korea, 5North Carolina A&T State University, Greensboro.

Influence of environmental conditions across day on respiratory rate and panting score of beef cattle in a hot and humid weather.  
A. Camacho*, B. J. Cervantes3, E. X. Murillo1, M. B. Corona1, M. A. Osuna1, and R. Barajas4, 1FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico, 2Ganadera los Miguels, S.A. de C.V., Culiacan, Mexico.
Animal Health: Cow and Heifer Health

864 W026 Identification of serum innate immunity reactants in transition dairy cows before clinical signs of laminitis.

865 W027 Milk yield and reproductive performance of Holstein cows seropositive for tuberculosis.
D. S. Resendiz*, Universidad Autónoma Agraria Antonio Narro, Torreon, Mexico.

866 W028 Behavior of lactating dairy cows under mild and severe heat stress with free access or not to shade.
V. Fischer1, E. Forgiarini Vizzotto1, A. Susenbach de Abreu1, A. Thaler Neto2, M. Tempel Stumpf1, D. Werncke1, and F. André Schmidt3, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, 2Universidade Estaual de Lages, Lages, Brazil.

867 W029 Risk factors for hypocalcemia incidence and their effect on milk yield and reproduction in a grazing Jersey, Guernsey and Holstein herd in Costa Rica.

868 W030 Activation of innate immunity in transition dairy cows before clinical appearance of milk fever.

869 W031 Transition dairy cows show blood alterations in innate immunity ahead of occurrence of retained placenta.

870 W032 Hypocalcemia and hypomagnesemia prevalence in a grazing Jersey, Guernsey and Holstein herd in Costa Rica.

871 W033 Milk and blood selenium concentrations in dairy cattle differ depending on the source of selenium supplementation (sodium selenite, selenium-yeast or l-selenomethionine).
L. Vandaele1, B. Ampe1, S. Wittocx2, L. Segers2, M. Rovers*2, A. van der Aa1, G. du Laing4, and S. De Campeneere1, 1Institute for Agricultural and Fischeries Research (ILVO), Melle, Belgium, 2Orffa Additives BV, Werkendam, Netherlands, 3Excentials BV, Werkendam, Netherlands, 4Ghent University, Gent, Belgium.

872 W034 Dynamic of intramammary infections in ¾ Holstein x Zebu dairy cows from a herd of Minas Gerais State, Brazil.
C. V. Ladeira1, F. N. Souza1, D. R. Freitas1, L. G. Ladeira2, D. S. Rodrigues2, M. O. Leite1, L. F. Fonseca1, C. M. Penna1, M. A. P. Brito2, and M. P. Cerqueira2, 1Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 2EPAMIG, Belo Horizonte, Brazil, 3Embrapa, Juiz de Fora, Brazil, 4Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil.

873 W035 In vitro efficacy of teat disinfectants against Staphylococcus aureus strains isolated from bovine mastitis in Brazil.
R. P. Santos1, E. N. Souza1, C. C. Vasconcelos2, A. Cortez2, D. O. Lapinha1, A. B. Jardim1, A. F. Cunha1, M. O. Leite1, M. R. Souza1, A. Q. Lana1, M. B. Heinemann1, and M. P. Cerqueira2, 1Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 2Laboratorio Veterinario Vida seja, Botucatu, Brazil, 3Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil.

874 W036 Profile of clinical and subclinical mastitis pathogens isolated from cows housed on compost bedding.

875 W037 Risk factors for repeated cases of clinical mastitis during the same lactation.
B. dos Santos, G. G. Wanderley, H. Langoni, and J. C. F. Pantoja*, Sao Paulo State University, Botucatu, Brazil.

876 W038 Incidence of retained placenta and the consequences on milk production and reproductive efficiency of Holstein cows.
E. V. Rezende, C. C. Campos, and R. M. Santos*, FAMEV-UFU, Uberlândia, Brazil.

877 W039 Associations between severity and etiology of clinical mastitis and pregnancy outcomes to first-service in dairy cows.
M. J. Fuenzalida1, P. D. Carvalho2, M. C. Wilbank2, P. M. Fricke3, and P. L. Ruegg3, 1Department of Dairy Science, University of Wisconsin-Madison, 2University of Wisconsin-Madison.

878 W040 Application of probiotics in the vaginal tract modulated bacterial composition in transition dairy cows.
B. N. Ametaj*, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.
Intravaginal administration of probiotics modulated serum metabolites and milk composition of transition dairy cows.
B. N. Ametaj*, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Association among peripartum body condition score and metabolic parameters of Jersey cows and cure of sub-clinical and clinical mastitis postpartum.
D. N. Liboreiro* and R. C. Chebel, Department of Veterinary Population Medicine, University of Minnesota, St. Paul.

Evaluation of the ketone bodies concentration and clinical parameters in dairy cows supplemented with rumen-protected choline during the transition period.

Switching lactating Jersey cows from a high neutral detergent fiber diet to an isoenergetic high soluble carbohydrate diet induces mild inflammation.
G. Taasoli1,2, C. R. Nightingale1, F. Kafizadeh, D. Ghadimi, J. A. Carroll, and M. A. Ballou, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Razi University, Department of Animal Science, Kermanshah, Iran, 3MRI, Institute of Physiology and Biochemistry, Karlsruhe, Germany, 4USDA-ARS, Livestock Issues Research Unit, Lubbock, TX.

Effects of oral calcium supplementation on body temperature, incidence of uterine diseases, and milk yield in dairy cows.

Blood calcium dynamics after prophylactic treatment of subclinical hypocalcemia with oral or intravenous calcium.
C. D. Blanc1,2, M. Van der List2, S. S. Aly, H. A. Rossow, and N. Silva-del-Rio, 1Pacific Rim Dairy, Corcoran, CA, 2Boehringer Ingelheim, St Joseph, CA, 3VMTRC, University of California, Tulare.

Pregnant beef heifers categorized by residual feed intake measured in adolescence exhibit differential intake and feeding behaviors when fed a restricted diet.
C. Fitzsimmons1,2, G. Muhire1,2, F. Paradis1,2, L. McKeown1,3, C. Straathof1, H. Block4, M. G. Colazo3, C. Li1,2, B. Yaremcio5, J. A. Basarab6, and H. Bruce1, 1University of Alberta, Edmonton, AB, Canada, 2Agriculture and Agri-Food Canada, Edmonton, AB, Canada, 3Alberta Agriculture and Rural Development, Edmonton, AB, Canada, 4Alberta Agriculture and Rural Development, Lacombe, AB, Canada, 5Alberta Agriculture and Rural Development, Stettler, AB, Canada, 6Alberta Agriculture and Rural Development, Lacombe, AB, Canada.

Physiological stress response of heifers divergently ranked for residual feed intake following a bovine corticotrophin releasing hormone challenge.
A. K. Kelly1,2, A. G. Fahey, B. Earley, M. McGee, and D. A. Kenny, 1School of Agriculture and Food Science, University College Dublin, Dublin, Ireland, 2School of Agriculture and Food Science, University College Dublin, Dublin 4, Ireland, 3Teagasc Grange, Dunsany Co Meath, Ireland, 4Teagasc Grange, Meath, Ireland.

Relationship of metabolic hormones, urea and body composition with feed efficiency in Angus heifers carrying different genetic markers under grazing conditions.
A. I. Trujillo, A. Casal, M. Carriquiry, and P. Chilibroste, 1Facultad de Agronomía, Universidad de la Republica, Montevideo, Uruguay, 2Facultad de Agronomía, Universidad de la Republica, Paysandu, Uruguay.

Effects of maternal plane of nutrition during mid- or late gestation on beef cow performance and progeny performance through weaning.
T. B. Wilson* and D. W. Shike, University of Illinois at Urbana-Champaign.

Effects of prepartum plane of nutrition during mid- or late gestation on beef cow BW, BCS, and preimplantation embryo recovery.
W. C. Meteer*, T. B. Wilson, P. Cardoso, and D. W. Shike, University of Illinois at Urbana-Champaign.

Effects of breed, sex, parity, birth year and birth season on body weight traits for five local cattle breeds and crossbreds in arid region of Punjab, Pakistan.
G. Bilal*, M. Moaen-ud-Din, M. Aqeel, A. Ijaz, M. S. Khan, M. Y. Gondal, K. M. Khan, M. Mukhtar, and M. N. Manzoor, 1PMAS-Arid Agriculture University, Rawalpindi, Pakistan, 2University of Agriculture, Faisalabad, Pakistan, 3Barani Livestock Production Research Institute, Attock, Pakistan.
Effect of rumen protected carbohydrate supplementation on performance and plasma glucose concentrations in growing heifers.


Evaluation of forage soybean, with and without pearl millet, as an alternative forage for developing beef replacement heifers.

E. Taylor, P. J. Gurni, L. A. Horstman, R. L. Atkinson, K. D. Johnson, and R. P. Lemenager, Purdue University, West Lafayette, IN, Iowa State University, Ames, Purdue University, West Lafayette, IN, Southern Illinois University-Carbondale.

Plasma glucose concentration, subcutaneous fat thickness, and puberty attainment in Nelore heifers treated with recombinant bovine somatotropin.


Effect of dried distillers grains with solubles and dried citrus pulp supplementation on metabolic and reproductive parameters of Charolais beef cows grazing buffelgrass in northeastern Mexico.


Evaluation of anthelmintic resistance of intestinal parasitic nematodes in heifers in south central Nebraska.


Effect of an injectable trace mineral on pregnancy rate of virgin heifers when synchronized using the 5 day Co-Synch plus CIDR or 14 day CIDR-PG protocol.

C. J. Brasche, J. B. Hall, M. E. Drewnoski, University of Idaho, Moscow.

Oral supplementation with selenium for young Brangus bulls raised in pasture: Seminal quality in fresh and frozen semen.


Use of vitamin C combined to pentoxifylline and fertility in cattle after cryopreservation.


Whole genome association analysis for detecting QTL related to fat and protein production in buffaloes.

H. Tonhati, D. F. Cardoso, R. R. Aspicuelta Borquís, N. A. Hurtado Lugo, G. M. de Camargo, L. G. Albuquerque, D. J. A. Santos, D. C. Scailez, and M. C. Nakagawa, State University of Sao Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, Brazil, Universidade Estadual Paulista “Julio de Mesquita Filho” (FCAV-UNESP), Jaboticabal, Brazil, UNESP Univ Estadual Paulista, Jaboticabal, Brazil, State University of Sao Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, Sao Paulo, Brazil.

Evaluation of single nucleotide polymorphism markers on four pig chromosomes for potential associations with halothane sensitivity phenotypes in a population of Yorkshire-Landrace pigs.


Growth rate of purebred Berkshire pigs housed in hoop buildings in North Carolina.

S. H. Oh, N. Whitley, F. McElveen, and H. S. Park, North Carolina A&T State University, Greensboro.

Use of the canonical discriminant analysis for selecting a panel of informative markers in 21 Italian sheep breeds.

C. Dimauro, M. Cellesi, L. Nicoloso, P. Crepaldi, N. P. P. Macciotta, G. Pulina, and F. Pilla, Università di Sassari, Sassari, Italy, Università di Milano, Milano, Italy, Dipartimento di Agraria, University of Sassari, Sassari, Italy, Università del Molise, Campobasso, Italy.

Genomic differences between Rambouillet sheep selected for high and low reproductive rate.

Breeding and Genetics: Molecular Biology and Genomics

W066 Associations of the NCAPG 1442M and GDF8 Q204X loci on feed efficiency at the onset of puberty in a beef x dairy cattle resource population.
C. Kühn*, P. Widmann, R. Weikard, and E. Albrecht, Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany.

W067 Association of DNA methylation levels with tissue-specific expression of adipogenic and lipogenic genes in longissimus dorsi muscle of Korean cattle.
M. Baik*, T. T. T. Vu, M. Y. Piao, and H. J. Kang, 1Department of Agricultural Biotechnology, College of Agriculture and Life Sciences, Seoul National University, Seoul, South Korea, 2Chonnam National University, Gwangju, South Korea.

Changes in the cattle cervical transcriptome between estrus and luteal phase.
D. Gonzalez-Peña Fundora*, P. Cardoso, M. B. Wheeler, and S. L. Rodriguez Zas, University of Illinois at Urbana-Champaign.

W069 Physical and chemical and fatty acid profile in the steers beef with different genetic predominance fed with diets containing substitutions levels of corn by pearl millet.
R. M. D. Silva*, J. T. Paudua, J. J. R. Fernandes, R. Z. Taveira, R. L. Missio, P. S. Pacheco, D. A. Fausto, and J. Restle, 1Universidade Estadual de Goiás, São Luís de Montes Belos, Goiás, Brazil, 2Universidade Federal de Goiás, Goiânia, Goiás, Brazil, 3FAPEG, Goiânia, Goiás, Brazil, 4Universidade Federal de Goiás, Goiânia, Goiás, Brazil, 5Universidade Federal de Goiás, Goiânia, Goiás, Brazil, 6Universidade Tecnológica Federal do Paraná, Parana, Brazil, 7Universidade Federal de Santa Maria, Santa Maria, Rio Grande do Sul, Brazil, 8ESALQ / USP, Piracicaba, São Paulo, Brazil.

W070 Major loci associated with growth traits on BTA14 in Hanwoo (Korean cattle).
S. W. Lee*, K. Y. Chung, U. H. Kim, B. W. Choi, D. Lim, Y. M. Cho, C. G. Dang, H. C. Kim, S. H. Yeon, H. S. Kang, and C. Gondro, 1Hanwoo Experiment Station, NIAS, RDA, Pyeongchang, South Korea, 2Animal Genomics & Bioinformatics Division, NIAS, RDA, Saway, South Korea, 3University of New England, Armidale 2350, Australia.

Dairy Foods: Technical Poster Session III: Fluid Milk

W073 Interaction of bovine and caprine milk alpha-caseins with tea polyphenols.
A. Mora-Gutierrez* and R. Attatte, Prairie View A&M University, Prairie View, TX.

W074 Comparison of Jersey And Holstein-Friesian milk composition and coagulation properties.
J. H. Bland*, C. C. Fagan, and A. S. Grandison, University of Reading, Reading, United Kingdom.

W075 Light exposure affects milk acceptability and emotional response of college students.
A. M. Walsh, H. Potts*, and S. Duncan, Virginia Tech, Blacksburg.

W076 Fatty acid compositions of low-fat goat milk ice creams formulated with commercial ice cream mix and 3 different levels of caprine milk fat.
C. E. McGhee, B. P. Gupta*, and Y. W. Park, Fort Valley State University, Fort Valley, GA.

W077 Application of non-nutritive natural sweeteners to skim chocolate milk.
X. E. Li*, K. Lopetcharat, and M. Drake, Southeast Dairy Foods Research Center, NCSU, Raleigh, NC.

W078 Cross-linking of milk proteins can reduce its susceptibility to plasmin-induced hydrolysis.
H. Bhatt*, A. Cuceval, C. Coker, H. G. Patel, A. Carr, and R. Bennett, 1Massey University, Palmerston North, New Zealand, 2Fonterra Research & Development Centre, Palmerston North, New Zealand, 3South Dakota State University, Brookings.

W079 Optimization of gamma-aminobutyric acid production of Lactobacillus plantarum and determination of flavor substances in gamma-aminobutyric acid-enriched fermented milk.
L. Li*, C. Man*, T. Li, Y. Shan*, Y. Deng, M. Ding, M. Guo*, and Y. Jiang, 1Department of Food Science, Northeast Agricultural University, Harbin, China, 2National Dairy Engineering and Technology Research Center, Northeast Agricultural University, Harbin, China, 3Synergetic Innovation Center of Food Safety and Nutrition, Harbin, China, 4University of Vermont, Burlington.
1026  W080  Comparison of odd and branched chain fatty acids profiles of cow, yak, buffalo, Jersey cattle, goat, camel and horse milk fat.
L. Ma1,2, D. P. Bu3, J. T. Chen1, and J. Q. Wang4, 1Inner Mongolia Agricultural University, Huhhot, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1027  W081  Detection and comparison of major and trace elements from different species milk by inductively coupled plasma-mass spectrometry.
L. Ma, D. P. Bu, J. T. Chen, and J. Q. Wang, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1028  W082  Identification of microRNA in fresh milk of cow and goat.
D. P. Bu1, L. Ma1, X. M. Nan1, J. J. Loor2, and J. Q. Wang*1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2University of Illinois at Urbana-Champaign.

1029  W083  Sodium azide and potassium dichromate not suitable preservative of raw milk for detection β-lactamase by cylinder plate method.
Y. Zhang1,2,3, N. Zheng1,2,3, F. Wen1,2,3, S. Li1,2,3, S. Zheng4, and J. Wang*1,2,3, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products (Beijing), Beijing, China, 2Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1030  W084  Discrimination of reconstituted milk and over-processed milk in pasteurized and UHT milk.
H. Wang1,2,3, N. Zheng1,2,3, F. Wen1,2,3, H. Wang2, X. Guo1,2,3, S. Li1,2,3, and J. Wang*1,3, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Yangzhou University, Yangzhou, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1031  W085  Caseinomacropeptide index (CMP), microbiology and protein content of UHT chocolate milk-whey-based drinks in Brazil.
F. P. Paula1, L. M. Melgaço1, A. B. Jardim1, C. F. A. M. Penna2, L. M. Fonseca1, M. R. Souza2, M. P. Cerqueira1, and M. O. Leite*2, 1Universidade Federal de Minas Gerais, Belo Horizonte, Brazil, 2Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil.

1032  W086  Stability of vitamin A palmitate in raw skim milk and apple juice on exposure to ultraviolet light.
M. S. Mohan* and F. Harte, University of Tennessee, Knoxville.

1033  W087  Effect of abomasal ferrous lactate infusion of dairy cows on milk proteins.
A. Wang*1, A. M. Dietrich1, S. Duncan1, K. F. Knowlton1, and W. Slade2, 1Virginia Tech, Blacksburg, 2University of North Carolina at Chapel Hill.

1034  W088  Effect of high hydrostatic pressure processing on in vitro digestion of milk proteins and fats.
D. X. Ren1,2, D. L. Van Hekken1, M. H. Tunick1, and P. M. Tomasula1, 1USDA, ARS, ERRC, Dairy & Functional Foods Research Unit, Wyndmoor, PA, 2Institute of Dairy Science, College of Animal Science, Zhejiang University, Hangzhou, P.R., China.

1035  W089  Effect of storage temperature on the physio-chemical properties of skim milk powders treated with chelators.
V. Sikand1, P. S. Tong1, S. Yink1, and S. Roy2, 1Department of Dairy Science, California Polytechnic State University, San Luis Obispo, 2Department of Statistics, California Polytechnic State University, San Luis Obispo.

1036  W090  Effect of sunflower oil, vitamin E and selenium inclusion in the diet of dairy cows on the sensory acceptability of milk.
L. F. D’Abreu1, C. Rodrigues, A. Saran Netto, J. L. Guimarães, M. A. Silva, and N. D. P. Lopes, School of Animal Science and Food Engineering, University of São Paulo, Pirassununga, Brazil.

Forages and Pastures Posters III: General forages and forage systems

1037  W091  Effect of plant density on nutritional quality of green chopped corn.
G. Ferreira1,2, D. Carp1, M. Alfonso1, and S. Depino1, 1Department of Dairy Science, Virginia Polytechnic Institute and State University, Blacksburg, 2CREA Lincoln, Asociación Argentina de Consorcios Regionales de Experimentación Agropecuaria, Lincoln, Buenos Aires, Argentina.

1038  W092  Assessment of in vitro fermentation characteristics of lactation dairy diets consisting of orchardgrass or birdsfoot trefoil pasture forages with different supplements using continuous cultures.
R. G. Christensen1, A. J. Young1, J. S. Eun1, J. W. MacAdam1, and B. R. Min2, 1Utah State University, Logan, 2Tuskegee University, Tuskegee, AL.
1106 W093  Fatty acid profile and oxidative stability of carcass fat from meat goats fed grass-legume forage diets.
B. R. Min*, Tuskegee University, Tuskegee, AL.

1107 W094  Effects of moisture level at baling and FRESH CUT plus on quantity and quality of alfalfa hay harvested in large rectangular bales.

1108 W095  Estimation of macronutrients content in mixed swards by near infrared reflectance spectroscopy.
A. I. Roca-Fernández*, P. Castro-García, and A. González-Rodríguez, Agrarian Research Centre of Mabegondo, La Coruña, Spain.

1109 W096  Fall harvest management of Eastern gamagrass.

1110 W097  Fertilization of fall-grown oat with urea or bedded-pack manure.

1111 W098  Nutrient composition and in vitro digestibility of cultivated and non-cultivated plant species found within a Southwestern forage production operation.
J. D. Allen*, L. W. Hall, and J. English, *Northwest Missouri State, Maryville, 1The University of Arizona, Tucson.

1112 W099  Effects of Marandu pastures height and sources of energy supplements on the weight gains per animal and per area.
A. A. Oliveira*, M. V. Azenha*, S. S. Santana, C. H. O. Macedo, J. P. R. Costa, T. T. Berchielli, A. C. Ruggieri, and R. A. Reis, 1UNESP, Jaboticabal, Brazil, 2University of Sao Paulo State, Jaboticabal, Brazil, 3University of Sao Paulo State University, Jaboticabal, Brazil.

1113 W100  Effect of sowing date on forage yields and quality of Italian ryegrass in early spring-seeded.
K. Kim*, Livestock Institute, Jeollanamdo, South Korea.

1114 W101  Relationship between protein structural characteristics and supply of metabolizable protein to dairy cattle from new cool-season forage corn varieties in Western Canada.
N. A. Khan, S. Abeysekara, D. A. Christensen, X. Huang, and P. Yu, University of Saskatchewan, Saskatoon, SK, Canada.

1115 W102  Evaluation of agronomic characteristics of five varieties of corn in integrated crop-livestock-forest system.
A. A. Pinheiro*, M. C. A. Santana, V. A. Silva, J. T. C. Pacheco, A. C. Fernandes, and I. D. Carneiro, 1Emater, Goiânia, Brazil.

1116 W103  Non-structural carbohydrates in Marandu-grass pastures under different grazing intensities.
M. V. Azenha*, L. F. Brito, A. A. Oliveira, E. R. Janusckiewicz, E. Raposo, S. S. Santana, R. A. Reis, and A. C. Ruggieri, 1University of Sao Paulo State, Jaboticabal, Brazil, 2University of Sao Paulo State University, Jaboticabal, Brazil.

1117 W104  Production and quality of alfalfa harvested on different stages of maturity in summer and fall.

1118 W105  Effect of cultivars and planting dates on bioenergy feedstock characteristics of switchgrass (Panicum virgatum) in South Korea.
B. Kim*, M. M. Sargolzehi, B. Lee, D. Ji, J. Peng, J. Nejad, S. Kang, J. Kim, and K. Sung, 1Department of Animal Life System, College of Animal Life Science, Kangwon National University, Chuncheon, South Korea, 2Department of Animal Science, College of Agriculture, Ferdowsi University of Mashhad, Mashhad, Iran, 3Planning and Coordination Division, National Institute of Animal Science, Savon, South Korea, 4Department of Agronomy, College of Agriculture, Kansas State University, Manhattan.

1119 W106  Morphological composition of Piata palisade grass tillers subjected to strategies of intermittent defoliation.
G. O. Rocha*, F. H. Chizzotti, D. M. Fonseca, M. E. Santos, and B. M. Pereira, 1Universidade Federal de Viscosa, Viscosa, Brazil, 2Universidade Federal de Uberlandia, Uberlandia, Brazil.

1120 W107  Chemical composition and in situ dry matter degradability of tropical forages grasses in Northeastern Brazil.

1121 W108  Influence of phenological stage on fresh forage, hay and silage on nutritional value of tall wheatgrass.
Spatio-temporal evaluation of the nutritive value of *Croton cortesianus* and *Leucophyllum frutescens* through in vitro fermentation kinetics.  
M. S. Alvarado¹, M. Guerrero-Cervantes*, H. González-Rodríguez², Domínguez-T. G. Gómez¹ and A. Juárez-Reyes¹, ¹Universidad Juárez del Estado de Durango, Durango, Mexico, ²Universidad Autónoma de Nuevo León, Linares, Nuevo León, México.  

Reduction of enteric methane emission by using tannin supplementation in grazing goats.  
A. C. Ruggieri*, N. C. Meister, F. O. Alari, V. C. Silva, N. L. Santos, and E. B. Malheiros, Sao Paulo State University, Jaboatocaíba, Brazil.  

Nutritive value of buffelgrass-based diets supplemented with dried distillers grains with solubles and dried citrus pulp.  
N. C. Vásquez Aguilar¹, H. Bernal Barragán¹, G. R. Ramirez Lozano¹, M. Cerrillo Soto², M. V. Gómez Meza¹, E. Gutiérrez Ornelas¹, and M. Guerrero Cervantes², ¹Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Mexico, ²Red Internacional de Nutrición y Alimentación en Rumiantes, Durango, Mexico, ³Universidad Juárez del Estado de Durango, Durango, México.  

Lignin concentration and its correlation with degradability of tropical grasses.  
A. Vargas Velásquez*, Universidade de São Paulo, Pirassununga, Brazil.  

Chemical characterization and in vitro fermentation activity of tropical legumes.  
I. Scull-Rodriguez¹, M. A. Cerrillo Soto², O. Olaño¹, M. Guerrero-Cervantes³, A. Juárez-Reyes³, and R. Herrera-García¹, ¹Instituto de Ciencia Animal, San José de las Lajas, Cuba, ²Red Internacional de Nutrición y Alimentación en Rumiantes, Durango, Mexico, ³Universidad Juárez del Estado de Durango, Durango, México.  

Modeling dry matter production in *Panicum maximum* grasses.  
V. L. N. Brandao¹, M. I. Marcondes², F. H. M. Chizzotti², and H. Bandeira², ¹Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, ²Federal University of Viçosa, Viçosa, Brazil.  

Effect of incubation temperature on the proliferation and differentiation of pig preadipocytes in primary culture.  
A. E. Bohan*, J. Bartosh, and T. D. Brandebourg, Auburn University, Auburn, AL.  

Effects of maternal nutrient restriction on muscle satellite cell activity.  

Effects of milk replacer and multivitamin-mineral supplementation on performance of heat stressed dairy calves.  
S. Blair¹, C. C. Williams¹, B. F. Jenny¹, M. Thomas¹, V. Morgan¹, and T. Earleywine¹, ¹LSU AgCenter, Baton Rouge, ²Land O’Lakes Animal Milk Products, Shoreview, MN.  

Effects of milk replacer feeding frequency on growth and performance of neonatal Holstein calves.  

High energy diet enhances intramuscular adipogenesis in Hanwoo steers distributed to breeding value for meat quality.  

Impact of the sires on puberty onset in Nellore heifers.  
M. V. C. Ferraz Jr.*¹, A. V. Pires², M. V. Bich³, J. P. C. Thiemet, E. M. Moreira³, J. A. Faleiro Neto³, and J. R. S. Gonçalves¹, ¹University of São Paulo-FMVZ-USP, Pirassununga, Brazil, ²University of São Paulo-ESALQ-USP, Piracica, Brazil, ³Experimental Station Hildegard Georgina von Pitzelwitz, Londrina, Brazil.  

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<td>University of Hawaii, Honolulu, ¹National Institute of Animal Science, RDA, Suwon, South Korea.</td>
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<td>Universidade Estadual Paulista-FMVZ, Botucatu, Brazil, ¹Centro APTA Bovinos de Corte, Instituto de Zootecnia, Serviço-SP, Brazil.</td>
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<td>Land O’Lakes Animal Milk Products, Shoreview, MN, ¹Land O’Lakes-Purina Feed LLC, Gray Summit, MO, ¹Land O’Lakes, Inc., Webster City, IA.</td>
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<td>Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, Instituto Nacional de Ciência e Tecnologia-Ciência Animal, Viçosa, Minas Gerais, Brazil.</td>
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Composition of follicular fluid and serum, ovarian dynamics, and IGF-1 concentrations following n-3 fatty acid supplementation in mares.

S. E. Buist1*, M. J. Schmidt1, D. M. Greiger1, C. A. Blevins1, S. K. Wehrl2, T. L. Douthit3, L. Murray3, and J. M. Kouba1, 1Kansas State University, Manhattan, 2JBS United, Baylis, IL.

Day length affects simultaneously mammary epithelium integrity and mammary epithelial cell exfoliation in milk.

M. Boutinaud1*, A. Bondol1, P. Debournoux1, J. Couedon1, M. Johan1, A. Narcy2, and C. Hurtault1, 1INRA, Saint-Gilles, France, 2INRA, Nouzilly, France.

Serotonin receptors expression in caprine and ovine mammary gland by Real Time PCR-RT.

A. Suárez-Trujillo1*, A. Argüello1, M. A. Rivero2, J. Capote1, and N. Castro1, 1Department of Animal Science, Universidad de Las Palmas de Gran Canaria, Arucas, 35413, Las Palmas, Spain, 2Department of Morphology, Universidad de Las Palmas de Gran Canaria, Arucas, 35413, Las Palmas, Spain, 3Canarian Agronomic Science Institute, La Laguna, 38200, Tenerife, Spain.

Immortalization of a primary bovine mammary epithelial cell line by the SV40 large T-antigen gene.

H. Hu1,2,3, N. Zheng1,2,3, W. Dai1,2,3, H. Gao1,2,3, and J. Wang1,2,3, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China, 3Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China.

Color measurement as potential tool for determination of colostrum quality in primiparous and multiparous dairy cows.

J. J. Gross1*, E. C. Kessler1, and R. M. Bruckmaier2, 1Veterinary Physiology, Vetsuisse Faculty University of Bern, Bern, Switzerland, 2Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

Effect of milk yield genotype on gene expression in liver and adipose tissue from periparturient Holsteins.

W. J. Weber1, M. Carriquiry2, S. C. Fahrenkrug1, and B. A. Crooker1*, 1University of Minnesota, Saint Paul, 2Universidad de la República, Montevideo, Uruguay.


L. J. Juengst1*, E. E. Connor2, R. L. Baldwin, VI3, and B. J. Bequette1, 1Department of Animal and Avian Sciences, University of Maryland, College Park, 2USDA-ARS, Bovine Functional Genomics Laboratory, Beltsville, MD, 3USDA-ARS, BFGL, Beltsville, MD.

Is there a core microbiome in bovine milk samples from healthy quarters with somatic cell counts of less than 200,000 cells/mL?

S. L. Brooker1*, J. E. Williams1, S. M. Reynolds1, K. M. Yahvah1, L. K. Fox2, and M. A. McGuire1, 1University of Idaho, Moscow, 2Washington State University, Pullman.

Impact of machine milking on teat dimensions.

J. F. Guarin1*, D. J. Reinemann2, and P. L. Ruegg3, 1Department of Dairy Science, University of Wisconsin-Madison, 2Grupo de Investigación Biogénesis, Facultad de Ciencias Agrarias, Universidad de Antioquia, Medellin, Colombia, 3Department of Biological Systems Engineering, University of Wisconsin-Madison.

Comparison of ecological indices of bacterial communities in bovine milk varying in somatic cell count.

J. E. Williams1*, S. M. Reynolds1, K. M. Yahvah1, S. L. Brooker1, L. K. Fox2, B. Shafii3, and M. A. McGuire1, 1University of Idaho, Moscow, 2Washington State University, Pullman.

Effects of arginase inhibition on casein expression and proliferation of bovine mammary epithelial cells.

S. L. Brooker1, M. Wang1, L. Chen1, H. Wang1, and J. J. Loor2*, 1Yangzhou University, Yangzhou, China, 2University of Illinois at Urbana-Champaign.

Sun dried meat quality derived from young bulls fed licuri cake derived from biodiesel production.


Processed burger quality derived from young bulls fed licuri cake from biodiesel production.

R. L. Oliveira1, A. A. L. Govêa1, A. G. Leão1, C. B. D. Pellegrini1, N. G. D. N. Júnior1, C. L. D. Abreu1, T. M. Silva1, V. B. D. Silva1, and E. S. dos Santos1, 1Universidade Federal da Bahia, Salvador, Brazil, 2Federal University of Bahia, Salvador, Brazil.
1266 W153 Collagen, cooking losses and shear force of aged meat from Nellore steers fed protected or unprotected linseed oil.
W. Henrique*, L. R. Simonetti, T. M. Pivaro, V. G. Carvalho, E. A. Oliveira, C. C. P. D. Paz, and A. A. M. Sampaio,
1Instituto de Zootecnia, Sertãozinho, Brazil, 2Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 3FCAV/UNESP, Jaboticabal, Brazil, 4Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil, 5Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 6Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil.

1267 W154 Effect of aging times and inclusion of unprotected or protected linseed oil on the diet of Nellore steers over the color of Longissimus.
W. Henrique*, L. R. Simonetti, T. M. Pivaro, V. G. Carvalho, E. A. Oliveira, C. C. P. D. Paz, and A. A. M. Sampaio,
1Instituto de Zootecnia, Sertãozinho, Brazil, 2Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 3Instituto de Zootecnia, Sertãozinho, Brazil, 4Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil, 5 Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 6Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil.

1268 W155 Aging times and inclusion of unprotected or protected linseed oil on Nellore steers diet and its influence on cholesterol and lipid oxidation of the meat.
L. R. Simonetti*, W. Henrique, T. M. Pivaro, V. G. Carvalho, E. A. Oliveira, C. C. P. D. Paz, and A. A. M. Sampaio,
1Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 2Instituto de Zootecnia, Sertãozinho, Brazil, 3FCAV/UNESP, Jaboticabal, Brazil, 4Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil, 5Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 6Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil.

1269 W156 Effect of aging times and inclusion of unprotected or protected linseed oil from ruminal degradation on the diet of Nellore steers over pH and water holding capacity of meat.
L. R. Simonetti*, W. Henrique, T. M. Pivaro, V. G. Carvalho, E. A. Oliveira, C. C. P. D. Paz, and A. A. M. Sampaio,
1Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 2Instituto de Zootecnia, Sertãozinho, Brazil, 3FCAV/UNESP, Jaboticabal, Brazil, 4Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil, 5Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 6Universidade Estadual “Júlio de Mesquita Filho”-FCAV, Jaboticabal, Brazil.

1270 W157 Aged beef from Nellore young bulls fed crude glycerin in diets with different roughage sources.
1Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 2Universidade Estadual Paulista “Júlio de Mesquita Filho” / UNESP, Jaboticabal, Brazil, 3Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 4Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 5Universidade Estadual Paulista, Jaboticabal, Brazil.

1271 W158 Effect of aging times on tenderness of five muscles from carcass of Nellore young bulls.
1Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 2Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 3Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 4Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 5Universidade Estadual Paulista, Jaboticabal, Brazil.

1272 W159 Color and pH of meat aged from Nellore young bulls fed crude glycerin associated with soybean grain in low or high starch diets.
1Universidade Estadual Paulista Júlio de Mesquita Filho-UNESP, Jaboticabal, Brazil, 2Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 3Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 4Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, 5Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil.

1273 W160 Effects of excess dietary sulfur on beef carcass characteristics and quality after aging.
J. Hawley*, E. B. Kegley, J. W. Vancy, and J. K. Apple, Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, AR.

1274 W161 Effect of beta agonist and immunocastration on meat characteristics of Nellore cattle.
M. Rezende Mazon*, S. Luz e Silva, D. Silva Antônio, K. Nubiato, D. Juliana Brigida, B. Baptista, and P. R. Leme,
1University of Sao Paulo, Pirassununga, Brazil, 2University of Sao Paulo / FZEA, Pirassununga, Brazil, 3Universidade de Sao Paulo, Pirassununga, Brazil.

1275 W162 The use of bioelectrical impedance analysis to predict carcass composition in calf-fed Holstein steers.
N. D. May*, T. J. McEvers, L. A. J. Walter, J. A. Reed, J. P. Hutcherson, and T. E. Lawrence,
1West Texas A&M University, Canyon, 2Merk Animal Health, DeSoto, KS.

1276 W163 Increasing levels of sodium benzoate affect myosin heavy chain type expression in cultured bovine satellite cells.
J. O. Baggerman*, J. E. Hergenreder, and B. J. Johnson, Texas Tech University, Lubbock.
Surgical castration and immunocastration improve cuts yield of high market value from animals crossbred Aberdeen Angus x Nellore.
A. D. Moreira¹, F. D. Resende², G. R. Siqueira¹, J. M. B. Benatti¹, M. H. Moretti⁴, J. A. Alves Neto¹, B. S. Lima², J. F. Lage⁶, G. Z. Miguel⁵, P. H. Gonçalves¹, and F. D. Santos¹, ¹Universidade Estadual Paulista, Jaboticabal, Brazil, ²Agência Paulista de Tecnologia dos Agronegócios-APTA, Colina, Brazil, ³APTA-Polo Regional Alta Mogiana, Colina, Brazil, ⁴UNESP-FCAV, Jaboticabal, Brazil, ⁵Universidade Estadual Paulista “Júlio de Mesquita Filho”-UNESP, Jaboticabal, Brazil, ⁶Universidade do Estado de Mato Grosso, Pontes e Lacerda, Brazil, ⁷Centro Universitário da Fundação Educacional de Barretos-Unifeb, Barretos, Brazil.

Nonruminant Nutrition: Evaluation of Feed Ingredients For Monogastric Diets

Nutritional value of macauba pulp presscake (*Acrocomia aculeata*) for growing pigs.
J. H. B. Pereira¹, S. L. S. Cabral Filho¹, C. G. D. Q. Roriz¹, C. B. Bernardes¹, T. M. Barbosa¹, L. R. Roos¹, A. P. Santana¹, J. B. Lopes², and L. S. Murata*¹, ¹University of Brasilia, Brasilia, Brazil, ²Federal University of Teresina, Teresina, Brazil.

Different corn hybrids fed to growing pigs. I. Chemical composition, energy concentration, and digestibility of nutrients.
Y. Liu¹, R. C. Sulabo¹, T. E. Sauber¹, and H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, ²Pioneer Hi-Bred International Inc., Johnston, IA.

Different corn hybrids fed to growing pigs. II. Concentrations and digestibility of amino acids.
Y. Liu¹, R. C. Sulabo¹, T. E. Sauber¹, and H. H. Stein¹, ¹University of Illinois at Urbana-Champaign, ²Pioneer Hi-Bred International Inc., Johnston, IA.

A high dietary electrolyte balance reduces growth performance and CP and Zn total tract apparent digestibility in weanling piglets.
S. A. Guzmán-Pino¹, D. Solà-Oriol¹, R. Davin¹, E. G. Manzanilla¹, C. Torrente¹, and J. F. Pérez¹, ¹Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, ²Servei d’Emergències i Cures Intensives de la Fundació Hospital Clínic Veterinari-UAB, Departament de Medicina i Cirurgia Animals, Universitat Autònoma de Barcelona, Bellaterra, Spain.

Acceptance and palatability of different inclusion levels of protein solutions by feed restricted and non-restricted nursery pigs.
J. E. Figueroa², D. Solà-Oriol¹, R. Davin¹, J. F. Pérez¹, and D. Dwyer⁵, ¹SNIBA, Departament de Ciència Animal i dels Aliments, Universitat Autònoma de Barcelona, Bellaterra, Spain, ²Universidad Autónoma de Baja California, Mexicali, Mexico, ³Universidad Autónoma de Tlaxcala, Tlaxcala, Mexico, ⁴ICA, Universidad Autónoma de Baja California, Mexicali, Mexico.

Nutritional value of whey permeate and egg products fed to growing pigs.
T. A. Woyengo¹, E. Sánchez¹, J. Yanez³, M. Cervantes⁴, and R. T. Zijlstra¹, ¹University of Alberta, Edmonton, AB, Canada, ²Universidad Autónoma de Baja California, Mexicali, Mexico, ³Universidad Autónoma de Tlaxcala, Tlaxcala, Mexico, ⁴ICA, Universidad Autónoma de Baja California, Mexicali, Mexico.

Inclusion of recycled wastes from the food industry in phase I diets for piglets: Effects on nutrient digestibility and growth performance.
B. Saldaña¹, P. Guzmán¹, G. Fondevila¹, J. F. Díaz Berrocoso¹, L. Cámara¹, X. Roca², and G. G. Mateos³, ¹Universidad Politécnica de Madrid, Madrid, Spain, ²Promic, S. A., Barcelona, Spain.

Effect of wheat and wheat with corn distillers grain on growth performance in nursery pigs.

Effects of dietary protein and rapidly fermentable carbohydrate contents on microbial fermentation profile in the hindgut of weanling pigs.
V. V. Almeida¹, M. C. Thomaz¹, A. J. C. Nuñez¹, P. V. A. Alvarenga¹, F. R. Castelini¹, D. Perondi¹, R. G. Isola¹, A. Remus¹, Y. V. Silva-Guillen¹, E. Daniel¹, and S. L. Silva³, ¹Department of Animal Science-FCAV/UNESP, Jaboticabal/SP, Brazil, ²Department of Animal Science-FZEA/USP, Pirassununga/SP, Brazil.

Effects of dietary supplementation rice bran extracton production performance, feed intake, egg quality and excreta microbiota in laying hens.
H. L. Li, Y. Lei, and I. H. Kim*, Department of Animal Science, Dankook University, Cheonan, South Korea.
Injection of glycosaminoglycans and vitamin C in incubation on the weight loss and shell conductance of the eggs.

E. T. T. Santos1, D. M. C. C. Castilblanco1, L. L. Borges1, C. H. D. F. Domingues1, T. C. O. D. Quadros1, S. Sgavioli1, G. M. D. A. R. Garcia1, R. D. G. Isola1, and S. M. B. Artoni1, 1Department of Morphology and Animal Physiology, São Paulo State University, Jaboticabal, Brazil, 2Department of Animal Science, São Paulo State University, Jaboticabal, Brazil.

Effect of material bioconversion natural complex on growth performance, nutrient digestibility, blood characteristics, and fecal microbiota in weanling pigs.

J. H. Cho*, M. Begum, and I. H. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.

The effects of fermented cotton seed meal on growth performance and egg quality in laying hens.

Y. Wang1, A. Li1, Y. Hou1, Y. Li2, X. Zhang1, and H. Wei1, 1Academy of State Administration of Grain, Beijing, China, 2Animal Diseases Control and Prevention Centre of Miyun City, Beijing, China.

Soybean meals and soy protein concentrates as main source of protein in phase 1 diets for piglets: Growth performance data.


Effect of adding a dried food waste product to the diets of finishing pigs on growth, feed intake, and nutrient digestibility.

H. L. Acuff* and L. A. Pettey, California State Polytechnic University, Pomona.

Antioxidant activity of intestinal mucosa in piglets fed deoxynivalenol naturally contaminated diet.

F. Guay1, M. Lessard2, Y. Chorfi3, and B. V. Le Thanh4, 1Université Laval, Quebec, Quebec City, QC, Canada, 2Agriulture & Agri-Food Canada, Sherbrooke, QC, Canada, 3Université de Montréal, Faculté de Médecine Vétérinaire, Saint-Hyacinthe, QC, Canada, 4Université Laval, Quebec City, QC, Canada.

Effects of different feed processing procedures with expander on broiler performance.

M. Gierus1*, C. Elwert2, and S. Sternovsky3, 1University of Natural Resources and Life Sciences-Institute of Animal Nutrition, Products, and Nutrition Physiology, Vienna, Austria, 2Feedtest, Wettin-Löbejün, Germany, 3Amandus Kahl GmbH & Co KG, Reinbek, Germany.
Physiology and Endocrinology III

1429 W189  Estimated energy balance of periparturient ewes grazing in rangelands.

E. González-García1, D. Tagliatella2, M. Jouven3, and F. Bocquier2, 1INRA UMR868 Systèmes d’Elevage Méditerranéens et Tropicaux (SELMET), Montpellier 34060, Montpellier, France, 2Universidade Estadual de Londrina (UEL), Rodovia Celso Garcia Cid, PR 445 Km 380, Campus Universitário, Londrina, Brazil, 3Montpellier Supagro, Sciences Animales, UMR868 Systèmes d’Elevage Méditerranéens et Tropicaux (SELMET), Montpellier 34060, France, Montpellier, France.

1430 W190  Effects of adsorbent on milk aflatoxin M1 and lactation performance of dairy cows exposed to long-term challenge of aflatoxin B1.

J. L. Xiong1, Y. M. Wang2, W. M. Huang1, Y. Zhang1, H. M. Guo1, and J. X. Liu3, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Novus International Trading (Shanghai) Co., Ltd, Shanghai, China, 3Zhejiang University, Hangzhou, China.

1431 W191  Effects of excessive energy intake and supplementation with chromium propionate on insulin resistance parameters in lactating dairy cows: II. Glucose tolerance tests and follicular flushing.

T. Leiva1, R. F. Cooke2, F. N. Correa1, A. C. Abolin1, A. P. Brandao1, H. F. Soares1, M. B. Piccolo1, and J. L. M. Vasconcelos1, 1UNESP-FMVZ, Botucatu, Brazil, 2Oregon State University-EOARC Burns.

1432 W192  Deuterium enrichment in plasma, rumen fluid and urine of growing sheep dosed with D2O intravenously and intraruminally does not differ.

C. C. Metges1, S. Görs2, H. M. Hammon3, U. Agarwal2, and B. J. Bequette2, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2Department of Animal and Avian Sciences, University of Maryland, College Park.

1433 W193  Manipulated plasma insulin, glucose, and BHBA affect immune factors in somatic cells in milk with and without intramammary LPS challenge in dairy cows.

M. Zarrin1,2,3, R. M. Bruckmaier1, and O. Wellnitz1, 1Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland, 2Department of Animal Science, Yasouj University, Yasouj, Iran, 3Graduate School for Cellular and Biomedical Sciences, University of Bern, Bern, Switzerland.

1434 W194  Effects of road transportation on metabolic and immunological responses in dairy heifers.

M. Baik1, H. J. Kang1, I. K. Lee1, M. Y. Piao1, C. W. Kwak1, M. J. Gu1, C. H. Yun1, H. J. Kim1, G. H. Kim2, S. K. Kim3, and J. K. Ha1, 1Department of Agricultural Biotechnology, College of Agriculture and Life Sciences, Seoul National University, Seoul, South Korea, 2Department of Animal Science and Technology, Konkuk University, Seoul, South Korea.

1435 W195  Differences in mitochondrial DNA copy numbers in various subcutaneous and visceral fat depots of overconditioned cows.

L. Laubenthal1, L. Locher2, J. Winkler3, U. Meyer4, J. Rehage5, S. Dänicke5, H. Sauerwein4, and S. Häussler6, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2University for Veterinary Medicine, Hannover, Germany, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany.

1436 W196  In vitro insulin sensitivity of subcutaneous and omental adipocytes of precalving dairy cows across a range of BCS.

J. De Koster1, L. Hulpio1, V. Fievez2, W. Van den Broeck3, and G. Opsomer4, 1Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Ghent, Belgium, 2Department of Animal Production, Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium, 3Department of Morphology, Faculty of Veterinary Medicine, Ghent University, Ghent, Belgium.

1437 W197  Dietary melatonin supplementation during late gestation alters concentrations of progesterone and milk yield in Holstein heifers.

C. O. Lemley1, K. E. Brockus, C. G. Hart, and S. H. Ward, Mississippi State University, Mississippi State.

1438 W198  Dry-matter intake level and its effects on follicle growth and circulating progesterone in Nelore (Bos indicus) and Holstein (Bos taurus) heifers.

E. O. S. Batista1, R. V. Salãl2, M. D. D. V. Ortolan1, E. F. Jesus3, T. A. D. Vale1, G. G. Macedo1, F. P. Renno1, A. H. Souza4, and P. S. Baruselli5, 1USP, Sã o Paulo, Brazil, 2School of Agricultural and Veterinary Sciences of UNESP, Jaboricabal, Brazil, 3USP, Pirassununga, Brazil, 4University of California-Davis, 5University of Sao Paulo-VRA, Sao Paulo, Brazil.

1439 W199  Association between insulin signaling and oxidative stress in serum and subcutaneous adipose tissue of overconditioned cows.

S. Häussler1, L. Locher2, L. Laubenthal1, S. P. Singh1, U. Meyer1, J. Rehage1, S. Dänicke1, and H. Sauerwein1, 1University of Bonn, Institute of Animal Science, Bonn, Germany, 2University for Veterinary Medicine, Hannover, Germany, 3Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany.
1440 W200 Serum apelin concentrations in dairy cows receiving different amounts of concentrate and a nicotinic acid supplement.  
M. Weber,1 L. Locher,1 K. Huber,1 J. Rehage,2 R. Tienken,1 U. Meyer,3 S. Dänicke,3 U. Müller,2 H. Sauerwein3, and M. Mielenz4, 1Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany; 2University for Veterinary Medicine, Foundation, Hannover, Germany; 3University of Hannover, Hannover, Germany; 4Institute of Animal Nutrition, Friedrich-Loeffler-Institute (FLI), Braunschweig, Germany; 5University of Bonn, Institute of Animal Science, Bonn, Germany; 6Leibniz Institute for Farm Animal Biology (FBN), Institute of Nutritional Physiology, Dummerstorf, Germany.

1441 W201 Nuclear related factor-E2 is down-regulated by hyperinsulinemic euglycemia in dairy cows.  
M. Zarrin1,2,3, O. Wellnitz, and R. M. Bruckmaier1, 1Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland, 2Department of Animal Science, Yassouj University, Yassouj, Iran, 3Graduate School for Cellular and Biomedical Sciences, University of Bern, Bern, Switzerland.

1442 W202 Bovine oocytes in vitro matured in the presence of antioxidants: Implications for intracellular levels of glutathione and reactive oxygen species and blastocyst development.  
N. A. D. S. Rocha Frigoni1, B. C. D. S. Leão1, P. C. Dall’Acqua1, L. Rigon1, Nogueira2, and G. Z. Mingotti2, 1University of Sao Paulo State (UNESP), Araçatuba, Brazil; 2EMBRAPA Pantanal, Corumbá, Brazil.

1443 W203 Heat stress alters adipose adrenergic signaling in lactating dairy cows.  
G. Xie1, L. W. Hall1, M. Nearing1, L. C. Cole1, D. M. Sparlock1, L. H. Baumgard2, and R. P. Rhoads1, 1Virginia Tech, Blacksburg; 2The University of Arizona, Tucson, 3Iowa State University, Ames.

1444 W204 Effect of vitamin C supplementation on biochemical parameters and haemagglutination potential of giant African land snail (Archachatina marginata) haemolymph.  
J. A. Abiona1, A. O. Ladokun1, J. O. Daramola1, D. M. Abioja2, E. O. Oké3, and O. M. Ongbhasan1, 1Federal University of Agriculture, Abeokuta, Nigeria; 2Federal University of Agriculture, Abeokuta, Nigeria; 3Federal University of Agriculture, Abeokuta, Nigeria.

1445 W205 Effects of grape seed supplementation on blood metabolic profile, immunity and milk production traits of dairy ewes.  
F. Correddu1, A. Marzano1, P. Bonelli2, P. Nicolussi2, and A. Nudda2, 1Dipartimento di Agraria, University of Sassari, Sassari, Italy; 2Istituto Zooprofilattico di Sardegna, Sassari, Italy.

J. L. Colvin1, N. Songnassen1, C. L. Keefer1, and B. J. Bequette2, 1Department of Animal, and Avian Sciences, University of Maryland, College Park; 2Center for Species Survival, Smithsonian Conservation Biology Institute, Front Royal, VA.

1447 W207 Interrelationships between methods of blood mineral measurement in early postpartum dairy cows.  
B. M. Sweeney1, E. M. Martens1, K. P. Zanzalari1, J. C. Lawrence1, and T. R. Overton1, 1Cornell University, Department of Animal Science, Ithaca, NY; 2Prince Agri Products, Inc., Franklin, IN; 3IDEXX Laboratories, Inc., Westbrook, ME.

1448 W208 Development of a multiplex assay for simultaneous quantification of endocrine analytes.  
E. A. Benavides1, K. D. Wells1, and D. H. Keiser1, 1University of Missouri-Division of Animal Sciences, Columbia; 2University of Missouri-Division of Animal Sciences, Columbia.

1449 W209 Effect of periconceptual growth hormone injection on feed intake and early fetal development in ewes.  
C. H. Pereira1,2,3, K. C. Swanson1, H. O. Patino1, F. E. Doscher1, V. C. Kennedy1, B. R. Mordhorst1, J. D. Kirsch1, and K. A. VonAhnen1, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; 2North Dakota State University, Fargo, 3North Dakota State University, Fargo; 4Universidade Federal do Rio Grande Do Sul, Porto Alegre, Brazil.

1450 W210 Relationship between plasma concentrations of thyroid hormones and physiological state of beef cow/calf pairs.  
B. H. Boehmer1, M. R. Davis, and R. P. Wettemann, Oklahoma Agricultural Experiment Station, Stillwater, OK.

1451 W211 Follicle-stimulating hormone converges with canonical WNT signaling to enhance Cyp19a1 promoter activity in granulosa cells.  
B. I. Gomez1, J. O. E.3, C. A. Gifford1, D. M. Hallford2, and J. Hernandez Gifford1, 1Oklahoma State University, Stillwater; 2New Mexico State University, Las Cruces.

1452 W212 Effects of various doses of gonadotropin stimulation on reproductive performance of seasonally anestrous ewes.  
S. L. Rastle-Simpson1, K. N. D’Souza1, A. K. Redhead1, C. D. Paul1, E. N. Keller1, and M. Knights1, 1West Virginia University, Morgantown; 2West Virginia University, Morgantown.

1453 W213 Effect of methionine supplementation on methylation and lipid accumulation of the preimplantation embryo in dairy cows.  
D. A. Velasco Acosta1,2, A. C. Denicol1, C. S. Skendondre1, Z. Zhou1, M. Nunes Corrêa2, D. N. Luchini1, P. J. Hansen1, J. J. Loor1, and F. C. Cardoso1, 1University of Illinois at Urbana-Champaign; 2Federal University of Pelotas, Pelotas, Brazil; 3Department of Animal Sciences, University of Florida, Gainesville; 4Adisseo S.A.S., Alpharetta, GA.
Expression of Foxp3 in peripheral blood mononuclear cells of pregnant cows.
University of Guelph, Guelph, ON, Canada, Universidade de São Paulo, Pirassununga, Brazil, Michigan State University, East Lansing.

Luteinizing hormone (LH) profiles after either porcine LH or GnRH treatment in Holstein cows with or without FSH-stimulation.
A. Behrouzi, M. Fakheri, R. Salehi, M. G. Colazo, and D. J. Ambrose, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, Alberta Agriculture and Rural Development, Livestock Research Branch, Edmonton, AB, Canada.

Production, Management, and the Environment:
Reducing the Environmental Footprint Through Nutrition and Management

Methane and carbon dioxide emissions from manure of dairy cows fed red clover- or corn silage-based diets supplemented with linseed oil.
F. Hassanat, D. I. Massé, and C. Benchaar, Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada.

Life cycle assessment of heavy pig production in a sample of Italian farms.
G. Pirlo, S. Carè, G. Della Casa, R. Marchetti, P. Msoni, P. Battol, and F. Falconi, Consiglio per la ricerca e sperimentazione in agricoltura, Cremona, Italy, Consiglio per la ricerca e sperimentazione in agricoltura, San Cesario s/P, Italy, ENEA, Bologna, Italy, LCA-Lab, Bologna, Italy.

Control of water consumption in swine barns: One step-closer to real time management.
C. Pineiro, P. Castro, J. Morales, and G. Montalvo, PigCHAMP Pro Europa, Segovia, Spain.

Increasing milk yield affects sustainability of dairy cattle production in terms of cultural energy use efficiency.
H. Koknaroglu, H. Saglam, and O. Koskan, Suleyman Demirel University, Isparta, Turkey.

Effect of astaxanthin production by the yeast phaffiarhodozyma on growth performance, blood profiles, meat quality, and slurry noxious gas emission in broilers.
S. Kim, S. D. Upadhyea, and I. H. Kim, Department of Animal Science, Dankook University, Cheoman, South Korea.

Assessing variability in whole-farm environmental impact estimates using a partially-stochastic beef production model.
K. A. Johnson and R. R. White, Washington State University, Pullman.

Environmental assessment of a representative grass-finished beef operation in Southern Pennsylvania.
J. A. Dillon and C. A. Rotz, Department of Animal Science, Pennsylvania State University, University Park, USDA-ARS Pasture Systems and Watershed Management Research Unit, University Park, PA.

A modeling assessment of cow management decisions, sustainability and durability of beef production systems.
R. R. White and K. A. Johnson, Washington State University, Pullman.

Nitrogen excretion from beef cattle for 6 cover crop mixes as estimated by a nutritional model.
E. E. Grings, A. Sackey, M. J. Hansen, V. Owens, D. Beck, and P. Sexton, South Dakota State University, Brookings.

Effect of crude glycerin associated with energy sources on enteric methane emission from finishing Nellore bulls on pasture in the dry season.
A. José Neto, L. G. Ross, A. F. Ribeiro, B. R. Vieira, E. E. Dalantonia, J. Duarte Messana, E. Garbin Gobbi, and T. T. Berchielli, Universidade Estadual Paulista “Julio de Mesquita Filho”, Jaboticabal, Brazil, Universidade Estadual Paulista “Julio de Mesquita Filho” / UNESP, Jaboticabal, Brazil, Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, Sao Paulo, Brazil, Universidade Estadual Paulista Julio de Mesquita Filho-UNESP, Jaboticabal, Brazil.

Enteric methane emission from beef cattle fed diets containing crude glycerin associated with energy sources.
L. G. Ross, A. José Neto, B. R. Vieira, E. E. Dalantonia, A. S. Gomez, and T. T. Berchielli, Universidade Estadual Paulista, Jaboticabal, Brazil, Universidade Estadual Paulista “Julio de Mesquita Filho”, Jaboticabal, Brazil, Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, Sao Paulo, Brazil, Universidade Estadual Paulista Julio de Mesquita Filho-UNESP, Jaboticabal, Brazil.

Using fecal phosphorus, calcium and ash excretion to predict total and inorganic phosphorus intake of beef cattle consuming a forage-based ration.

Influence of low doses tannins extract addition on the presence of Escherichia coli in feces of beef cattle.
T. D. J. Heras, I. Enriquez, B. J. Cervantes, S. M. Gaxiola, J. A. Romo, and R. Barajas, FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico, Ganadera los Migueles, S.A. de C.V., Culiacan, Mexico.
1518 W229 Phosphorus excretion in beef steers as impacted by increasing levels of dicalcium phosphate supplementation.  

1519 W230 Estimation of heat production and energy conversion efficiency using real time measurements of methane and carbon dioxide fluxes in mid-lactation Holstein cows.  
A. B. D. Pereira*, A. F. Brito1, and S. A. Utsumi2, 1University of New Hampshire, Durham, 2Department of Animal Science, Michigan State University, Hickory Corners.

1520 W231 Effect of dietary nitrate and organic copper supplementation on dairy enteric methane and nitrous oxide emissions.  
S. J. Werth1, Q. Wang1, C. J. Neumeier1, G. Getachew1, D. H. Putnam1, A. R. Castillo2, and F. M. Mitloehner1, 1University of California-Davis, 2University of California Cooperative Extension, Merced.

1521 W232 Influence of tannins extract addition on in vitro gas production of feces from beef cattle.  

1522 W233 Quantification of cephalirin in dairy cow feces and urine using solid phase extraction (SPE) coupled with ultra performance liquid chromatography-tandem mass spectrometry (UPLC/MS/MS).  
P. P. Ray1, K. F. Knowlton1, C. Shang1, and K. Xia1, 1Department of Dairy Science, Virginia Polytechnic Institute and State University, Blacksburg, 2Virginia Tech, Blacksburg, 3Department of Crop and Soil Environmental Sciences, Virginia Polytechnic Institute and State University, Blacksburg.

1523 W234 Method development and application: Solid phase extraction (SPE) clean-up and ultra performance liquid chromatography-tandem mass spectrometry (UPLC/MS/MS) quantification of pirlimycin in dairy cow feces and urine.  
P. P. Ray1, K. F. Knowlton1, C. Shang1, and K. Xia1, 1Department of Dairy Science, Virginia Polytechnic Institute and State University, Blacksburg, 2Virginia Tech, Blacksburg, 3Department of Crop and Soil Environmental Sciences, Virginia Polytechnic Institute and State University, Blacksburg.

1524 W235 A larger proportion of grass feed components in the ration was associated with higher methane production rates of dairy cows.  
C. C. Metges1, M. Derno1, J. Ziessler1, N. Krattenmacher2, G. Thaller3, and B. Kuhla1, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2Institute of Animal Breeding and Husbandry, Kiel University, Kiel, Germany, 3Christian-Albrechts-Universität, Kiel, Germany.

1525 W236 Effect of eco-saline system on some hematological and biochemical parameters in Damascus goats raised under semi-arid conditions.  
E. B. Abdalla*, Faculty of Agriculture, Ain Shams University, Cairo, Egypt.

1526 W237 Fibrolytic bacteria isolated from the rumen of North American moose (Alces alces).  
S. L. Ishaq and A. D. G. Wright, University of Vermont, Burlington.

Ruminant Nutrition Posters III

1779 W238 Prevalence of subclinical ketosis detected by near infra-red analysis of BHB in DHI milk samples.  

1780 W239 Role of treatment soybean meal with pistachio extract on total tract nutrients digestibility of Holstein bulls.  
A. Jolazadeh1, M. Dehghan banadaky2, M. Rezayazdi1, and N. Vahdani1, 1University of Tehran, Karaj, Iran, 2Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran.

1781 W240 Effect of polyherbal supplementation as feed additive on milk production and composition in lactating goats.  
K. Rezayazdi1, F. Mirzaei2, and M. Hosseinabadi1, 1Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, 2Animal Science Research Institute, Karaj, Iran, 3University of Tehran, Karaj, Iran.

1782 W241 Changes of protozoal diversity in response to forage and protein of diets in the rumen of dairy cows.  
J. Zhang, D. Bu*, S. Zhao, and J. Wang, State Key Laboratory of Animal Science, Institute of Animal Science, Chinese Academy of Agricultural Science, Beijing, China.

1783 W242 Pyrosequencing-based profiling of bacterial 16S rRNA genes identifies the unique Proteobacteria attached to the rumen epithelium of bovines.  
S. Zhao, J. Wang1, and D. Bu, State Key Laboratory of Animal Science, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1784 W243 Genetic diversity of dipeptidyl peptidase IV from anaerobic bacterial cultivation in vitro in dairy cow.  
J. W. Zhao1, J. Q. Wang1, S. G. Zhao2, and D. P. Bu1, 1College of Animal Science and Technology of Inner Mongolia University for the Nationalities, Tongliao, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.
Effects of test weight, precision processing and processing index on in situ ruminal digestibility of barley grain in beef heifers.


Longitudinal shifts in the rumen bacterial communities of dairy cows during the transition period.


Effects of assumptions on estimating energetic efficiencies in lactating dairy cows.

K. M. Kennedy and C. C. Calvert, University of California-Davis.

Nutrient supply estimations errors when using free ruminal bacteria as reference sample.


Evaluation of the Nordic dairy cow model karoline in predicting methane emissions.

M. Ramin and P. Haktionen, Swedish University of Agricultural Sciences (SLU), Umeå, Sweden, Swedish University of Agricultural Sciences (SLU), Umeå, Sweden.

Effects of different feeding frequencies on rumen tissue histology and cell proliferation of feedlot cattle.


Survey of nutritional recommendations used by dairy cattle nutritionists in Brazil in 2013.

D. P. Silva, A. M. Pedroso, T. V. Carrara, and D. D. Millen, São Paulo State University (UNESP), Dracena campus, Dracena, Brazil, EMBRAPA, São Carlos, Brazil, São Paulo State University (UNESP), Botucatu campus, Botucatu, Brazil, Supported by São Paulo State Foundation (FAPESP), São Paulo, Brazil.

Effects of type of base forage on the β-carotene content of milk and blood plasma in lactating Holstein cows.

H. C. Leicester and L. J. Erasmus, UC Davis, Davis, CA, University of Pretoria, Pretoria, South Africa.

Effect of acute exposure to ergot alkaloids on short-chain fatty acid absorption and barrier function of isolated bovine ruminal epithelium.


Evaluation of the CNCPS v6.5 for predicting metabolizable energy and protein allowable milk in sugarcane based diets.

E. A. Collao-Saenz, A. Foskolos, R. J. Higgs, M. N. Pereira, and M. E. Van Amburgh, Universidad Federal de Goiás, Jataí-GO, Brazil, Cornell University, Ithaca, NY, Universidad Federal de Lavras, Lavras, Brazil.

Effects of different feeding frequencies on DMI variation and selective consumption by feedlot cattle.


Evaluation of mineral excretion of lactating Holstein dairy cows supplemented with copper, manganese and zinc in organic and inorganic forms.


Evaluation of milk yield and composition of F1 Holstein x Gir lactating cows supplemented with rumen-protected choline during the transition period.

R. C. D. Souza, R. C. Souza, A. B. D. Pereira, R. F. Cota, T. A. Torres, I. B. Fortes, and G. V. Fonseca, PUC Minas, Betim, Brazil, University of New Hampshire, Durham, NH, PUC, Betim, Brazil.

Effects of supplemental bupleurum extract on blood material metabolism in heat-stressed dairy cows.

X. Sun, Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China.
1799 W258 Evaluation of the updated version of CNCPS (v6.5).
A. Foskolos<sup>1</sup>, E. A. Collao-Saenz<sup>2</sup>, D. A. Ross<sup>1</sup>, R. J. Higgs<sup>1</sup>, and M. E. Van Amburgh<sup>1</sup>, 1Cornell University, Ithaca, NY, 2Universidade Federal de Goiás, Jataí-GO, Brazil.

1800 W259 Effects of bupleurum extract on performance and health status in heat-stressed late lactation dairy cows.
B. Shi<sup>1</sup>, N. Zheng<sup>1</sup>, J. Cheng<sup>1,2</sup>, L. Min<sup>1</sup>, C. Yin<sup>1</sup>, and J. Wang<sup>1,3</sup>, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Anhui Agricultural University, Hefei, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

1801 W260 Estimation of NDF pool in the rumen of cattle using fecal excretion and diet characteristics.
H. C. Bonfá<sup>1</sup>, E. Detmann<sup>1</sup>, S. Krizsan<sup>1</sup>, S. C. Valadare Filho<sup>2</sup>, and P. Hultman<sup>1</sup>, 1UFV, Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, 2Universidad Federal de Viçosa, Viçosa, Viçosa, Minas Gerais, Brazil.

1802 W261 Performance and carcass traits of immunocastrated Nellore cattle fed β-agonists.
D. Silva Antonelo<sup>1</sup>, M. Rezende Mazon<sup>1</sup>, K. Eduardo Zanoni Nubia<sup>2</sup>, D. Juliana Brigida<sup>1</sup>, J. Fernando Morales Gomes<sup>3</sup>, B. Luis Nery Garcia<sup>1</sup>, M. Zanata<sup>4</sup>, P. R. Leme<sup>1</sup>, and S. Luz e Silva<sup>1,2</sup>, 1University of Sao Paulo, Pirassununga, Brazil, 2University of Cundinamarca, Fusagasugá, Colombia, 3University of Sao Paulo / FZEA, Pirassununga, Brazil.

1803 W262 Effects of nicotinamide on hormone levels, antioxidant status and immune function of cows in heat stressed dairy cows.
J. Cheng<sup>1,2,3</sup>, N. Zheng<sup>1,3,4</sup>, X. Sun<sup>1,2,3</sup>, D. P. Bu<sup>1</sup>, L. Pan<sup>1</sup>, and J. Wang<sup>1,3,4</sup>, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Anhui Agricultural University, Hefei, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China.

1804 W263 Effects of supplemental bupleurum extract on blood material metabolism in heat-stressed dairy cows.
X. Sun<sup>1,3</sup>, N. Zheng<sup>1,3,4</sup>, J. Cheng<sup>1,2,3</sup>, D. P. Bu<sup>1</sup>, L. Pan<sup>1</sup>, and J. Wang<sup>1,3,4</sup>, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Anhui Agricultural University, Hefei, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China.

1805 W264 Effects of nicotinamide on blood material metabolism of dairy cows under heat stress.
X. Sun<sup>1,3</sup>, N. Zheng<sup>1,3,4</sup>, D. P. Bu<sup>1</sup>, L. Pan<sup>1</sup>, and J. Cheng<sup>1,2,3</sup>, 1College of Animal Science and Technology, Anhui Agricultural University, Hefei, China, 2Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China.

1806 W265 Supplementation of selenium plus vitamin E vs. canola oil in the diet of feedlot cattle: Which one can improve nutritional quality of meat modifying gene expression?
G. F. Gregghi<sup>1</sup>, A. Saran Neto<sup>1</sup>, H. Fukuama<sup>1</sup>, J. C. D. C. Balieiro<sup>1</sup>, A. O. Latorre<sup>1</sup>, L. B. Correia<sup>1</sup>, and M. A. Zanetti<sup>1</sup>, 1University of São Paulo- USP/FZEA, Pirassununga, Brazil, 2University of São Paulo, Pirassununga, Brazil, 3University of São Paulo- USP/FMZ, Pirassununga, Brazil, 4Adolfo Lutz Institute, São Paulo, Brazil.

1807 W266 Effects of feeding a corn straw or mixed forage diet on immune function in dairy cows.
P. Sun<sup>1</sup>, C. Qin<sup>1,2</sup>, D. P. Bu<sup>1</sup>, J. Q. Wang<sup>2</sup>, and P. Zhang<sup>2</sup>, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Hunan Provincial Key Laboratory for Genetic Improvement of Domestic Animals, College of Animal Science and Technology, Hunan Agricultural University, Changsha, China.

1808 W267 Fatty acid composition of milk from cows supplemented with canola oil.
K. C. Welther, C. M. de Magalhães Rodrigues Martins, M. M. Martins, B. Roquete dos Reis, J. G. Rebelato Forti, A. Soligo Vizeu de Palma, B. L. Unglaube Schmidt, and A. Saran Neto<sup>1</sup>, University of São Paulo, Pirassununga, Brazil.

1809 W268 Effects of a corn straw or mixed forage diet on bovine milk fatty acid biosynthesis.
M. Zhao<sup>1</sup>, D. P. Bu<sup>1</sup>, J. Q. Wang<sup>2</sup>, X. Q. Zhou<sup>1,2</sup>, Y. Zhang<sup>1</sup>, and P. Sun<sup>1</sup>, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Northeast Agricultural University, Harbin, China.

1810 W269 Influence of forage level and corn processing method on feeding behavior of Nellore bulls.
M. Caetano<sup>1,2</sup>, A. R. Cabral<sup>1</sup>, G. B. Feltrin<sup>1</sup>, R. S. Goulart<sup>1</sup>, S. Laz e Silva<sup>1</sup>, P. R. Leme<sup>1</sup>, and D. P. D. Lanna<sup>1</sup>, 1University of Sao Paulo / FZEA, Piracicaba, Brazil, 2current address University of Adelaide, Roseworthy, Australia, 3University of Sao Paulo / ESALQ, Piracicaba, Brazil, 4MSD Saúde Animal, Sao Paulo, Brazil.
Evaluation of a hand-held meter to detect subclinical ketosis in dairy cows.
Z. J. Cao*, S. S. Xu, and S. L. Li, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

Effects of rumen protected choline supplementation on milk yield and plasma metabolites in dairy cows fed hay based diets.
L. Pinotti*, M. Ottoboni, V. Caprarulo, A. Pilotto, A. Agazzi, G. Invernizzi, A. Baldi, and G. Savoini, Università degli Studi di Milano, Department of VESPA, Milan, Italy.

Liver metabolism of Holstein cows is altered by nutrient supply but not by lipopolysaccharide in vitro.
M. García*, B. J. Bequette, and K. M. Moyes, Department of Animal and Avian Sciences, University of Maryland, College Park.

Effect of postruminal infusion of fructose on hepatic steatosis.
K. E. Boesche*, J. E. Sibray, S. L. Koser, and S. S. Donkin, Purdue University, West Lafayette, IN.

Effects of rare earth-chitosan chelate on liver and kidney parameters in lactating dairy cows.
J. Li1,2, J. Q. Wang1, P. Sun1, F. D. Li1,2, and D. P. Bu1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2College of Animal Science and Technology, Gansu Agricultural University, Lanzhou, China.

Supplementation of Aspergillus oryzae α-amylase on ruminal volatile fatty acid distribution and digestive tract gene expression in beef steers fed a steam-flaked corn based finishing diet.
B. N. Gordon1, S. W. Hahm1, J. J. Wagner2, J. S. Jennings2, H. Han1, and T. E. Engle1, 1Colorado State University, Fort Collins, Texas A&M AgriLife Research, Amarillo.

Effects of rumen-protected choline during the transition period on nonesterified fatty acids and ß-hydroxybutyrate concentrations in periparturient dairy cattle.
I. M. Lima1, R. A. Silva1, C. H. Ramíres2, S. L. Viechnieski2, and R. D. Almeida1, 1Universidade Federal do Paraná, Curitiba-Paraná, Brazil, 2StarMilk Farm, Céu Azul-Paraná, Brazil.

Effects of replacing alfalfa hay and corn silage with corn straw in diets on main hormones in blood of dairy cows.
X. Q. Zhou1,2, D. P. Bu2, Y. D. Zhang2, M. Zhao2, P. Sun2, and J. Q. Wang2,3, 1Heilongjiang Ba Yi Agricultural University, Daqing, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Body condition score at calving alters the hepatic transcriptome in grazing dairy cattle.
H. Akbar1, Z. Zhou1,2, K. Macdonald2, K. E. Schütz2, G. Verkerk2, J. R. Webster2, S. L. Rodríguez Zas2, J. R. Roche2, and J. J. Loor1, 1University of Illinois at Urbana-Champaign, 2DairyNZ, Hamilton, New Zealand, 3AgResearch, Hamilton, New Zealand.

Short term feed restriction increases afternoon but not morning milk fat concentration in lactating dairy cows.
A. M. Abdelatty1,2, M. E. Iwaniuk2, A. E. Weidman2, B. B. Teter2, M. A. Tony1, F. F. Mohammad1, and R. A. Erdman2, 1Cairo University, Cairo, Egypt, 2University of Maryland, College Park.

The mRNA expression of the classical genes of enzymes involved in milk fatty acid synthesis does not explain milk fat depression in dairy cows.

Effects of niacin supplementation and forage type on milk, digestibility, blood parameters and body temperature in lactating dairy cows.

Differences in hepatic transcriptional regulatory networks due to body condition score at calving in grazing dairy cattle.
H. Akbar1, Z. Zhou1, K. Macdonald2, K. E. Schütz2, G. Verkerk2, J. R. Webster2, S. L. Rodríguez Zas2, J. R. Roche2, and J. J. Loor1, 1University of Illinois at Urbana-Champaign, 2DairyNZ, Hamilton, New Zealand, 3AgResearch, Hamilton, New Zealand.

Effects of a corn straw or mixed forage diet on mammary gland function and its endocrine regulation in early lactation dairy cows.
T. Qin1,2, H. Y. Wang1, D. P. Bu2, and H. B. Zhu1, 1Embryo Biotechnology and Reproduction 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.

Milk fatty acid profile of dairy cows grazing a tropical pasture supplemented with sources of rumen protected fat.
J. D. Souza1, F. Batistel2, C. Sitta2, and F. A. P. Santos1, 1University of Sao Paulo, Piracicaba, Brazil, 2University of São Paulo, Piracicaba, Brazil.
Evaluating daily variation in body weight, milk production, and rumination activity on a commercial dairy with robotic milking.

Peroxisome proliferator activated receptor-γ controls lipogenic gene networks in goat mammary epithelial cells.
W. Zhao*, J. Luo, and J. J. Loor, 1Northwest A & F University, Yangling, China, 2University of Illinois at Urbana-Champaign

Effects of ergot alkaloid exposure on serotonin receptor mRNA in the smooth muscle of the bovine gastrointestinal tract.
J. L. Klotz*, D. Kim, A. P. Foote, and D. L. Harmon, 1USDA-ARS, FAPRU, Lexington, KY, 2University of Kentucky, Lexington.

Effect of mineral supplementation on lactational performance in early-lactating dairy cows fed a high-concentrate diet.
A. R. Alfonso-Avila*, E. Charbonneau, P. Y. Chouinard, G. Tremblay, and R. Gervais, 1Agriculture and Agri-Food Canada, Soils and Crops Research and Development Centre, Quebec, QC, Canada.

Mineral profile, immunoglobulins and antioxidant activity in culls cows fed DDGS.
A. Flores-Mariñelarena*, E. Acosta Sánchez, G. Corral-Flores, C. Rodríguez-Muela, J. A. Ramírez-Godínez, J. Domínguez-Viveros, A. Anchondo-Garay, and H. Ramírez-Garduño, 1Universidad Autónoma de Chihuahua, Chihuahua, Mexico, 2INIFAP, Chihuahua, Mexico.

Metabolic characteristics and truly metabolizable protein supply to dairy cattle from new cool-season forage corn varieties in Western Canada.
S. Abeysekara, D. A. Christensen, N. A. Khan, X. Huang*, and P. Yu, University of Saskatchewan, Saskatoon, SK, Canada.

Hepatic expression of genes associated with glutathione and fatty acid metabolism during the peripartal period reveal beneficial effects of MetaSmart and Smartamine M supplementation on health status in dairy cows.
J. S. Osorio, P. JF, J. K. Drackley, D. N. Luchini, and J. J. Loor, 1University of Illinois at Urbana-Champaign, 2William H. Miner Agricultural Research Institute, Chazy, NY, 3Adisseo S.A.S., Alpharetta, GA.

Feed intake and feeding behavior of lactating dairy cows were affected by dietary fatty acid profile.
H. Khalilvandi-Behroozyar, M. Dehghan Banadaky, M. Ghaffarzadeh, and K. Rezayazdi, 1Department of Animal Science, University of Tehran, Karaj, Tehran, Iran, 2Chemistry and Chemical Engineering Research Center of Iran, Tehran, Iran.

Whole cottonseed and vitamin E in diets for Nellore cattle finished in feedlot: Performance traits and feed conversion.

Effect of chitosan and lipid source combination on energy intake and milk yield and composition of dairy cows.
T. A. Del Valle*, V. C. Galvão, F. C. R. Santos, E. F. Jesus, A. G. B. Costa, C. E. C. Consentini, G. F. D. Almeida, G. F. Cabral, F. Zanferari, and E. P. Renno, 1School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, Brazil, 2School of Agricultural and Veterinary Sciences of UNESP, Jaboticabal, Brazil, 3School of Animal Science and Food Engineering of University of São Paulo, Pirassununga, Brazil.

Plasma urea concentration of beef heifers fed with different lipid sources and frequency supplementation.

Effects of selenium supply, maternal plane of nutrition, and physiological stage on nitrogen flow, microbial efficiency, and metabolizable protein in primiparous ewes.
K. J. McLean*, A. M. Meyer, L. R. Coupe, G. P. Lardy, K. A. Vonnahme, and J. S. Caton, 1North Dakota State University, Fargo, 2Division of Animal Sciences, University of Missouri, Columbia.

Effect of prototype sequestering agents on performance and milk aflatoxin M1 concentrations of dairy cows fed aflatoxin B1-contaminated diets.
Blood glucose concentrations and deposition of muscular and subcutaneous fat tissues of Nellore young bulls finished in pasture supplemented with crude glycerin.

Effect of propolis on plasma metabolites and hematocrit of Holstein calves.
P. Peravian, K. Rezayazdi, and G. Nehzati, University Of Tehran, Tehran, Iran, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, University Of Tehran, Karaj, Iran.

Effects of maternal plane of nutrition, selenium supply, and physiological stage on digestibility and ruminal fermentation in ewes.

Effect of reduced energy density of close-up diet on dry matter intake, milk yield and energy balance in multiparous Holstein cows.
W. M. Huang, A. Simayi, A. Yasheng, Z. H. Wu, S. L. Li, and Z. J. Cao, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

Effects of lysolecithin on milk fat synthesis and milk fatty acid profile of cows fed diets differing in fiber and unsaturated fatty acid concentration.
D. E. Rico, J. Y. Ying, and K. J. Harvatine, Penn State University, University Park.

Effect of reduced energy density of close-up diet on dry matter intake, milk yield and energy balance in multiparous Holstein cows.
W. M. Huang, A. Simayi, A. Yasheng, Z. H. Wu, S. L. Li, and Z. J. Cao, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

Body condition score assessment in a grazing Jersey herd in Costa rica.

Ration composition in Wisconsin dairy herds: Factors affecting fertility.
A. H. Souza, P. D. Carvalho, C. M. Drake, R. D. Shaver, and M. C. Wilbank, University of California Cooperative Extension, Tulare, University of Wisconsin-Madison, University of California.

Milk quality from dairy farms divided in five levels of production.
L. L. Cardoso, M. I. Marcondes, G. A. T. Ferreira, V. L. N. Brandao, and A. S. Trece, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

MasterGraze silage for growing Holstein heifers.
D. L. Gadeken, K. Koone, S. Harris, and D. Casper, South Dakota State University, Brookings, Masters Choice, Anna, IL, Masters Choice, Anna, IL.
Transcriptome profiling of milk in dairy cows fed linseed.

Feeding diets inducing milk fat depression to heat-stressed dairy cows on performance, energy partitioning, and antioxidant status.
S. Kargar1, M. Khorvash1, G. R. Ghorbani1, and D. J. Schingoethe2, 1Isfahan University of Technology, Isfahan, Iran, 2South Dakota State University, Brookings.

Altering ewe nutrition in late gestation; the impact on lamb performance.
F. McGovern3, F. Campion4, T. Sweeney5, S. Fair6, S. Lott7, and T. M. Boland4, 1School of Agriculture and Food Science, University College Dublin, Dublin 4, Ireland, 2College of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland, 3Department of Life Sciences, University of Limerick, Limerick, Ireland.

A sensory additive alters the eating behavior of dry dairy cows.
C. Iglesias3, F. Bargo4, A. Mereu2, I. Ipharraguerre2, and A. Bach1, 1IRTA, Barcelona, Spain, 2Lucta S.A., Barcelona, Spain, 3ICREA, Barcelona, Spain.

Effects of restricted versus conventional dietary adaptation over periods of 6, 9 and 14 days on blood lipopolysaccharide binding-protein concentration of feedlot cattle.
D. V. Vicari3, A. Perdigao2, L. L. Cursino1, R. S. Barducci1, M. D. Arrigoni1, and D. D. Millen3, 1São Paulo State University (UNESP), Dracena campus, Dracena, Brazil, 2São Paulo State University (UNESP), Botucatu campus, Botucatu, Brazil, 3Supported by São Paulo State Foundation (FAPESP), São Paulo, Brazil.

The effects of OmniGen-AF on serum metabolites, calcium concentrations and hormones of the adrenal axis during heat stress in lactating Holstein cows.
L. W. Hall1, F. A. Villar1, J. D. Allen2, J. D. Chapman3, N. M. Long4, and R. J. Collier1, 1The University of Arizona, Tucson, 2Northwest Missouri State, Maryville, MO, 3Prince Agri Products, Inc., Quincy, IL, 4Clemson University, Clemson, SC.

Assessment of the effect of plant tannins on rumen fermentation and gut microbial diversity in goats using 16S rDNA amplycon pyrosequencing.
B. R. Min1, C. Wright1, P. Ho2, J. S. Eun3, N. Gurung1, and R. Shang1, 1Tuskegee University, Tuskegee, AL, 2Montgomery Blair High School, Silver Spring, MD, 3Utah State University, Logan.

Effect of supplemental chelated Cu, Zn, and Mn on antioxidant status and hoof health of lactating cows.
X. J. Zhao1, J. H. Wang2, Y. M. Wang*3, and L. Wang1, 1College of Animal Science and Veterinary Medicine, Shandong Agriculture University, Taian, China, 2College of Animal Science, Zhejiang University, Hangzhou, China, 3Novus International Trading (Shanghai) Co., Ltd, Shanghai, China.

Effects of supplemental bupleurum extract on serum hormone and immune globulin levels in heat-stressed dairy cows.
X. Sun1,2, J. Cheng1,2,3, D. P. Bu1, L. Pan1, N. Zheng1,4, and J. Wang1,5,6, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Anhui Agricultural University, Hefei, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China.

Dry matter intake, milk yield and composition of Holstein cows fed organic minerals.
T. A. Del Valle1, E. F. Jesus2, A. G. B. V. B. Costa1, G. F. Cabral1, V. C. Galvão1, P. G. D. Paiva1, T. S. Acedo1, L. F. M. Tamassia1, and F. P. Remô1, 1School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, Brazil, 2School of Agricultural and Veterinary Sciences of UNESP, Jaboticabal, Brazil, 3School of Animal Science and Food Engineering of University of São Paulo, Pirassununga, Brazil, 4DSM Produtos Nutricionais, São Paulo, Brazil.

Effects of sampling position on blood hormone concentration in dairy cattle.
M. Zhao, D. P. Bu, J. Q. Wang1, X. Q. Zhou, Y. Zhang, S. G. Zhao, and P. Sun, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Effects of dietary protein composition on blood hormone levels in dairy cattle.
M. Zhao1, D. P. Bu1, J. Q. Wang1, X. Q. Zhou2, Y. Zhang1, and P. Sun1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Northeast Agricultural University, Harbin, China.

The small ruminant nutrition system: Considering the ruminal fiber stratification for goats.
J. G. L. Regadas Filho1, L. O. Tedeschi2, A. Cannas3, M. T. Rodrigues4, and R. A. Vieira5, 1Universidade Federal de Vicosa, Vicosa, Brazil, 2Texas A&M University, College Station, 3Università Di Sassari, Sassari, Italy, 4Università Federale di Vicosa, Vicosa, Brazil, 5Norte Fluminense State University, Campos dos Goytacazes, Brazil.
Effect of “COGU” technology on glucose uptake and mineral utilization and deposition in growing lambs.

Effect on plasma metabolites of Nellore bulls fed ractopamine hydrochloride and protein level.
N. R. B. Cônsolo, F. Rodríguez, M. O. Frasseto, R. A. P. Maciel, V. Rizzii, and L. F. P. Silva, University of São Paulo, Pirassununga, Brazil, University of São Paulo, São Paulo, Brazil, Ouro Fino, Cravinhos, Brazil.

Impact of “COGU” technology on performance in lactating dairy cows.

A conceptual model of protein-precipitable polyphenols (condensed tannins) on protein binding and protein digestion in ruminants.
H. D. Naumann, N. M. Cherry, L. O. Tedeschi, J. P. Muir, B. D. Lambert, University of Missouri, Columbia, Texas A&M AgriLife Research, Stephenville, Texas A&M University, College Station, Tarleton State University, Stephenville, TX.

Effect of sprouted barley grain supplementation of a herbage or haylage diet on ruminal fermentation and methane output in continuous culture.

Effect of lalisil bacterial inoculants on the pH of corn silage with low dry matter.
M. Saberi, K. Rezayazdi, M. Dehghan Banadaky, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran.

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Potassium carbonate as a cation supplement to increase dietary cation anion difference and improve dairy feed efficiency in lactating dairy cows.
A. E. Weidman, M. E. Iwaniuk*, and R. A. Erdman, University of Maryland, College Park.

Potassium carbonate as a cation supplement to increase dietary cation anion difference and improve dairy feed efficiency in lactating dairy cows.
A. E. Weidman, M. E. Iwaniuk*, and R. A. Erdman, University of Maryland, College Park.

Relative bioavailability of phosphorylated ascorbic acid in lactating dairy cows.
C. K. Reynolds*, D. J. Humphries, C. E. S. Barratt, P. C. Aikman, and W. Steinberg, University of Reading, Reading, United Kingdom, DSM Nutritional Products, Basel, Switzerland.

Changes in serum IgG and total protein concentrations in calves fed differing amounts of colostrum replacer.

Apparent synthesis of thiamin and vitamin B12 in rumin of lactating dairy cows fed alfalfa or orchardgrass silages at different maturity stages.
D. S. Castagnino, K. Kammes, M. S. Allen, R. Gervais, P. Y. Chouinard, D. E. Santschi, and C. L. Girard, Université Laval, Québec, QC, Canada, Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, Michigan State University, East Lansing, Valacta, Sainte-Anne-de-Bellevue, QC, Canada.
W341  Apparent synthesis of thiamin and vitamin B₁₂ in rumen of lactating dairy cows fed alfalfa or orchardgrass silages of different particle lengths.
D. S. Castagnino1, K. Kammes2, M. S. Allen3, R. Gervais4, P. Y. Chouinard5, D. E. Santschi6, and C. L. Girard7, 1Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, 2Michigan State University, East Lansing, 3Université Laval, Québec, QC, Canada, 4Valacta, Ste-Anne-de-Bellevue, QC, Canada.

W342  Concentration of vitamin B₁₂ in colostrum and milk from dairy cows fed different energy levels during the dry period.
M. Duplessis1,2, S. Mann1, D. V. Nydam1, C. L. Girard2, D. Pellerin2, and T. R. Overton1, 1Université Laval, Département des Sciences Animales, Québec, QC, Canada, 2Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, 3Cornell University, Department of Population Medicine and Diagnostic Sciences, Ithaca, NY, 4Cornell University, Department of Animal Science, Ithaca, NY.

W343  Ruminal bacterial community structure of dairy cows fed conventional and reduced-fat dried distillers grains with solubles.

W344  Diet influences microbial community composition, and methane emission in growing and finishing beef cattle.
S. C. Fernando1, A. L. Knoell2, C. L. Anderson1, A. C. Pesta1, G. E. Erickson1, and T. J. Klopfenstein3, 1University of Nebraska-Lincoln, 2Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada, 3Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Tehran, Iran.

W345  Dietary fatty acid profile affects plasma metabolic profile of peripartum Holstein cows.
H. Khalilvandi-Behroozyar1, M. Dehghan Banadaky2, M. Ghaffarzadeh3, and K. Rezayazdi1, 1Department of Animal Science, Urmia University, Urmia, Iran, 2Department of Animal Science, University of Tehran, Karaj, Tehran, Iran, 3Chemistry, and Chemical Engineering Research Center of Iran, Tehran, Iran.

W346  Prediction of enteric methane emissions in Holstein cows fed various forage sources.
D. E. Rico1, P. Y. Chouinard1, F. Hassanat1, C. Benchaaar2, and R. Gervais1, 1Université Laval, Québec, QC, Canada, 2Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada.

W347  RNA-Seq detection of differential gene expression in the rumen of beef steers associated with feed efficiency phenotypes.
R. J. Kern1, A. K. Lindholm-Perry2, H. C. Freely3, W. M. Snelling4, J. R. Miller1, J. W. Kern1, and P. A. Ludden1, 1University of Wyoming, Laramie, 2USDA, ARS, U.S. MARC, Clay Center, NE, 3Kern Statistical Services, Sault Rapids, MN.

W348  Bioassay activity of different tannin sources by gas production technique.
N. Vahdani1, M. Dehghan Banadaky2, F. Khalighi-Sigaroudi3, and K. Rezayazdi1, 1University of Tehran, Karaj, Iran, 2Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, 3Institute of medicinal plants, Academic Center for Education, Culture and Research (ACECR), Karaj, Iran, 4Department of Animal Science, University of Tehran, Karaj, Iran.

W349  Differences in formulation and bioavailability of commercial injectable fat-soluble vitamin products.
D. B. Snider1, R. A. Zinn2, and R. L. Stuart3, 1Iowa State University, Ames, 2University of California-Davis, El Centro, CA, 3Stuart Products Inc, Bedford, TX.

W350  Individual and additive value of conventional and non-conventional technologies in beef steers housed and fed using a GrowSafe feeding system.

W351  Effects of supplemental bupleurum extract on serum hormone and immune globulin levels in heat-stressed dairy cows.
X. Sun1,2, J. Cheng1,2, N. Zheng1,2, D. P. Bu1, L. Pan1, and J. Wang1,3, 1Ministry of Agriculture-Laboratory of Quality & Safety Risk Assessment for Dairy Products, Beijing, China, 2College of Animal Science and Technology, Anhui Agricultural University, Hefei, China, 3State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 4Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China.

W352  Influence of additional tannins extract level on feedlot performance of finishing hair lambs.
R. Barajas1, E. B. Bonilla2, L. R. Flores1, J. J. Lomeli1, and J. A. Romo1, FMVZ-Universidad Autónoma de Sinaloa, Culiacan, Mexico.

W353  Supplementation of dairy cows before calving with beta-carotene.
R. C. Oliveira1, B. M. Guerreiro2, N. N. Morais Junior3, R. L. Araújo1, R. A. N. Pereira4,5, and M. N. Pereira1,5, 1Universidade Federal de Lavras, Lavras, Brazil, 2Universidade de São Paulo, São Paulo, Brazil, 3Instituto Federal de Educaçao, Ciência e Tecnologia do Espirito Santo, Colatina, Brazil, 4Empresa de Pesquisa Agropecuaria de Minas Gerais, Lavras, Brazil, 5Better Nature Research Center, Ijaci, Brazil.
1895 W354 Relationship between residual feed intake and mitochondrial function.
M. M. Masiero*, M. S. Kerley, and W. J. Sexten, University of Missouri, Columbia.

1896 W355 Bioavailability of rumen protected choline sources when supplemented at different concentrations.
K. J. Herrick1, J. A. Davidson2, F. R. Valdez1, M. J. Christofferson1, and S. E. Schuling1, 1Kemin Industries, Inc., Des Moines, IA, 2Land O Lakes Purina Feed, Gray Summit, MO.

1897 W356 Effect of method of flaxseed processing and tannins on the growth performance and carcass fatty acid profile of lambs.
E. Castillo-Lopez*, M. Edrosolam, P. J. Shand, D. A. Christensen, and G. B. Penner, University of Saskatchewan, Saskatoon, SK, Canada.

1898 W357 Evaluating the energy and protein requirements for growing Nellore heifers and steers fed two levels of calcium and phosphorus.
L. F. Costa e Silva*, T. E. Engle, S. C. Valadares Filho, P. P. Rotta, M. I. Marcondes, B. C. Silva, and M. V. C. Pacheco, 1Colorado State University, Fort Collins, 2Universidade Federal de Viçosa, Department of Animal Science, Viçosa, Minas Gerais, Brazil, 3Universidade Federal de Viçosa, Viçosa, Brazil.

Small Ruminant Poster Session II

1917 W358 The effects of live yeast, glucan and mannan on performance, rumen and blood parameters of fattening lambs.
O. Canbolat1, J. Filya1, V. Akay2, and A. Kamalak, 1University of Uludag, Faculty of Agriculture, Department of Animal Sciences, Bursa, Turkey, 2Global Nutritech Biotechnology LLC, Richmond, VA.

1918 W359 Effect of prostaglandin F2α on fertility of ewes treated with a short-term progesterone-based estrous synchronization protocol.
C. D. Paul*, West Virginia University, Morgantown.

1919 W360 Anthelmintic activity of selected aldehydes and ketones against sheep gastro-intestinal nematodes.
E. Ortu*, G. Sanna*, A. Scala*, G. Pulina*, P. Caboni*, and G. Battacone*, 1Dipartimento di Agraria, University of Sassari, Sassari, Italy, 2Dipartimento di Medicina Veterinaria, University of Sassari, Sassari, Italy, 3Dipartimento di Scienze della Vita e dell’Ambiente, University of Cagliari, Cagliari, Italy.

1920 W361 Ovine footrot gene marker screening in a Katahdin sheep flock.
T. Wuliji*, J. G. Hickford, W. R. Lamberson, B. C. Shanks, and S. Azarpajouh, 1Department of Agriculture, and Environmental Sciences, Lincoln University, Jefferson City, MO, 2Lincoln University, Lincoln, New Zealand, 3University of Missouri, Columbia.

1921 W362 The effects of gonadotropic stimulation on fertility of progesterone-treated nulliparous ewes bred during seasonal anestrous.
A. K. Redhead*, West Virginia University, Morgantown.

1922 W363 Effects of hair sheep breed on performance response of ram lambs to artificial infection with Haemonchus contortus.

1923 W364 Effect of sodium butyrate administered in the concentrate on rumen development and productive performance of lambs in intensive production system during the suckling and the fattening periods.

1924 W365 Nutrients intake and performance of lambs fed diets with two levels of crude protein and concentrate.
R. S. Santos1, K. G. Ribeiro2, O. G. Pereira2, S. C. Valadares Filho3, S. D. J. Villela4, J. L. Silva1, and P. G. F. Duarte1, 1Federal University of Víncosa, Vícossa, Minas Gerais, Brazil, 2Universidade Federal de Víncosa, Víncossa, Minas Gerais, Brazil, 3Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 4Federal University of Vales do Jequitinhonha e Mucuri (UFVJM), Diamantina, Brazil.

1925 W366 Milk production, blood glucose, insulin and non-esterified fatty acids concentration in ewes fed diet containing crude glycerin.
D. M. Polizel1, R. S. Gentil1, E. M. Ferreira1, R. A. Souza1, M. V. C. Ferraz Jr2, M. C. A. Sucupira1, and I. Susin1, 1Escola Superior de Agricultura Luiz de Queiroz-ESALQ/USP, Piracicaba, Brazil, 2University of São Paulo-FMVZ/USP, Pirassununga, Brazil, 3Faculdade de Medicina Veterinária e Zootecnia-FMVZ/USP, São Paulo, Brazil.
Apparent digestibility, rumen metabolism and nitrogen balance in lambs fed high-concentrate diets containing increasing levels of ground cottonseed.
R. A. Souza¹, R. S. Gentil¹, E. M. Ferreira¹, D. M. Polizel¹, A. P. A. Freire², J. A. Faleiro Neto², and I. Susin³, ¹Escola Superior de Agricultura Luiz de Queiroz-ESALQ/USP, Piracicaba, Brazil, ²Faculdade de Medicina Veterinária e Zootecnia-FMVZ/USP, São Paulo, Brazil.

Intake and performance of finishing lambs fed diets with licuri nut (Syagrus coronata) cake.

Growth and carcass characteristics of lambs fed high-concentrate diets containing different sources of non-protein nitrogen.
A. P. A. Freire¹, F. L. M. Silva¹, D. M. Polizel¹, R. A. Souza¹, R. S. Gentil¹, R. C. Araujo², and I. Susin³, ¹Escola Superior de Agricultura Luiz de Queiroz-ESALQ/USP, Piracicaba, Brazil, ²GRASP Ind. & Com. LTDA, Curitiba, Brazil.

Zilpaterol hydrochloride modify the fatty acids profile of intramuscular fat of feedlot lambs.
H. Dávila-Ramos* and J. C. Robles-Estrada, Universidad Autonoma de Sinaloa, Culiacan, Mexico.

Composition of cheeses made from milk of ewes fed with soybean seed or linseed concentrates.
C. F. A. M. Penna¹, M. I. Simão², F. P. Paula¹, M. O. Leite¹, M. P. Cerqueira¹, L. M. Fonseca¹, M. R. Souza¹, and I. Borges³, ¹Universidade Federal de Minas Gerais (School of Veterinary Medicine), Belo Horizonte, Brazil, ³Universidade Federal de Minas Gerais (Veterinary School/ UFMG), Belo Horizonte, Brazil, ³Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.

Pregnancy and lambing rates in anestrous ewes bred to a new synchronization protocol and laparoscopic timed artificial insemination (TAI).
S. B. Turner¹, M. B. Gordon¹, T. Gowan², J. A. Small², and D. M. W. Barrett¹, ¹Faculty of Agriculture, Dalhousie University, Truro, NS, Canada, ²Agriculture and Agri-Food Canada, Truro, NS, Canada.

Effect of supplementation with water-washed neem fruit and/or yeast on the performance and digestibility of west African dwarf sheep.
M. K. Adeowumi* and T. O. Ososanya, University of Ibadan, Ibadan, Nigeria.

Effect of crude protein level and zilpaterol supplementation on growth performance and carcass dressing of finishing hairy lambs.
A. E. Angulo¹, I. C. Perez¹, A. Plascencia¹, H. L. Lopez¹, P. M. Peraza¹, E. I. Gonzalez¹, and F. G. R. Rincon¹, ¹Universidad Autonoma De Sinaloa, Culiacan Sinaloa, Mexico, ¹Universidad Autonoma De Sinaloa, Culiacan Sinaloa, Mexico, ¹Uabc, Mexicali, Mexico, ¹University of Sao Paulo, Jaboticabal, Brazil.

Performance of lambs fed with crude glycerin diets.
V. B. Carvalho¹, J. M. Bertocco Ezequiel², R. F. Leite¹, S. F. F. Petrorossi³, T. R. Delphino¹, H. L. Perez¹, J. R. Paschoaloto³, M. T. C. Almeida³, R. V. Favaro², and E. H. Fernandes³, ¹UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, SP, Brazil, ³UNESP, Jaboticabal, Brazil, ³UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, Brazil, ³State University of Sao Paulo, Jaboticabal, Brazil.

Sexual response of anovulatory Dorper x Pelibuey nulliparous and multiparous ewes exposed to males + estrogenized females.
M. D. L. A. De Santiago*, Universidad Autonoma Agraria Antonio Narro, Torreon, Mexico.

Feeding behavior of feedlot lambs fed with high levels of crude glycerin.
V. B. Carvalho¹, J. M. Bertocco Ezequiel², R. F. Leite¹, S. F. F. Petrorossi³, T. R. Delphino¹, M. T. C. Almeida³, J. R. Paschoaloto³, H. L. Perez¹, V. R. Favaro², E. M. Oliveira¹, and A. P. D’Aurea³, ¹UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, SP, Brazil, ²UNESP, Jaboticabal, Brazil, ³UNESP, Univ Estadual Paulista, Department of Animal Science, Jaboticabal, Brazil, ³State University of Sao Paulo, Jaboticabal, Brazil.

Effect of porcine digestive peptides as sweet milk whey replacer for piglets diets: Preferences, acceptance and performance during the nursery period.
J. E. Figueras¹², D. Solà-Oriol¹, R. Davin¹, E. Borda¹, S. A. Guzmán-Pino¹, and J. F. Pérez³, ¹SNiBA, Departament de Ciencia Animal i dels Aliments, Universitat Autònoma de Barcelona, Bellaterra, Spain, ³Universidad de Chile, Santiago, Chile, ¹Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, ¹Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, ³Biobiberica, Barcelona, Spain.

1951 W381 The inclusion of yeast-derived protein in weanling diet improves growth performance, anti-oxidative capability and intestinal health of piglets. 
L. Hu, L. Che*, G. Su, Y. Xuan, G. Luo, F. Han, Z. Fang, Y. Lin, S. Xu, and D. Wu, Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, China.

1952 W382 Effects of added zinc during the grower and/or finisher phase on growth performance and carcass characteristics of finishing pigs fed diets with or without ractopamine HCl. 

L. Hu, L. Che*, Y. Liu, Y. Xuan, F. Han, Z. Fang, Y. Lin, S. Xu, and D. Wu, Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, China.


Teaching/Undergraduate and Graduate Education

1955 W385 Examining demographics and student interests in an introductory animal science course. 
D. A. Nichols* and M. R. Hay McCammant, Kansas State University, Manhattan.

1956 W386 Development of a science education experience for adolescents based on stress physiology and a growing interest in smartphone technology. 

1957 W387 Student assessment through a survey instrument of a horse management laboratory course. 
M. C. Nicodemus* and T. L. Bova, Mississippi State University, Mississippi State.

1958 W388 Educational outcomes of an online course: Pharmaceutical use in cattle. 
E. Blythe*, West Texas A&M University, Canyon.

1959 W389 Using community engagement to enhance student learning in animal science: Farm to fork-at home and abroad. 
T. Montgomery*, University of Wisconsin-Platteville, Platteville.

1960 W390 An animal handling course for today’s animal science student. 
A. P. Fidler*, University of Arkansas, Fayetteville.

1961 W391 Experiential learning experience for undergraduate students in livestock and fisheries work in India. 
S. Robinson, M. Shelby, C. Prakash, O. Bolden-Tiller, and N. Gurung*, Tuskegee University, Tuskegee, AL.

1962 W392 Fine Focus: A new international journal for undergraduate microbiology research. 
J. L. McKillip*, Ball State University, Muncie, IN.

SYMPOSIA AND ORAL SESSIONS

ADSA-ASAS Northeast Section Symposium:
Opportunities to Meet Changing Consumer Preferences for Animal Products

Chair: Lisa Holden, The Pennsylvania State University
Sponsor: ADSA-ASAS Northeast Section
3501B

10:30 AM 11 The science and art of cheese making. 
K. E. Kaylegian*, Pennsylvania State University, University Park.

A. Novakovic*, Cornell University, Ithaca, NY.

11:20 AM 13 New approaches to low-fat meat products to better meet consumer demands. 
E. W. Mills*, Pennsylvania State University, University Park.

11:45 AM Panel Discussion

12:05 PM Business Meeting & Awards
**ADSA Foundation Scholar Lecture**

**Chair:** Cindie Luhman, Land O’ Lakes

10:30 AM  
Introduction to ADSA Foundation Scholar Award in Production

C. Luhman.

10:40 AM  
Opportunities for mitigating low fertility in dairy cattle.

T. Bilby*, Merck Animal Health, Fort Worth, TX.

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**Animal Behavior and Well-Being II**

**Chair:** Alexandra Harlander, University of Guelph

2505B

10:30 AM  
Evaluation of hair cortisol as a biomarker of chronic stress in beef cattle.

D. Moya*, M. He, Y. Wang, T. A. McAllister, and K. S. Schwartzkopf-Genswein, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

10:45 AM  

C. Raineri1,2, B. C. Nunes1, T. B. Bovo3, E. A. Titto1, E. R. Afonso1, and A. H. Gameiro1, 1University of São Paulo. School of Veterinary Science and Animal Science, Department of Animal Nutrition and Production, Pirassununga, Brazil, 2Federal University of Uberlândia. School of Veterinary Medicine, Uberlândia, Brazil, 3Ministry of Science, Technology and Innovation, Brasilia, Brazil, 4University of São Paulo. School of Animal Science and Food Engineering, Pirassununga, Brazil.

11:00 AM  
Effect of rest-stop duration during long-distance transport on indicators of animal welfare in weaned beef calves.

S. Marti* and K. S. Schwartzkopf-Genswein, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

11:15 AM  
Monitoring stress behavior in grazing beef cows with a long range pedometric system.


11:30 AM  
Effect of four different reflective barriers on black-globe temperatures in calf hutches and on calf ADG.

T. H. Friend*, W. Binion and J. Haberman, Texas A&M University, College Station.

11:45 AM  
Effects of three tail painting formulations on behavior of dairy heifers.

C. S. Skenandore* and F. C. Cardoso, University of Illinois at Urbana-Champaign.

12:00 PM  
Balking behavior incidence in cattle at the processing plant and carcass implications.

M. L. Thomas*, Y. V. Thaxton2, A. H. Brown, Jr1, K. E. Pfalzgraf1, K. D. Christensen1, K. Anschrift1, and C. F. Rosenkrans1, 1Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, AR, 2Center for Food Animal Wellbeing, University of Arkansas, Fayetteville, 3Center of Excellence for Poultry Science, University of Arkansas, Fayetteville, 4University of Arkansas, Fayetteville.

12:15 PM  
Effects of ractopamine or zilpaterol on physiologic and metabolic parameters in feedlot steers.

A. L. Fuller1, T. L. Covey2, T. E. Lawrence3, and J. T. Richeson1, 1West Texas A&M University, Canyon, 2OT Feedyard and Research Center, Hereford, TX.

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**Animal Frontiers Mini-Symposium: Human Animal Bond**

**Chair:** Steven Zinn, University of Connecticut

Sponsor: ASAS, AMSA, Animal Frontiers, CSAS, and EAAP

2101

10:30 AM  
EAAP - ASAS Speaker Exchange Presentation: Effects of interactions between therapy animals and humans.

L. Lidfor*, Swedish University of Agricultural Sciences, Skara, Sweden.

11:10 AM  
Bonding with commodities: Implications of human-animal relationships for livestock animal welfare.

C. Croney*, Purdue University, West Lafayette, IN.

11:50 AM  
Discussion and Recognition
### Beef Species: Feed Additives

**Chair:** Allison M. Meyer, University of Missouri

**2103C**

- **10:30 AM** 144 **Comparison of feed technologies for backgrounding of weaned beef calves.**

- **10:45 AM** 145 **Effects of dose and duration of ractopamine hydrochloride supplementation on growth performance and carcass characteristics of feedlot heifers.**
  B. M. Edenburn*, N. A. Pyatt, and T. L. Felix, University of Illinois at Urbana-Champaign, Elanco Animal Health, Greenfield, IN.

- **11:00 AM** 146 **A meta-analysis of zilpaterol and ractopamine effects on feedlot performance.**

- **11:15 AM** 147 **Evaluation of objective and subjective mobility variables in feedlot cattle supplemented with zilpaterol hydrochloride.**

- **11:30 AM** 148 **Comparison of real-time ultrasound measurements for body composition traits to carcass data in feedlot cattle fed zilpaterol hydrochloride.**

- **11:45 AM** 149 **The effect of zilpaterol supplementation and RFI on growth performance.**
  L. A. J. Walter*, West Texas A&M University, Canyon.

### Dairy Foods: Technical Oral Session: Protein / Polysaccharide Interactions

**Chair:** Hasmukh Patel, South Dakota State University

**3501C**

- **10:30 AM** 266 **Production and purification of whey protein glycate conjugated with low molecular mass dextrans.**
  L. Xu*, Y. Gong, and J. A. Lucey, University of Wisconsin-Madison, Department of Food Science, Madison, WI, Wisconsin Center for Dairy Research, Madison, WI.

- **10:45 AM** 267 **Impact of maillard modification on the in vitro carbohydrate digestibility of wp-dextran glycates.**
  Y. Gong*, L. Xu, and J. A. Lucey, Department of Food Science, University of Wisconsin-Madison, Center for Dairy Research, University of Wisconsin-Madison.

- **11:00 AM** 268 **Effects of mineral salts and calcium chelating agents on the functionalities of milk protein concentrate prepared by ultrafiltration.**
  X. Luo*, L. Ramchandran, and T. Vasiljevic, Victoria University, Melbourne, Australia.

- **11:15 AM** 269 **Storage stability of sodium caseinate stabilized oil-in-water emulsions as affected by severe heat treatment and storage temperatures.**
  Y. Liang*, G. Gillies, H. G. Patel, L. Matta-Merino, A. Ye, and M. Golding, Massey University, Palmerston North, New Zealand, Fonterra Research and Development Centre, Palmerston North, New Zealand, South Dakota State University, Brookings, Riddet Institute, Palmerston North, New Zealand.

- **11:30 AM** 270 **Understanding mechanisms of the plasmin-induced dissociation of the casein micelle.**

- **11:45 AM** 271 **Heat-induced changes in milk proteins in high-carbohydrate media.**
  T. Huppertz* and H. G. Patet, NIZO food research, Ede, Netherlands, South Dakota State University, Brookings.
12:00 PM 272 Effects of pH on the morphology and mechanical property of heat-induced whey protein aggregates.  
C. W. Y. Lam* and S. Ikeda, University of Wisconsin-Madison.

12:15 PM 273 Strengthening interfacial whey protein films by conjugation with gellan.  
B. Cai* and S. Ikeda, University of Wisconsin-Madison.

12:30 PM 274 Enhancement of radical quenching ability of sweet whey and casein hydrolysate: Mutual supplementation with thermally generated maillard reaction products.  
Z. Z. Haque* and D. Mukherjee, Food Science, Nutrition & Health Promotion, Mississippi State University, Mississippi State.

12:45 PM 275 Impact of heat treatments on the functionalities of milk protein concentrate 80.  
R. M. Horak*, J. A. Lucey, and M. Molitor, University of Wisconsin-Madison.

Extension Education Symposium: Decision Support Tools in Extension  
Chair: Amy E. Radunz, University of Wisconsin-River Falls  
2102A

10:30 AM 292 History and development of the bovine estrus synchronization planner.  
S. K. Johnson*1, G. Dahlke2, and D. R. Strohbehn2, 1Kansas State University, Colby, 2Iowa State University, Ames.

11:00 AM 293 Impact of decision support tools available for dairy farm management.  
V. Cabrera*, University of Wisconsin-Madison.

11:30 AM 294 Assessing the need, project development and impact of the National Swine Reproduction Troubleshooting and Management Guide.  
D. Levis*1, M. Estienne2, W. Flowers3, R. Baker4, R. Knox5, K. Stalder6, T. Safaranski7, M. Knauer7, W. Singleton7, D. Meisinger7, C. Branderhorst7, and W. Winkelman7, 1Levis Worldwide Swine Consultancy, Lincoln, NE, 2Virginia Tech, Suffolk, VA, 3North Carolina State University, Raleigh, 4Iowa State University, Ames, 5University of Illinois at Urbana-Champaign, 6University of Missouri, Columbia, 7Purdue University, Lafayette, IN, 8US Pork Center of Excellence, Clive, IA, 9National Pork Board, Clive, IA.

12:00 PM Discussion

Food Safety: Advances in Food Safety  
Chair: Michaela G. Alewynse, Center for Veterinary Medicine  
3501D

10:30 AM 299 Effectiveness of a mycotoxin binder to minimize transfer of aflatoxin from feed to milk in Nili-Ravi buffaloes.  
N. Aslam1, I. Rodrigues2, A. ul Haq3, A. Cowling4, H. M. Warrichi4, D. M. McGill4, and P. C. Wynn5, 1Graham Centre for Agricultural Innovation, Charles Sturt University, Wagga Wagga, Australia, 2BIOMIN -Singapore Pte Ltd, Singapore, Singapore, 3Buffalo Research Institute, Bhunniky, Pakistan, 4University of Veterinary and Animal Science, Lahore, Pakistan.

10:45 AM 300 Use of silage bacteria as enterosorbents to reduce aflatoxin contamination.  

11:15 AM 301 Effect of starter culture as a source of microbial contamination on the quality and safety of yogurt products in Egypt.  
M. M. Motawee1, W. E. D. I. Saber2, and S. A. Ibrahim3, 1National Organization for Drug Control and Research, Giza-Egypt, Egypt, 2Department of Microbiology, Giza, Egypt, 3Food Microbiology and Biotechnology Laboratory, North Carolina A&T State University, Greensboro.

11:30 AM 302 Effectiveness of pulsed light treatment on the inactivation of pathogenic and spoilage bacteria on cheese surface.  
J. Proulx*1, L. Hsu1, B. Miller1, G. Sullivan1, K. Paradis2, and C. I. Moraru1, 1Cornell University, Ithaca, NY, 2McGill University, Montreal, QC, Canada.

11:45 AM 303 Evaluation of heavy metals, phenol and polycyclic aromatic hydrocarbons on singed skin-on red Sokoto buck goats.  
O. A. Babatunde1, O. O. Olusola2, O. J. Aremu2, and W. Y. Akwetey1, 1Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, 2University of Ibadan, Ibadan, Nigeria.
**Forages And Pastures II: Forages For Livestock Systems**

**Chair: Karla H Jenkins, University of Nebraska**

2102B

10:30 AM 317 Interseeding bermudagrass pastures with alfalfa or clovers for growing calves.  
*P. Beck*, D. S. Hubbell, III*, T. Hess*, and J. Jennings*, 1University of Arkansas SWREC, Hope, 2University of Arkansas Livestock, and Forestry Research Station, Batesville, 3Department of Animal Science, University of Arkansas, Little Rock.

10:45 AM 318 Grazing novel endophyte-infected feces following grazing endophyte-infected feces to alleviate feces toxicosis in beef calves.  

11:00 AM 319 Metagenomic analysis of the rumen microbiome in wheat-induced frothy bloat among steers.  

11:15 AM 320 Stocking density effects in short duration grazing systems on botanical composition and soil characteristics of grasslands.  
*J. J. Bisinger*, Iowa State University, Ames.

11:30 AM 321 Seasonal changes in DM, CP, NDF, and NDF digestibility of pasture forage in grazing production systems.  
*J. Paulson*, B. J. Heins*, and D. G. Johnson*, 1University of Minnesota, Hutchinson, 2University of Minnesota West Central Research, and Outreach Center, Morris.

11:45 AM 322 Relationship between pasture nutritive measurements and plasma urea nitrogen in lambs grazing silvopasture or open pasture.  
*J. P. S. Neel* and D. P. Belesky*, 1USDA-ARS, El Reno, OK, 2West Virginia University, Morgantown.

12:00 PM 323 Effect of organic grain supplementation on production, body weight, body condition score, and fatty acid profiles of organic dairy cows.  
*B. J. Heins*, M. I. Endres*, J. Paulson*, and R. D. Moort*, 1University of Minnesota West Central Research and Outreach Center, Morris, 2University of Minnesota, Saint Paul, 3University of Minnesota, Hutchinson, MN, 4University of Minnesota, St. Paul.

12:15 PM 324 Chemical composition and in vitro gas production of forage cereals associated with common vetch (Vicia sativa).  
*M. Gonzalez Ronquillo*, E. Y. Aguilar Lopez*, A. Morales*, M. G. Gutierrez*, and O. Castelan Ortega*, 1Universidad Autonoma del Estado de Mexico, Toluca, Mexico, 2Universidad Autonoma del Estado de Mexico, Toluca, Mexico.

**Growth and Development**

**Chair: Gordon K. Murdoch, University of Idaho**

2502

10:30 AM 370 Whole or ground oats in calf starters: Effects on rumen fermentation and rumen development.  
*F. X. Suarez-Mena*, A. J. Heinrichs*, C. M. Jones*, T. M. Hill*, and J. D. Quigley*, 1The Pennsylvania State University, University Park, 2Provimi North America, Brookville, OH.

10:45 AM 371 Rumen epithelial gene expression in periruminant Holstein bull calves fed a fermentation extract of Aspergillus oryzae.  
*T. T. Yohe*, K. M. O’Diam, and K. M. Daniels, Department of Animal Sciences, The Ohio State University, Wooster.

11:00 AM 372 Performance and rumen development of artificially reared calves to dietary butyrate supplementation.  
*A. K. Kelly*, J. V. O’Doherty*, D. A. Kenny*, T. M. Boland*, and K. M. Pierce*, 1School of Agriculture and Food Science, University College Dublin, Dublin, Ireland, 2Teagasc Grange, Meath, Ireland, 3School of Agriculture and Food Science, University College Dublin, Dublin 4, Ireland.

11:15 AM 373 Non-genomic effects of trenbolone acetate on bovine satellite cell proliferation.  

11:30 AM 374 Effects of recombinant bovine somatotropin on performance and biological activity of skeletal muscle over the finishing phase of feedlot heifers.  
Identification of potential serum biomarkers for feed efficiency in young pigs.

Enhanced protein accretion and vital organ growth with intermittent bolus compared to continuous feeding in neonatal pigs.
S. W. El-Kadi1,2, C. Bounry1, A. Suryawan1, M. C. Gazzaneo1, R. A. Orellana1, N. Srivastava1, H. V. Nguyen1, S. R. Kimball1, M. L. Fioretto1, and T. A. Davis1, 1USDA/ARS-Children’s Nutrition Research Center, Baylor College of Medicine, Houston, TX, 2Animal and Poultry Sciences, Virginia Tech, Blacksburg, 3Cellular and Molecular Physiology, Penn State College of Medicine, Hershey.

International Animal Agriculture Symposium: Global Prospective Of Livestock Production Systems To Meet The Growing Need For Animal Protein In Human Diets: Impacts On Production And Human Health.

Chair: Fernando R. Valdez, Kemin Industries, Inc.
Sponsor: Elanco Animal Health
2505A

Intensifying beef production to meet human nutrition needs.
D. Grace*, International Livestock Research Institute, CGIAR Program, Nairobi, Kenya.

Introduction: Not just nutrition and management: We need a Total Nutrition and Management Program.
F. R. Valdez*, Kemin Industries, Inc., Des Moines, IA.

Parallel comparisons of intensive meat production in developed and developing countries. What can we learn from each other’s systems?
R. Barajas Cruz*, Universidad de Sinaloa, Culiacan, Mexico.

Methods to improve nutrient intake in grazing cattle: Pasture management and supplementation.

Food safety. What efforts are underway internationally to improve food safety? FDA’s Office of International Programs, FDA

Panel Discussion

Physiology And Endocrinology: Novel Approaches To Improving Reproductive Success In Domestic Animals.

Chair: José E.P. Santos, Department of Animal Sciences, University of Florida
2104A

Ovarian and endocrine responses and efficacy associated with three ovulation synchronization strategies (Heat-synch, Doublesynch and Estradoublesynch) in Murrah buffaloes.
R. Mirmahmoudi1 and B. S. Prakash2, 1Department of Animal Science, Faculty of Agriculture, University of Jiroft, Jiroft, Iran, 2National Dairy Research Institute, Karnal, India.

CLC improves the post thaw semen quality but not the fertility in Sahiwal bulls.
A. Sattar3, A. G. Tarin1, N. Ahmad1, K. Javed1, M. Ahmad1, A. Razzaq1, K. Ahmad1, and M. Younis3, 1Department of Theriogenology, University of Veterinary and Animal Sciences, Lahore, Pakistan, 2Department of Livestock Production, University of Veterinary and Animal Sciences, Lahore, Pakistan, 3Livestock Experiment Station, Fazilpur, Rajanpur, Pakistan, 4Semen Production Unit, Qadirabad, Sahiwal, Pakistan.

Effects of administration of prostaglandin F2α (PGF) at initiation of the 7-day CO-Synch+CIDR estrus synchronization protocol for replacement beef heifers.
V. R. G. Mercadante1, L. E. Kozicki2, F. M. Ciriaco1, D. D. Henry1, C. R. Dahlert1, R. N. Funston4, J. E. Larson1, G. A. Perry4, T. L. Steckler2, and G. C. Lamb4, 1University of Florida, Marianna, FL, 2Pontifical Catholic University (PUCPR), Curitiba, Brazil, 3North Dakota State University, Fargo, 4University of Nebraska, North Platte, 5Mississippi State University, Mississippi State, 6South Dakota State University, Brookings, 7University of Illinois, Simpson.

Modifications to Ovsynch improve fertility during resynchronization: Evaluation of presynchronization with GnRH 6 days before Ovsynch and a second PGF treatment.
P. D. Carvalho1, M. J. Fuenzalida1, A. Ricci1, M. Luchterhand1, J. M. Mulcahy1, R. V. Barletta2, G. M. Baez2, V. G. Santos1, M. C. Amundson1, J. N. Guenther1, A. H. Sousa2,3, M. C. Wilthart4, and P. M. Fricke5, 1Department of Dairy Science, University of Wisconsin-Madison, 2Department of Animal Sciences, University of Wisconsin-Madison, 3University of California Cooperative Extension, Tulare.
11:30 AM 525  The effects of prenatal stress and postnatal temperament on age and body weight at first sperm, puberty and sexual maturity in Brahman bulls.
M. C. Roberts*, R. C. Vann, D. A. Neuendorff, D. G. Riley, J. A. Carroll, T. H. Welsh, Jr., and R. D. Randel, Texas A&M AgriLife Research, Overton, MAFES-Brown Loam Experiment Station, Mississippi State University, Raymond, Texas A&M AgriLife Research, Overton, Texas A&M AgriLife Research, College Station, USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, Texas A&M University Department of Animal Science, College Station.

11:45 AM 526  Equine chorionic gonadotropin (eCG) improves follicular dynamics, estrus expression, ovulation and pregnancy rate in CIDR based estrus synchronization protocol in Nili-Ravi buffalo.
M. I. Naveed, A. Husnain, U. Riaz, M. Hassan, A. Sattar*, and N. Ahmad, Department of Theriogenology, University of Veterinary and Animal Sciences, Lahore, Pakistan.

12:00 PM 527  Effects of prenatal transportation stress on endogenous and exogenously-induced LH secretion in sexually mature Brahman bulls.
B. P. Littlejohn*, M. C. Roberts, M. N. Bedenbaugh, A. W. Lewis, D. A. Neuendorff, D. G. Riley, J. A. Carroll, R. C. Vann, M. Amstalden, J. H. Welsh, Jr., and R. D. Randel, Texas A&M University Department of Animal Science, College Station, Texas A&M AgriLife Research, Overton, Texas A&M AgriLife Research, College Station, USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, MAFES-Brown Loam Experiment Station, Mississippi State University, Raymond.

12:15 PM 528  Effects of artificial insemination and natural service breeding systems on calving characteristics and weaning weights of resultant progeny.

12:30 PM 529  Impact of manipulation of progesterone concentrations during follicular development on ovulatory follicle growth and timed AI pregnancy rate in beef cows.
F. M. Abreu, M. A. Coutinho da Silva, L. H. Cruppe, M. L. Mussard, B. R. Harstine, G. A. Bridges, T. W. Geary, and M. L. Day, The Ohio State University, Columbus, University of Minnesota, Grand Rapids, USDA ARS Fort Keogh, Miles City, MT.

12:45 PM 530  Reproductive performance of lactating dairy cows after resynchronization with ovsynch or a program aimed to maximize artificial insemination in estrus and fertility of timed artificial inseminations based on ovarian structures.

Production, Management, and the Environment: Nutrition and Management
Chair: N. Andy Cole, USDA-ARS-CPRL
2104B

10:30 AM 559  Zilpaterol hydrochloride repartitions chemical components of the empty body of Holstein steers.

10:45 AM 560  Effect of organic grain supplementation on activity and rumination time of organic dairy cows.
L. S. Sjostrom*, B. J. Heins, M. I. Endres, R. D. Moon, and J. Pauslon, University of Minnesota, West Central Research and Outreach Center, Morris, University of Minnesota West Central Research and Outreach Center, Morris, University of Minnesota, Saint Paul, University of Minnesota, St. Paul, University of Minnesota, Hutchinson.

11:00 AM 561  Effect of feeding kelp on growth and profitability of group-fed dairy calves in an organic production system.
B. J. Heins* and M. L. Stangaferro, University of Minnesota West Central Research and Outreach Center, Morris, University of Minnesota Southern Research and Outreach Center, Waseca.

11:15 AM 562  Reproductive performance of Barki ewes in Siwa Oasis as affected by including date seeds in the concentrate ration.
E. B. Abdalla, Faculty of Agriculture, Ain Shams University, Cairo, Egypt.

11:30 AM 563  Impact of heifer development system on subsequent ADG and reproduction in two different breeding seasons.
H. R. Nielson*, J. D. Harms, A. F. Summers, R. A. Vraspir, and R. N. Funston, University of Nebraska, West Central Research and Extension Center, North Platte, NE, University of Nebraska-Lincoln.

11:45 AM 564  A comparison of serum metabolic profiles of dairy cows that maintained or lost body condition score 15 days before calving.
M. R. Sheehy*, F. J. Mulligan, and A. G. Fahey, School of Veterinary Medicine, University College Dublin, Dublin, Ireland, Devenish Nutrition Ltd, Belfast, Northern Ireland, School of Agriculture and Food Science, University College Dublin, Dublin 4, Ireland.
Comparison of methods for isolation of miRNA from bovine milk whey.
X. L. Jin*, H. Y. Liu¹, L. Liu¹, Z. H. Wei¹, and J. X. Liu², ¹Institute of Dairy Science, Zhejiang University, Hangzhou, China, ²Zhejiang University, Hangzhou, China.

Ruminant Nutrition VII: Dairy Metabolism
Chair: Shawn Donkin, Purdue University
2103A

Effect of reduced energy density of close-up diet on ruminal fermentation parameters in multiparous Holstein cows.
W. M. Huang¹, A. Simayi, A. Yasheng, Z. H. Wu, Z. J. Cao, and S. L. Li, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

S. Mann¹, F. A. Leal Yepes², T. R. Overton³, J. J. Wakshlag⁴, and D. V. Nydam⁵, ¹Cornell University, Department of Population Medicine and Diagnostic Sciences, Ithaca, NY, ²Cornell University, Department of Animal Science, Ithaca, NY, ³Cornell University, Department of Clinical Sciences, Ithaca, NY.

Hepatic acetyl COA concentration decreases following feeding in early-postpartum but not in late-lactation dairy cows.
P. Piantoni¹, C. M. Ylioja, and M. S. Allen, Michigan State University, East Lansing.

Overconditioned prepartum cows exhibit a greater magnitude of insulin resistance and mobilize more NEFA earlier compared with lean cows.
J. E. Rico¹ and J. W. McFadden¹, ¹West Virginia University, Morgantown, ²Johns Hopkins University, Baltimore, MD.

Identifying biomarkers for pre-onset insulin resistance using mass spectrometry-based metabolomics: Plasma ceramides are elevated in overconditioned transition dairy cows.
J. E. Rico¹ and J. W. McFadden¹, ¹West Virginia University, Morgantown, ²Johns Hopkins University, Baltimore, MD.

Effects of yeast product supplementation on production, feeding behavior, and metabolism in transition dairy cows.
D. C. Lawrence¹, E. Kennedy², M. O’Donovan¹, T. M. Boland³, A. Lawless³, and J. Patton³, ¹School of Agriculture and Food Science, University College Dublin, Belfield, Dublin 4, Ireland, ²Teagasc, Animal and Grassland Research and Innovation Center, Moorepark, Fermoy, Co. Cork, Ireland, ³Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.

Milk production performance of autumn-calving Holstein Friesian cows managed under flat-rate or feed-to-yield concentrate feeding systems.
D. C. Lawrence¹, E. Kennedy², M. O’Donovan¹, T. M. Boland³, A. Lawless³, and E. Kennedy³, ¹School of Agriculture and Food Science, University College Dublin, Belfield, Dublin 4, Ireland, ²Teagasc, Animal and Grassland Research and Innovation Center, Moorepark, Fermoy, Co. Cork, Ireland, ³Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.

Ruminant Nutrition VIII: Microbiome
Chair: Jong-Su Eun, Utah State University
2103B

Characterization of rumen microbial community composition of buffalo fed diets varying in forage: Concentrate ratio.
B. Lin¹,¹, C. Zou¹, F. Cox², G. Henderson², P. H. Janssen², X. Liang¹, and G. Attwood³, ¹Buffalo Research Institute, The Chinese Academy of Agricultural Sciences, Nanning, China, ²AgResearch Limited, Grasslands Research Centre, Palmerston North, New Zealand.

Bacterial diversity associated with different primer pairs on different diets in the rumen microbiome of Kankrej cattle.
D. W. Pitta¹, N. Induguri², S. Kumar², K. B. Prajapathi³, A. K. Patel³, N. Parmar³, A. B. Patel³, B. Reddy³, and C. Joshi³, ¹University of Pennsylvania, Kennett Square, ²University of Pennsylvania, Kennett Square, ³Sardharkrushinagar Dantiwada Agricultural University, Sardharkrishinagar, India, ⁴Anand Agriculture University, Anand, India.
11:00 AM 677 Development of rumen microbiota in dairy calves: Impact of weaning and different weaning strategies.
S. C. Li*, M. A. Steele*, P. Azevedo*, M. Carson*, J. C. Plaizier*, H. Derakhshani*, and E. Khafipour*, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 2Nutreco Canada Agresearch, Guelph, ON, Canada, 3Department of Medical Microbiology and Infectious Diseases, Winnipeg, MB, Canada.

11:15 AM 678 The potential benefit of corn dried distillers grain (co)products (DDG) in the mitigation of methane production in cattle: An in vitro analysis.
M. A. Fonseca*, D. K. A. Silva*, H. D. Naumann*, T. R. Callaway*, and L. O. Tedeschi*, 1Texas A&M University, College Station, 2Federal Rural University of Pernambuco, Garanhsuns, Brazil, 3University of Missouri, Columbia, 4USDA-ARS, College Station.

11:30 AM 679 Use of avian antibodies against lipopolysaccharides to improve gastrointestinal function in early lactation dairy cows.

11:45 AM 680 Large-subunit rDNA based differentiation of anaerobic rumen fungi using restriction fragment length polymorphism.

12:00 PM 681 Responses in rumen microbiomes of Bos taurus and Bos indicus steers fed rice straw and supplemented protein.
E. A. Latham*, J. C. McCann*, K. Weldon*, J. Coverdale*, and W. E. Pinchak*, 1Texas A&M University, College Station, 2University of Illinois at Urbana-Champaign, 3Texas A&M AgriLife Research, Vernon.

12:15 PM 682 Effects of dietary fat source and monensin on methane to carbon dioxide ratio, VFA profile, and performance of finishing steers.

**Swine Species Symposium: Procedures And Methodology For Determining SID Amino Acid Digestibility And Energy Of Feedstuffs**
Chair: Charles Starkey, American Proteins, Inc.
Sponsor: DuPont - Danisco Animal Nutrition

10:30 AM 749 Procedures and methodology for determining SID amino acid digestibility of feedstuffs.
H. H. Stein*, University of Illinois at Urbana-Champaign.

11:00 AM 750 Procedures and methodology for determining the net energy content of feedstuffs.
C. M. Nyachoti*, University of Manitoba, Winnipeg, MB, Canada.

11:30 AM 751 Procedures for determining digestible and metabolizable energy contents of feedstuffs.
O. Adeola*, Department of Animal Sciences, Purdue University, West Lafayette, IN.

12:00 PM Panel Discussion

**Animal Science in the Real World**
Chair: Ronnie Green, University of Nebraska
Sponsor: ASAS

11:00 AM Welcome & Introduction

11:10 AM 30,000 foot overview: Feedyards.
R. Wilson*, Texas Cattle Feeders Association.

11:25 AM 30,000 foot overview: Beef industry.
F. Roberts*, National Cattleman’s Beef Association.

11:40 AM 30,000 foot overview: Dairy industry.
J. Tricarico*, Dairy Research Institute.

11:55 AM 30,000 foot overview: Pork industry.
C. Hostetler*, National Pork Board.

12:10 PM Break

12:30 PM Panel Discussion & Lunch
ADSA Multidisciplinary and International Leadership Keynote (MiLK) Symposium:
Water: Consideration for the Future of Animal and Food Production and Processing

Chair: Barry Bradford, Kansas State University and Susan Duncan, Virginia Tech
Sponsor: ADSA

2:00 PM 430  Drought: Lessons to learn in agriculture.
K. Matthews*, ERS, USDA, Washington, DC.

2:35 PM 431  Water sources and chemical quality considerations for animal production and food processing.
A. M. Dietrich*, Virginia Tech, Blacksburg.

2:00 PM 440  Drought: Lessons to learn in agriculture.
K. Matthews*, ERS, USDA, Washington, DC.

2:35 PM 441  Water sources and chemical quality considerations for animal production and food processing.
A. M. Dietrich*, Virginia Tech, Blacksburg.

2:00 PM 450  Drought: Lessons to learn in agriculture.
K. Matthews*, ERS, USDA, Washington, DC.

2:35 PM 451  Water sources and chemical quality considerations for animal production and food processing.
A. M. Dietrich*, Virginia Tech, Blacksburg.

Animal Behavior & Well-Being III
Chair: Peter D Krawczel, The University of Tennessee

2:00 PM 47  Breeding may simultaneously reduce pig aggressiveness at regrouping and in stable social groups but management may not.
S. P. Turner*, S. Desire1, R. B. D’Eath1, L. Canario1, and R. Roehe1, 1SRUC, Edinburgh, United Kingdom, 2INRA UMRI388, F-31326 Castanet-Tolosan, France.

2:30 PM 48  Effect of concentrate feeder design on performance, animal behavior, and ruminal health in Holstein bulls fed high-concentrate diets.
M. Verda1, A. Bach2, and M. Devant2, 1IRTA-Department Ruminant Production, Caldes Montbui-Barcelona, Spain, 2Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 3IRTA-Department of Ruminant Production, Caldes De Montbui, Spain.

2:45 PM 49  Impact of using an electrified crowding gate on milk yield and milk flow.
I. Guasch1, A. Pinto2, and A. Bach1, 1Blanca, Hostalets de Toi, Spain, 2Department of Ruminant Production, IRTA, Barcelona, Spain, 3Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 4ICREA, Barcelona, Spain.

3:00 PM 50  Using designer diets to reduce aggression in pregnant sows.
A. Sapkota1, J. N. Marchant-Forde2, B. T. Richert1, and D. C. Lay Jr.3, 1Purdue University, West Lafayette, IN, 2USDA-ARS, West Lafayette, IN, 3U.S. Dept of Agriculture, West Lafayette, IN.

3:15 PM 51  Selection and breeding for improved feed efficiency alters gilt behavioral responsiveness to a novel object.
J. D. Colpoys1, N. K. Gabler1, C. E. Abell2, A. F. Keating1, S. T. Millman1, J. M. Siegford2, and A. K. Johnson1, 1Iowa State University, Ames, 2DNA Genetics, Columbus, NE, 3Michigan State University, East Lansing.

Animal Health III: Periparturient and Lactation Health
Chair: Troy J. Wistuba, Prince Agri Products

2:00 PM 91  Milk quality and milk components in lactating dairy goats fed OmniGen-AF from dry off through the entire lactation.
A. D. Rowson*, T. J. Boyle, D. J. McLean, S. A. Armstrong, and S. B. Puntenney, Prince Agri Products, Inc, Quincy, IL.
2:15 PM 92  Modulation of innate immune function and phenotype in bred dairy heifers during the periparturient period induced by an immunostimulant 60 days prior to delivery.

2:30 PM 93  Restriction in energy or protein affects differentially behavior of lactating dairy cows.
V. Fischer*, E. Forgiarini Vizzotto*, F. André Schmidt*, D. Werncke*, A. Sausenbach de Abreu*, and A. Thaler Neto*, 1Universidade Federal do Rio Grande do Sul, Porto Aére, Brazil, 2Universidade Estadual de Lages, Lages, Brazil.

2:45 PM 94  Dynamics of culling for Jersey, Holstein, and crossbred cows in large multi-breed dairy herds.
P. J. Pinedo*, A. M. Daniels*, J. Shumaker*, and A. De Vries*, 1Texas A&M AgriLife Research, Amarillo, 2Circle H Headquarters LLC, Dalhart, TX, 4Magnaolia Veterinary Services, Amarillo, TX, 4University of Florida, Gainesville.

3:00 PM 95  Effect of an organic certified treatment (Optimum Uterflush) for toxic puerperal metritis on cure and reproductive performance of dairy cows.

3:15 PM 96  Effects of yeast product supplementation on immunity and uterine inflammation in transition dairy cows.
K. Yuan*, L. Mendonca*, L. Hulbert*, L. Mamedova*, M. Mackey*, Y. Shen*, C. C. Elrod*, and B. Bradford*, 1Kansas State University, Manhattan, 2Vi-COR, Inc., Mason City, IA.

3:30 PM 97  Hyperketonemia in early lactation dairy cattle: Component and total cost per case.
J. A. A. McArt*, D. V. Nydamp*, and M. W. Overton*, 1Colorado State University, Fort Collins, 2Cornell University, Department of Population Medicine and Diagnostic Sciences, Ithaca, NY, 3Elanco Animal Health-Dairy, Athens, GA.

3:45 PM 98  The effects of grain-induced subacute ruminal acidosis on interleukin-6 and acute phase response in dairy cows.
S. C. Li*, A. M. Danscher*, P. H. Andersen*, E. Khafipour*, N. B. Kristensen*, and J. C. Plazier*, 1Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, 2Department of Large Animal Sciences, University of Copenhagen, Copenhagen, Denmark, 3Department of Clinical Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden, 4Danish Agricultural Advisory Service, Aarhus, Denmark.

4:00 PM 99  Evaluation of propylene glycol and glycerol infusions as potential treatments for ketosis in dairy cows.
P. Piantoni* and M. S. Allen, Michigan State University, East Lansing.

4:15 PM 100  Integrating metabolomics and transcriptomics of liver to study susceptibility to ketosis in response to prepartal nutritional management.
K. Shahzad*, J. S. Osorio*, D. N. Luchini*, and J. J. Loor*, 1University of Illinois, Urbana-Champaign, 2University of Illinois at Urbana-Champaign, 3Adisseo S.A.S., Alpharetta, GA.

4:30 PM 101  A competitive and unpredictable feeding environment pre-calving increases inflammation and endometritis in Holstein dairy cows.
K. Proudfoot*, S. J. LeBlanc*, D. Weary*, B. Bradford*, L. Mamedova*, and N. von Keyserlingk*, 1The Ohio State University, Columbus, 2University of Guelph, Guelph, ON, Canada, 3The University of British Columbia, Vancouver, BC, Canada, 4Kansas State University, Manhattan.

ASAS Graduate Student Symposium:
Research Ethics: What Are They And Why Are They Needed?

Chair: Casey L. Maxwell, Oklahoma State University
Sponsor: ASAS

2:00 PM 109  What are research ethics?
M. S. Calvo-Lorenzo*, Oklahoma State University, Stillwater.

2:30 PM 110  Why are research ethics important and how do they affect academia?
M. L. Galyean*, Texas Tech University, Lubbock.

3:00 PM 111  Importance and impact of research ethics on industry.
Breeding and Genetics: Applications and Methods in Animal Breeding-Livestock II

Chair: Richard Tait, USDA, ARS, U.S. Meat Animal Research Center
2505B

2:00 PM 170 Genetic gain and economic weights in selection for boar fertility traits in a cross-breeding system.

2:15 PM 171 A genome-wide association study for egg shell strength in the genome of brown-egg layers.
R. A. Ghebrewold, M. Heidaritabar, A. Vereijken, B. J. Ducro, and J. W. M. Bastiaansen, Wageningen University, Wageningen, Netherlands, Norwegian University of Life Sciences, AS, Norway, Hendrix Genetics, Boxmeer, Netherlands, Animal Breeding and Genomics Centre, Wageningen University, Wageningen, Netherlands.

2:30 PM 172 The identification of a putative mutation for slick hair coat in Senepol cattle.

2:45 PM 173 Genomic Selection of Nili-Ravi Buffalo.
M. Moaeen-ud-Din*, G. Bilal, and M. S. Khan, PMAS-Arid Agriculture University, Rawalpindi, Pakistan, University of Agriculture, Faisalabad, Pakistan.


Chair: Greg Aldrich, Kansas State University
Sponsor: ASAS Foundation: Fahey Appreciation Club
3501D

2:00 PM Introductory Remarks

2:10 PM 193 Challenges in training companion animal biologists: Missing the research component, how to overcome it?
J. P. McNamara*, Washington State University, Pullman.

2:40 PM 194 Extension outreach: Use of technology in companion animal biology and nutrition.
L. Karr-Lilienthal*, University of Nebraska-Lincoln.

3:10 PM Break

3:25 PM 195 A circuitous route: Preparing for a career in the companion animal industry.
A. K. Shoveller*, The University of Guelph, Guelph, ON, Canada.

3:55 PM 196 How to effectively communicate science with pet owners and society: Understanding pet owner, purchasing decisions, and sensory characteristics of pet foods.
K. Koppel*, Kansas State University, Manhattan.

4:25 PM 197 Round table discussion—All speakers.
G. Aldrich*, Kansas State University, Manhattan.

Dairy Foods Symposium: Dairy Foods Consumption, Gut Microbiota and Human Health

Chair: Nagendra P. Shah, The University of Hong Kong
Sponsor: EAAP
3501C

2:00 PM 276 Probiotics and health benefits with reference to synthesis of gamma-aminobutyric acid (GABA) by selected probiotic bacteria.
N. Shah and Q. Wu, The University of Hong Kong, Hong Kong.
2:30 PM  277  Gut microbiota, probiotics, bioactives (such as CLA, USFA), trans-fatty acids and their relationship to health.
H. Gill*, RMIT University, Melbourne, Australia.

3:00 PM  278  EAAP-ADSA Speaker Exchange Presentation: Overview of whey protein based bioactivities (including colostrum) in gut and health promotion.
A. M. Pihlanto* and R. M. Tahvonen, MTT Agrifood Research Finland, Jokioinen, Finland.

3:30 PM  279  Milk fat globule membrane components and gut health effects.
R. Ward* and K. Hintze, Utah State University, Logan.

4:00 PM  280  Human gut microbiota, diet and health.
M. Lefevre*, N. Hergert, and G. Rompato, Utah State University, Logan.

Joint Growth & Development, and Meat Science & Muscle Biology Symposium:
Applications of Proteomics in Animal Production
Chair: Gordon Murdoch, University of Idaho
Sponsor: EAAP
2503

2:00 PM  377  Proteomics in Animal Science.
J. Lippolis*, National Animal Disease Center, Ames, IA.

2:40 PM  378  Proteomics in Fat Metabolism and Development.
L. Guan*, University of Alberta, Edmonton, AB, Canada.

3:20 PM  379  Use of Proteomics in Animal Health and Disease Research.
D. Eckersall*, University of Glasgow, Glasgow, Scotland.

4:00 PM  380  Use of Proteomics for Livestock Improvement.
E. Huff-Longergan*, Iowa State University, Ames.

Nonruminant Nutrition: fat, fiber, fermentation, and Residual Feed intake
Chair: Zach J Rambo, Zinpro
Sponsor: Zinpro
2502

2:00 PM  463  Changing the dietary omega-6 to omega-3 fatty acid ratio impacts nursery pig performance more than increasing omega-3 intake alone.
L. Eastwood* and D. Beaulieu, Prairie Swine Centre, Inc., Saskatoon, SK, Canada.

2:15 PM  464  The dietary omega-6 to omega-3 fatty acid ratio impacts the inflammatory response in nursery pigs more than increasing omega-3 intake.
L. Eastwood* and D. Beaulieu, Prairie Swine Centre, Inc., Saskatoon, SK, Canada.

2:30 PM  465  Effect of fiber and fat on calculated values for standardized total tract digestibility of calcium in fish meal.
J. C. González-Vega*, C. L. Walk, and H. H. Stein, University of Illinois at Urbana-Champaign, AB Vista Feed Ingredients, Marlborough, United Kingdom.

2:45 PM  466  Response of pigs in ileal endogenous amino acid losses to different dietary fiber types determined using the regression method.
S. A. Adedokun* and O. Adeola, Purdue University, West Lafayette, IN.

3:00 PM  467  Starch and fiber characteristics of barley influence site of energy digestion in ileal-cannulated grower pigs.

3:15 PM  468  Effects of three types of dietary microalgal inclusions on n-3 and n-6 fatty acid profiles in egg yolks of laying hens.
J. Kim, A. Magnuson, and X. Lei*, Cornell University, Ithaca, NY.

3:30 PM  Break

3:45 PM  469  Dose-dependent effect of a defatted green microalgal biomass on enriching omega-3 fatty acids in broiler chickens.
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<th>Time</th>
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<tr>
<td>4:00 PM</td>
<td>470</td>
<td><strong>In vitro digestion and fermentation characteristics and in vivo digestibility of canola co-products in the pigs.</strong></td>
<td>T. A. Woyengo*, R. Jha*, E. Beltranena†, and R. T. Zijlstra*, University of Alberta, Edmonton, AB, Canada, University of Hawaii at Manoa, Honolulu.</td>
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<td>4:15 PM</td>
<td>471</td>
<td><strong>In vitro pig cecal fermentation with different inoculum source with diets content Acrocomia aculeata.</strong></td>
<td>S. L. S. Cabral Filho†, L. S. Murata†, C. A. Silva Júnior‡, H. dos Santos Sena‡, F. Lopes da Silva‡, F. Nishimoto Gomes da Costa‡, T. F. Braga‡, and J. F. Athayde Oliveira‡, University of Brasilia, Brasilia, Brazil, Universidade de Brasilia, Brasilia, Brazil.</td>
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<tr>
<td>4:30 PM</td>
<td>472</td>
<td><strong>Residual feed intake in pigs is associated with organ weight, nutrient digestibility and intestinal nutrient transporter gene expression.</strong></td>
<td>S. Vigors*, T. Sweeney‡, A. K. Kelly§, C. J. O’Shea§, D. N. Doyle§, and J. V. O’Doherty§, School of Agriculture and Food Science, University of College Dublin, Dublin, Ireland, College of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland.</td>
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<td>4:45 PM</td>
<td>473</td>
<td><strong>The effect of divergent selection for residual feed intake on cytokine gene expression in pigs following an ex vivo lipopolysaccharide challenge.</strong></td>
<td>S. Vigors*, J. V. O’Doherty†, C. J. O’Shea§, and T. Sweeney‡, School of Agriculture and Food Science, University of College Dublin, Dublin, Ireland, College of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland.</td>
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<td>2:00 PM</td>
<td>531</td>
<td><strong>Recent advances in the hypothalamic control of reproduction.</strong></td>
<td>I. Clarke*, Monash University, Clayton, Victoria 3800, Australia.</td>
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<td>2:30 PM</td>
<td>532</td>
<td><strong>Influence of stress on male reproductive physiology.</strong></td>
<td>T. H. Welsh, Jr.†, N. H. Ing‡, and R. D. Randel†, Texas A&amp;M University Department of Animal Science, College Station, Texas A&amp;M University, Department of Animal Science, College Station, Texas A&amp;M AgriLife Research, Overton.</td>
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<td>3:00 PM</td>
<td>533</td>
<td><strong>EAAP-ASAS Speaker Exchange Presentation: Mechanisms linking infection and innate immunity in the female genital tract with infertility in dairy cattle.</strong></td>
<td>I. M. Sheldon*, Swansea University, Singleton Park, Swansea, United Kingdom.</td>
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<tr>
<td>3:30 PM</td>
<td>534</td>
<td><strong>Influences of heat stress and uterine diseases on reproduction of dairy cows.</strong></td>
<td>J. E. P. Santos†, E. S. Ribeiro†, E. Karakayan⊥, K. N. Galvão⊥, and F. S. Lima⊥, Department of Animal Sciences, University of Florida, Gainesville, Department of Large Animal Clinical Sciences; University of Florida, Gainesville, Cornell University, Ithaca, NY.</td>
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<tr>
<td>4:00 PM</td>
<td>535</td>
<td><strong>Cellular and molecular mechanisms of heat stress related to bovine ovarian function.</strong></td>
<td>Z. Roth†, The Hebrew University of Jerusalem, Rehovot, Israel.</td>
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<td>4:30 PM</td>
<td>1402</td>
<td><strong>ADSA-EAAP Travel Award Presentation: Physiological characteristics of cows with divergent genetic merit for fertility traits during the transition period.</strong></td>
<td>S. Moore*, P. Lonergan*, T. Fair†, and S. Butler†, Teagasc Moorepark, Fermoy, Ireland, University College Dublin, Dublin, Ireland, Animal &amp; Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.</td>
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**Physiology and Endocrinology Symposium: Reproductive Success in Ruminants: A Complex Interaction Between Endocrine, Metabolic and Environmental factors**

**Chair:** Kyle C. Caires, Berry College  
**Sponsor:** EAAP and Merck

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<td><strong>Influence of stress on male reproductive physiology.</strong></td>
<td>T. H. Welsh, Jr.†, N. H. Ing‡, and R. D. Randel†, Texas A&amp;M University Department of Animal Science, College Station, Texas A&amp;M University, Department of Animal Science, College Station, Texas A&amp;M AgriLife Research, Overton.</td>
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<td>3:00 PM</td>
<td>533</td>
<td><strong>EAAP-ASAS Speaker Exchange Presentation: Mechanisms linking infection and innate immunity in the female genital tract with infertility in dairy cattle.</strong></td>
<td>I. M. Sheldon*, Swansea University, Singleton Park, Swansea, United Kingdom.</td>
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<tr>
<td>3:30 PM</td>
<td>534</td>
<td><strong>Influences of heat stress and uterine diseases on reproduction of dairy cows.</strong></td>
<td>J. E. P. Santos†, E. S. Ribeiro†, E. Karakayan⊥, K. N. Galvão⊥, and F. S. Lima⊥, Department of Animal Sciences, University of Florida, Gainesville, Department of Large Animal Clinical Sciences; University of Florida, Gainesville, Cornell University, Ithaca, NY.</td>
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<td>4:00 PM</td>
<td>535</td>
<td><strong>Cellular and molecular mechanisms of heat stress related to bovine ovarian function.</strong></td>
<td>Z. Roth†, The Hebrew University of Jerusalem, Rehovot, Israel.</td>
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<td>4:30 PM</td>
<td>1402</td>
<td><strong>ADSA-EAAP Travel Award Presentation: Physiological characteristics of cows with divergent genetic merit for fertility traits during the transition period.</strong></td>
<td>S. Moore*, P. Lonergan*, T. Fair†, and S. Butler†, Teagasc Moorepark, Fermoy, Ireland, University College Dublin, Dublin, Ireland, Animal &amp; Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.</td>
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**Chair:** C. L. Maxwell, Elanco Animal Health

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<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>2:00 PM</td>
<td>566</td>
<td><strong>Effects of technology use in feedlot production systems on feedlot performance and carcass characteristics.</strong></td>
<td>C. L. Maxwell†, B. C. Bernhard‡, C. F. O’Neill‡, B. K. Wilson†, C. Hixon‡, C. Haviland‡, A. Grimes‡, M. S. Calvo-Lorenzo‡, D. L. VanOverbeke‡, G. G. Mafi‡, C. J. Richards‡, D. L. Step‡, B. P. Holland‡, and C. R. Krebbel‡, Oklahoma State University, Stillwater, Merck Animal Health, DeSoto, KS.</td>
</tr>
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</table>
2:15 PM  567  The effects of technology use in feedlot production systems on the health status of finishing steers.

2:30 PM  568  Survey of BQA cattle handling practices that occurred during processing feedlot cattle.
R. Woiwode and T. Grandin, Colorado State University, Fort Collins.

2:45 PM  569  The effects of technology use in feedlot production systems on cattle behavior and mobility.

3:00 PM  570  Predicting dry matter intake by growing and finishing beef cattle: Evaluation of current methods and equation development.
U. Y. Anele, E. M. Domby, and M. L. Galyean, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada; Cargill Animal Nutrition, Amarillo, TX; Texas Tech University, Lubbock.

3:15 PM  571  Optimizing concurrently dairy farm profitability and environmental performance.
D. Liang and V. Cabrera, University of Wisconsin-Madison.

3:30 PM  572  Economics of transition cow management of dairy herds.
G. M. Schuenemann and K. N. Galvão, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus; Department of Large Animal Clinical Sciences, University of Florida, Gainesville.

3:45 PM  573  The impact of selected milking, feeding, and housing management systems on the profitability of Quebec dairy herds.
H. A. Delgado, R. L. Cueva, A. Sewalem, R. Lacroix, D. Lefèvre, B. Bossard, D. Haine, and K. Wade, McGill University, Sainte Anne de Bellevue, QC, Canada; Department of Animal Science, Ste-Anne-de-Beauregard, QC, Canada; Agriculture and Agri-Food Canada AAF, Guelph, ON, Canada; Valacta, Ste-Anne-de-Beauregard, QC, Canada; University of Montreal, Saint-Hyacinthe, QC, Canada.

4:00 PM  574  Grazing alfalfa as an alternative to reduce production costs in intensive milk production systems.
F. A. Kuvahara, A. M. Pedrosso, G. B. Souza, and R. P. Ferreira, UNESP/FMVZ, Botucatu, Brazil; EMBRAPA, São Carlos, Brazil.

4:15 PM  575  Comparison of productivity and management practices on Dairy Herd Improvement Association (DHIA) and non-DHIA herds in the United States.

4:30 PM  576  Optimization of reproductive management programs using lift chart analysis and cost-sensitive evaluation of classification errors.
S. Shahinfar, J. N. Guenther, D. Page, A. Samia-Kalantari, V. Cabrera, P. M. Fricke, and K. A. Weigel, Department of Dairy Science University of Wisconsin-Madison; Department of Biostatistics and Medical Informatics and Department of Computer Science, University of Wisconsin-Madison; University of Wisconsin-Madison.

4:45 PM  577  The cost of clinical mastitis in the first 30 days of lactation: An economic assessment tool.
E. Rollin and M. W. Overton, University Of Georgia College of Veterinary Medicine, Athens; Elanco Animal Health-Dairy, Athens, GA.

Ruminant Nutrition IX: Minerals
Chair: John Schoonmaker, Purdue University
Sponsor: ASAS Foundation
2103A

2:00 PM  683  Effects of supplemental zinc, copper, and manganese concentration and source on performance and carcass characteristics of feedlot steers.
E. Caldera, J. J. Wagner, K. Sellins, T. E. Engle, S. B. Laudert, and J. Spears, Colorado State University, Fort Collins; Micronutrients, Indianapolis, IN; North Carolina State University, Raleigh.

2:15 PM  684  Decreasing dietary calcium to potentiate changes in beef tenderness with zilpaterol hydrochloride supplementation.
C. L. Van Bibber-Krueger, K. A. Miller, and J. S. Drouillard, Kansas State University, Manhattan.

2:30 PM  685  Optimizing phosphorus utilization by dairy cows.
J. C. Plaizier, K. H. Ominski, and E. J. McGeough, University of Manitoba, Winnipeg, MB, Canada.
2:45 PM 686 Effect of supplementary copper source on copper status in growing beef heifers offered a diet naturally high in copper antagonists.
S. J. Whelan¹, T. M. Boland¹, V. P. Gath², J. C. Jacquier¹, and K. M. Pierce*, ¹School of Agriculture and Food Science, University College Dublin, Dublin 4, Ireland, ²School of Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland.

3:00 PM 687 Evaluation of liver mitochondrial oxygen consumption of lactating Holstein dairy cows supplemented with cobalt, copper, manganese and zinc in organic and inorganic forms.
G. Acetoze*, J. Champagne¹, J. J. Ramsey¹, A. M. Gehman¹, K. A. Dawson², and H. A. Rosso², ¹University of California-Davis, Tulare, ²VMTRC, University of California, Tulare, ³University of California-Davis, ⁴Alltech, Inc., Nicholasville, KY, ⁵Center for Animal Nutrigenomics and Applied Animal Nutrition, Alltech, Nicholasville, KY.

3:15 PM 688 Cobalt-lactate inclusion in a high forage total mixed ration fed to late lactation dairy cows.
J. P. Pretz¹, H. T. Purvis¹, D. Davis², B. Trautman¹, J. L. Anderson¹, K. F. Kalscheur¹, and D. Casper¹, ¹South Dakota State University, Brookings, ²Ralco Nutrition, Marshall, MN.

3:30 PM 689 Supplemental trace minerals (Zn, Cu, and Mn) as sulfates, organic amino acid complexes, or hydroxy trace mineral sources for shipping-stressed calves.
A. W. Ryan¹, E. B. Kegley¹, J. Hawley¹, J. A. Hornsby¹, J. L. Reynolds¹, and S. B. Laudert², ¹Department of Animal Science, University of Arkansas Division of Agriculture, Fayetteville, ²Micronutrients, Indianapolis, IN.

3:45 PM 690 Effect of inorganic or organic selenium supplementation during gestation and lactation on cow and pre-weaning calf performance.
C. R. Muegge¹, K. M. Brennan¹, R. P. Lemenager¹, and J. P. Schoonmaker¹, ¹Univeyville, KY, ²Alltech Inc., Nicholasville, KY.

4:00 PM 691 Effects of calf age at weaning on cow and calf performance and feed utilization in an intensive production system.
J. M. Warner¹, K. H. Jenkins², R. J. Rasby¹, M. K. Luebbe¹, G. E. Erickson¹, and T. J. Klopfenstein¹, ¹University of Nebraska-Lincoln, ²University of Nebraska, Scottsbluff.

4:15 PM 692 Can treatments of barley grain with lactic and citric acid improve performance of male calves.
K. Rezayazdi¹, M. Nematpoor¹, and M. Dehghan Banadaky¹, ¹Department of Animal Science, Faculty of Agriculture, University of Tehran, Karaj, Iran, ²University of Tehran, Karaj, Iran.

4:30 PM 693 Starter crude protein concentrations on growth and intake of dairy calves.
S. A. McCullough¹, B. Houin², and T. D. Nennich*, ¹Purdue University, West Lafayette, IN, ²Homestead Dairy, Plymouth, IN.

4:45 PM 694 Influence of dietary carbohydrate fractions on growth and development of prepubertal dairy heifers.
T. S. Dennis*, J. E. Tower, A. M. Mosiman, and T. D. Nennich, Purdue University, West Lafayette, IN.

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**Ruminant Nutrition:**

**The Glen Broderick Symposium – Improving Nitrogen Utilization in Dairy Cows**

**Chair: Antonio Faciola, University of Nevada**

**Sponsor: ASAS Foundation, EAAP, and DuPont - Danisco Animal Nutrition**

2:00 PM 695 Opening remarks and overall impact of Dr. Glen Broderick on research around the world.
A. Faciola*, University of Nevada, Reno.

2:30 PM 696 EAAP-ADSA Speaker Exchange Presentation: Conundrums of protein and peptide metabolism in the rumen.
R. J. Wallace*, Rowett Institute of Nutrition and Health, Aberdeen, United Kingdom.

3:00 PM 697 Dr. Glen Broderick’s contributions to in vivo quantification of ruminal nitrogen metabolism using the omasal sampling technique.
P. Huhtanen*, Swedish University of Agricultural Sciences (SLU), Umea, Sweden.

3:30 PM 698 Glen Broderick’s contributions to improving in vitro methodologies for assessing ruminal microbial growth and ruminal protein degradation.
P. Udén*, Swedish University of Agricultural Sciences, Uppsala, Sweden.

4:00 PM 699 Dr. Glen Broderick’s contributions to protein and amino acid nutrition of the dairy cow.
A. N. Hristov*, Department of Animal Science, The Pennsylvania State University, University Park.

4:30 PM 700 Exploring milk urea-N excretion as a nutritional and environmental management tool for the dairy industry.
M. A. Wattiaux* and P. M. Crump, University of Wisconsin-Madison.
Small Ruminant Symposium:  
Sustainable Small Ruminant Production Strategies to Meet Global Demands  
Chair: Roy Reid Redden, North Dakota State University  
2102B

2:00 PM
 Welcoming Remarks

2:05 PM  735
 Pasture development and sustainable grazing management.
  S. P. Hart*, American Institute for Goat Research, Langston University, Langston, OK.

2:25 PM  736
 Internal parasite anthelmintic resistance and control.
  J. E. Miller*, Louisiana State University, Baton Rouge.

2:45 PM  737
 Genetic selection for enhanced production efficiency.
  D. F. Waldron*, Texas A&M AgriLife Research, San Angelo.

3:05 PM
 Break

3:20 PM  738
 Efficiency of small ruminant reproductive management.
  M. Knights*, West Virginia University, Morgantown.

3:40 PM  739
 Managerial steps to alleviate the effects of heat stress, water deprivation and low pasture quality in small ruminants.
  P. Y. Aad* and S. Abi Saab2, 1Notre Dame University, Zouk Mosbeh, Lebanon, 2Lebanese University, Faculty of Agricultural Sciences, Dekwaneh, Lebanon.

4:00 PM  740
 Global demand for small ruminant products.
  G. W. Williams* and D. Anderson, Texas A&M University, College Station.

4:20 PM
 Panel Discussion

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Swine Species: Nutrition  
Chair: Robert Goodband, Kansas State University  
3501B

2:00 PM  752
 Apparent and standardized ileal amino acids digestibility for different protein feedstuffs fed at two dietary protein levels for growing pigs.
  A. O. Adebiyi1, D. Ragland2, L. Adeola2, and O. A. Olukosi3*, 1Scotland’s Rural College, Ayr, United Kingdom, 2Purdue University, West Lafayette, IN.

2:15 PM  753
 Effects of high levels of nicotinic acid on growth, carcass traits, and meat quality of finishing pigs.
  J. R. Flohr*, J. M. DeRouchey1, J. C. Woodworth1, M. D. Tokach1, S. S. Dritz3, R. D. Goodband3, T. A. Houser1, C. A. Fedler2, and K. J. Prusa1, 1Kansas State University, Manhattan, 2Iowa State University, Ames.

2:30 PM  754
 Effects of sugar beet pulp and expansion on performances of lactating sows and nursery piglets.

2:45 PM  755
 The evaluation of narasin in grow-finish swine diets.
  L. Greiner1, R. Barrett1, A. Graham2, and J. Connor1, 1Carthage Innovative Swine Solutions, Carthage, IL, 2Carthage Veterinary Service, Ltd., Carthage, IL.

3:00 PM  756
 Replacement value of maize offal in diets of weaned pigs supplemented with chicken offal meal.
  A. O. K. Adesakin1, E. O. Akinfase1, and O. O. Adeleye3, 1Institute of Agricultural Research & Training, Obafemi Awolowo University, Ibadan, Nigeria, 3Federal University of Agriculture, Abeokuta, Nigeria.

3:15 PM  757
 The effects of standardized ileal digestible lysine level with or without tribasic copper chloride on growth performance, carcass characteristics, and fat quality in finishing pigs.
3:30 PM 758  Effects of hard red winter wheat particle size on finishing pig growth performance and caloric efficiency. 

3:45 PM 759  The effects of dietary zinc oxide and chlortetracycline on nursery pig growth performance. 

4:00 PM 760  Efficacy of Biomin BBSH 797 to biotransform deoxynivalenol to the metabolite de-epoxy-deoxynivalenol in serum of pigs. 
S. Schaumberger* and U. Hofstetter, Biomin Holding GmbH, Herzogenburg, Austria.

4:15 PM 761  The effect of superdosing phytase on inositol and phytate concentration in the gastrointestinal tract and its effect on pig performance. 
P. Wilcock1, C. L. Bradley*1, J. J. Chewning2, and C. L. Walk1, 1AB Vista Feed Ingredients, Marlborough, United Kingdom, 2Swine Research Services, Inc., Springdale, AR.
Inside: Learn about animals and their teeth.

Jr. Animal Scientist

All about TEETH

Sign up for the Jr. Animal Scientist program at AnimalSmart.org
Starch for Ruminants (Dairy and Beef Cattle)

Conference Objective
During the past several years, the price of feed energy has increased 2 to 4 times its historic norm, caused in large part by the two- to four-fold increase in corn price. This large and very rapid increase in corn price has generated a firestorm of interest globally on alternatives to corn in ruminant (dairy and beef) rations and has led many to critically evaluate the use of starch in ruminant diets. The development of new strategies and methods to improve the utilization of starch by ruminants to either reduce feed costs and (or) improve animal performance on reduced-starch diets are now major focus areas for academic and industry researchers. While research with beef cattle on starch has long been abundant, this area is a relatively new frontier for dairy cattle research and field application. Therefore, a tremendous opportunity now presents itself for dialogue between dairy and beef cattle nutritionists and researchers on the proposed topic.

The goal of this Discover Conference is to provide a venue for this exchange to occur and allow for greater field input into research directions and the opportunity for improved field application through enhanced participant exchange of ideas. Another important objective is the inclusion of experts in cereal chemistry, feed processing, and plant breeding to enhance animal scientist' understanding of emerging technologies in those disciplines with regard to starch utilization by ruminants.

Topics for Conference Sessions
- Animal Constraints to Starch Utilization by Ruminants
- Cereal Crop Constraints to Starch Utilization by Ruminants
- Impact of Ruminal Acidosis on Animal Health and Performance
- Starch Digestibility in Ruminants: Lab Analyses & Modeling
- Starch Utilization Work Groups
- Dietary Starch Inter-Relationships with Other Nutrients

Who Should Attend?
This conference is for members of the dairy and animal science community who are interested in the impact of dietary starch on the performance of dairy and beef cattle. Researchers, extension specialists, and consultants from academia, government agencies, and allied industries encompassing feed and animal health companies are invited. Graduate students are encouraged to attend.

Registration
Registration postmarked by September 6, 2014 is $375.00 for ADSA-ASAS-ARPAS members and $425.00 for non-members, which includes sessions and most meals. After September 6, the registration fee will be $475.00 member/$525.00 non-member, and will be accepted on an availability basis. To optimize interaction among participants, registration will be limited to the first 130 applications received.

Accommodations & Travel
All participants are responsible for making their own lodging reservations. The conference hotel is Country Inn & Suites, Naperville. Reservations can be made online at the Conference Accommodations link at http://www.adsa.org/Meetings/DiscoverConferences/28thDiscoverConference.aspx

For complete conference information, including the latest program and registration materials, go to: http://www.adsa.org/discover/
SYMPOSIA AND ORAL SESSIONS

Animal Behavior and Well-Being IV
Chair: Amy L. Stanton, University of Wisconsin-Madison
3501B

8:30 AM  52  Sprinkler flow rate affects dairy cattle physiological and behavioral responses.
J. M. Chen1, K. E. Schütz2, and C. B. Tucker1, 1University of California-Davis, 2AgResearch, Hamilton, New Zealand.

8:45 AM  53  Short-term increases in stocking density did not alter feeding behavior of lactating Holstein dairy cattle.
R. A. Black1, R. J. Grant2, and P. D. Krawczel1, 1University of Tennessee, Knoxville, 2William H. Miner Agricultural Research Institute, Chazy, NY.

9:00 AM  54  Evaluation of prepartum lying behavior as an indicator of health disorders in transition dairy cows.
K. Lobeck-Luchterhand1, P. Basso Silva1, R. C. Chebel2, and M. I. Endres1, 1University of Minnesota, Saint Paul, 2Department Veterinary Population Medicine, University of Minnesota, St. Paul.

9:15 AM  55  Effect of stocking density on social and feeding behavior of prepartum dairy cows.
K. Lobeck-Luchterhand1, P. Basso Silva1, R. C. Chebel2, and M. I. Endres1, 1University of Minnesota, Saint Paul, 2Department Veterinary Population Medicine, University of Minnesota, St. Paul.

9:30 AM  56  Using prepartum feeding behavior to identify dairy cows at risk for transition health disorders.
K. Lobeck-Luchterhand1, P. Basso Silva1, R. C. Chebel2, and M. I. Endres1, 1University of Minnesota, Saint Paul, 2Department Veterinary Population Medicine, University of Minnesota, St. Paul.

9:45 AM  57  Eating and drinking behavior prediction by use of tri-axial accelerometers in dairy cattle.
K. J. Haerr1 and F. C. Cardoso, University of Illinois at Urbana-Champaign.

10:00 AM  58  Herding cows with a robot: The behavioral response of dairy cows to an unmanned ground vehicle.

10:15 AM  59  Responses to rectal and uterine palpation for assessment of visceral pain associated with metritis in dairy cows.
J. Stojkov1, D. M. Weary1, and M. A. G. von Keyserlingk2, 1Animal Welfare Program, Faculty of Land and Food Systems, The University of British Columbia, Vancouver, BC, Canada, 2University of British Columbia, Vancouver, BC, Canada.

ASAS Cell Biology Symposium: Long-Term Consequences of Maternal and Neonatal Nutrition for Pregnancy and Postnatal Outcomes
Chair: Lawrence P. Reynolds, North Dakota State University
Sponsor: ASAS, ASAS Foundation, and USDA-NIFA
2502

8:30 AM  106  Lactocrine programming of postnatal reproductive tract development.
F. F. Bartol1 and C. A. Bagnell2, 1Auburn University, Auburn University, AL, 2Rutgers University, New Brunswick, NJ.

9:25 AM  107  Long-term consequences of maternal and neonatal nutrition for pregnancy and postnatal outcomes.
D. G. Burrin1 and B. Stoll1, 1USDA-ARS Children’s Nutrition Research Center, Houston, TX, 2Baylor College of Medicine, Houston, TX.

10:20 AM  108  The epigenetic landscape of the beta-cell in IUGR rats.
S. Pinney and R. A. Simmons1, Perelman School of Medicine, University of Pennsylvania, Philadelphia.

11:15 AM  ASAS Early Career Recipient: Small RNA expression and function during oocyte maturation and embryo development in the pig.
B. J. Hale1, C-X Yang1, E. C. Wright1, and J. W. Ross1, 1Department of Animal Science, Iowa State University.
Breeding and Genetics: Applications and Methods-Molecular Biology

Chair: Alan G. Fahey, School of Agriculture and Food Science, University College Dublin

3501A

8:30 AM  174 Variation in toll-like receptor genes and susceptibility to clinical mastitis in Holstein cows.
C. M. Seabury1, K. N. Galvao2, K. Lager1 and P. J. Pinedo*3, 1Department of Veterinary Pathobiology, College of Veterinary Medicine & Biomedical Sciences, Texas A&M University System, College Station, 2Department of Large Animal Clinical Sciences and D. H. Barron Reproductive and Perinatal Biology Research Program, College of Veterinary Medicine, University of Florida, Gainesville, 3Iowa State University, Extension and Outreach, Ames, *Texas A&M AgriLife Research, Amarillo.

8:45 AM  175 Experimental intramammary challenge with Staphylococcus chromogenes in dairy heifers with specific CXCR1 genotypes.

9:00 AM  176 Association of CXCR1 gene polymorphisms with incidence rate of clinical mastitis, somatic cell count and milk production in dairy cattle.
J. Verbeke*, M. Van Poucke, L. Peelman, S. Piepers and S. De Vliegher, Ghent University, Ghent, Belgium.

9:15 AM  177 Calpumastatin and μ-calpain differ in their control of genotype specific residual variance of beef tenderness in Angus and MARC III steers.
R. G. Tait, Jr.1,2, S. D. Shackelford3, T. L. Wheeler3, D. A. King2, E. Casas4,5, T. P. L. Smith3 and G. L. Bennett1, 1USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, 2USDA/ARS, Clay Center, NE, 3USDA. ARS, National Animal Disease Center, Ames, IA, 4USDA, ARS, National Animal Disease Center, Ames, IA.

9:30 AM  178 Investigation of polymorphisms at the MUC4, MUC13, MUC20 and TFRC candidate genes for F4ab/ac resistance in South African pig populations.
N. S. Chaora*, Agricultural Research Council, Pretoria, South Africa.

9:45 AM  179 Buffalo and cattle sequence diversity and molecular evolution.
M. Moaeen-ud-Din* and G. Bilal, PMAS-Arid Agriculture University, Rawalpindi, Pakistan.

EAAP Equine Symposium: Know-How And Future Challenges for Developing the Horse Sector In Europe: The Activity of the EAAP Horse Commission

Chair: Nicoletta Miraglia, Molise University

Sponsor: EAAP

3501C

8:30 AM  281 EAAP-ASAS Speaker Exchange Presentation: Recent aspects in stallion sperm preservation for artificial insemination.
M. Magistrini*, INRA, Nouzilly, France.

9:00 AM  282 EAAP-ASAS Speaker Exchange Presentation: The growth of social sciences in equine research: Essential to create new understandings of the horse industry’s growth and evolution.
C. Vial1 and R. Evans*2, 1INRA Montpellier, Montpellier, France, 2Norwegian University College of Agriculture and Rural Development, Jaeren, Norway.

9:45 AM  283 EAAP-ASAS Speaker Exchange Presentation: Equids contribution to sustainable development in Europe: Modern aspects and transfer of knowledge.
N. Miraglia*, Molise University, Campobasso, Italy.

10:30 AM  284 EAAP-ASAS Speaker Exchange Presentation: Genomic research in horses in Europe.
K. Stock*, Vereinigte Informationssysteme Tierhaltung, Verden, Germany.

11:15 AM  Concluding Remarks
Nonruminant Nutrition: Feed Additives, Enzymes, and Dietary Supplements

Chair: Kari L. Saddoris-Clemons, Boehringer Ingelheim Vetmedica

2503

8:30 AM 474 Effects of a blend of essential oil compounds, feed-grade antibiotics, and their combination on the growth performance of nursery pigs.
M. J. Azain1*, R. Dove1, C. W. Parks2, and J. R. Bergstrom1, 1University of Georgia, Athens, 2DSM Nutritional Products, Inc., Parsippany, NJ.

8:45 AM 475 Impact of zinc and arginine dietary supplements on antioxidant capacity and oxidative status in weanling piglets under conditions of commercial production.
F. Guay1 and N. Bergeron2*, 1Universite Laval, Quebec, Quebec City, QC, Canada, 2Universite Laval, Quebec City, QC, Canada.

9:00 AM 476 Effect of a 6-Phytase derived from Buttiauxella spp. expressed in Trichoderma reesei on Apparent Total Tract Digestibility of Ca and P, bone ash and growth performance in weanling piglets.
A. L. Wealleans1*, Y. Dersjant-Li2*, R. M. Bold1, and H. H. Stein1, Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom, 2University of Illinois at Urbana-Champaign.

9:15 AM 477 Effect of supplementation of non-starch polysaccharide-degrading enzymes on nutrient digestibility of wheat and wheat millrun based diets in growing pigs.
Z. Nasir1*, J. Broz2, D. Pettersson3, and R. T. Zijlstra1, 1University of Alberta, Edmonton, AB, Canada, 2DSM Nutritional Products, Basel, Switzerland, 3Novozymes, Bagsvaerd, Denmark.

9:30 AM 478 Efficacy of novel 6-phytase derived from Buttiauxella spp. expressed in Trichoderma reesei on ileal and total tract nutrient digestibility in growing pigs fed a corn-soy based diet.
D. E Velayudhan1*, J. M Heo1, Y. Dersjant-Li2*, A. Owusu-Asiedu1, and C. M. Nyachoti3, 1University of Manitoba, Winnipeg, MB, Canada, 2Danisco Animal Nutrition, DuPont Industrial Biosciences, Marlborough, United Kingdom, 3DuPont Industrial Biosciences-Danisco Animal Nutrition, Marlborough, Wiltshire, United Kingdom.

9:45 AM 479 Nutrient digestibility of growing pigs fed phytase- and xylanase-supplemented wheat-based diets with low, medium or high lysine level.
T. A. Woyengo1*, A. Owusu-Asiedu1, and R. T. Zijlstra2*, 1University of Alberta, Edmonton, AB, Canada, 2DuPont Industrial Biosciences-Danisco Animal Nutrition, Marlborough, Wiltshire, United Kingdom.

10:00 AM Break

10:15 AM 480 The effects of β-mannanase (Hemicell HT) supplementation to nursery pig diets on nutrient digestibility and retention.
C. Vonderohe1*, A. M. Jones1, B. T. Richert1, J. E. Ferrel2, P. D. Matzat2 and J. S. Radcliffe3, 1Purdue University, West Lafayette, IN, 2Elanco Animal Health, Greenfield, IN.

10:30 AM 481 Nucleotide supplementation in the diet of farrowing sows and its effect on milk quality, litter weight gain, and mortality.
L. A. Vitagliano1*, M. A. Bonato1, R. L. D. C. Barbalho2, G. D. Santos2, and L. F. Araújo1, 1Universidade de São Paulo, Pirassununga, Brazil, 2ICC Brazil, São Paulo, Brazil.

10:45 AM 482 Evaluation of the efficacy of Bacillus licheniformis or sodium butyrate in front of a Salmonella typhimurium oral challenge in piglets.
E. Barba-Vidal3*, L. Castillejos1, V. F. Buttow Roll1, J. J. Mallo1, and S. Martin-Orüe1, 1Animal Nutrition and Welfare Service Department of Animal and Food Sciences Universitat Autònoma de Barcelona, Bellaterra 08193, Spain, 2Department of Animal Science, Faculty of Agronomy Eliseu Maciel, Federal University of Pelotas, Pelotas, Brazil, 3Norel S.A., Madrid, Spain.

11:00 AM 483 Effects of dietary supplementation of direct fed microbial on growth performance, nutrient digestibility, blood profiles, fecal microflora and noxious gas emission in nursery pigs.
J. H. Cho1*, E. Kiarie2, S. Indrakumar2, and I. H. Kim1, 1Department of Animal Science, Dankook University, Cheonan, South Korea, 2DuPont Industrial Bioscience-Danisco Animal Nutrition, Waukesha, WI.

11:15 AM 484 Tributyrin, a source of butyric acid, modulates the intestinal health of weaning pigs.
B. Tugnoli, M. Bertocchi, A. Piva, G. Sarli and E. Grilli*, DIMEVET University of Bologna, Ozzano Emilia BO, Italy.

11:30 AM 485 Effects of salmonella inhibitors on growth performance, relative organ weight, meat quality, salmonella populations, fecal gas emission, and blood profiles in broilers.
A. Hosseindoust1*, H. L. Li, and I. H. Kim, Department of Animal Science, Dankook University, Cheonan, South Korea.
Physiology and Endocrinology: Advances in Estrous Synchronization
Chair: G. C. Lamb, University of Florida
2505B

8:30 AM 536  Detrimental effect of long term progestin-based protocol on oocyte quality and embryonic development in indigenous goats.
C. Navanukraw1, A. Kraisoon1, J. Thammasiri1, V. Kanthusaeng2, and S. Navanukraw2, 1Khon Kaen University, Khon Kaen, Thailand, 2Department of Animal Science, Khon Kaen University, Khon Kaen, Thailand.

8:45 AM 537  Exogenous insulin effect on reproductive traits during a Heatsynch protocol in dairy cows.
C. C. Brauner1, M. E. Lima1, D. A. Velasco Acosta2, L. F. Mielke2, V. O. Freitas2, E. G. Xavier3, A. Schneider4, F. B. Del Pino1, V. R. Rabassa2, and M. Nunes Corrêa2, 1Federal University of Pelotas, Pelotas, Brazil, 2Universidade Federal de Pelotas, Pelotas, Brazil, 3Granjas 4 Irmãos, Rio Grande, Brazil.

9:00 AM 538  Effects of administration of prostaglandin F2α (PGF) at initiation of the 7-day CO-Synch+CIDR estrus synchronization protocol for suckled beef cows.
V. R. G. Mercadante1, L. E. Kozicki2, F. M. Ciiriacio1, D. D. Henry1, C. R. Dahlen1, J. E. Larson4, B. E. Voelz4, D. J. Patterson1, G. A. Perry1, T. L. Steckler2, J. S. Stevenson3, and G. C. Lamb1, 1University of Florida, Marianna, 2Pontifical Catholic University (PUCPR), Curitiba, Brazil, 3North Dakota State University, Fargo, 4Mississippi State University, Mississippi State, 5University of Missouri, Columbia, 6South Dakota State University, Brookings, 7University of Illinois, Simpson, 8Kansas State University, Manhattan.

9:15 AM 539  Split-time AI: Delayed insemination of non-estrous beef heifers in timed artificial insemination following the 14-d CIDR-PG protocol.
J. M. Thomas1, M. R. Ellersieck1, S. E. Poock2, M. F. Smith1, and D. J. Patterson1, 1University of Missouri, Columbia, 2University of Missouri-College of Veterinary Medicine, Columbia.

9:30 AM 540  Split-time AI: Delayed insemination of non-estrous beef cows in timed artificial insemination following the 7-d CO-Synch + CIDR protocol.
J. M. Thomas1, M. R. Ellersieck1, S. E. Poock2, M. F. Smith1, and D. J. Patterson1, 1University of Missouri, Columbia, 2University of Missouri-College of Veterinary Medicine, Columbia.

9:45 AM 541  Effect of double ovulation on corpus luteum blood perfusion, peripheral progesterone, and hepatic steroid inactivating enzymes in dairy cattle.
B. E. Voelz2, C. G. Hart, G. F. Cline, C. O. Lemley, and J. E. Larson, Mississippi State University, Mississippi State.

10:00 AM 542  A novel procedure using a gonadotropin-releasing hormone agonist to increase pregnancy rates in lactating dairy cattle.
A. Willmore1, C. Hammons1, J. Peak1, T. M. Nett1, and T. L. Davis1, 1University of Idaho, Moscow, 2Colorado State University, Fort Collins.

10:15 AM 543  Effect of an automated estrous detection system during a timed AI program on first postpartum AI.
T. A. Burnett1, A. M. L. Madureira, B. F. Silper, A. C. C. Fernandes and R. L. A. Cerri, Faculty of Land and Food Systems-University of British Columbia, Vancouver, BC, Canada.

10:30 AM 544  Effects of progesterone supplementation on reproductive responses in dairy cows subjected to timed AI programs: A meta-analysis.

10:45 AM 545  Regimens of progesterone supplementation for lactating dairy cows according to the presence of corpora lutea (CL) at the initiation of the timed AI program.
Production, Management, and the Environment: Effects of Temperature on Performance

Chair: Dean Hawkins, West Texas A&M

3501D

8:30 AM 578 Urine metabolomics of heat-stressed dairy goats supplemented with soybean oil.
A. Salama1,2, N. Nayan1, A. Contreras-Jodar1, S. Hamzaoui1, and G. Caja1, 1Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, 2Animal Production Research Institute, Dokki, Giza, Egypt, 1Department of Animal Science, Faculty of Agriculture, University Putra Malaysia, 43400 UPM, Serdang, Malaysia.

8:45 AM 579 Bovine core body and scrotal temperature measured using surgically implanted temperature sensitive radio-transmitters, ibuttons and infrared thermography.
A. Wallage1,2, J. B. Gaughan1, A. Lisle1, L. Beard2, A. J. Cowdell-Smith1, C. W. Collins1, and S. Johnston1, 1The University of Queensland, Gatton, Australia, 2University of Queensland, St Lucia, Australia.

9:00 AM 580 Rumen temperature of Brahman, Angus and Charolais steers with and without access to shade.

9:15 AM 581 The effect of shade on vaginal temperature of cows housed outside under subtropical summer conditions.

9:30 AM 582 Differences in panting score and shade usage between Brahman, Angus and Charolais steers with and without access to shade during summer.

10:00 AM 583 Correlation between mean panting score and temperature humidity index in lactating dairy cows in a sub-tropical summer.

10:15 AM 584 Correlation between milk production, days in milk and temperature humidity index in lactating dairy cows in a sub-tropical summer.

10:30 AM 585 Effects of metabolizable energy intake on tympanic temperature and ADG of steers finished in southern Chile during wintertime.
R. A. Arias1,2, T. Brown-Brandl1,2, and T. L. Mader3, 1Universidad Católica de Temuco. Núcleo de Investigación en Producción Alimentaria, Temuco, Chile, 2ARS-USDA, Clay Center, NE, 3Mader Consulting, LLC, Gretna, NE.

10:45 AM 586 Conductive cooling as an alternative to cool down dairy cows.
X. A. Ortiz1,2, J. F. Smith1, E. Rojano1, C. Y. Choi2, J. Bruer1, T. Steele3, N. Schuring4, J. D. Allen5, and R. J. Collier6, 1University of Arizona, Tucson, 2University of Wisconsin-Madison, 3Conco Technology Inc., Phoenix, AZ, 4GEA Farm Technologies, Naperville, IL, 5Northwest Missouri State, Maryville, 6University of Arizona, Tucson.

11:00 AM 587 Comparison of winter feeding systems for the evaluation of beef cow performance, reproductive efficiency and system costs.
D. Jose1, G. B. Penner1, J. J. McKinnon1, K. Larson2, and B. Lardner1,2, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Western Beef Development Centre, Humboldt, SK, Canada.

11:15 AM 588 Effect of two winter housing systems on production, body weight, somatic cell count, BCS, and dry matter intake of organic dairy cows.
L. S. Sjostrom1, B. J. Heins1, M. I. Endres2, R. D. Moon2, and U. S. Sorge1, 1University of Minnesota, West Central Research and Outreach Center, Morris, 2University of Minnesota, Saint Paul, 1University of Minnesota, Department of Veterinary Population Medicine, St. Paul.
Ruminant Nutrition X: Byproducts Beef
Chair: Tara Felix, University of Illinois at Urbana-Champaign
2505A

8:30 AM 701 Evaluation of 2013 Survey of Beef Producers in Nebraska. 
M. Jones*, University of Nebraska-Lincoln.

8:45 AM 702 Meta-analysis of concentrate supplement effects on voluntary intake in high and low quality pastures. 
J. R. R. Dórea and F. A. P. Santos*, University of Sao Paulo, Piracicaba, Brazil.

9:00 AM 703 Determining the preference and in situ digestibility of a microalgae co-product for beef cattle. 

9:15 AM 704 Digestibility of traditional and adding cellulosic ethanol wet distillers grains in finishing lambs. 

9:45 AM 705 Effect of sugarcane fiber digestibility and mode of conservation on intake and ruminal short chain fatty acids of growing steers. 
D. Sousa*, B. Mesquita1, J. Diniz-Magalhes1, F. Rodriguez2, I. Bueno1, and L. F. P. Silva1, 1University of São Paulo, Pirassununga, Brazil, 2University of Sao Paulo, Pirassununga, Brazil.

10:00 AM 706 Evaluation of a mixture of crude glycerol and molasses as an energy supplement for beef cattle consuming bermudagrass hay. 

10:15 AM 707 The effects of dietary energy density and intake restriction on apparent maintenance energy requirements of beef cows. 
L. A. Trubenbach*, T. A. Wickersham, and J. E. Sawyer, Texas A&M University, College Station.

10:30 AM 708 Comparison of the effects of pectin and starch on the rumen fermentation, growth performance and microbial populations in sheep. 
J. Liu1, M. Liu1, and J. X. Liu1, 1Institute of Dairy Science, Zhejiang University, Hangzhou, China, 2Zhejiang University, Hangzhou, China.

10:45 AM 709 Effect of dietary starch at similar energy intake during backgrounding on subsequent finishing performance and carcass characteristics in beef cattle: A meta-analysis. 
P. A. Lancaster*, C. R. Krehbiel, and G. W. Horn, Oklahoma State University, Stillwater.

11:00 AM 710 Evaluation of MegaFerm fiber to enhance ruminal fermentation and nutrient digestibility of a total mixed ration using an in vitro gas production measurement system. 
D. Casper*, I. P. Acharya1, and D. Miller2, 1South Dakota State University, Brookings, 2Miller-Casper Life Sciences, Brookings, SD.

11:15 AM 711 Application of fecal NIRs profiling to predict diet characteristics and voluntary intake in beef cattle. 
Ruminant Nutrition XI: Dairy Metabolism
Chair: Brian Bequette, University of Maryland
2504

8:30 AM 712 A comparison between propylene glycol and a multiple component drench on energetic variables in early lactating Holstein cows.
M. Abuajamieh1, S. K. Stoakes1, M. V. Sans-Fernandez1, J. S. Johnson1, P. J. Gorden1, D. M. McKilligan1, and L. H. Baumgard1, 1Iowa State University, Ames, 2TechMix LLC, Stewart, MN.

8:45 AM 713 A comparative analysis of metabolomics and transcriptomics from prepartal liver of cows developing ketosis post-partum and healthy cows supplemented with Smartamine M and MetaSmart during the transition period.
K. Shahzad1, J. S. Osorio1, D. N. Luchini2, and J. J. Loor1, 1University of Illinois at Urbana-Champaign, 2Adisseo S.A.S., Alpharetta, GA.

9:00 AM 714 The effect of subacute ruminal acidosis on milk fat synthesis and relative expression of key lipogenic enzyme genes in liver tissue in dairy cows.
Y. Guo1,2, S. L. Li1, Z. J. Cao1, X. Xie1, and Y. Zou1, 1State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, 2Shijiazhuang Academy of Agriculture and Forestry Science, Shijiazhuang, China.

9:15 AM 715 Effect of 2-hydroxy-4-(methylthio)butanoate (HMTBa) on risk of diet-induced milk fat depression.
M. Baldin1, J. Y. Ying1, G. I. Zanton2, and K. J. Harvatine1, 1The Pennsylvania State University, University Park, 2Novus International, Inc., St. Charles, MO.

9:30 AM 716 Time-course of changes in select ruminal microbes during induction and recovery from diet-induced milk fat depression in dairy cows.

9:45 AM 717 The effect of length of adaptation to a high-grain diet and acidosis challenge and recovery on rumen papillae mRNA expression of genes relating to barrier function, inflammation and short-chain fatty acid transport in beef heifers.
K. M. Wood1, T. Schweiger1, J. C. Plaizier2, K. A. Beauchemin1, and G. B. Penner1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2University of Manitoba, Winnipeg, MB, Canada, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

10:00 AM 718 Induction of subacute ruminal acidosis affects the rumen microbiome.
J. C. McCann1, S. A. Alqarni, S. Luan, P. Cardoso, and J. J. Loor, University of Illinois at Urbana-Champaign.

10:15 AM 719 Effects of feeding a negative DCAD diet prepartum for varied lengths of time on serum metabolites and performance.
Z. Wu1, J. K. Bernard1, K. P. Zanzalari1, and J. D. Chapman1, 1University of Georgia, Tifton, 2Prince Agri Products, Inc., Franklin, IN, 3Prince Agri Products, Inc., Quincy, IL.

10:30 AM 720 Effect of pre-calving dietary cation anion difference on milk production: A meta-analysis.
I. J. Lean1, R. Rodeny1, P. J. DeGaris2, D. M. McNeill2, and E. Block3, 1SBScibus, Camden, Australia, 2Tarwin Veterinary Group, Leongatha, Australia, 3University of Queensland, Gatton, Australia, 1Church and Dwight Animal Nutrition, Ewing, NJ.

10:45 AM 721 Evaluation of choline metabolites in milk as potential biomarkers for choline absorption in the lactating dairy cow.
V. M. Artegaitia1, C. L. Girard2, H. Lapierre2, S. R. Campagna1, F. Harte1, and M. J. de Veth1, 1University of Tennessee, Knoxville, 2Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, 3Balchem Corporation, New Hampton, NY.

11:00 AM 722 Association of plasma ghrelin concentrations with feed intake in beef cattle.
A. P. Foote1, K. E. Hale2, C. A. Lents1, and H. C. Freely1, 1USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, 2USDA-ARS-MARC, Clay Center, NE, 1USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE, 2USDA, ARS, U.S. MARC, Clay Center, NE.

11:15 AM 723 Effects of ruminal dose of sucrose, lactose and starch on ruminal fermentation and expression of genes in ruminal epithelial cells.
M. Oba1, M. Mewis, and Z. Zhu, University of Alberta, Edmonton, AB, Canada.
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<td>Feed the future research strategy and USAID’s global livestock investments.</td>
<td>S. Moon Chapotin and J. Turk, USAID</td>
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<td>Nutritional value of animal source foods.</td>
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<td>9:10 AM</td>
<td>783</td>
<td>Research needs for inclusive livestock markets in developing countries.</td>
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<td>9:30 AM</td>
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<td>The indispensable role of mixed small holder systems in global food and nutritional security.</td>
<td>J. Smith, International Livestock Research Institute, DC</td>
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<td>9:50 AM</td>
<td>785</td>
<td>Africa livestock futures and one health.</td>
<td>D. Carroll, USAID</td>
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<td>10:10 AM</td>
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<td>The role of new technologies in increasing livestock production.</td>
<td>D. Nkrumah, Bill and Melinda Gates Foundation, WA</td>
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<td>Panel Discussion and Audience Q&amp;A</td>
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—Dean Hawkins, West Texas A&M University
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ASAS Innovate
2014: October 5-7, Brainerd, MN
2015: May 31 – June 2, Braselton, GA

Poultry Science Association Annual Meeting
2015: July 27-31, Louisville, KY
2016: July 11-15, New Orleans, LA

Joint Annual Meeting (JAM)
2015: July 12-16, Orlando FL
2016: July 19-23, Salt Lake City, UT

2017 ASAS Annual Meeting will be held in Baltimore, MD.
Look for dates and partner announcements in the ASAS Booth
Beat the heat

Fight heat stress with all-natural feed ingredients from Vi-COR®

Keep your cows eating and producing – even when temperatures climb. A-Max® and Celmanax® help dairy cows maintain milk production by promoting dry matter intake and increasing ration digestibility. Research shows a milk production improvement of up to 2.6 lbs. per head per day when A-Max is fed to cows during hot summer months. Since Celmanax contains a full dose of A-Max yeast culture, along with proven Refined Functional Carbohydrates® (RFC®), it delivers even more benefits. Contact Vi-COR® to learn more about the heat-fighting power of A-Max and Celmanax, or visit www.vi-cor.com/heat.