MOBILE MYPROGRAM
m.JtMtg.org

Enjoy the more portable, mobile version of MyProgram. Instantly navigate the conference schedule using your smartphone!

m.JtMtg.org
WELCOME to JAM 2012!

On behalf of the participating societies, we welcome you to Phoenix and JAM 2012. This year, in addition to the American Society of Animal Science (ASAS) and the American Dairy Science Association® (ADSA®), we welcome the participation of the Canadian Society of Animal Science (CSAS), Western Section of the American Society of Animal Science (WSASAS), and the Asociación Mexicana de Producción Animal (AMPA), making this a truly international meeting. We encourage all attendees to take fullest advantage of this great opportunity to share ideas across species and societies, visit with each other in person, and make new acquaintances.

Many opportunities exist for interaction among society members, starting with the opening session and reception on Sunday, July 15, when a live interview with Dr. Temple Grandin will be the focus of the opening session. Other special events include the Triennial Reproduction Symposium, our second ASN-ADSA-ASAS pre-conference, the late-breaking abstract session, and close to 40 other symposia addressing topics of relevance to our diverse memberships. ASAS invites you to participate in several new and exciting events, including our inaugural National ASAS Academic Quadrathlon Championship, our one-year Animal Frontiers anniversary, the launch party for AnimalSmart.org, and an amazing overall beef program (5 symposia) hosted by WSASAS. This year, the Production and Dairy Foods divisions of ADSA have collaborated on a new symposium: the ADSA Multidisciplinary and International Leadership Keynote (MILK) Symposium: How Dairy Exporters Can Provide Food Security. In addition, ADSA will be exploring the creation of ADSA World Regions, starting with South America. Check the program schedule for time and place. In addition to their graduate student competitions, CSAS will be hosting a symposium titled “Are We Experiencing a Paradigm Shift in How We Feed Livestock As Industrial Agriculture Evolves in the 21st Century?”

The meeting program offers many educational and professional development opportunities. Over 2,200 abstracts were accepted for presentation and over 40 scientific symposia are scheduled. The program committee has produced an outstanding integrated program across species. See page 43 in this program for the full schedule of symposia at JAM 2012.

We are grateful to the many people involved with 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 Clint Krehbiel (chair), Jack Whittier, Tony Capuco, Geoff Dahl, Katharine Knowlton, and Alan Iwassa. We also thank the many others who contributed to this huge undertaking, including the FASS staff and staff of ADSA and ASAS.

Finally, thank you, our attendees, for participating in JAM 2012 and making it a grand success!

Margaret Benson  
President, ASAS

Julie Small  
President, CSAS

Andrew Roberts  
President, Western Section ASAS

Bob Roberts  
President, ADSA

Rafael Núñez Domínguez  
President, AMPA
Important Message

In the event that protestors interrupt the meetings, 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 in place to handle these situations, and they depend on our cooperation. If members of the media approach you for an interview, please politely decline and direct them to the convention’s media room, where spokespersons will be available.

Thank you for your cooperation.
General Meeting Information

Location

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

Schedule of Events

The 2012 Joint Annual Meeting (JAM) will be held July 15–19 (Sunday through Thursday). The opening session will be held on Sunday evening, July 15; scientific sessions will begin Monday morning, July 16, and run through noon on Thursday, July 19.

We have several pre-meeting events this year:

• A five-day workshop titled Genomic Selection in Livestock will be held July 9–13 at the Sheraton Phoenix; see page 42 for details.

• The American Society for Nutrition (ASN), ASAS, and ADSA are collaborating on a one-day pre-conference event: Regulation of Nutritional Intake and Metabolism on Sunday, July 15; see page 49 for details.

• The Triennial Reproduction Symposium: Impediments to Fertility in Domestic Animals will also be held on Sunday, July 15; see page 49 for details.

The 2012 opening session will feature a live interview with world-renowned animal scientist and ASAS member Temple Grandin. Janet Riley, Senior Vice President Public Affairs and Member Services, American Meat Institute, and long-time friend will illuminate Temple's remarkable achievements and contributions to animal science. Attendees will be encouraged to ask questions. Don't miss what promises to be the most inspiring and memorable opening session ever! After the session, enjoy a strolling mariachi band and snacks at the opening reception. The complete schedule of events can be found on page 35 of this program, or online at http://www.jtmtg.org/2012. Watch the website for updates.

Program Format for 2012

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster sessions</td>
<td>7:30 am–9:30 am</td>
</tr>
<tr>
<td>Scientific sessions</td>
<td>9:30 am–12:30 pm</td>
</tr>
<tr>
<td>Lunch break</td>
<td>12:30 pm–2:00 pm</td>
</tr>
<tr>
<td>Scientific sessions</td>
<td>2:00 pm–5:00 pm</td>
</tr>
</tbody>
</table>

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, and free wi-fi is available in the food court areas of the convention center.

Registration Hours

Registration will be located in the North Hall A-B Lobby of the Phoenix Convention Center. Registration hours for the 2012 Joint Meeting, including special symposia and other events, will be as follows:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday, July 14 (preregistered only)</td>
<td>3:00 pm–5:00 pm</td>
</tr>
<tr>
<td>Sunday, July 15</td>
<td>7:00 am–7:00 pm</td>
</tr>
<tr>
<td>Monday, July 16</td>
<td>6:30 am–5:15 pm</td>
</tr>
<tr>
<td>Tuesday, July 17</td>
<td>7:00 am–5:15 pm</td>
</tr>
<tr>
<td>Wednesday, July 18</td>
<td>7:00 am–5:15 pm</td>
</tr>
<tr>
<td>Thursday, July 19</td>
<td>8:00 am–1:00 pm</td>
</tr>
</tbody>
</table>
**Important Phone Numbers**

- Hyatt Regency Phoenix (ADSA HQ) .................................................. 602-252-1234
- Sheraton Phoenix (ASAS HQ) .................................................. 602-262-2500
- Renaissance Phoenix (CSAS HQ) .................................................. 602-333-0000
- Springhill Suites (Student HQ) .................................................. 602-307-9929

**Media Check-In**

Please check in at the Registration Desk in the North Hall A-B Lobby of the Phoenix Convention Center.

**Speaker Ready Room**

The Speaker Ready Room is located in Room 221A (adjacent to the Pre-Load room) of the Phoenix 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 Room 221C of the Phoenix Convention Center. This lounge will offer attendees an area to relax, network, and catch up with old friends. The hospitality lounge is also a great meet-up place when departing the convention center as a group.

**Business Center**

Located in the West Building of the Phoenix Convention Center, the UPS Store is there to make your work a little easier. The store offers many services. Binding, printing, business cards, copies, faxing, notary services, and many other services are available. The phone number for The UPS Store is (602) 251-0135.

**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.

**Onsite Upload Information**

**Onsite upload:** Onsite presentation upload will be available; files can be delivered to the Preload Room (Room 221B) at the convention center (Sat: 3:00 to 5:00 pm; Sun-Wed: 7:00 am to 5:00 pm; Thur: 7:00 am to noon). **Presentations must be uploaded by 5:00 pm on the day before your scheduled presentation. Files will not be accepted via e-mail. No presentations will be loaded while the session is in progress or between presentations.**

**Poster Presentations**

We have dedicated a two-hour block each morning to poster presentations. The “open poster” sessions will be from 7:30 to 9:30 am Monday, Tuesday, and Wednesday in the Convention Center, North Hall A-B.
Each poster presentation will be available for public viewing for the entire day, with the presenting authors present during the open posters time (7:30–9:30 am). All posters must be mounted on the board 30 minutes before the beginning of the day's session. Posters must be mounted on boards by 7:00 am and must list the paper 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.

**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 for Wednesday posters a "W" precedes the board number.

**Camera, Video Camera, and Cell Phone Policy**

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.

**ARPAS Continuing Education Units**

The 2012 JAM 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.

**Job Resource Center**

The ADSA-ASAS Job Resource Center is located in the exhibit hall. The 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.

**ASAS E-Career Tool Now Available Online**

Whether you are an employer looking to fill a position or a potential employee looking for a job, the ASAS E-Career Tool has been developed to facilitate this communication. The ASAS E-career tool is free to use and very user friendly. Employers can take advantage of the “search employee” function to identify potential candidates and see where and when they will be presenting their work at the 2012 JAM. Job seekers may upload their CVs and cover letters for potential employers to peruse.

**Wi-Fi and Cyber Café**

The Phoenix Convention Center has free wi-fi in the North Building's Metro Marche area (food court) and the West Building's Metro Lounge area (food kiosk area), so you can keep in touch with work, family, and friends during JAM. Additionally, the cyber café will be located in the exhibit hall and available to all meeting attendees. The cyber café will also have a computer with a printer for limited printing during the meeting.
Mobile MyProgram— An Easier Way to Plan Your Schedule

The MyProgram planner is now mobile! Mobile MyProgram provides JAM attendees with convenient access to the conference schedule via smartphone. With Mobile MyProgram, the JAM program is more convenient than ever. Visit M.JtMtg.org today!

Headquarters Hotels

**Hyatt Regency Phoenix**  
ADSA Headquarter Hotel  
122 North Second St  
Phoenix, AZ 85004

**Renaissance Phoenix**  
CSAS Headquarter Hotel  
50 East Adams  
Phoenix, AZ 85004

**Sheraton Phoenix Downtown**  
ASAS Headquarter Hotel  
340 North Third St  
Phoenix, AZ 85004

Welcome to Phoenix

Transportation in Phoenix

The JAM hotels and the convention center are approximately five miles from Phoenix Sky Harbor International Airport (PHX). The taxi ride will take approximately 15 minutes. The one-way fare for a taxi from the airport to the Phoenix Convention Center area will be approximately $20.00. A shuttle service (Airport Shuttle) is also available; go online to book a shuttle in advance (http://www.airportshuttle.com). The standard rate is $24.00 round-trip. A shuttle bus connects the airport to the the METRO Light Rail system, which runs to the downtown area.

While you’re in Phoenix, you can get around with the METRO Light Rail, which runs from central Phoenix through downtown, Tempe and the ASU campus, to Mesa in the east. Stations are close to and run right by some of the area’s top attractions, such as the Heard Museum, Phoenix Art Museum, the Arizona Science Center, Chase Field, US Airways Center, Sun Devil Stadium, and many more. A one-way pass costs $1.75 and an all-day pass is $3.50. Passes can be purchased at the ticket vending machines at each station. During the week, trains generally run every 12 minutes from 5 am to 11 pm. On weekends, they run about every 15 minutes from 5 am until 2 am. More information on routes, stops, and prices can be found on their website, http://routes.valleymetro.org/timetables/785/transit_route?type=1.

Phoenix Sightseeing Options

From the Phoenix Convention and Visitors Bureau (CVB):

“Desert character. It can’t be conjured, landscaped or kindled with twinkling bulbs. John Ford knew that. So did Frank Lloyd Wright and Louis L’Amour. Spend a few days in Greater Phoenix and you’ll understand, too. America’s sixth-largest city still has cowboys and red-rock buttes and the kind of cactus most people see only in cartoons. It is the heart of the Sonoran Desert and the gateway to the Grand Canyon, and its history is a testament to the spirit of Puebloans, ranchers, miners and visionaries. This timeless Southwestern backdrop is the perfect setting for family vacations, weekend adventures or romantic getaways. Each year, 13 to 15 million leisure visitors travel to Greater Phoenix. They enjoy resorts and spas infused with Native American tradition, golf courses that stay emerald green all year, mountain parks crisscrossed with trails and sports venues that host the biggest events in the nation. The best way to learn about America’s sunniest metropolis, of course, is to experience it firsthand.”

Visit the CVB (http://www.visitphoenix.com/) for ideas on what to do for fun in Phoenix!
Special Events

ASAS Undergraduate Academic Quadrathlon
Saturday, July 14, to Monday, July 16
Sheraton Phoenix
ASAS is excited to offer our undergraduates the chance to compete in a full Academic Quadrathlon (AQ) on a national level. The AQ students will join us in Phoenix to compete head-to-head in the quiz bowl. Please come out and support our undergraduates.

ADSA SAD-GSD Student Dairy Farm Tour
Saturday, July 14
1:00 – 5:00 pm
Bus departs from Springhill Suites
Departing from the lobby of the SAD hotel, we'll go via motor coach to a Phoenix area dairy farm. Ticket price includes transportation and refreshments.

SAD Student Informal Mixer: Majerle's Sports Grill
Saturday, July 14
7:00 pm
Meet in Springhill Suites lobby or Majerle's Sports Grill, 24 N 2nd Street
Meet in the lobby of Springhill Suites at 6:30 pm or at the restaurant at 7:00 pm. Jump-start the week with good food, good music, and good friends at the Saturday student mixer. Ticket price includes dinner.

SAD Undergraduate Midday Mixer and Lunch
Sunday, July 15
12:00 – 1:00 pm
Convention Center, 224AB
Join your fellow dairy club members for a fun hour of getting reacquainted and making new friends, and get to know your 2012–2013 officer candidates. Lunch includes southwestern fare and drinks. Registration is limited to undergraduate students and advisors.

SAD-Dairy Quiz Bowl Final Round
Sunday, July 15
5:30 – 6:00 pm
Convention Center, 231A
On Sunday, university teams from across North America will compete in the ADSA Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division (SAD) invites you to join them for the excitement of the final round of competition as the top two schools go head-to-head for the title of 2012 Dairy Quiz Bowl Winning Team.

ADSA Graduate Student Division Business Meeting and Open Forum
Sunday, July 15
6:00 – 6:45 pm
Convention Center, 231C
Attend to learn about the progress the GSD Advisory Council has made on the current GSD Strategic Plan, and the objectives that the Council has reached in the past year. The second portion of the meeting will be an open forum for graduate student members of the GSD to voice their opinions about the strategic plan, the advisory council, JAM events, and any other topics that might be of interest to members.

Opening Session
Sunday, July 15
7:00 – 8:15 pm
Convention Center, Symphony Hall
The 2012 opening session will feature a live interview with world-renowned animal scientist and ASAS member Temple Grandin. Janet Riley, Senior Vice President, Public Affairs and Member Services at the American Meat Institute, and long-time friend, will illuminate Temple's remarkable achievements and contributions to animal science. Attendees will be encouraged to ask questions. Don't miss what promises to be the most inspiring and memorable opening session ever!
Opening Reception  
Sunday, July 15  
8:15 – 10:00 pm  
Convention Center, North 120A-D  
Wind down the evening by joining us after the opening session for snacks, drinks, and some long-awaited socializing time with colleagues and friends. A strolling mariachi band will be on hand for entertainment.

The ASAS Undergraduate Pizza Party, sponsored by the ASAS Graduate Students  
Monday, July 16  
12:30 – 2:00 pm  
Convention Center, 229A  
The ASAS graduate students are excited to invite the undergraduates to a pizza party; the graduate students will host. Come and eat free pizza, meet more undergrads, grad students, and the Academic Quadrathlon team.

ADSA Graduate Student Division Career Insights Lunch  
Monday, July 16  
12:30 – 2:00 pm  
Convention Center, 229B  
Through informal conversations at each roundtable, graduate students will learn from table leaders (members with hiring responsibilities) and be able to ask frank questions about how to get an interview; best practices in winning them over in an interview; and once in the position, how to thrive. Stay the entire time or just as long as you can. All graduate students are welcome and preregistration for this event is required. Lunch is only $10 but you must preregister.

ASAS Talks Change  
Monday, July 16  
3:00 – 4:00 pm  
Convention Center, 129AB  
Join ASAS for a panel discussion on ASAS operational changes that have taken place this year. Dr. Margaret Benson will kick off the panel discussion by discussing details of some of the changes and associated cost savings and member benefits. Then, a panel of ASAS board members who served on operations subcommittees will answer questions concerning publications changes, database changes, IT changes, and the new office space.

ASAS President’s Picks  
Monday, July 16  
6:30 – 7:00 pm  
Sheraton Phoenix, Valley of the Sun foyer  
ASAS wants to link the ASAS awards and science, so we are starting a new poster presentation: President’s Picks! We will display 10 posters beginning 30 minutes before the ASAS Awards. The posters will represent science that the ASAS President finds innovative and exciting! Posters will be displayed outside the Valley of the Sun room and available for viewing before and after the awards (during the ASAS Awards Celebration). Come see what Dr. Benson thinks is new and exciting at JAM this year.

ASAS Awards Program  
Monday, July 16  
7:00 – 8:30 pm  
Sheraton Phoenix, Valley of the Sun ABC  
All meeting participants, families, and friends are welcome to attend the ASAS awards program. Please join us at this special event to recognize and congratulate the 2012 ASAS award winners. We will also announce the winner of our first-ever ASAS video competition and unveil our living histories project. The 2012 Awards Celebration follows immediately after the awards ceremony.

ASAS Undergraduate Academic Quadrathlon Finals  
Monday, July 16  
8:30 pm (immediately following the ASAS Awards)  
Sheraton Phoenix  
ASAS is excited to offer our undergraduates the chance to compete in a full Academic Quadrathlon (AQ) on a national level. The AQ students will join us in Phoenix to compete head-to-head in the quiz bowl. Quiz Bowl finals will immediately follow the ASAS awards. Please come out and support our undergraduates.
ASAS Awards Celebration  
Monday, July 16  
8:30 pm  
Sheraton Phoenix, Valley of the Sun DE  
Come join ASAS after our awards to celebrate and congratulate all of the 2012 ASAS Award winners. ASAS and sponsors welcome you to this exciting new reception. We will have food and cash bars and designated areas where you can find award winners and colleagues.

Graduate Student Mixer, sponsored by ASAS  
Monday, July 16  
9:00 pm  
Crescent Ballroom, 308 N. 2nd Ave., Phoenix  
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, so don’t miss it. Preregistration is highly recommended; all students are welcome.

ADSA-SAD Student Mixer  
Monday, July 16  
6:30 pm  
Poolside, Springhill Suites, 802 East Van Buren Street  
Celebrate a great week at ADSA! Rock the night away with good music, good food and good friends, all poolside on a balmy Arizona night – it doesn’t get any better than this! Ticket price includes soft drinks and snacks. Don’t miss this perennial highlight of the meeting!

SAD Career Roundtable  
Tuesday, July 17  
9:30 – 11:00 am  
Convention Center, 232BC  
Students will have the opportunity to visit with industry professionals representing various facets of the animal agriculture industry. They will learn about careers in the industry, get useful tips on planning for their careers, and much more. Students are encouraged to dress professionally (business casual or better) and bring several copies of their resumes. Students should also plan to visit industry reps in the exhibit hall for information about internships and job opportunities.

Spouse Event: Phoenix Architecture Tour  
Tuesday, July 17  
9:00 am – 1:00 pm  
Meet in Hyatt Regency lobby  
The Phoenix Architecture Tour with a stop at Taliesin West showcases the unique and Southwestern influence of architecture throughout the city. Many of the buildings in downtown Phoenix have a very distinctive style, adding to the beauty of the city. The State Capitol features a beautiful copper dome to reflect the copper industry that once thrived in Arizona. One of the most interesting stops on this tour is Frank Lloyd Wright’s Taliesin West. Complimentary bottled water will be provided on this bus tour; lunch is not included. Preregistration for this event is required. Register early because capacity is limited!

SAD Awards Lunch  
Tuesday, July 17  
11:45 am – 2:00 pm  
Convention Center, 224AB  
Plan to attend this year’s SAD awards lunch. The afternoon will be capped with the presentation of student awards and announcement of new SAD officers. Both students and professionals are encouraged to attend. This is a wonderful chance to get to know the next generation of the dairy industry.

ASAS Foundation Heritage Lunch  
Tuesday, July 17  
12:30 – 2:00 pm  
Convention Center, 229B  
The ASAS Foundation has chosen honorees for the second annual ASAS Foundation Heritage Lunch to be held at the convention center. The 2012 honorees are Lester Casida and Arthur Chapman. Please join us at this Foundation fundraiser to honor these two pioneers of animal science.
**CSAS Annual General Meeting and Lunch**  
**Tuesday, July 17**  
**12:30 – 2:00 pm**  
**Renaissance Phoenix, Salon 8**

Plan to attend this year’s AGM and lunch to learn more about the exciting activities planned for this year and next, as well as the current status of CSAS (e.g., finances, membership, *Canadian Journal of Animal Science*).

---

**Northeast ASAS/ADSA Symposium, Business Meeting, Reception, and Awards**  
**Tuesday, July 17**  
**2:00 – 6:00 pm**  
**Convention Center, 122C**

Members of the Northeast ASAS Section/ADSA Branch are invited to the symposium followed by the business meeting, presentation of awards and reception.

---

**ADSA Graduate Student Division Dairy Tales**  
**Tuesday, July 17**  
**3:00 – 4:30 pm**  
**Convention Center, 231C**

Please join our first-ever Graduate Student Division Dairy Tales to learn about hot topics in dairy science and foods from your fellow graduate students! During this new and exciting event, select graduate students will be giving short, TED-style talks about their fields of study, using terms that can be understood by students studying any field. The event is free, but please register to stay informed about the program. Cheese will be provided by the Wedge and Bottle.

---

**ASAS JAS and Animal Frontiers Editorial Meeting, Open Forum, and Animal Frontiers Birthday Celebration**  
**Tuesday, July 17**  
**4:00 – 5:00 pm**  
**Convention Center, 231A**

Attendees, division editors, and associate division editors are invited to the *Journal of Animal Science* and *Animal Frontiers* Open Forum to discuss the current status of the journals and to help us celebrate the 1-year anniversary of the launch of *Animal Frontiers*. As fitting, we will have an *Animal Frontiers* birthday cake!

---

**AnimalSmart.org Launch**  
**Tuesday, July 17**  
**5:00 – 6:00 pm**  
**Convention Center, 222C**

Times have changed and ASAS is working hard to keep and incorporate our traditional scientific values in a new world. AnimalSmart.org is our newest venture to serve external stakeholders in an attempt to positively educate and inform about the importance of animal agriculture and animal science. Join us for good food and a champagne toast as we launch this latest venture.

---

**ADSA Awards Program**  
**Tuesday, July 17**  
**7:00 – 8:00 pm**  
**Hyatt Regency Phoenix, Regency Ballroom**

All meeting participants, families, and friends are welcome to attend the 2012 ADSA awards program. Please join us at this special event to recognize and congratulate the 2012 award winners at the Hyatt Regency Phoenix.

---

**2012 JAM Ice Cream Social, sponsored by ADSA**  
**Tuesday, July 17**  
**8:15 – 9:30 pm**  
**Hyatt Regency Phoenix, 2nd Floor Atrium**

All meeting participants, families, friends, and award donors are invited to join us for the always-popular ice cream social.

---

**ADSA Graduate Student Division Mixer**  
**Tuesday, July 17**  
**9:00 pm – 12:00 am**  
**Brick, 455 North 3rd Street, Phoenix**

Join your fellow graduate students and others at Brick, a fun, local wine bar, located within steps of the convention center. Registration is FREE and the first 100 to sign up receive a free drink ticket! We are giving away door prizes throughout the night, and a local DJ will play our favorite tunes. Make sure to pre-register for this very popular event.
WSASAS Graduate Student Lunch and Learn  
Wednesday, July 18  
12:30 – 2:00 pm  
Convention Center, 229A  
Please join ASAS members Allison Meyer (University of Wyoming), Greg Lardy (North Dakota State University), Larry Reynolds (North Dakota State University), and Kristi Cammack (University of Wyoming) as they discuss travel experiences from a graduate student perspective and ASAS scholarship applications and benefits; international travel experiences from an employer's perspective and the importance of meeting applicable university travel policies; international collaborations in Scotland, Italy, Poland, and Brazil; and the significance of "study abroad" programs and travel to regional, national, and international meetings for graduate students.

Global Networking Reception  
Wednesday, July 18  
4:30 – 6:00 pm  
Convention Center, 224AB  
All meeting participants, families, and friends are welcome to attend the closing reception on Wednesday evening. Again this year, attendees will have the opportunity to indicate their home affiliation on a world map; check the exhibit hall for the poster board before the reception. Don’t miss the spectacular Yellow Tail Dancers performing a blend of Native American song and dance that highlights the heritage of the Southwest.

WSASAS Awards Banquet  
Wednesday, July 18  
6:00 – 10:00 pm  
Alice Cooperstown, 101 E. Jackson  
All Western Section members of ASAS are invited to the WSASAS Awards Banquet to congratulate our award winners.

CSAS Awards Banquet  
Wednesday, July 18  
6:00 – 9:00 pm  
Renaissance Phoenix, South Ballroom  
Please join us in honoring the 2012 CSAS award winners. All meeting participants, spouses, and friends are invited to attend this celebratory event. Make sure to purchase your tickets in advance, as a limited number of tickets will be available for purchase at the registration desk.

Alltech/CSAS Graduate Student Mixer  
Wednesday, July 18  
9:00 pm – 12:00 am  
Renaissance Phoenix, South Ballroom  
Please join us for some Kentucky hospitality at the Alltech/CSAS Graduate Student Mixer immediately following the awards banquet. This event is open to all CSAS members and CSAS graduate students. Refreshments will be served and a cash bar will be available.
2012 ADSA Award Donors

ABS Global Inc.
ADSA Foundation
Alltech Biotechnology Center
American Feed Industry Association
Cargill Animal Nutrition
Cargill Flavor Systems
Dairy Management Inc.
DeLaval Inc.
Dupont Nutrition and Health
Elanco Animal Health–Eli Lilly and Company
Hoard’s Dairyman
International Dairy Foods Association
Kraft Foods
Land O’Lakes Purina Feed LLC
Leprino Foods
National Milk Producers Federation
Nutrition Professionals Inc.
Pfizer Animal Health
Pioneer, A DuPont Company
Schreiber Foods
West Agro Inc.

2012 ASAS Award Donors

ABS Global Inc.
Agri-King
American Feed Industry Association
American Society of Animal Science
American Society of Animal Science Foundation
Bouffault Award Fund
Center for Regulatory Services Inc.
Cenzone Technology
Cromwell Appreciation Club
DSM Nutritional Products Inc.
Elanco
Fontenot Appreciation Club
Land O’Lakes
Merial Ltd.
Morrison Award Fund
Omega Protein Corp.
Pfizer Animal Health
Pond Appreciation Club
The Iams Company
Tucker Appreciation Club
Zinpro Corp.

2012 ASAS Awards Reception Sponsors

(as of May 16, 2012)

ASAS
Montana State University
North Carolina State University
Rutgers Equine Science Center
Texas Tech University
University of Arkansas
University of California-Davis
University of Guelph
University of Kentucky
University of Missouri
Virginia Polytechnic Institute and State University

2012 ASAS Academic Quadrathlon Sponsors

(as of May 16, 2012)

ABS Global Inc.
CEV Multimedia
ASAS
ASAS Foundation
National Block and Bridle
Select Sires
United Soybean Board
University of Arizona

2012 Western Section ASAS Award Donors

AgResearch LLC
CHS
Diamond V
Elanco
Great Plains Consulting
IMI Global
Land O’Lakes Purina Feed
Padlock Ranches
PerFormix Nutrition
Pfizer Animal Health
Ranchway Feeds
Ridley Block
Strauss Feeds
Vigortone
Zinpro
Exhibit Schedule

Sunday, July 15  Exhibit Set Up .............................................. 10:00 am – 6:00 pm
Monday, July 16  Exhibits Open ................................................ 8:00 am – 6:00 pm
Exhibitor Reception .................................................. 4:00 pm – 6:00 pm
Tuesday, July 17  Exhibits Open ................................................ 8:00 am – 5:00 pm
Wednesday, July 18  Exhibits Open ............................................. 8:00 am – 2:00 pm
Exhibit Dismantle .................................................. 2:00 pm – 5:00 pm

Exhibit Floor Plan
### Guide to Exhibitors/Booth Numbers

<table>
<thead>
<tr>
<th>Company/Entity</th>
<th>Booth Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAALAC</td>
<td>404</td>
</tr>
<tr>
<td>Acadian Agritech</td>
<td>602</td>
</tr>
<tr>
<td>Adisseo</td>
<td>1013, 1014</td>
</tr>
<tr>
<td>Ag Processing Inc.</td>
<td>518</td>
</tr>
<tr>
<td>Alltech</td>
<td>214, 216, 313, 315</td>
</tr>
<tr>
<td>American Dairy Science Association (ADSA)</td>
<td>1003</td>
</tr>
<tr>
<td>American Registry of Professional</td>
<td></td>
</tr>
<tr>
<td>Animal Scientists (ARPAS)</td>
<td>304</td>
</tr>
<tr>
<td>American Society of Animal Science (ASAS)</td>
<td>706</td>
</tr>
<tr>
<td>Animal Frontiers</td>
<td>807</td>
</tr>
<tr>
<td>AnimalSmart.org</td>
<td>703</td>
</tr>
<tr>
<td>Ankem Technology</td>
<td>603</td>
</tr>
<tr>
<td>Arm &amp; Hammer Animal Nutrition</td>
<td>1004</td>
</tr>
<tr>
<td>ASAS Foundation</td>
<td>708</td>
</tr>
<tr>
<td>Balchem</td>
<td>210, 309</td>
</tr>
<tr>
<td>Bar Diamond</td>
<td>1009</td>
</tr>
<tr>
<td>Bio Springer</td>
<td>607</td>
</tr>
<tr>
<td>Biomin</td>
<td>310</td>
</tr>
<tr>
<td>Brilliant Alternatives Inc.</td>
<td>1016</td>
</tr>
<tr>
<td>Bruker Optics Inc</td>
<td>504</td>
</tr>
<tr>
<td>Buchi Corporation</td>
<td>614</td>
</tr>
<tr>
<td>CABI Bookshop</td>
<td>308</td>
</tr>
<tr>
<td>CABI Publishing</td>
<td>306</td>
</tr>
<tr>
<td>Cambridge University Press</td>
<td>307</td>
</tr>
<tr>
<td>CEV Multimedia</td>
<td>608, 610, 707, 709</td>
</tr>
<tr>
<td>Chandler Analytical Laboratories</td>
<td>617</td>
</tr>
<tr>
<td>Chr. Hansen</td>
<td>302, 401</td>
</tr>
<tr>
<td>Cumberland Valley Analytical Services</td>
<td>1010</td>
</tr>
<tr>
<td>Dairy Records Management</td>
<td>405, 407</td>
</tr>
<tr>
<td>Dairy Tech Inc.</td>
<td>502</td>
</tr>
<tr>
<td>Dalex Livestock Solutions LLC</td>
<td>506</td>
</tr>
<tr>
<td>DASCOR Inc.</td>
<td>1008</td>
</tr>
<tr>
<td>Diamond V Mills</td>
<td>702, 704, 801, 803</td>
</tr>
<tr>
<td>EAAP</td>
<td>316</td>
</tr>
<tr>
<td>E.I. Medical Imaging</td>
<td>701</td>
</tr>
<tr>
<td>Elsevier</td>
<td>218</td>
</tr>
<tr>
<td>Estrotect</td>
<td>517</td>
</tr>
<tr>
<td>Evonik Degussa Corp.</td>
<td>413, 415</td>
</tr>
<tr>
<td>Federation of Animal Science Societies</td>
<td>204</td>
</tr>
<tr>
<td>Feed Management Systems</td>
<td>318</td>
</tr>
<tr>
<td>Feedstuffs</td>
<td>403</td>
</tr>
<tr>
<td>H.J. Baker &amp; Bro., Inc.</td>
<td>513, 515</td>
</tr>
<tr>
<td>Hangzhou East Biochem Co. Ltd.</td>
<td>1015</td>
</tr>
<tr>
<td>IFFCO (Malaysia) Sdn. Bhd.</td>
<td>616, 618</td>
</tr>
<tr>
<td>IMMVC Inc.</td>
<td>409</td>
</tr>
<tr>
<td>Jefo Nutrition</td>
<td>1001, 1002</td>
</tr>
<tr>
<td>Journal of Animal Science</td>
<td>715</td>
</tr>
<tr>
<td>Kemin Industries</td>
<td>508, 510</td>
</tr>
<tr>
<td>Lallemand Animal Nutrition</td>
<td>206</td>
</tr>
<tr>
<td>Micronutrients</td>
<td>713</td>
</tr>
<tr>
<td>Multimin USA Inc.</td>
<td>414</td>
</tr>
<tr>
<td>National Animal Health Monitoring System (NAHMS)</td>
<td>805</td>
</tr>
<tr>
<td>Novus International</td>
<td>303, 305</td>
</tr>
<tr>
<td>PetAg Inc.</td>
<td>417</td>
</tr>
<tr>
<td>Poultry Protein &amp; Fat Council</td>
<td>1007</td>
</tr>
<tr>
<td>Probiotech International Inc.</td>
<td>418</td>
</tr>
<tr>
<td>QualiTech Inc.</td>
<td>202</td>
</tr>
<tr>
<td>Rite in the Rain</td>
<td>503</td>
</tr>
<tr>
<td>Saf Agri/Lesaffre Feed Additives</td>
<td>604</td>
</tr>
<tr>
<td>SGS North American</td>
<td>317</td>
</tr>
<tr>
<td>SoyBest</td>
<td>402, 501</td>
</tr>
<tr>
<td>SoyPLUS, SoyChlor</td>
<td>609</td>
</tr>
<tr>
<td>Unity Scientific Inc.</td>
<td>314</td>
</tr>
<tr>
<td>USDA–Animal Welfare Information Center</td>
<td>605</td>
</tr>
<tr>
<td>Varied Industries Corporation</td>
<td>514, 516, 613, 615</td>
</tr>
<tr>
<td>Western Yeast Company</td>
<td>416</td>
</tr>
<tr>
<td>Zinpro</td>
<td>710, 809</td>
</tr>
</tbody>
</table>

---

**A special thank you to our 2012 Joint Annual Meeting Exhibitors!**
AAALAC
5283 Corporate Dr Ste 203
Frederick, MD 21703-2879
http://www.aaalac.org
Booth(s): 404

AAALAC International offers accreditation and education services for agricultural animal research programs. Earning accreditation demonstrates dedication to responsible animal care. It also assures research partners, funding sources, and the public of a commitment to quality research and good science. More than 850 institutions in 33 countries have earned AAALAC accreditation.

Acadian Agritech
30 Brown Avenue
Dartmouth, NS, B3B 1X8, Canada
http://www.tasco.ca
Booth(s): 602

Tasco is a functional food designed to address critical production issues in today’s livestock industry. All-natural Tasco helps modulate functions relative to health, productivity, and stress resistance. Tasco is generally regarded as safe (GRAS) in animal feeds.

Adisseo
4400 N Point Pkwy Ste 275
One Point Royal
Alpharetta, GA 30022-2429
http://www.adisseo.biz/
Booth(s): 1013, 1014

At Adisseo, we are nutritionists with a long tradition of applying our expertise to nutritional additives. We are dedicated to serving the animal production industry by helping premixers, feed manufacturers, and integrators to improve their performance and to become more competitive.

Ag Processing Inc.
PO Box 2047, 12700 West Dodge Road
Omaha, NE 68103-2047
(402) 492-3309
http://www.amino-plus.com
Booth(s): 518

AminoPlus is the number one volume bypass protein soybean meal dairy supplement in the United States. The patented AminoPlus process utilizes soybean meal to provide high amino acid quality, rumen bypass, and intestinal digestibility without the addition of chemicals or non-soybean components.

Alltech
3031 Catnip Hill Rd
Nicholasville, KY 40356-8700
http://www.alltech.com
Booth(s): 214, 216, 313, 315

Founded by Dr. Pearse Lyons, Alltech is a global animal health and nutrition company with 32 years’ experience in developing natural products that are scientifically proven to enhance animal health and performance. With 2,800 employees in 128 countries, the company has developed a strong regional presence in Europe, North America, Latin America, the Middle East, Africa, and Asia. For further information, visit www.alltech.com.

American Dairy Science Association (ADSA)
1800 S Oak St, Ste 100
Champaign, IL 61820-6974
http://www.adsa.org
Booth(s): 1003

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 St, Ste 100
Champaign, IL 61820-6974
http://www.arpas.org
Booth(s): 304

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
http://www.asas.org
Booth(s): 706

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 and meat industries. Please visit www.asas.org for more information.
Animal Frontiers is a new review magazine published jointly by the American Society of Animal Science (ASAS), the Canadian Society of Animal Science (CSAS), and the European Federation of Animal Science (EAAP). Animal Frontiers will address current significant issues important to animal agriculture on the global stage. Each issue of Animal Frontiers will address a common theme with leading authors in those areas addressing various aspects of the theme. Animal Frontiers is published quarterly with an intended international readership of scientists, politicians, industry leaders and the general public seeking a scientific perspective on issues related to animal agriculture.

Animal Smart.org
PO Box 7410
Champaign, IL 61820
Booth(s): 703

Times have changed and ASAS is working hard to keep and incorporate our traditional scientific values in a new world. AnimalSmart.org is our newest venture to serve external stakeholders in an attempt to positively educate and inform about the importance of animal agriculture and animal science. Visit AnimalSmart.org to learn more.

Ankom Technology
2052 O’Neil Rd
Macedon, NY 14502-8953
http://www.ankom.com
Booth(s): 603

Ankom Technology is best known for the development of filter bag technology for automating fiber and fat analysis in foods and feeds. Ankom has products supporting in vitro digestibility, in vitro gas production, and in situ digestibility. Ankom products are in use in over 90 countries around the world.

Arm & Hammer Animal Nutrition
469 N Harrison St
Princeton, NJ 08540-3510
http://www.AHDairy.com
Booth(s): 1004

Arm & Hammer Animal Nutrition is a leading supplier of dairy feed ingredients that work to improve producer profitability. We have developed a wide range of innovative products to address the dairy nutrition challenges today’s producers face. Trust Arm & Hammer Animal Nutrition for innovative, proven, and reliable nutritional solutions.

ASAS Foundation
PO Box 7410
Champaign, IL 61820
http://www.asas.org
Booth(s): 708

The ASAS Foundation was created by the ASAS Board of Directors to identify individual and corporate entities that seek to enhance and perpetuate the activities of the society. The Foundation seeks to create a nucleus of funds and investments from which its Board of Directors and its membership may address critical issues facing the profession. Moreover, we would encourage the funding of ventures into new areas that will assist the society and its members in obtaining excellence in a highly dynamic industry. We visualize a corpus of funds composed of gifts, grants, endowments, and appreciation clubs, each tailored to the needs and wishes of the donor and that are consistent with the mission of the society.

Balchem
PO Box 600 52 Sunrise Park
New Hampton, NY 10958-0600
http://www.balchem.com
Booth(s): 210, 309

Balchem’s Animal Nutrition and Health Division brings the benefits of patented proprietary micro-encapsulation and chelated trace mineral technology to the livestock, poultry, and companion animal industries. Encapsulation and chelation technologies offer “protection nutrition” to sensitive compounds. Hence, these compounds become bioavailable when and where they offer the most benefit to the animal. Our products include ReaShure, NiaShure, AminoShure-L, NitroShure, KeyShure, VitaShure, and choline chloride.

Bar Diamond Inc
PO Box 60
Parma, ID 83660-0060
http://www.bardiamond.com
Booth(s): 1009

Bar Diamond Inc. provides the world with rumen cannulae and accessories. Our cannulae are used in cattle, goats, sheep, water buffalo, bison, deer, reindeer, llama, musk oxen, and a camel! Visit our booth and see our newest photos from around the world.

Bio Springer
321 De La Commune St. Ste 300
Montreal, PQ, H2Y 2E1, Canada
Booth(s): 607

Bio Springer, the global leader in yeast extracts, offers a large number of yeast extracts for dairy culture fermentation, including nucleotide and glutathione rich products. Our yeast extracts are also an important component in animal vaccine manufacturing and reduce viral contamination risks. Our state-of-the-art plant in Cedar Rapids, Iowa, reinforces our commitment to US customers.
Biomin
1846 Lockhill Selma Rd, Ste 101
San Antonio, TX 78213-1551
http://www.biomin.net
Booth(s): 310

Biomin is a customer-oriented company with the objective to enhance productivity and unlock the performance potential of livestock. Based on intense research, Biomin develops and produces feed additives and premixes in accordance with latest know-how and with state-of-the-art production technology. Our top brands are Biofix Plus and Biofix Select.

Brilliant Alternatives Inc.
11907 Old Hickory Ct.
Spotsylvania, VA 22553
http://www.brilliantalternativesinc.com
Booth(s): 1016

Bob Brill announces “Cloud” Feed Formulation Software. Like many other “Firsts”, our Cloud Formulation will allow users to do much more. Additive sellers can use the software to show and tell what their products do for their clients. Universities are invited to use Brilliant’s Software for teaching or “outreach projects”. Laboratory Decision Maker (LDM) collects samples from NIR or your lab and gives statistical analysis from selected samples. After analysis, LDM allows an automatic update to formulation databases. Brilliant also provides support for Formulation Software. After years of leadership, Brilliant continues to serve the industry.

Bruker Optics Inc.
19 Fortune Dr
Billerica, MA 01821-3923
http://www.brukeroptics.com/solutions
Booth(s): 504

Save costs while improving quality by upgrading to the next generation of NIR analyzers. From improved control of feed ingredients to more precise testing of proximates, these analyzers have also been used to monitor blending processes and optimize mill operation. Existing calibrations and data are upwardly mobile. These FT-NIR systems feature the lowest cost of ownership with a 10-year warranty on the Rock Solid Interferometer, which is permanently aligned, eliminating time-consuming instrument standardization protocols. Samples can be measured as-is in seconds without time-consuming sample preparation.

Buchi Corporation
19 Lukens Dr, Ste 400
New Castle, DE 19720-2787
http://www.mybuchi.com
Booth(s): 614

For over 50 years, Buchi has been known as the market leader, inventor and innovator of lab instruments based on evaporation and vacuum technologies, and as the supplier of the Rotavapor rotary evaporators worldwide. In addition, Buchi Corporation is a proven North American provider of spray dryers for pharmaceutical and food agglomeration and microencapsulation, Kjeldahl and solvent extraction equipment for environmental and food analysis, NIR spectroscopy instruments for pharmaceutical and food quality control, modular flash chromatography systems, and other related laboratory equipment. Headquartered in New Castle, Delaware, Buchi Corporation is an affiliate of Buchi Labortechnik AG (Flawil, Switzerland).

CABI Bookshop
22883 Quicksilver Dr
Sterling, VA 20166-2019
http://www.styluspublishing.com
Booth(s): 308

CABI is a not-for-profit international organization that improves people’s lives by providing information and applying scientific expertise to solve problems in agriculture and the environment. Distributed in North America by Stylus Publishing.

CABI Publishing
Nosworthy Way
Wallingford, Oxfordshire, OX10 8DE, United Kingdom
http://www.cabi.org
Booth(s): 306

CABI is a not-for-profit international organization that improves people’s lives by providing information and applying scientific expertise to solve problems in agriculture and the environment. Our mission and direction is influenced by our member countries who help guide the activities we undertake.

Cambridge University Press
32 Avenue of The Americas, Bldg 1
New York, NY 10013-2473
http://journals.cambridge.org
Booth(s): 307

Cambridge University Press publishes high-quality books and journals, including Animal: The International Journal of Animal Bioscience on behalf of The Animal Consortium, and Animal Health Research Reviews in collaboration with the Conference of Research Workers in Animal Diseases. Please stop by our booth to peruse these and other publications.
CEV Multimedia
1020 SE Loop 289
Lubbock, TX 79404-6007
Booth(s): 608, 610, 707, 709

CEV is proud to introduce its NEW, online iCEV Agricultural Science site. This curriculum-on-demand delivery model allows for “anytime, anyplace” access to CEV’s entire agricultural science library, including all animal science and animal/meat evaluation resources. With more than 20,000 minutes of video, the subscription-based product is organized into small segments, or learning objectives (i.e., 37 seconds to 18 minutes), and its sophisticated search feature makes searching for various agricultural science topics easy.

Chandler Analytical Laboratories
571 N 54th St
Chandler, AZ 85226
http://chandleranalytical.com
Booth(s): 617

We are a small privately owned forage testing laboratory, NFTA-certified for wet chemistry and NIRS. We analyze a variety of agricultural products including alfalfa hay and all alfalfa products, corn and other small grain silages, TMRs, whole grains, distiller grains and supplements. If you can grow it, chances are we can test it! We are also certified for aflatoxin determination in cotton and cottonseed products, and do water quality testing. We pride ourselves on providing quality analyses with a quick turn-around. Our goal is not just to meet but exceed your expectations.

Chr. Hansen
9015 W Maple St
Milwaukee, WI 53214-4213
http://www.chr-hansen.com
Booth(s): 302, 401

Chr. Hansen Animal Health & Nutrition has been ranked as the most trusted direct-fed microbial source by dairy nutritionists. As the “world’s microbial experts,” Chr. Hansen has been the leading supplier of lactic acid bacteria and other ingredients since 1874. A history rich in science, research, and product quality has produced products such as Probios, Biomate, Biomax, and BioPlus.

Cumberland Valley Analytical Services
14515 Industry Dr
Hagerstown, MD 21742-2410
http://www.foragelab.com
Booth(s): 1010

Cumberland Valley Analytical Services is a full-service forage and feed testing laboratory specializing in chemistry analysis.

Dairy Records Management
313 Chapanoke Rd, Ste 100
Raleigh, NC 27603-3434
http://www.drms.org
Booth(s): 405, 407

Dairy Records Management Systems provides innovative dairy information products and services for producers, DHIA staff, consultants, and other dairy industry professionals. Comprehensive processed reports include Transition Cow Management, Survival Analysis and Persistency Analysis. Leading-edge software and web tools include PCDART, PocketDairy, Herd Detective, DairyMetrics, WebReports, and Reports On-Demand.

Dairy Tech Inc.
352 North Shores Circle
Windsor, CO 80550-2614
http://www.dairytechinc.com
Booth(s): 502

Dairy Tech Inc. has been an industry leader in new calf technologies that support best management practices. The core of Dairy Tech has been batch pasteurization technology that has led the industry in innovation and research for the past 11 years. Just this year, the company has launched several products that have become cornerstones of colostrum management for calves.

Dalex Livestock Solutions LLC
240 Industrial Blvd
Waconia, MN 55387-1734
http://www.dalex.com
Booth(s): 506

Dalex Livestock Solutions LLC is the leading provider of ration formulation software and related livestock solutions. Dalex offers ration balancing for dairy, beef and swine and allows for the use of multiple nutritional models. Current programs include The Consulting Nutritionist and CN.Dalex. Additional programs of value to the livestock industry are currently under development. Dalex has provided a complete solution to formulate, analyze, and monitor livestock feeding situations since 1980.

DASCOR Inc.
PO Box 462885
Escondido, CA 92046-2885
http://www.dascor.com/ruminframe.html
Booth(s): 1008

DASCOR Inc. manufactures a series of autonomous data loggers for ruminal research measurements of temperature, pH, ORP, NH₄⁺, and pressure for use in cannulated cattle, and as boluses for use in sheep and goats.
Diamond V, headquartered in Cedar Rapids, Iowa, provides nutritional fermentation products that optimize digestive function and nutrition key to animal and aqua health, productivity, efficiency and profitability. Our commitment to innovation, technology, and quality has earned Diamond V a global reputation of trust and reliability within the animal feed industry. We help our customers succeed by sharing knowledge, innovation and capability. The benefit is real, Diamond V investment and commitment is real. Diamond V’s innovative brands—Original XPC, XP and YC, DiaMune Se, SelenoSource, and DV Aqua—are research proven and engineered to deliver results.

EAAP
Via G. Tomassetti
00161 Rome, Italy
http://www.eaap.org/
Booth(s): 316

EAAP annually organizes the largest animal science meeting in Europe. This meeting is the perfect venue to create a network with qualified animal scientists. Over one thousand scientists have attended the EAAP annual meetings in the past years. EAAP produces the journal “Animal”, one of the highest ranked animal science magazines. EAAP has many other services and activities for its members; publishing scientific books, organizing specific and regional workshops and scientific meetings, coordinating international research projects, and defending positions of animal science and livestock industry at international level. EAAP is a federation of national members with the national members being the backbone of EAAP. To increase the quantity and quality of services to the animal science community, EAAP established the individual membership structure. Everyone is invited to become members of EAAP and benefit from belonging to the EAAP community.

E. I. Medical Imaging
348 N Jefferson Ave
Loveland, CO 80537-5647
http://www.eimedical.com
Booth(s): 701

E. I. Medical Imaging continues to be a world leader and the only US manufacturer of portable ultrasound solutions specifically engineered for veterinary use. For the past 25 years, the company's core values have remained intact: putting the customer first and delivering solid, effective ultrasound solutions. Engineered for detailed image quality and ultra-portability, the versatile Ibex ultrasound scanner is made with interchangeable transducers that allow fast, in-field flexibility and superior image resolution delivers accurate diagnosis. E. I. Medical Imaging designs portable ultrasound solutions for today's veterinary professionals. For more information about Ibex Pro and Ibex Lite call 1 (866) 365-6595 or (970) 669-1793; e-mail info@eimedical.com; or visit www.eimedical.com.

Elsevier
1600 John F Kennedy Blvd Ste 1800
Philadelphia, PA 19103-2398
http://www.elsevierhealth.com
Booth(s): 218

Elsevier is a world-leading multiple media publisher of science, technology, and health information products and services. We are proud to publish the Journal of Dairy Science® (JDS), the official journal of the American Dairy Science Association®. Please visit the Elsevier booth in the exhibit hall with any questions you might have about accessing the Journal of Dairy Science online and to browse our other titles in animal science.

Estranect
PO Box 39
Spring Valley, WI 54767-0039
Booth(s): 517

AccuBreed is an advanced new wireless tool to track and monitor mounting activity in real time. With AccuBreed, you can determine peak mounting activity, breed when cows are in standing heat, and use available technology to increase pregnancy rates.

Evonik Degussa Corp
1701 Barrett Lakes Blvd NW Ste 340
Kennesaw, GA 30144-4509
http://www.aminoacidsandmore.com
Booth(s): 413, 415

Degussa is the only company in the world to supply, from a single source, all four of the important amino acids for animal nutrition: DL-methionine, Biolys (L-lysine), L-threonine, and L-tryptophan. Mepron, a rumen-protected DL-methionine, rounds off the company’s product range as part of its “one source” strategy.

Federation of Animal Science Societies
1800 S Oak St, Ste 100
Champaign, IL 61820-6974
http://www.fass.org
Booth(s): 204

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. Be sure to stop by the FASS booth to hear about DC activities from the 2011-2012 CSF.
Feed Management Systems
6120 Earle Brown Dr, Ste 300
Brooklyn Center, MN 55430-4101
http://www.feedsys.com
Booth(s): 318

Feed Management Systems provides integrated software solutions for feed manufacturers to manage their critical formula and production data. Ensure the quality of your feed supply by automating and optimizing formulas, pricing, ordering, inventory, labeling, delivery, traceability, reporting and financials. Solutions include Feed Mill Manager, Brill Formulation, Feed Ration Balancer, and Feed Tags.

Feedstuffs
12400 Whitewater Dr Ste 160
Minnetonka, MN 55343-4158
http://www.feedstuffs.com/
Booth(s): 403

Feedstuffs is the only weekly paid news source for agribusiness. Every week, we keep our subscribers informed on the important issues affecting the business of producing food for the world.

H.J. Baker & Bro., Inc.
228 Saugatuck Ave, Ste 1
Westport, CT 06880-6444
http://www.bakerbro.com
Booth(s): 513, 515

H.J. Baker offers university research proven products to increase efficiency for today's high producing dairy cows. MetaboLys® rumen by-pass, high intestinal digestibility lysine delivers a high payload of lysine directly into the small intestine. PRO-LAK® specially formulated 72% rumen by-pass protein delivers the essential amino acid profile and supports maximum milk production. For more information, please visit www.bakerbro.com.

Hangzhou East Biochem Co., Ltd.
1705 Guangyin Bldg, 42 Fengqi Dong Rd
Hangzhou 310020, China
http://www.east-biochem.com
Booth(s): 1015

We are a Chinese producer of specialty feed additives. Based on our FAMI-QS certified factory, we provide betaine, sodium butyrate 30% coated, zinc oxide 50% coated, rumen protected choline chloride 25%, rumen-protected lysine HCl 30%, rumen-protected methionine 30%, Bacillus subtilis (5 x 10^{11} cfu/g) and Bacillus licheniformis (5 x 10^{11} cfu/g).

IFFCO (Malaysia) Sdn. Bhd.
Port Khalid, Shartah Shartah, United Arab Emirates
Booth(s): 616, 618

A full range of highest quality vitamin mineral premixes is available as per the standard formulations and as per custom made specifications. All premixes are currently being marketed in Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. All premixes are produced from highest quality raw material selected meticulously from reputed suppliers, weighed accurately and blended uniformly by highly trained and experienced personnel in extremely hygienic conditions (GMP compliant). All premixes are produced after receiving confirmed orders to ensure freshness and supplied on a monthly or fortnightly basis to avoid large inventories at the farm level.

IMMVAC Inc.
6080 East Bass Lane
Columbia, MO 65201-9735
http://www.immvac.com
Booth(s): 409

Endovac-Dairy and Endovac-Beef with Immune Plus®, manufactured by IMMVAC, provides your herd unprecedented protection against E. coli, Salmonella, and Pasteurella. IMMVAC, committed to science and service excellence, is the industry’s most scientifically respected manufacturer of vaccines and sera that protect production and companion animals against common disease threats and virtually all gram-negative bacteria.

Jefo Nutrition
5020 Jefo Ave, Box 325
St-Hyacinthe, QC J2S 7B6, Canada
http://www.jefo.com
Booth(s): 1001, 1002

Jefo is an industry leader in non-medicated, high-performance feed additives, committed to the livestock feed industry since 1982. In the last 30 years, our involvement in research has resulted in innovation: products designed for the requirements of each species with an understanding of their differences to make a difference on farms.

Journal of Animal Science (JAS)
PO Box 7410
Champaign, IL 61820
http://jas.fass.org/
Booth(s): 715

The Journal of Animal Science (JAS) is the premier journal for animal science and serves as the leading source of new knowledge and perspective in this area. JAS publishes more than 400 peer-reviewed research articles, invited reviews, technical notes, and letters to the editor each year. According to ISI’s Journal Citation Reports, JAS consistently ranks as one of the top journals (among 43 titles) in the category of Agriculture, Dairy, and Animal Sciences in terms of impact factor, immediacy index, and cited half-life and is in the top 1% of STM publishing (50,000+ titles) by total ISI citations.
Kemin AgriFoods brings value to the feed industry by working in partnership with its customers. With fifty years of collective expertise in animal nutrition, Kemin AgriFoods has developed the Total Nutrition program offering nutritional solutions that contribute to the safe, efficient, and healthy production of animal protein. Proven scientific knowledge, reliable technology, and personalized service make Kemin the advisor you can count on.

Lallemand Animal Nutrition
6120 W. Douglas Avenue
Milwaukee, WI 53218-1548
http://www.lallemandanimalnutrition.com
Booth(s): 206

Lallemand Animal Nutrition offers a range of solutions for the dairy industry, including Levucell SC and Levucell SB active dry yeast, Biotal forage inoculants, Alkosel organic selenium yeast, Agrimos, and other mineral-enriched yeast supplements.

Micronutrients
1550 Research Way
Indianapolis, IN 46231
http://www.micronutrients.com
Booth(s): 713

Micronutrients, based in Indianapolis, is dedicated to the development, production and marketing of trace minerals for livestock and companion animals. Current development has led to the creation of a new class of trace minerals, hydroxy trace minerals. Use of the first mineral, IntelliBond C (Micronutrients TBCC – trisbatic copper chloride), has grown consistently for the past 15 years and is soon to be followed by zinc and manganese. Hydroxy trace minerals have been proven in over 70 research studies to deliver improved essential nutrient stability in feeds while significantly increasing the availability of the mineral to the animal.

Multimin USA, Inc.
2809 East Harmony Rd. #190
Fort Collins, CO 80528-3111
http://www.multimminglobal.com
Booth(s): 414

Multimin90 is an injectable fast acting pre-treatment of the trace minerals copper, zinc, manganese, and selenium. Dairy producers use Multimin90 in replacement heifers and cows at least 4 weeks before critical times of high trace mineral demand such as AI and calving and at dry-off to optimize immunity of the cow and her calf and reproductive performance of the cow.

National Animal Health Monitoring System (NAHMS)
2150 Centre Ave Bldg B-2E7 USDA:APHIS:VS:CEAH
Fort Collins, CO 80526-8116
http://nahms.aphis.usda.gov
Booth(s): 805

National studies conducted by the National Animal Health Monitoring System (NAHMS) provide essential information on livestock and poultry health and management in the United States. Production types are studied at regular intervals, providing up-to-date information needed to monitor US animal health, support trade decisions, inform the public, and set policy.

Novus International
20 Research Park Dr
Saint Charles, MO 63304-5633
http://www.dairybalance.com
Booth(s): 303, 305

Novus is headquartered in St. Charles, Missouri, and serves customers in more than 80 countries. Novus is an industry leader in animal nutrition and health, and their products include Agrado feed ingredient, Alimet feed supplement, Activate nutritional feed acid, Acidomix preservative premixture, Mintrex organic trace minerals, Santoquin feed preservative, and other ingredients.

PetAg Inc.
255 Keyes Ave
Hampshire, IL 60140-9449
http://www.petag.com
Booth(s): 417

Bospro is an aspergillus mycelium product for ruminants that has demonstrated remarkable effects on increasing rumen function. Fermacto is an aspergillus mycelium product for monogastrics that has demonstrated in poultry increased maturity levels of the gastrointestinal tract of the immature bird. Please stop by our booth for data and samples.

Poultry Protein & Fat Council
1530 Cooledge Rd
Tucker, GA 30084-7303
http://www.poutryegg.org/ppfc/
Booth(s): 1007

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 St.
Hyacinthe, QC J2S 8L2, Canada
http://www.probiotech.com
Booth(s): 418

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 rumen-protected choline for dairy cows to natural appetite enhancers, organic acidifiers, and plant extracts and sweeteners for all species.

QualiTech Inc.
318 Lake Hazeltine Dr
Chaska, MN 55318-1034
http://www.qualitechco.com
Booth(s): 202

QualiTech has been providing innovative solutions to dairy, beef, swine, poultry, equine, and companion animals for over 40 years. Our core technologies and products include SQM organic trace minerals, Feedbuds palatability enhancers, dispersibles, electrolytes, and protected vitamins. The foundation of our technology is over four decades of research conducted across species and under varying conditions with proven results. QualiTech is committed to helping animals, plants and people thrive. For more information about how QualiTech can benefit the animal species you work with, call us at (800) 328-5870, ext. 222, or visit us at www.qualitechco.com.

Rite in the Rain
2614 Pacific Highway E
Tacoma, WA 98424
(253) 522-5000
http://www.RiteintheRain.com
Booth(s): 503

Rite in the Rain is a patented, environmentally responsible, all-weather writing paper that sheds water and enables you to write anywhere, in any weather. From the torrential downpours in the Pacific Northwest to the blistering heat and humidity of a Florida summer day, Rite in the Rain is able to provide users around the world with an effective means with which to write, protect, and keep valuable information. Using a pencil or all-weather pen, Rite in the Rain ensures that your notes survive the rigors of the field, regardless of the conditions. Products include copier paper, field books, notebooks, loose leaf, grid sheets and all-weather pens. Custom printing is also available.

Saf Agri/Lesaffre Feed Additives
7475 W Main St
Milwaukee, WI 53214-1552
http://www.ffa-america.com
Booth(s): 604

Lesaffre Feed Additives provides innovative products produced by the Lesaffre Group, the world’s oldest and largest yeast manufacturer, to livestock feed producers and pet food manufacturers throughout the Americas. The product line includes active dry yeast for pelleted and non-pelleted feeds, inactive dry yeast, mineral yeast, enzymes, and mannan oligosaccharides.

SGS North America
236 32nd Avenue
Brookings, SD 57006
Booth(s): 317

SGS is the world’s leading inspection, verification, testing and certification company. SGS is recognized as the global benchmark for quality and integrity. With more than 70,000 employees, SGS operates a network of over 1,350 offices and laboratories around the world.

SoyBest
PO Box 157
West Point, NE 68788-0157
http://www.soybest.com
Booth(s): 402, 501

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, IA 51459-0068
http://www.soyplus.com
Booth(s): 609

SoyPLUS is the industry leader, consistently delivering dairy bypass protein, unbeatable protein quality, and intestinal digestibility. SoyPLUS contains research proven higher energy and rumen inert fat. SoyChlor has proven itself in effectively balancing DCAD in herd health. SoyChlor’s key ingredient is hydrochloric acid, the most palatable source of chloride available.
Unity Scientific Inc.
117 Old State Rd
Brookfield, CT 06804
Booth(s): 314

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.

USDA–Animal Welfare Information Center
10301 Baltimore Ave, Rm 410
Beltsville, MD 20705-2326
http://www.nal.usda.gov
Booth(s): 605

The USDA is mandated by the Animal Welfare Act to provide information for the improved care and use of animals in research, testing, teaching, and exhibition. Staff at the Animal Welfare Information Center provide a variety of topical publications, literature searches, and training opportunities.

Varied Industries Corporation (Vi-COR)
905 S Carolina Ave, PO Box 1483
Mason City, IA 50401-5813
http://www.vi-cor.com
Booth(s): 514, 516, 613, 615

Vi-COR headquarters, located in Mason City, Iowa, was purchased in 1999 by Mark Holt, President, who changed the company into a world-class manufacturer of fermentation feed. An innovative company with many new discoveries in applied microbiology and fermentation chemistry put Vi-COR first in the market to develop a concentrated and liquid yeast culture and first to identify and guarantee metabolites associated with the benefits of yeast culture. This specialized process developing Celmanax can be seen in the health of your animals, production improvements, and return on investment and profitability. Vi-COR is currently doing business globally in over 40 countries.

Western Yeast Company
305 W Ash St
Chillicothe, IL 61523-1603
http://www.westernyeast.com
Booth(s): 416

Western Yeast Company was founded in 1932 and uses the Newhaven process for making yeast culture. This process makes live yeast cultures the old-fashioned way with no added carriers after double fermentation. Western Yeast Culture is an active, all-natural feed supplement designed specifically to improve animal nutrition.

Zinpro
10400 Viking Drive Suite 240
Eden Prairie, MN 55344
http://www.zinpro.com
Booth(s): 710, 809

Zinpro Performance Minerals are uniquely designed and manufactured to be the highest bioavailable trace mineral products on the market.
2012 Corporate Sponsorship

ASAS Corporate Sustaining Members

Ajinomoto Heartland LLC
Akey
Archer Daniels Midland Co.
ChemGen Corp.
Darling International Inc.
Diamond V Mills Inc.
Elanco Animal Health
Global Pig Farms Inc.
International Ingredient Corp.
Kent Nutrition Group Inc.
Min-Ad Inc.
Nutra-Flo Protein and Biotech Products
Pfizer Animal Health
PIC North America
Pioneer, A DuPont Company
Potash Corp.
Quali Tech Inc.
Trouw Nutrition USA
Varied Industries Corp.
Zinpro Corp.

ADSA Corporate Sustaining Members

Ag Processing Inc.
Akey
Arm & Hammer Animal Nutrition
Biomin USA Inc.
BioZyme Inc.
Darling International Research
Diamond V Mills Inc.
Dupont Nutrition and Health
Elanco Animal Health
Grande Cheese Company
Kent Nutrition Group Inc.
Kraft Foods
Min-Ad Inc.
Novus International
Performance Products Inc.
Pfizer Animal Health
Pioneer, A DuPont Company
Prince AgriProducts Inc.
Quali Tech Inc.
SoyPLUS/SoyChlor
Varied Industries Corp.
Wesfalia Surge Inc.
Zook Nutrition and Management Inc.

Thank you for your support!
KEEPING AN EYE ON A HEALTHY BOTTOM LINE

MULTIMIN® 90 pre-treatment supports an existing well-designed oral feed program to help reduce multiple common – and costly – health problems in dairy cows.

THERE’S NOTHING MORE IMPORTANT THAN TAKING CARE OF WHAT MATTERS MOST

www.multiminUSA.com
1-866-269-6467 | 1-970-372-2302

Dairy Industry

Trial data from CORNELL UNIVERSITY indicates MULTIMIN® 90 pre-treated cows had:

- Decreased somatic cell count (SCC) from 299,660 to 218,964
- Decreased incidence of mastitis:
  - Subclinical mastitis reduced from 10.4% to 8.0% (P=0.005)
  - Clinical mastitis in multiparous cows reduced from 25.4% to 19.7% (P=0.03)
- Decreased incidence of endometritis from 34.2% to 28.6% (P=0.028)
- Decreased incidence of stillbirth from 6.1% to 4.3% (P=0.039)
1. **Hyatt Regency Phoenix**  
   (ADSA HQ)

2. **Sheraton Phoenix Downtown**  
   (ASAS HQ)

3. **Renaissance Phoenix**  
   (CSAS HQ)

4. **Springhill Suites**  
   (Student HQ)
Hyatt Regency Phoenix (ADSA HQ Hotel)

1st Floor

2nd Floor

3rd Floor
Sheraton Phoenix Downtown (ASAS HQ Hotel)

2nd Floor

3rd Floor

MAP KEY

Restrooms

Elevators

Stairs
Thank you to the 2012 Joint Annual Meeting Sponsors!

### Platinum Level
- EAAP
- Elanco Animal Health
- Pancosma
- Pfizer Animal Health

### Gold Level
- Alpharma Animal Health
- American Dairy Science Association
- American Society of Nutrition
- American Society of Animal Science (ASAS)
- ASAS Foundation
- CEV Multimedia
- Dairy Research Institute/Innovation Center for U.S. Dairy
- Diamond V
- United Soybean Board
- USDA-National Institute of Food and Agriculture

### Silver Level
- American Registry of Professional Animal Scientists (ARPAS)
- BASF
- DSM Nutritional Products
- Monsanto Co.
- West Central

### Bronze Level
- Adisseo
- Ajinomoto Heartland Inc.
- Archer Daniels Midland
- Asociacion Argentina de Produccion Animal (AAPA)
- Cargill Animal Nutrition
- Chemgen
- Chinese Association of Animal Science and Veterinary Medicine (CAAV)
- Dupont Nutrition and Health
- Evonik Degussa Corp.
- Hill’s Science Diet
- Kemin Industries
- Lucta
- Procter and Gamble
- Purina
- QualiTech
- SoyBest
- VetAgro
- Western Section ASAS

### Donor Level
- Alltech
- Prince Agri Products Inc.
- Varied Industries Corp. (Vi-COR)
- Zinpro Corp.

### Contributor Level
- Agri-Environment Services Branch (AESB)
- Animal Nutrition Association of Canada (ANAC)
- Hood Packaging Corp.
- JBS United
- Jefo Nutrition Inc.
- NorAmera Bioenergy Corp.
- Northeast ASAS/ADSA
- PCS Sales (USA) Inc.
- College of Agriculture and Bioresources, University of Saskatchewan
- Department of Animal and Poultry Science, University of Saskatchewan
- Western College of Veterinary Medicine, University of Saskatchewan
Schedule of Events

Scheduling and locations are subject to change without notice.
Please check the onsite newsletter each morning for changes.

Monday, July 9 - Friday, July 13

8:00 am – 5:00 pm Genetics course: Genomic Selection in Livestock  .......... Sheraton Phoenix

Saturday, July 14

All day  ASAS Undergraduate Academic Quadrathlon .............. University of Arizona, Tucson
7:00 am – 8:00 am ASAS Membership Committee Meeting .................. Sheraton Phoenix, South Mountain
7:30 am – 5:00 pm ADSA Board of Directors Meeting ..................... Hyatt Regency Phoenix, Sundance
8:00 am – 9:00 am ASAS New Board Orientation .......................... Sheraton Phoenix, South Mountain
9:30 am – 5:30 pm ASAS Board of Directors Meeting  ..................... Sheraton Phoenix, Estrella
1:00 pm – 5:00 pm ADSA-SAD-GSD Student Dairy Farm Tour ............... Springhill Suites Lobby
3:00 pm – 5:00 pm Registration open (preregistered, badge and material
pick-up only) ............................................ Convention Center, North Hall AB Lobbies
3:00 pm – 5:00 pm ARPAS Executive Committee Meeting ............... Location TBD
5:00 pm – 8:00 pm ARPAS Executive Committee Dinner ................... Location TBD
7:00 pm ADSA-SAD Student Informal Mixer .......................... Majerle’s Sports Grill, 24 N 2nd St

Sunday, July 15

All day  ASAS Undergraduate Academic Quadrathlon .............. Sheraton Phoenix
7:00 am – 7:00 pm Registration open ...................................... Convention Center, North Hall AB Lobbies
7:30 am – 10:00 am ADSA New Board Orientation ........................ Hyatt Regency Phoenix, Cassidy
8:00 am – 12:30 pm ASAS Board of Directors Meeting ................... Sheraton Phoenix, Estrella
8:00 am – 5:00 pm ARPAS Governing Board Meeting ................... Hyatt Regency Phoenix, Ellis East
8:00 am – 5:00 pm Triennial Reproduction Symposium .................... Convention Center, 121AB
8:00 am – 5:00 pm American Society for Nutrition (ASN), ASAS, and ADSA
Pre-conference Symposium ........................................... Convention Center, 222AB and 222C
10:00 am – 6:00 pm Exhibit Set Up ................................. Convention Center, North Hall AB
10:00 am – 6:00 pm Student Dairy Clubs Set Up Exhibits .................... Convention Center, North Hall AB
10:00 am – 11:00 am ADSA-SAD Officers and Advisor Meeting .............. Convention Center, 231B
11:00 am – 12:00 pm ADSA-SAD Quiz Bowl Officials Meeting ............. Convention Center, 231A
11:30 am – 12:00 pm ADSA-SAD Quiz Bowl Seating Test .................... Convention Center, 224AB
12:00 pm – 5:00 pm Hospitality Lounge open ................................. Convention Center, 221C
12:00 pm – 1:00 pm ADSA-SAD Student Midday Mixer ..................... Convention Center, 224AB
12:00 pm – 1:00 pm ADSA JDS Editors and Journal Management
Committee Lunch ........................................ Hyatt Regency Phoenix, Ellis West
1:00 pm – 3:00 pm 2012 and 2013 Program Committee Meeting ........... Convention Center, 122C
1:00 pm – 5:00 pm ADSA Journal Management Committee Meeting ........ Hyatt Regency Phoenix, Ellis West
1:00 pm – 5:00 pm ADSA-SAD Quiz Bowl Seating/Preliminary Rounds ......... Convention Center, 231A and 231C
1:00 pm – 6:00 pm CSAS Executive Committee Meeting ..................... Renaissance Phoenix, Salon 1
2:00 pm – 3:00 pm ADSA Production Division Council Meeting .............. Convention Center, 121C
2:00 pm – 4:00 pm ADSA Foundation Board of Trustees Meeting ........ Hyatt Regency Phoenix, Cassidy
2:00 pm – 5:00 pm ADSA Production Division Nominating Committee .......... Convention Center, 121C
3:00 pm – 5:00 pm Late-Breaking Original Research Session .............. Convention Center, 122AB
3:00 pm – 6:00 pm ASAS Department Heads Meeting .................... Sheraton Phoenix, Maryvale A
3:30 pm – 6:30 pm WSASAS Executive Board Meeting ...................... Sheraton Phoenix, Estrella
4:30 pm – 5:30 pm ADSA-South American Branch (SAB) Discussion Group
(open to all) ............................................. Convention Center, 122C
5:00 pm – 6:00 pm ADSA Dairy Foods Division Council Meeting .............. Convention Center, 121C
5:30 pm – 6:00 pm ADSA-SAD Quiz Bowl Final Round ........................ Convention Center, 231A
6:00 pm – 6:45 pm  
ADSA Graduate Student Division Business Meeting and Open Forum .................................................... Convention Center, 231C

7:00 pm – 8:15 pm  
JAM Opening Session .................................................... Convention Center, Symphony Hall

8:15 pm – 10:00 pm  
JAM Opening Reception. ..................................................... Convention Center, North 120A-D

**Monday, July 16**

All day  
ASAS Undergraduate Academic Quadrathlon .......................... Sheraton Phoenix

6:30 am – 8:00 am  
ADSA Dairy Specialists/Dairy-Related Participants Breakfast ..................................................... Hyatt Regency Phoenix, Remington

6:30 am – 5:15 pm  
Registration open .......................................................... Convention Center, North Hall AB Lobbies

7:00 am – 8:15 am  
ADSA-SAD Exhibit Set-Up. ..................................................... Convention Center, North Hall AB

7:30 am – 9:30 am  
Poster Presentations. .......................................................... Convention Center, North Hall AB

8:00 am – 9:00 am  
John’s Disease Interest Group ............................................. Convention Center, 230

8:00 am – 5:00 pm  
Commercial Exhibits and ADSA-SAD Exhibits open ..................... Convention Center, North Hall AB

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

8:00 am – 5:00 pm  
Hospitality Lounge open ..................................................... Convention Center, 221C

8:20 am – 5:00 pm  
WSASAS Graduate Student Competition ................................... Convention Center, 227AB

8:30 am – 9:15 am  
ADSA-SAD Business Meeting ................................................ Convention Center, 231A

9:30 am – 10:00 am  
ADSA-SAD Judging of Yearbooks, Scrapbooks, Annual Reports .................................................... Convention Center, 230

9:30 am – 10:30 am  
ADSA-SAD Interviews for Outstanding Student and Advisor Awards ..................................................... Convention Center, 231B

9:30 am – 10:30 am  
Discover Conference Steering Committee .................................. Convention Center, 229B

9:30 am – 10:45 am  
ADSA-SAD Activities Symposium ............................................ Convention Center, 231A

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

10:30 am – 12:30 pm  
ARPAE Exam. ................................................................. Convention Center, 130

11:00 am – 5:00 pm  
ADSA-SAD Undergraduate Paper Presentations ........................................ Convention Center, 231A and 231C

12:30 pm – 2:00 pm  
ADSA Graduate Student Division Career Insights Lunch. .............. Convention Center, 229B

12:30 pm – 2:00 pm  
ASAS Past Presidents’ Lunch ................................................ Sheraton Phoenix, Valley of the Sun D

12:30 pm – 2:00 pm  
ASAS Past Presidents’ Lunch ................................................ Hyatt Regency Phoenix, Cassidy

12:30 pm – 2:00 pm  
ASAS Publications Committee Luncheon ................................ Sheraton Phoenix, Valley of the Sun E

12:30 pm – 2:00 pm  
ASAS Undergraduate Pizza Party ............................................ Convention Center, 229A

12:30 pm – 2:00 pm  
American College of Animal Science Annual Meeting .................. Convention Center, 130

2:00 pm – 4:00 pm  
ARPAE Exam. ................................................................. Convention Center, 130

2:00 pm – 5:30 pm  
Southern Branch ADSA Symposium and Business Meeting .............. Convention Center, 225AB

3:00 pm – 4:00 pm  
ASAS Talks Change ............................................................ Convention Center, 129AB

5:00 pm – 6:00 pm  
FASS Science Policy Program Update ....................................... Convention Center, 127C

5:00 pm – 6:00 pm  
USDA-ARS Staff Update Session ............................................. Convention Center, 222C

5:00 pm – 7:00 pm  
Informal Calf Gathering ....................................................... Hyatt Regency Phoenix, Phoenix

5:30 pm – 7:00 pm  
ASAS Award Winners Dinner and Photo Session .......................... Sheraton Phoenix, Deer Valley

6:30 pm  
ADSA-SAD Student Mixer: Pool Party ....................................... Springhill Suites, Poolside

6:30 pm – 7:00 pm  
ASAS President’s Picks ....................................................... Sheraton Phoenix, Valley of the Sun foyer

7:00 pm – 8:30 pm  
ASAS Awards Program ........................................................ Sheraton Phoenix, Valley of the Sun ABC

8:00 pm – 11:00 pm  
Iowa State Reception ........................................................ Sheraton Phoenix, Paradise Valley

8:30 pm  
ASAS Awards Celebration .................................................... Sheraton Phoenix, Valley of the Sun DE

8:30 pm  
ASAS Undergraduate Academic Quadrathlon Finals ........................ Sheraton Phoenix

9:00 pm  
ASAS Graduate Student Mixer ................................................ Crescent Ballroom, 308 N. 2nd Ave., Phoenix

**Tuesday, July 17**

6:30 am – 8:00 am  
Penn State Breakfast .......................................................... Hyatt Regency Phoenix, Remington

6:30 am – 8:00 am  
University of Illinois Breakfast ................................................ Sheraton Phoenix, Maryvale A
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am – 8:00 am</td>
<td>Kentucky Breakfast</td>
<td>Sheraton Phoenix</td>
</tr>
<tr>
<td>6:30 am – 8:00 am</td>
<td>JDS Editorial Board Breakfast/Meeting</td>
<td>Hyatt Regency Phoenix, Curtis AB</td>
</tr>
<tr>
<td>7:00 am – 5:15 pm</td>
<td>Registration open</td>
<td>Convention Center, North Hall AB Lobbies</td>
</tr>
<tr>
<td>7:30 am – 9:30 am</td>
<td>Poster Presentations</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 9:00 am</td>
<td>ADSA Spokesperson/Media Training</td>
<td>Convention Center, 232A</td>
</tr>
<tr>
<td>8:00 am – 9:00 am</td>
<td>ASAS Investment Committee Meeting</td>
<td>Sheraton Phoenix, South Mountain</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Commercial Exhibits and ADSA-SAD Exhibits open</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Job Resource Center open</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Hospitality Lounge open</td>
<td>Convention Center, 221C</td>
</tr>
<tr>
<td>8:30 am – 9:30 am</td>
<td>ADSA-SAD Business Meeting—Elec. of Officers</td>
<td>Convention Center, 231A</td>
</tr>
<tr>
<td>9:00 am – 1:00 pm</td>
<td>Spouse Event: Phoenix Architecture Tour</td>
<td>Meet in Hyatt Regency Lobby</td>
</tr>
<tr>
<td>9:30 am – 11:00 am</td>
<td>ADSA-SAD Career Roundtable</td>
<td>Convention Center, 232BC</td>
</tr>
<tr>
<td>9:30 am – 11:30 am</td>
<td>ASAS Foundation Board of Trustees Meeting</td>
<td>Sheraton Phoenix, South Mountain</td>
</tr>
<tr>
<td>9:30 am – 12:30 pm</td>
<td>ARPS Symposium</td>
<td>Convention Center, 125AB</td>
</tr>
<tr>
<td>9:30 am – 5:00 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
</tr>
<tr>
<td>11:30 am – 12:30 pm</td>
<td>ADSA Production Division Business Meeting</td>
<td>Convention Center, 231A</td>
</tr>
<tr>
<td>11:30 am – 12:30 pm</td>
<td>ADSA Dairy Foods Division Business Meeting</td>
<td>Convention Center, 121C</td>
</tr>
<tr>
<td>11:45 am – 2:00 pm</td>
<td>ADSA-SAD Awards Lunch</td>
<td>Convention Center, 244AB</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ASAS Foundation Heritage Lunch</td>
<td>Convention Center, 229B</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ADSA DF Division Milk Proteins and Enzyme Committee</td>
<td>Convention Center, 231B</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ARPS Business Meeting</td>
<td>Convention Center, 125AB</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ARPS Division Program Planning Lunch</td>
<td>Convention Center, 232A</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ASAS Graduate Student Lunch and Learn</td>
<td>Convention Center, 229A</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>CSAS Annual General Meeting and Lunch</td>
<td>Renaissance Phoenix, Salon 8</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td>ADSA-SAD Award and Club Photos</td>
<td>Convention Center, 232BC</td>
</tr>
<tr>
<td>2:00 pm – 4:00 pm</td>
<td>ARPS Exam.</td>
<td>Convention Center, 130</td>
</tr>
<tr>
<td>2:00 pm – 6:00 pm</td>
<td>NE ASAS/ADSA Symposium, Business Meeting, Reception &amp; Awards</td>
<td>Convention Center, 122C</td>
</tr>
<tr>
<td>2:30 pm – 3:30 pm</td>
<td>ADSA-SAD Committee Meeting – Old and New Officers and Advisors</td>
<td>Convention Center, 231B</td>
</tr>
<tr>
<td>3:00 pm – 4:30 pm</td>
<td>ASAS Graduate Student Division Dairy Tales</td>
<td>Convention Center, 231A</td>
</tr>
<tr>
<td>4:00 pm – 5:00 pm</td>
<td>ASAS JAS/Animal Frontiers Editorial Meeting, Open Forum, and Animal Frontiers Birthday Celebration</td>
<td>Convention Center, 231C</td>
</tr>
<tr>
<td>5:00 pm – 6:00 pm</td>
<td>AnimalSmart.org Launch</td>
<td>Convention Center, 222C</td>
</tr>
<tr>
<td>5:00 pm – 6:00 pm</td>
<td>AMPA Meeting</td>
<td>Convention Center, 127C</td>
</tr>
<tr>
<td>5:00 pm – 6:30 pm</td>
<td>ADSA Award Donor Dinner</td>
<td>Hyatt Regency Phoenix, 2nd floor Atrium</td>
</tr>
<tr>
<td>7:00 pm – 8:00 pm</td>
<td>ADSA Awards Program</td>
<td>Hyatt Regency Phoenix, Regency Ballroom</td>
</tr>
<tr>
<td>8:15 pm – 9:30 pm</td>
<td>JAM Ice Cream Social, sponsored by ADSA</td>
<td>Hyatt Regency Phoenix, 2nd floor Atrium</td>
</tr>
<tr>
<td>9:00 pm – 12:00 am</td>
<td>ADSA Graduate Student Division Mixer</td>
<td>Brick, 455 North 3rd Street, Phoenix</td>
</tr>
</tbody>
</table>

**Wednesday, July 18**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30 am – 8:00 am</td>
<td>Purdue University Breakfast</td>
<td>Sheraton Phoenix</td>
</tr>
<tr>
<td>7:00 am – 5:15 pm</td>
<td>Registration open</td>
<td>Convention Center, North Hall AB Lobbies</td>
</tr>
<tr>
<td>7:30 am – 9:30 am</td>
<td>Poster Presentations</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 9:00 am</td>
<td>S-PAC Users Meeting</td>
<td>Convention Center, 232A</td>
</tr>
<tr>
<td>8:00 am – 2:00 pm</td>
<td>Job Resource Center open</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 2:00 pm</td>
<td>Commercial Exhibits open</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Hospitality Lounge open</td>
<td>Convention Center, 221C</td>
</tr>
<tr>
<td>9:30 am – 10:30 am</td>
<td>ASAS Business Meeting</td>
<td>Convention Center, 225AB</td>
</tr>
<tr>
<td>9:30 am – 10:30 am</td>
<td>ADSA Business Meeting</td>
<td>Convention Center, 223</td>
</tr>
<tr>
<td>10:30 am – 12:30 pm</td>
<td>ARPS Exam.</td>
<td>Convention Center, 130</td>
</tr>
<tr>
<td>10:30 am – 5:00 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
</tr>
<tr>
<td>12:30 pm – 2:00 pm</td>
<td>WSASAS Graduate Student Lunch and Learn</td>
<td>Convention Center, 229A</td>
</tr>
</tbody>
</table>
Thursday, July 19

7:30 am – 9:30 am  WSASAS Business Meeting ........................................ Sheraton Phoenix, South Mountain
8:00 am – 1:00 pm  Registration open ........................................ Convention Center, North Hall AB Lobbies
8:30 am – 11:30 am  Scientific Sessions ........................................ Convention Center
8:30 am – 11:30 am  Breaking into NSF: Buzz words, key phrases, and what the National Science Foundation wants in a grant ........ Convention Center, 127C
10:00 am – 12:00 pm  WSASAS Executive Board Post-Conference Meeting ......... Sheraton Phoenix, Maryvale A
12:00 pm – 5:00 pm  NIFA-AFRI Animal Nutrition, Growth, and Lactation Awardee Meeting ........................................ Sheraton Phoenix, South Mountain

Friday, July 20

8:00 am – 5:00 pm  W1010 Meeting ............................................ Sheraton Phoenix, Maryvale A
8:00 am – 5:00 pm  NIFA-AFRI Animal Nutrition, Growth, and Lactation Awardee Meeting ........................................ Sheraton Phoenix, South Mountain

ADSA Student Affiliate Division Program
SAD Special Events

Saturday, July 14

ADSA SAD-GSD Student Dairy Farm Tour
Saturday, July 14
1:00 – 5:00 pm
Bus departs from Springhill Suites
Departing from the lobby of the SAD hotel, we’ll go via motor coach to a Phoenix area dairy. Ticket price includes transportation and refreshments.

SAD Student Informal Mixer: Majerle’s Sports Grill
Saturday, July 14
7:00 pm
Meet in Springhill Suites lobby or at Majerle’s, 24 N. 2nd Street, Phoenix
Meet in the lobby of Springhill Suites at 6:30 pm or at the restaurant at 7:00 pm. Jump start the week with good food, good music, and good friends at the Saturday student mixer. Ticket price includes dinner.

Sunday, July 15

SAD Undergraduate Midday Mixer and Lunch
12:00 – 1:00 pm
Convention Center, 224AB
Join your fellow dairy clubs for a fun hour of getting reacquainted and making new friends, and get to know your 2012–2013 officer candidates. Lunch includes southwestern fare and drinks. Registration is limited to undergraduate students and advisors.
SAD-Dairy Quiz Bowl Final Round
5:30 – 6:00 pm
Convention Center, 231A
On Sunday, university teams from across North America will compete in the ADSA Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division (SAD) invites you to join them for the excitement of the final round of competition as the top two schools go head-to-head for the title of 2012 Dairy Quiz Bowl Winning Team.

Monday, July 16

ADSA-SAD Student Mixer
6:30 pm
Poolside, Springhill Suites
802 East Van Buren Street
Celebrate a great week at ADSA! Rock the night away with good music, good food and good friends, all poolside on a balmy Arizona night – it doesn’t get any better than this! Ticket price includes soft drinks and snacks. Don’t miss this perennial highlight of the meeting!

Tuesday, July 17

SAD Career Roundtable
9:30 – 11:00 am
Convention Center, 232BC
Students will have the opportunity to visit with industry professionals representing various facets of the animal agriculture industry. They will learn about careers in the industry, get useful tips on planning for their careers, and much more. Students are encouraged to dress professionally (business casual or better) and bring several copies of their resumes. Students should also plan to visit industry reps in the exhibit hall for information about internships and job opportunities.

SAD Awards Lunch
11:45 am – 2:00 pm
Convention Center, 224AB
Plan to attend this year’s SAD awards lunch. The afternoon will be capped with the presentation of student awards and announcement of new SAD officers. Both students and professionals are encouraged to attend. This is a wonderful chance to get to know the next generation of the dairy industry.

SAD Schedule of Events
Scheduling and location are subject to change without notice.
Consult the meeting website (http://www.adsa.org/sad.asp) for the latest program information.

Saturday, July 14

1:00 – 5:00 pm ADSA SAD-GSD Student Dairy Tour: Shamrock Farms ........ Meet in Springhill Suites lobby
3:00 pm – 5:00 pm Registration Open (preregistered, badge and material pick-up only) ........................................ Convention Center
7:00 pm SAD Informal Gathering ........................................ Majerle’s Sports Grill, 24 N 2nd Street

Sunday, July 15

7:00 am – 7:00 pm Registration Open ........................................ Convention Center, North Hall AB lobbies
10:00am – 6:00 pm SAD Dairy Clubs Set Up Exhibits .......................... Convention Center, North Hall AB
10:00 am – 11:00 am SAD Officers and Advisor Meeting ......................... Convention Center, 231B
11:00 am – 12:00 pm Dairy Quiz Bowl Officials Meeting ......................... Convention Center, 231A
11:30 am – 12:00 pm Dairy Quiz Bowl Seating Test ............................ Convention Center, 224AB
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 pm – 1:00 pm</td>
<td>SAD Midday Mixer &amp; Pizza Party</td>
<td>Convention Center, 224AB</td>
</tr>
<tr>
<td>1:00 pm – 5:00 pm</td>
<td>Dairy Quiz Bowl Preliminary Rounds</td>
<td>Convention Center, 231A and 231C</td>
</tr>
<tr>
<td>5:30 pm – 6:00 pm</td>
<td>Dairy Quiz Bowl Final Round</td>
<td>Convention Center, 231A</td>
</tr>
<tr>
<td>7:00 pm</td>
<td>ADSA Opening Session &amp; Reception</td>
<td>Convention Center, Symphony Hall and North 120A-D</td>
</tr>
</tbody>
</table>

### Monday, July 16

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 am - 8:15 am</td>
<td>SAD Dairy Clubs Set Up Exhibits</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>7:30 am – 9:30 am</td>
<td>Poster Presentations</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 6:00 pm</td>
<td>Commercial Exhibits and ADSA-SAD Exhibits Open</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:30 am – 9:15 am</td>
<td>SAD Business Meeting</td>
<td>Convention Center, 231A</td>
</tr>
<tr>
<td>9:30 am – 10:30 am</td>
<td>SAD Judging of Yearbooks, Scrapbooks and Annual Reports</td>
<td>Convention Center, 230</td>
</tr>
<tr>
<td>9:30 am – 10:30 am</td>
<td>SAD Interviews for Outstanding Student and Advisor Awards</td>
<td>Convention Center, 231B</td>
</tr>
<tr>
<td>9:30 am – 10:45 am</td>
<td>SAD Activities Symposium</td>
<td>Convention Center, 231A</td>
</tr>
<tr>
<td>9:30 am – 5:00 pm</td>
<td>Scientific Sessions</td>
<td>Convention Center</td>
</tr>
<tr>
<td>11:00 am – 5:00 pm</td>
<td>SAD Undergraduate Paper Presentations</td>
<td>Convention Center, 231A and 231C</td>
</tr>
<tr>
<td>6:30 pm</td>
<td>SAD Mixer</td>
<td>Springhill Suites, Poolside</td>
</tr>
</tbody>
</table>

### Tuesday, July 17

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 am – 9:30 am</td>
<td>Poster Presentations</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:00 am – 5:00 pm</td>
<td>Commercial Exhibits and ADSA-SAD Exhibits Open</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>8:30 am – 9:30 am</td>
<td>SAD Business Meeting – Election of Officers</td>
<td>Convention Center, 231A</td>
</tr>
<tr>
<td>9:30 am – 11:00 am</td>
<td>SAD Career Roundtable</td>
<td>Convention Center, 232BC</td>
</tr>
<tr>
<td>11:45 pm – 2:00 pm</td>
<td>SAD Awards Luncheon</td>
<td>Convention Center, 224AB</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td>SAD Award &amp; Club Photos</td>
<td>Convention Center, 232BC</td>
</tr>
<tr>
<td>2:00 pm – 5:00 pm</td>
<td>Tear-down SAD Exhibits</td>
<td>Convention Center, North Hall AB</td>
</tr>
<tr>
<td>2:30 pm – 3:30 pm</td>
<td>SAD Committee Meeting – Old and New Officers &amp; Advisors</td>
<td>Convention Center, 231B</td>
</tr>
<tr>
<td>3:00 pm – 5:00 pm</td>
<td>Open to attend Scientific Sessions</td>
<td>Convention Center</td>
</tr>
<tr>
<td>7:00 pm – 8:00 pm</td>
<td>ADSA Awards Ceremony</td>
<td>Hyatt Regency Phoenix, Regency Ballroom</td>
</tr>
<tr>
<td>8:15 pm – 9:30 pm</td>
<td>Ice Cream Social</td>
<td>Hyatt Regency Phoenix, 2nd floor Atrium</td>
</tr>
</tbody>
</table>
ADSA Dairy Foods Division Schedule of Events

All rooms are at the Convention Center, unless otherwise noted.
Scheduling and location are subject to change without notice. Please check the onsite newsletter each morning for changes.

Sunday, July 15

5:00 pm – 6:00 pm ADSA Dairy Foods Division Council Meeting, 121C

Monday, July 16

7:30 am – 9:30 am Posters: Dairy Foods, Exhibit Hall
7:30 am – 9:30 am Posters: Graduate Student Competition: ADSA Dairy Foods Poster Competition, Exhibit Hall
9:30 am – 12:30 pm Dairy Foods: Cheese and products processing, 121C
9:30 am – 12:30 pm Graduate Student Competition: ADSA Dairy Foods Oral Competition, 122C
11:00 am – 12:30 pm ADSA-SAD Dairy Foods Undergraduate Competition, 231A
2:00 pm – 5:00 pm Symposium: Dairy Foods: Maximizing value of milk proteins – Manufacture, applications and market opportunities for milk protein concentrate, 121AB

Tuesday, July 17

7:30 am – 9:30 am Posters: Dairy Foods: Cheese and dairy products, Exhibit Hall
11:30 am – 12:30 pm ADSA Dairy Foods Division Business Meeting, 121C
12:30 pm – 2:00 pm ADSA DF Division Program Planning Lunch, 233A
12:30 pm – 2:00 pm ADSA DF Division Milk Protein and Enzyme Committee, 231B
2:00 pm – 5:00 pm Symposium: Dairy Foods: Bioactive Components in Milk and Dairy Products: Recent International Perspectives and Progress in Different Dairy Species, 122AB

Wednesday, July 18

7:30 am – 9:30 am Posters: Dairy Foods: Microbiology and chemistry, Exhibit Hall
9:30 am – 12:30 pm Dairy Foods: Microbiology and chemistry, 122AB
9:30 am – 12:30 pm Dairy Foods: Physicochemical properties, 122C
2:00 pm – 5:00 pm Symposium: Dairy Foods: Advances in yogurt manufacture and product functionalities, 122AB
2012 ASAS National Academic Quadrathlon

July 13

Teams meet in Tucson, Arizona. University of Arizona will provide dinner and evening entertainment.

July 14

Lab practicum and written exam competitions. Teams meet at University of Arizona Livestock Facilities.

July 15

Oral presentations and Western Section Quiz Bowl. Teams meet on second floor of Sheraton Phoenix Downtown.

July 16

Morning: National Quiz Bowl Competition. Meet on second floor of Sheraton Phoenix Downtown.
Afternoon: Student pizza lunch organized by the ASAS Graduate Student Directors.
Evening: National Quiz Bowl Finals at Sheraton Phoenix after ASAS Awards Ceremony.

Workshop on Genomic Selection in Livestock

July 9-13, 2012

Sheraton Hotel, Phoenix, AZ

Course instructors: Dorian Garrick, Rohan Fernando, and Jack Dekkers (Iowa State University).

The purpose of the course is to provide graduate students and professionals in animal breeding and genetics with the basic theory and practical application of using whole genome SNP data for genetic evaluation and genome-wide association studies, using mixed linear and Bayesian methods. This course contributes to a graduate-level distance delivery curriculum in animal breeding and genetics, which is being developed with funding from the USDA-NIFA Higher Education Challenge Grants Program. Over the next three years, a consortium of seven universities (Virginia Tech, Colorado State, Iowa State, North Carolina State, and Kansas State Universities, and Universities of Nebraska-Lincoln and Georgia) will be engaged in the design and delivery of a series of asynchronous online courses, and several summer short-courses, focused on the integration of quantitative and molecular aspects of genetics. For information about the curriculum, contact Ron Lewis (rmlewis@vt.edu) or visit the website: http://jtmtg.org/2012/genomic.asp
# Scientific Program Table of Contents

*Scheduling and locations are subject to change without notice. Please check the onsite newsletter each morning for changes*

## Sunday, July 15

### SYMPOSIA AND ORAL SESSIONS
- ASN-ADSA-ASAS Preconference: Regulation of Nutritional Intake and Metabolism ......................................................... 49
- Triennial Reproduction Symposium: Impediments to Fertility in Domestic Animals .......................................................... 49

## Monday, July 16

### POSTER PRESENTATIONS
- Animal Health I ................................................................................................................................................................................................... 51
- Breeding and Genetics: Fertility and Early-Life Traits .......................................................................................................................... 52
- Companion Animals ..................................................................................................................................................................................... 53
- Dairy Foods .......................................................................................................................................................................................................... 54
- Forages and Pastures I ...................................................................................................................................................................................... 55
- Graduate Student Competition: ADSA Dairy Foods Division Graduate Poster Competition ......................................................... 57
- Graduate Student Competition: ADSA Production Division Poster Competition, MS Division .................................................. 57
- Graduate Student Competition: ADSA Production Division Poster Competition, PhD Division ................................................ 58
- Growth and Development I ........................................................................................................................................................................... 59
- Lactation Biology I ............................................................................................................................................................................................. 60
- Meat Science and Muscle Biology I ............................................................................................................................................................. 60
- Nonruminant Nutrition: Amino Acids and Energy ................................................................................................................................. 62
- Nonruminant Nutrition: Enzymes ................................................................................................................................................................. 62
- Nonruminant Nutrition: Weanling Pig ........................................................................................................................................................ 63
- Physiology and Endocrinology I .................................................................................................................................................................... 64
- Production, Management and the Environment: Dairy I .............................................................................................................................. 66
- Ruminant Nutrition: Beef I .............................................................................................................................................................................. 68
- Ruminant Nutrition: Dairy I ........................................................................................................................................................................... 70
- Ruminant Nutrition: Dairy: Calves and Heifers ................................................................................................................................. 70
- Ruminant Nutrition: Dairy: Feed Additives I ............................................................................................................................................ 72
- Ruminant Nutrition: General I ....................................................................................................................................................................... 73
- Ruminant Nutrition: Rumen Function and Digestion ............................................................................................................................. 75
- Small Ruminant: Nutrition ........................................................................................................................................................................... 76
- Swine Species I ............................................................................................................................................................................................. 78
<table>
<thead>
<tr>
<th>Event</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYMPOSIA AND ORAL SESSIONS</td>
<td></td>
</tr>
<tr>
<td>Graduate Student Competition: ASAS Western Section Graduate Student Paper Competition</td>
<td>79</td>
</tr>
<tr>
<td>Animal Health I</td>
<td>81</td>
</tr>
<tr>
<td>Breeding and Genetics Symposium: Systems Biology in Animal Breeding: Identifying relationships among markers, genes, and phenotypes</td>
<td>82</td>
</tr>
<tr>
<td>Companion Animals Symposium: Nutrition Special Needs—The relationship between novel ingredients, environment and gene expression</td>
<td>82</td>
</tr>
<tr>
<td>Dairy Foods: Cheese and Products Processing</td>
<td>83</td>
</tr>
<tr>
<td>Forages and Pastures Symposium: Impact of Fungal-Endophytes on Pasture and Environmental Sustainability</td>
<td>83</td>
</tr>
<tr>
<td>Graduate Student Competition: ADSA Dairy Foods Oral Competition</td>
<td>84</td>
</tr>
<tr>
<td>Graduate Student Competition: ADSA Production Division Graduate Oral Competition—PhD Students</td>
<td>84</td>
</tr>
<tr>
<td>Graduate Student Competition: ADSA/ASAS Northeast Graduate Paper Competition</td>
<td>85</td>
</tr>
<tr>
<td>Graduate Student Competition: CSAS Student Competition II</td>
<td>86</td>
</tr>
<tr>
<td>Growth and Development</td>
<td>87</td>
</tr>
<tr>
<td>International Animal Agriculture Symposium: Increasing Undergraduate and Graduate Student Training in</td>
<td>88</td>
</tr>
<tr>
<td>International Animal Agriculture</td>
<td></td>
</tr>
<tr>
<td>Lactation Biology I</td>
<td>88</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Minerals and Vitamins</td>
<td>89</td>
</tr>
<tr>
<td>Ruminant Nutrition: Beef Production I</td>
<td>90</td>
</tr>
<tr>
<td>Ruminant Nutrition: Dairy Production I</td>
<td>91</td>
</tr>
<tr>
<td>Ruminant Nutrition I</td>
<td>91</td>
</tr>
<tr>
<td>ADSA-SAD Undergraduate Competition: Dairy Foods</td>
<td>92</td>
</tr>
<tr>
<td>Physiology and Endocrinology: Estrous Cycle Manipulation - Dairy</td>
<td>92</td>
</tr>
<tr>
<td>Graduate Student Competition: ADSA Southern Section (Graduate)</td>
<td>93</td>
</tr>
<tr>
<td>ADSA-SAD Undergraduate Competition: Dairy Production</td>
<td>93</td>
</tr>
<tr>
<td>ADSA Southern Section Symposium: Meeting the Nutrient Requirements of Dairy Cattle During Heat Stress</td>
<td>94</td>
</tr>
<tr>
<td>ADSA-SAD Undergraduate Competition: Original Research</td>
<td>94</td>
</tr>
<tr>
<td>Animal Behavior and Well-Being: Use of Animal Behavior to Assess Animal Welfare</td>
<td>95</td>
</tr>
<tr>
<td>Animal Health II</td>
<td>96</td>
</tr>
<tr>
<td>Breeding and Genetics: Dairy Cattle Breeding I—Genetic improvement of animal health</td>
<td>97</td>
</tr>
<tr>
<td>Companion Animals Symposium: Companion Animal Reproduction: To breed or not to breed?</td>
<td>98</td>
</tr>
<tr>
<td>Dairy Foods Symposium: Maximizing Value of Milk Proteins—Manufacture, applications and market opportunities for milk protein concentrate</td>
<td>98</td>
</tr>
<tr>
<td>Graduate Student Competition: ADSA Production Division Graduate Student Poster Competition—MS Division</td>
<td>99</td>
</tr>
<tr>
<td>Graduate Student Competition: CSAS Student Competition II</td>
<td>99</td>
</tr>
<tr>
<td>Nonruminant Nutrition Symposium: Swine NRC</td>
<td>99</td>
</tr>
<tr>
<td>Physiology and Endocrinology: Estrous Cycle Manipulation—Beef</td>
<td>100</td>
</tr>
<tr>
<td>Production, Management and the Environment: Beef, Sheep, Swine</td>
<td>101</td>
</tr>
<tr>
<td>Ruminant Nutrition: Beef</td>
<td>102</td>
</tr>
<tr>
<td>Ruminant Nutrition: Dairy Production II</td>
<td>103</td>
</tr>
<tr>
<td>WSASAS Symposium: Beef—Beef production in arid environments</td>
<td>104</td>
</tr>
</tbody>
</table>
**POSTER PRESENTATIONS**

Animal Behavior and Well-Being: Physiology Emphasis ................................................................. 105
Animal Health II .......................................................................................................................... 105
Breeding and Genetics: Applications and Methods in Animal Breeding........................................ 107
Dairy Foods: Cheese and Dairy Products ...................................................................................... 109
Extension Education .................................................................................................................. 110
Food Safety: Food Safety Advances ............................................................................................. 110
Forage and Pastures II ................................................................................................................. 111
Growth and Development II ....................................................................................................... 113
Lactation Biology II ...................................................................................................................... 114
Meat Science and Muscle Biology II ............................................................................................ 114
Nonruminant Nutrition: Feed Ingredients .................................................................................... 115
Nonruminant Nutrition: Health .................................................................................................. 116
Physiology and Endocrinology II ............................................................................................... 117
Production, Management and the Environment: Beef, Swine, Sheep ............................................ 119
Ruminant Nutrition: Beef: Co-products ...................................................................................... 121
Ruminant Nutrition: Dairy II ........................................................................................................ 122
Ruminant Nutrition: Dairy: Feed additives II .............................................................................. 124
Ruminant Nutrition: Feeds ........................................................................................................... 125
Ruminant Nutrition: General II .................................................................................................... 126
Ruminant Nutrition: Young Stock ................................................................................................ 129
Small Ruminant: Production ....................................................................................................... 130
Swine Species II ........................................................................................................................... 131
Teaching/Undergraduate and Graduate Education ........................................................................ 132

**SYMPOSIA AND ORAL SESSIONS**

ADSA Foundation Scholar Lecture: Production ............................................................................. 133
ADSA Multidisciplinary and International Leadership Keynote (MILK) Symposium: How Dairy Exporters Can Provide Food Security ..................................................................................... 133
Animal Health III ......................................................................................................................... 133
ARPAS Symposium: Feed Efficiency: Opportunities for improvement, economics, and integration with environmental sustainability ................................................................. 134
Bioethics Symposium: Bioethical Challenges in Education: New challenges and opportunities ................................................. 135
Breeding and Genetics: Dairy Cattle Breeding II—Applied molecular biology and genomics 135
CSAS Symposium: Are We Experiencing a Paradigm Shift in How We Feed Livestock As Industrial Agriculture Evolves in the 21st Century? ................................................................. 136
Extension Education I .................................................................................................................. 137
Forages and Pastures I ................................................................................................................ 137
Horse Species I ............................................................................................................................. 138
Wednesday, July 18

POSTER PRESENTATIONS

Animal Behavior and Well-Being: Behavior Emphasis ................................................................. 159
Animal Health III ......................................................................................................................... 160
Beef Species ............................................................................................................................... 161
Breeding and Genetics: Molecular Biology and Genomics ................................................................. 162
Dairy Foods: Microbiology and Dairy Chemistry .............................................................................. 164
Forages and Pastures III ..................................................................................................................... 165
Growth and Development III ............................................................................................................. 167
Horse Species ..................................................................................................................................... 167
Lactation Biology III ............................................................................................................................ 168
Nonruminant Nutrition: Feed Additives ............................................................................................. 169
Nonruminant Nutrition: Management .............................................................................................. 170
Nonruminant Nutrition: Minerals and Vitamins ............................................................................... 171
Physiology and Endocrinology III ...................................................................................................... 171
Production, Management and the Environment: Dairy II ................................................................. 173
Production, Management and the Environment: Environmental Quality ......................................... 174
Ruminant Nutrition: Beef: Feed Additives ...................................................................................... 175
Ruminant Nutrition: Co-Products ..................................................................................................... 176
Ruminant Nutrition: Dairy: Feeds and co-products ........................................................................ 179
Ruminant Nutrition: Dairy: Rumen function and digestion ............................................................. 180
Ruminant Nutrition: General III ....................................................................................................... 181
Ruminant Nutrition: Other Ruminants ............................................................................................ 183
Ruminant Nutrition: Feed Additives ............................................................................................... 183
Small Ruminant: Reproduction, Parasites, and Environment .......................................................... 185
Swine Species III ............................................................................................................................... 186

**SYMPOSIA AND ORAL SESSIONS**

Alpharma/Beef Species Joint Symposium: Redefining the Replacement Heifer Paradigm .................. 187
Breeding and Genetics: Beef Cattle Breeding II—Applied genomics .................................................. 187
Companion Animals ............................................................................................................................ 188
Dairy Foods: Microbiology and Chemistry ....................................................................................... 189
Dairy Foods: Physico-Chemical Properties ....................................................................................... 189
Extension Education II ...................................................................................................................... 190
Food Safety: Advances in Food Safety ............................................................................................... 191
Horse Species Symposium: Equine-Assisted Therapies: Incorporation into university programs .... 191
Meat Science and Muscle Biology Symposium: Pre-slaughter Stress, Postmortem Glycolysis, and Biophysical Mechanisms of Meat Quality ................................................................. 191
Nonruminant Nutrition: Amino Acids and Energy ........................................................................ 192
Physiology and Endocrinology I .................................................................................................... 192
Ruminant Nutrition: Beef: Feed Additives .................................................................................... 193
Small Ruminant: Production and Reproduction ............................................................................. 194
Swine Species Symposium: Recent Advances in Swine Genomics .............................................. 194
Teaching/Undergraduate and Graduate Education Symposium: Giving Employers What They Want—How ready is today’s animal science graduate? .................................................................. 195
Contemporary and Emerging Issues ................................................................................................. 195
<table>
<thead>
<tr>
<th>Event</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef Species</td>
<td>195</td>
</tr>
<tr>
<td>Breeding and Genetics: Dairy Cattle Breeding III—Genetic evaluation</td>
<td>196</td>
</tr>
<tr>
<td>Breeding and Genetics: Small Ruminants, Poultry, and Nontraditional Species</td>
<td>197</td>
</tr>
<tr>
<td>Dairy Foods Symposium: Advances in Yogurt Manufacture and Product Functionalities</td>
<td>198</td>
</tr>
<tr>
<td>Extension Education Symposium: Does Extension Have a Future in Today’s Agriculture?</td>
<td>198</td>
</tr>
<tr>
<td>Graduate Student Symposium: From Hypothesis to Manuscript: How to conduct valuable and efficient research</td>
<td>199</td>
</tr>
<tr>
<td>Growth and Development Symposium: Participation of Adult Tissue-Restricted Stem Cells in Livestock Growth and Development</td>
<td>199</td>
</tr>
<tr>
<td>Lactation Biology Symposium: The Long-Term Impact of Epigenetics and Maternal Influence on the Neonate: Through Milk-Borne Factors and Nutrient Status</td>
<td>200</td>
</tr>
<tr>
<td>Meat Science and Muscle Biology</td>
<td>200</td>
</tr>
<tr>
<td>Nonruminant Nutrition: Feed Additives</td>
<td>201</td>
</tr>
<tr>
<td>Physiology and Endocrinology: Nutritional Physiology</td>
<td>202</td>
</tr>
<tr>
<td>Production, Management and the Environment: Environmental Quality</td>
<td>203</td>
</tr>
<tr>
<td>Ruminant Nutrition: Beef Co-Products</td>
<td>204</td>
</tr>
<tr>
<td>Ruminant Nutrition: Dairy Production IV</td>
<td>205</td>
</tr>
<tr>
<td>WSASAS Symposium: Ruminant Stress: Implications on Health and Performance of Ruminants</td>
<td>206</td>
</tr>
<tr>
<td>Breeding and Genetics: Swine Breeding</td>
<td>206</td>
</tr>
<tr>
<td>Thursday, July 19</td>
<td></td>
</tr>
<tr>
<td>Animal Behavior and Well-Being: Pain and Discomfort in Farm Animals</td>
<td>207</td>
</tr>
<tr>
<td>Forages and Pastures III</td>
<td>207</td>
</tr>
<tr>
<td>Physiology and Endocrinology II</td>
<td>208</td>
</tr>
<tr>
<td>Symposium: Reproductive Immune Interactions</td>
<td>209</td>
</tr>
<tr>
<td>Ruminant Nutrition: General Ruminant Nutrition</td>
<td>210</td>
</tr>
<tr>
<td>Ruminant Nutrition Symposium: Update on Nutrient Requirements for Ruminants</td>
<td>210</td>
</tr>
<tr>
<td>Teaching/Undergraduate and Graduate Education Symposium: Online Education for a Hands-On Career: The good, the bad and the ugly of online education: in animal sciences</td>
<td>211</td>
</tr>
<tr>
<td>Breaking into NSF</td>
<td>211</td>
</tr>
</tbody>
</table>
Sunday, July 15

SYMPOSIA AND ORAL SESSIONS

ASN-ADSA-ASAS Preconference
Regulation of Nutritional Intake and Metabolism
Chairs: James L. Sartin, President Elect, ASAS, and Teresa A. Davis, President Elect, ASN
Sponsors: ASAS Foundation, ASN, EAAP, and United Soybean Board

222AB

8:00 AM Opening and Welcome.
J. L. Sartin1 and T. A. Davis2, 1American Society of Animal Science, 2American Society for Nutrition.

8:10 AM Role of the central melanocortin system in appetite regulation and nutrient homeostasis.
B. L. Panaro and R. D. Cone*, Department of Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, Nashville, TN.

9:00 AM The regulation of hepatic glucose uptake in vivo.
A. Cherrington*, Vanderbilt University School of Medicine, Nashville, TN.

9:50 AM EAAP-ASAS Speaker Exchange Presentation: Active and reactive amino acid homeostasis during feeding, lactation, and disease.
G. E. Lobley*, Obesity and Metabolic Health Division, Rowett Institute of Nutrition and Health, University of Aberdeen, Aberdeen, UK.

10:40 AM Break

11:00 AM Adipose and endocrine integration of metabolism.
P. E. Scherer*, UT Southwestern Medical Center, Dallas, TX.

11:50 AM Lunch and Graduate Student Poster Competition.

121AB

8:00 AM Introduction

8:10 AM The obstacle course to successful establishment of pregnancy in domestic livestock species.
M. D. Utt and M. L. Day*, Department of Animal Sciences, The Ohio State University, Columbus.

8:55 AM Sperm characteristics that limit success of fertilization.
W. L. Flowers*, North Carolina State University, Raleigh.

Triennial Reproduction Symposium
Impediments to Fertility in Domestic Animals
Chair: Gregory Lewis, USDA-ARS

121AB

8:00 AM Opening and Welcome.
J. L. Sartin1 and T. A. Davis2, 1American Society of Animal Science, 2American Society for Nutrition.

8:10 AM The obstacle course to successful establishment of pregnancy in domestic livestock species.
M. D. Utt and M. L. Day*, Department of Animal Sciences, The Ohio State University, Columbus.

8:55 AM Sperm characteristics that limit success of fertilization.
W. L. Flowers*, North Carolina State University, Raleigh.
The ovarian follicular reserve in ruminants: What regulates its formation and size? 
J. E. Fortune*, M. Y. Yang, and J. J. Allen, Cornell University, Ithaca, NY.

Influence of follicle characteristics at ovulation on early embryo survival. 
T. W. Geary*, M. F. Smith¹, M. D. MacNeil¹, M. L. Day¹, G. A. Bridges⁴, G. A. Perry⁵, F. M. Abreu¹, J. A. Atkins², K. G. Pohler⁵, E. M. Jinks⁴, and C. A. Roberts¹, ¹USDA-ARS, Fort Keogh, Miles City, MT, ²Division of Animal Sciences, University of Missouri, Columbia, ³Department of Animal Science, Ohio State University, Columbus, ⁴Department of Animal Science, University of Minnesota, Grand Rapids, ⁵Department of Animal and Range Sciences, South Dakota State University, Brookings.

Deficiencies in the uterine environment and failure to support embryo development. 
G. A. Bridges*, University of Minnesota, Grand Rapids.

Interactions of the embryo, uterus and corpus luteum for sustenance of embryos. 
T. R. Hansen*, A. Q. Antoniazzi, J. J. Romero, R. L. Ashley, and R. C. Bott, Animal Reproduction and Biotechnology Laboratory, Department of Biomedical Sciences, Colorado State University, Fort Collins.

Limitations in uterine and conceptus physiology that lead to fetal losses. 
J. L. Vallet*, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.

The spectrum of factors that impede pregnancy in dairy cows. 
R. L. A. Cerri*, J. E. P. Santos¹, W. W. Thatcher¹, and J. L. M. Vasconcelos¹, ¹University of British Columbia, Vancouver, BC, Canada, ²University of Florida, Gainesville, ³Sao Paulo State University, Botucatu, SP, Brazil.

General Discussion
Monday, July 16

POSTER PRESENTATIONS

Animal Health I
Sponsors: Elanco Animal Health and Pfizer Animal Health

M1 Immunological and metabolic responses of Holstein and Jersey cows according to body condition score change prepartum.
R. C. Chebel1, L. G. D. Mendonça, P. R. B. Silva, and J. G. N. Moraes1, Department of Veterinary Population Medicine, University of Minnesota, St. Paul.

M2 Treatment outcomes for clinical mastitis caused by E. coli in a Wisconsin dairy herd.
M. J. Fuenzalida1,2, W. Oliveira3, J. Gaska2, and P. L. Ruegg1, 1Department of Dairy Science, University of Wisconsin, Madison, 2Giska Dairy Health Services, Columbus, WI.

M3 Differential expression of the hepatic and adipose transcriptome in peripartal Friesian cows with endometritis.
H. Akbar1, J. M. Khan1, S. Meier2, C. Burke2, S. McDougall3, M. Mitchell4,5, S. L. Rodríguez-Zas2, R. E. Everts4, H. A. Lewin1, J. R. Roche2, and J. J. Loor1, 1University of Illinois, Urbana, 2DairyNZ Limited, Hamilton, New Zealand, 3Cognosco, Animal Health, Morrinsville, New Zealand, 4Liggins Institute, University of Auckland, Auckland, New Zealand, 5University of Queensland Centre for Clinical Research, Brisbane, St. Lucia, Australia.

M4 A comparison of two antibiotics on growth performance in beef cattle treated for bovine respiratory disease (BRD).
N. O. Minton1,2, L. L. Hawkins2, and M. S. Kerley1, 1University of Missouri, Columbia, 2Bayer HealthCare, Animal Health, Shawnee Mission, KS.

M5 Feedback on data entry errors effect on the maintenance of accurate and consistent dairy health records.
S. K. Giebel1, J. R. Wenz1, S. A. Poisson1, C. S. Schneider2, and D. A. Moore1, 1Department of Veterinary Clinical Sciences, Washington State University, Pullman, 2College of Agricultural and Life Sciences, University of Idaho, Moscow.

M6 Impact of water and feed deprivation on physiological parameters in steers.
J. A. Daniel1, P. H. Walz2, J. A. Carroll3, T. H. Elsasser4, and B. K. Whitlock3, 1Berry College, Mount Berry, GA, 2Auburn University, Auburn, AL, 3USDA-ARS Livestock Issues Research Unit, Lubbock, TX, 4USDA-ARS Bovine Functional Genomics Laboratory, Beltsville, MD, 5University of Tennessee, Knoxville.

M7 Implementation of health data entry protocols effect on time for data management.
S. K. Giebel1, J. R. Wenz1, S. A. Poisson1, C. S. Schneider2, and D. A. Moore1, 1Department of Veterinary Clinical Sciences, Washington State University, Pullman, 2College of Agricultural and Life Sciences, University of Idaho, Moscow.

M8 Transcriptome analysis of liver tissue from calves infected with bovine viral diarrhea virus and Mannheimia haemolytica.
R. L. Mills1,2, L. Carlos-Valdez1, L. O. Buriaga-Robles1, D. Stein1, D. L. Step1, R. W. Fulton2, U. DeSilva3, and C. R. Krehbiel4, 1Austin Peay State University, Clarksville, TN, 2Oklahoma State University, Stillwater.

M9 Ecology of subclinical ketosis in transition dairy cattle.
J. A. A. McArt1, D. V. Nydam2, and G. R. Otzel3, 1Cornell University, Department of Population Medicine and Diagnostic Science, Ithaca, NY, 2School of Veterinary Medicine, University of Wisconsin, Madison.

M10 Changes in biomarkers of the nitrooxidative stress response and prolactin signal transduction elements to E. coli infection in the mammary gland.
T. H. Elsasser1, A. V. Capuco1, M. Rinaldi2, and S. Kah1, 1USDA-ARS, Beltsville, MD, 2Ghent University, Ghent, Belgium.

M11 Associations among subclinical hypocalemia, neutrophil function, and incidence of uterine disease in dairy cows of low or high risk of developing metritis.
N. Martinez1, F. S. Lima1, R. S. Bisinotto1, L. F. Greco1, E. S. Ribeiro1, F. Maunsell2, K. N. Galvão2, C. A. Risco2, and J. E. P. Santos2, 1Department of Animal Sciences, University of Florida, Gainesville, 2Department of Large Animal Clinical Sciences, University of Florida, Gainesville.

M12 Hepatic and peripheral interferon responses to bovine respiratory disease in feedlot steers.
J. O. Baggerman1, C. A. Gifford, and C. R. Krehbiel, Oklahoma State University, Stillwater.

M13 Meta-analysis of Trypanosoma prevalence in livestock in the Americas.

M14 Cytokine production of isolated CD4+ T-cells from high and low immune responder dairy cows during the peripartum period.
M. A. Paibomesai1 and B. Mallard, University of Guelph, Guelph, Ontario, Canada.
Space allowance influences Holstein bull calf innate immunity after castration.
L. E. Hulbert1, M. S. Calvo2,*, M. A. Ballou1, K. C. Klasing3, and F. M. Miltohner1, 1Department of Animal Science, University of California, Davis, 2Animal and Food Sciences, Texas Tech University, Lubbock.

Effects of Bacillus cereus var. toyoi (Toyocerin) on the immune system of calves.
A. Aris1,*, A. Serrano1, M. Terré1, G. Jiménez2, M. Castillo3, and A. Bach1,2, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain, 3Rubinum SA, Rubí, Spain.

Space allowance influences the innate immune responses of Holstein calves during weaning.
L. E. Hulbert1,*, M. S. Calvo1, M. A. Ballou1, K. C. Klasing3, and F. M. Miltohner1, 1Department of Animal Science, University of California, Davis, 2Animal and Food Sciences, Texas Tech University, Lubbock.

Group-housed Holstein bull calves have decreased innate immune responses compared to individually housed calves after surgical castration.
L. E. Hulbert1, M. S. Calvo1, R. A. Kurzbard1, M. A. Ballou1, K. C. Klasing3, and F. M. Miltohner1, 1Department of Animal Science, University of California, Davis, 2Animal and Food Sciences, Texas Tech University, Lubbock.

A transient receptor potential channel 4 (TRPC4) gene to study response to gastrointestinal nematode infection in parasite-resistant goats.
M. M. Corley1 and J. Ward, Virginia State University, Petersburg.

Use of selected blood parameters to identify markers of heat-sensitivity in Angus and Romosinuano heifers.

Variation in innate immune parameters in Holstein calves is influenced by housing environment and physiological period.
M. D. Sellers1,*, D. L. Hanson, A. R. Pepper-Yowell, C. J. Cobb, and M. A. Ballou, Department of Animal and Food Sciences, Texas Tech University, Lubbock.

Intravaginal administration of lactic acid bacteria modulated innate immune responses of periparturient dairy cows.
Q. Deng, J. F. Odhiambo, T. Lam, S. M. Dunn, and B. N. Ametaj1,*, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Intravaginal administration of a mixture of lactic acid bacteria lowered the incidence of clinical diseases in transition dairy cows.
Q. Deng, J. F. Odhiambo, T. Lam, S. M. Dunn, and B. N. Ametaj1,*, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Acute phase response intensity is related to the metabolic and immunologic statuses of early postpartum dairy cattle.
C. R. Nightingale1,*, M. D. Sellers, A. R. Pepper-Yowell, D. L. Hanson, C. J. Cobb, B. S. Obeidat, and M. A. Ballou, Department of Animal and Food Sciences, Texas Tech University, Lubbock.

Isolation and analysis of transient receptor potential channel (TRPC) genes in goats: Implications for study of gastrointestinal nematode infection.
M. M. Corley and J. Ward1,*, Virginia State University, Petersburg.

Breeding and Genetics
Fertility and Early-Life Traits

The relationship of herd-average conception rates and calving interval with sire predicted transmitting ability for three fertility traits.
E. S. Benner and C. D. Dechow1,*, Penn State University, University Park.

Effect of body condition score at open period on reproductive traits of dairy cows in Hokkaido.
J. Hirose1,*, Y. Masuda, and M. Suzuki, Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan.

Cyclicity and fertility of Holstein, Jersey, and crossbred cows in a fall-calving, pasture-based dairy.
K. Glosson1,*, S. Washburn, North Carolina State University, Raleigh.

Genomic differences between highly fertile and sub-fertile Holstein dairy heifers.
A. E. Navarrette1,*, C. A. Gill1, T. E. Spencer2, and T. R. Bilby1,2, 1Department of Animal Science, Texas A&M University, College Station, 2Department of Animal Sciences, Washington State University, Pullman, 3Texas Agrilife Research and Extension, Stephenville.

The quality and yield of embryos from Holstein dairy cows in relation to inbreeding.
J. Bezdicek1,*, A. Makarevich1, R. Holasek2, E. Kubovicova2, Z. Hegedušova2, and F. Louda2, 1Agroresearch Rapotin, Ltd., Vikyrovice, Czech Republic, 2Research Institute for Cattle Breeding, Ltd., Vikyrovice, Czech Republic.
Antioxidants in bovine semen cryopreservation.

Extender supplementation with vitamin E and cryopreservation of bull sperm.

Multibreed genetic evaluation of calving ease and birth weight using a threshold-linear model in Brangus.

Estimates of genetic parameters for female fertility traits of Canadian Simmentals.
M. Cortada, F. M. Rezende*, M. F. Duarte-Junior, P. H. D. Gomes, and F. M. Wingert, Federal University of Mato Grosso, Cuiabá, Mato Grosso, Brazil.

Models’ predictive ability of breeding values for a small data set of genotyped animals.

Efficiency of breeding Pantaneiro bulls by libido test.

Models’ predictive ability of breeding values for a small data set of genotyped animals.

Companion Animals
Sponsors: Hill’s Science Diet and Procter and Gamble

Vitamin E and seminal quality in Rottweiler dogs.
L. K. Hatamoto-Zervoudakis*, C. A. Baptista-Sobrinho, M. Nichi, A. K. S. Cavalcante, V. H. Barnabé, R. C. Barnabé, and C. N. M. Cortada, Federal University of Mato Grosso, Cuiabá, Brazil, University of São Paulo, São Paulo, Brazil, Brazilian Army, Osasco, São Paulo, Brazil, Federal University of Bahia Reconcavo, Cruz das Almas, Brazil, Tecpar, Curitiba, Brazil.
In vitro digestion characteristics of expanded porkskin- and rawhide-based chews.
S. Hooda*, L. G. Ferreira, L. L. Bauer, G. C. Fahey, M. A. Latour, and K. S. Swanson, 1Department of Animal Sciences, University of Illinois, Urbana, 2Department of Animal Science, Purdue University, West Lafayette, IN.

Dairy Foods

Use of caseinomacropeptide index as indicator of adulteration of milk powder in Brazil.
M. O. Leite, M. C. P. P. Oliveira*, L. M. Fonseca, M. M. O. P. Cerqueira, M. R. Souza, C. F. A. M. Penna, and T. Rosa, Department of Food Technology and Inspection, Veterinary School, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, Minas Gerais, Brazil.

Effects of vacuum-deaeration on reconstituted milk flavor made from whole milk powder.

Evaluate the efficacy of a typical CIP protocol for cleaning membrane biofilms under in vitro conditions.
D. Singh* and S. Anand, Dairy Science Department, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Effect of transglutaminase treatment on the functionality of MPC and MCC: Process cheese product slice formulations.
P. Salunke*, C. Marella, and L. E. Metzger, Dairy Science Department, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Radio frequency dielectric heating treatment of NDM affects whey protein nitrogen index and solubility.
M. Michael1, C. Chen1, R. Phebus1, K. Schmidt*, H. Thippareddi1, and J. Subbiah3, 1Kansas State University, Manhattan, 2University of Nebraska, Lincoln.

Effect of transglutaminase treatment on the functionality of MPC and MCC. III. Imitation mozzarella cheese formulations.
P. Salunke*, C. Marella, and L. E. Metzger, Dairy Science Department, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Influence of fat replacement by inulin on rheological properties and kinetics of milk coagulation and syneresis of milk gels.

Effects of season and locality on amino acid composition of raw milk in dairy cows.
J. X. Zhang1,2, J. Q. Wang*, Y. X. Yang1, D. P. Bu1, P. Sun1, L. Y. Zhou1, Q. J. Luo1, and J. H. Yang1, 1Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Xinjiang Agricultural University, Urumqi, China.

Qualitative analysis of fatty acids variation in milk of different farms in China.

Qualitative identification of cow, buffalo, and yak milks using near infrared spectroscopy (NIRS).

Transfer of conjugated linoleic acid from milk to ice cream.
G. A. Gagliostro*, L. E. Antonacci, G. Genero1, M. R. Williner2, and C. A. Bernal1, 1INTA, Balcarce, Buenos Aires, Argentina, 2UNL, Sante Fé, Argentina.

Assessment of adulteration by urea addition to milk by Fourier transform infrared methodology (FTIR).
M. C. P. P. Oliveira*, R. S. Conrrado, L. M. Fonseca, M. M. O. P. Cerqueira, and M. O. Leite, Department of Food Technology and Inspection, School of Veterinary Medicine, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, Brazil.

Freezing point of raw milk by Fourier transform infrared methodology (FTIR).
R. S. Conrrado, M. C. P. P. Oliveira*, L. M. Fonseca, L. R. Borges, M. M. O. P. Cerqueira, M. O. Leite, R. Rodrigues, M. R. Souza, and C. F. A. M. Penna, Department of Food Technology and Inspection, School of Veterinary Medicine, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, Brazil.
Forages and Pastures I

M61 Identification of a high γ-aminobutyric acid-producing Lactobacillus plantarum from traditional dairy products in Inner Mongolia of China.
Y. Guo1, Y. Shan1, C. Man1, S. Yang3, Y. Xue1, Y. Liu2, X. Dong2, J. Wang2, M. Guo4,5, and Y. Jiang6,7,1National Dairy Engineering and Technology Research Center, Northeast Agricultural University, Harbin, Heilongjiang, China, 2Department of Food Science, Northeast Agricultural University, Harbin, Heilongjiang, China, 3Department of Nutrition and Food Sciences, The University of Vermont, Vermont, Burlington.

M62 Whey protein isolate affects cysteine content and gel quality of yogurt.
S. Bala and K. Schmidt*, Kansas State University, Manhattan.

M63 Body growth and first-lactation milk production of pregnant Holstein heifers reared on pasture or conventional diets.
R. R. Peters*, S. W. Fultz2, J. W. Semler3, and R. A. Erdman1,1University of Maryland, College Park, 2University of Maryland Extension, Frederick, 3University of Maryland Extension, Boonesboro.

M64 Antioxidant activity and blood parameters in early weaned calves fed yeasts and fermented apple pomace.

M65 Use of yeasts and fermented apple pomace in the diet of early weaned calves.

M66 Performance and carcass traits of steers grazing annual ryegrass supplemented with increasing levels of flaxseed.
N. Fanego1,2, L. B. Pouzo2,3, F. J. Santini1, J. Killefer1, and E. Pavan1,1Unidad Integrada Balcarce (INTA, EEA Balcarce-UNMdP, FCA), Balcarce, Bs. As., Argentina, 2Comisión Investigaciones Científicas, Buenos Aires, Argentina, 3Universidad Nacional de La Plata, La Plata, Buenos Aires, Argentina, 4Consejo Nacional de Investigaciones Científicas y Tecnológicas, Argentina, 5Oregon State University, Corvallis.

M67 Evaluating grazing performance and forage quality differences between AC-Saltlander green wheatgrass (Elymus hoffmannii) and smooth bromegrass (Bromus inermis).
A. D. Iwaasa*, H. Steppuhn, and E. Birkedal, Semiarid Prairie Agricultural Research Centre, Agriculture and Agri-Food Canada, Swift Current, Saskatchewan, Canada.

M68 Continuous versus rotational stocking of ryegrass pastures at different stocking rates and forage allowance.
F. Rouquette*, J. Kerby, G. Nimr, and K. Norman, Texas AgriLife Research and Extension Center, Overton.

M69 Improving calf performance by extending the grazing season with warm season grasses and brassica forages.
S. J. Filley* and J. Hunter, Oregon State University, Corvallis.

M70 beef steer performance when grazing native warm season grasses.
H. T. Boland1,2, B. J. Rude*1, J. A. Martin3, S. K. Riffell2, and L. W. Burger1,1Prairie Research Unit, Mississippi Agricultural and Forestry Experiment Station, Prairie, 2Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State, 3Department of Wildlife, Fisheries and Aquaculture, Mississippi State University, Mississippi State.

M71 Animal performance on pastures managed at two forage heights to produce grass finished beef.
M. J. Baker1, M. L. Thonney1, L. O. Tedeschi2, G. Jacimovski3, and L. M. Furman4,1Cornell University, Ithaca, NY, 2Texas A&M University, College Station.

M72 Nutritive value of plants and milk production from crossbreed cows grazing Tanzania guinea grass subjected to rotational stocking managements.
M. L. P. Lima1,2, F. F. Similli1,2, A. Giacomini1, C. C. P. Paz1, L. C. Roma2, and E. G. Ribeiro1,1SAA Agência Paulista de Tecnologia dos Agronegócios APTA, Ribeirão Preto, São Paulo, Brazil, 2Instituto de Zootecnia, Nova Odessa, Sao Paulo, Brazil.

M73 Sward structural characteristics, herbage accumulation of Tanzania guinea grass subjected to rotational stocking managements.
M. L. P. Lima1,2, F. F. Similli1,2, A. Giacomini1, C. C. P. Paz1, L. C. Roma2, and E. G. Ribeiro1,1SAA Agência Paulista de Tecnologia dos Agronegócios APTA, Ribeirão Preto, São Paulo, Brazil, 2Instituto de Zootecnia, Nova Odessa, Sao Paulo, Brazil.

M74 Simulation of the effect of stocking rate on forage harvest efficiency under New Zealand intensive grazing systems.
Nitrogen fertilizer management to improve forage production in south-central Vietnam.

Anatomy and histochemistry of lignin in Festucloum and its progenitors.

The n-alkane technique provides a reliable estimate of fescue and clover composition in mixed forages.

Assessment of stockpiling methods to increase late summer and early fall forage biomass.

Soil nutrients in tall fescue (Festuca arundinacea L.) paddocks managed under different outdoor hog systems.
S. Pietrosemoli* and J. T. Green, 1Animal Science Department, North Carolina State University, Raleigh, 2Crop Science Department, North Carolina State University, Raleigh.

Effect of outdoor swine management systems on tall fescue (Festuca arundinacea L.) ground cover and animal performance.
S. Pietrosemoli*, J. M. Luginbuhl, and J. T. Green, 1Animal Science Department, North Carolina State University, Raleigh, 2Crop Science Department, North Carolina State University, Raleigh.

Endophyte-infected fescue seed causes constriction of the palmar and uterine arteries in pregnant mares.

Consumption of endophyte-infected tall fescue seed causes constriction of the palmar artery and vein but does not alter estradiol, progesterone, or estrous cycle length in nonpregnant mares.
D. A. Hestad* and K. J. McDowell, University of Kentucky, Lexington.

Changes in bovine vascular contraction and constriction relative to time off endophyte-infected tall fescue.
J. R. Bussard*, G. E. Aiken, J. R. Strickland, K. R. Brown, B. M. Goff, A. P. Foote*, and J. L. Klotz, 1Department of Plant and Soil Sciences, University of Kentucky, Lexington, 2Department of Animal and Food Sciences, University of Kentucky, Lexington, 3USDA-ARS, FAPRU, Lexington, KY.

Lateral saphenous vein responses to serotonergic and α-adrenergic receptor agonists increase with time off endophyte-infected tall fescue.
J. L. Klotz*, J. R. Bussard, G. E. Aiken, A. P. Foote, D. L. Harmon, K. R. Brown, B. M. Goff, and J. R. Strickland, 1USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY, 2Department of Plant and Soil Sciences, University of Kentucky, Lexington, 3Department of Animal and Food Sciences, University of Kentucky, Lexington.

Validation of a housekeeping gene for use in bovine vascular gene expression studies.
J. L. Klotz*, K. R. Brown, J. C. Matthews, J. A. Boling, and J. R. Strickland, 1USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY, 2Department of Plant and Soil Sciences, University of Kentucky, Lexington.

Tiller appearance in pastures of Guinea grass ‘Tanzania’ managed with different frequencies and defoliation severities.
D. Nascimento Júnior*, A. M. Zanine, B. M. L. Sousa, and W. L. Silva, 1Universidade Federal de Viçosa, Viçosa, MG, Brazil, 2Universidade Federal do Mato Grosso, Rondonópolis, MT, Brazil, 3Universidade Estadual Paulista, Jaboticabal, SP, Brazil.

Aerial tiller density in pastures Pennisetum purpureum submitted to different post-grazing heights.

Tiller density stability of Piathá palisadegrass swards deferred with different initial heights.

Tiller density in Piathá palisadegrass deferred in different seasons and initial heights.


Graduate Student Competition:
ADSA Dairy Foods Division Graduate Poster Competition
Chair: Stephanie Clark, Iowa State University

Structural properties of milk protein concentrate (MPC) dispersions and emulsions as influenced by presence of small molecule components. Y. Liang¹,², H. Patel¹, L. Matia-Merino², A. Ye³, and M. Golding²,³. ¹Fonterra Research Centre, Palmerston North, New Zealand, ²Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand, ³Riddet Institute, Massey University, Palmerston North, New Zealand.

Application of bixin as an alternative colorant for Cheddar cheese. X. Li, T. J. Smith, and M. A. Drake, North Carolina State University, Raleigh.

Cold enzymatic bleaching of fluid whey and retentate. R. E. Campbell and M. A. Drake, North Carolina State University, Raleigh.


The effect of acidification of retentate on the flavor of spray-dried whey protein concentrate. C. W. Park, E. Bastian, B. Farkas, and M. A. Drake. ¹North Carolina State University, Raleigh, ²Glanbia Nutritionals, Twin Falls, ID.

Sensory properties and composition of permeate and permeate fractions. K. Frankowski and M. A. Drake, North Carolina State University, Raleigh.

Effect of SO-TEC clear whey on physico-chemical characteristics of Cheddar cheese and its whey. A. C. Biswas and L. E. Metzger, Dairy Science Department, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Effectiveness of ultrasonication in inactivating spores of Bacillus spp. in skim milk. S. Khanal, S. Anand, and K. Muthukumarappan. ¹Midwest Dairy Foods Research Center, Dairy Science Department, South Dakota State University, Brookings, ²Agricultural and Biosystems Engineering Department, South Dakota State University, Brookings.

Screening of different enzymes for modification of the enzyme cleaning step of an existing membrane CIP protocol. D. Singh and S. Anand, Dairy Science Department, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Graduate Student Competition:
ADSA Production Division Poster Competition, MS Division
Chair: Barry Bradford, Kansas State University


M104  Effects of adjustable and stationary fans with misters on core body temperature and resting behavior of lactating dairy cows in a semi-arid climate.
S. D. Anderson*, B. J. Bradford1, J. P. Harner2, C. B. Tucker3, J. D. Allen1, L. W. Hall1, S. Rungruang1, E. Rajapaksha1, R. J. Collier1, and J. F. Smith1, 1The University of Arizona, Tucson, 2Kansas State University, Manhattan, 3University of California, Davis.

M105  Evaluation of fc receptor gene variants in cow genomic DNA.
J. Williams* and M. Worku, North Carolina Agricultural and Technical State University, Greensboro, North Carolina.

M106  Quantitative calcium determination from an ashed feed sample.
D. J. LaMey*, J. L. Squire, K. D. Baldwin, and D. L. Smith, Eastern New Mexico University, Portales.

M107  Cow comfort in dry lots: Lameness, leg injuries and lying times on dairy farms in Texas and New Mexico.

J. Shire*, J. L. Gordon3, and E. L. Karcher1, 1Department of Animal Science, Michigan State University, East Lansing, 2Department of Population Medicine, University of Guelph, Guelph, Ontario, Canada.

M109  Effects of prepartum grouping strategy on immune parameters of peripartum dairy cows.
P. R. B. Silva*1, 2, J. G. N. Moraes1, 2, L. G. D. Mendonça1, A. A. Scanavez1, G. Nakagawa1, M. I. Endres2, M. A. Ballou3, and R. C. Chebel1, 1Department of Veterinary Population Medicine, University of Minnesota, St. Paul, 2Department of Animal Science, University of Minnesota, St. Paul, 3Department of Animal and Food Sciences, Texas Tech University, Lubbock.

M110  Detection of clinical and subclinical mastitis using reticulorumen temperatures.

M404  Effect of precision processing barley grain on dry matter intake, milk production, rumen pH and nutrient digestibility in lactating dairy cows.
N. Schlau*, L. Duineveld4, W. Z. Yang3, T. A. McAllister4, and M. Oba3, 1University of Alberta, Edmonton, AB Canada, 2Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB Canada.

Graduate Student Competition:
ADSA Production Division Poster Competition, PhD Division
Chair: Barry Bradford, Kansas State University

M111  Effects of energy supplementation for pasture forages on in vitro ruminal fermentation in continuous cultures.
C. T. Noviandi*, M. N. McDonald1, D. R. ZoBell1, J.-S. Eun1, M. D. Peel1, and B. L. Waldron2, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, 2Forage and Range Research Laboratory, USDA-ARS, Logan, UT.

M112  Evaluation of feed delivery methods for prepubertal dairy heifers during the growing period.
T. S. Dennis*, J. E. Tower, and T. D. Nennich, Purdue University, West Lafayette, IN.

M113  Prediction of pregnancy outcome using machine learning algorithms.
S. Shahinfar*, K. Weigel1, D. Page2, J. Gunter1, V. Cabrera1, and P. Fricke2, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, 2Department of Biostatistics and Medical Informatics, and Department of Computer Science, University of Wisconsin-Madison, Madison.

M114  Genes for lysine catabolism in lactating dairy cows are responsive to postruminal lysine supply.
H. A. Tucker*, M. D. Hanigan2, J. Escobar2, P. H. Doane2, and S. S. Donkin1, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2Department of Dairy Science, Virginia Polytechnic Institute and State University, Blacksburg, 3Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University, Blacksburg, 4Archer Daniels Midland Company, Decatur, IL.

M115  Evaluation of rumen protected lysine supplementation to lactating dairy cows consuming increasing amounts of DDGS.
H. A. Paz*, M. de Veth1, R. Ordway2, and P. J. Kononoff1, 1University of Nebraska-Lincoln, Lincoln, 2Balchem Corp., New Hampton, NY.

M116  Integrating nutritional and reproductive models to improve reproductive efficiency in dairy cattle.
S. L. Shields*, H. Woelders3, M. Boer1, C. Stötzel1, S. Röebelt1, J. Plöntzke1, and J. P. McNamara1, 1Department of Animal Science, Washington State University, Pullman, 2Animal Breeding and Genomics Centre, Wageningen UR Livestock Research, Lelystad, the Netherlands, 3Adaptation Physiology Group, Department of Animal Sciences, Wageningen University, Wageningen, the Netherlands, 4Computational Systems Biology Group, Zuse Institute Berlin, Berlin, Germany.
Growth and Development I

M120 Effect of protein supplementation in the last trimester of gestation in Nellore cows on subsequent growth of their bull calves submitted or not submitted to creep-feeding.
F. M. da Rocha\textsuperscript{1,2}, A. V. Pires\textsuperscript{2}, R. Sartori\textsuperscript{2}, D. D. Nepomuceno\textsuperscript{2}, M. V. Biehl\textsuperscript{1,3}, I. Susin\textsuperscript{2}, E. M. Ferreira\textsuperscript{2}, M. V. C. Ferraz Junior\textsuperscript{1,3}, J. R. S. Goncalves\textsuperscript{2}, F. M. Abreu\textsuperscript{1}, L. H. Cruppe\textsuperscript{1}, and M. L. Day\textsuperscript{1}; \textsuperscript{1}The Ohio State University, Columbus, \textsuperscript{2}University of Sao Paulo, Piracicaba, SP, Brazil, \textsuperscript{3}University of Sao Paulo, Pirassununga, SP, Brazil, \textsuperscript{4}Experimental Station Hildegard Georgina Von Pritzelwitz, Londrina, PR, Brazil.

M121 Protein supplementation of Nellore cows in the last trimester of gestation and consequent performance of their heifer calves in creep feeding.
D. D. Nepomuceno\textsuperscript{2}, A. V. Pires\textsuperscript{2}, R. Sartori\textsuperscript{2}, F. M. da Rocha\textsuperscript{a}, M. V. Biehl\textsuperscript{1,3}, I. Susin\textsuperscript{2}, E. M. Ferreira\textsuperscript{2}, M. V. C. Ferraz Junior\textsuperscript{1,3}, J. R. S. Goncalves\textsuperscript{2}, F. M. Abreu\textsuperscript{1}, L. H. Cruppe\textsuperscript{1}, and M. L. Day\textsuperscript{1}; \textsuperscript{1}The Ohio State University, Columbus, \textsuperscript{2}University of Sao Paulo, Piracicaba, SP, Brazil, \textsuperscript{3}University of Sao Paulo, Pirassununga, SP, Brazil, \textsuperscript{4}Experimental Station Hildegard Georgina Von Pritzelwitz, Londrina, PR, Brazil.

M122 Identification of key amino acids associated with fetal skeletal muscle growth in sheep.
F. A. Sales\textsuperscript{1,4}, B. P. Trelord\textsuperscript{1}, D. Pacheco\textsuperscript{1}, H. T. Blair\textsuperscript{1}, P. R. Kenyon\textsuperscript{1}, G. Nicholas\textsuperscript{1}, M. Senna-Salerno\textsuperscript{1}, and S. A. McCoard\textsuperscript{1}; \textsuperscript{1}Agresearch Grasslands, Palmerston North, New Zealand, \textsuperscript{2}Sheep Research Centre, Massey University, Palmerston North, New Zealand, \textsuperscript{3}Instituto de Investigaciones Agropecuarias, Punta Arenas, Chile.

M123 Is placental functionality different between singletons and twins in sheep?
D. S. van der Linden\textsuperscript{1} and S. A. McCoard, Animal Nutrition Team, AgResearch Grasslands Limited, Palmerston North, New Zealand.

M124 Placental efficiency at birth has no effects on postnatal muscle development.
T. A. Wilmoth\textsuperscript{1,2}, C. S. Perkins\textsuperscript{2}, Z. E. Kerley\textsuperscript{2}, Z. D. Callahan\textsuperscript{1}, M. E. Wilson\textsuperscript{1}, and B. R. Wiegand\textsuperscript{1}; \textsuperscript{1}West Virginia University, Morgantown, \textsuperscript{2}University of Missouri, Columbia.

M125 Effects of metabolizable protein supply during late gestation on ovine offspring growth and development.
C. A. Schwartz\textsuperscript{1,4}, K. R. Maddock-Carlin\textsuperscript{1}, C. O. Lemley\textsuperscript{1}, L. E. Camacho\textsuperscript{2}, W. L. Keller\textsuperscript{2}, J. S. Caton\textsuperscript{3}, R. D. Yunusova\textsuperscript{3}, C. S. Schauer\textsuperscript{2}, and K. A. Vonnahme\textsuperscript{2}; \textsuperscript{1}Department of Animal Sciences, North Dakota State University, \textsuperscript{2}University of Colorado-Boulder, \textsuperscript{3}University of Florida, \textsuperscript{4}Animal Science Department, North Dakota State University, Fargo.

M126 Vascularization in ovine utero-placental tissues during early pregnancy: Effects of assisted reproductive technology (ART).
P. P. Borowicz\textsuperscript{1}, L. P. Reynolds, D. A. Redmer, and A. T. Grazul-Bilska, Department of Animal Sciences, and Center for Nutrition and Pregnancy, North Dakota State University, Fargo.

M127 Influence of Bos indicus genetics on pregnancy-associated glycoproteins (PAG) and their association with fetal development.
P. M. Mercadante\textsuperscript{1,2}, K. M. Bischoff\textsuperscript{2}, V. R. G. Mercadante\textsuperscript{1,2}, G. C. Lamb\textsuperscript{1,2}, and A. D. Ealy\textsuperscript{1,3}; \textsuperscript{1}University of Florida, \textsuperscript{2}University of Florida, North Florida Research and Education Center, \textsuperscript{3}West Virginia University, Morgantown.

M128 Fetal size and pregnancy-associated glycoprotein concentrations are influenced by Bos indicus genetics during early gestation.
C. M. Waits\textsuperscript{1}, P. M. Mercadante, S. E. Johnson, A. D. Ealy, and J. V. Yelich, University of Florida, Gainesville.

M129 Effects of nutrient restriction in beef cows during early gestation on maternal and fetal small intestinal and hepatic mass and in vitro oxygen (O2) consumption.

M130 The effects of intrauterine growth retardation (IUGR) due to poor maternal nutrition on muscle development in lambs.
### Lactation Biology I

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
</table>

### Meat Science and Muscle Biology I

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
</table>
M144  Meat traits of steers fed with whole cottonseed.
D. P. Borges da Costa1, R. de Oliveira Roça2, Q. P. Borges da Costa2, L. da Silva Cabral1, D. P. D. Lanna1, E. da Silva Lima1, D. G. Fagundes1, and N. L. Filho2, 1Instituto Federal de Mato Grosso, Campo Novo do Parecis, Brazil, 2Department of Animal Science, University of Florida, Gainesville, Florida, USA.

M145  Lipid peroxidation and color of meat from young bulls fed different levels of crude glycerin.

M146  The use of visible and near infrared spectroscopy for quality control of organic and conventional beef stored under protective atmospheres.
M. Olivan1, V. Sierra1, G. Fiorentini2,3, N. Prado1, P. González1, B. Álvarez1, J. Díaz1, and K. Osoro1, 1Servicio Regional de Investigación y Desarrollo Agroalimentario (SERIDA), Asturias, Spain, 2Universidade Estadual Paulista (UNESP), Jaboticabal, SP, Brazil, 3Asociación de Investigación de Industrias Cárnicas del Principado de Asturias (ASINCAR), Polígono de la Barreda, Noreña, Spain.

M147  Fatty acid composition of cattle fattened with tropical forage at rainy and drought season.
M. N. Bonin1, L. A. Goonewardene*, 1Instituto Federal de Mato Grosso, Campo Novo do Parecis, Brazil, 2Department of Animal Science, University of Florida, Gainesville, Florida, USA.

M148  Genetic parameters for fat thickness measured in different anatomical points of Longissimus muscle in Nellore cattle.
M. N. Bonin1,2, F. J. Novaí3, S. L. Silva1, R. C. Gomes1, A. S. Figueiredo1, P. F. Torralvo1, L. G. Figueiredo1, P. A. B. McLean1, V. N. Barbosa1, J. H. A. Campo1, T. V. Solpelsa1, M. H. A. Santana1, F. M. Rezende1, and J. B. S. Ferraz1, 1College of Animal Science and Food Engineering, University of Sao Paulo, Pirassununga, Brazil, 2State University of Londrina, Londrina, Brazil.

M149  Comparative effects of two beta adrenergic agonists on Warner-Batzler and slice shear force of USDA Choice strip steaks from calf-fed Holsteins.
A. J. Garnyn1,2, J. N. Martin1, J. C. Brooks1, R. J. Rathmann1, J. M. Hodgson1, K. D. Pfieffer2, C. L. Armstrong2, D. A. Yates2, J. P. Hutcheson2, and M. F. Miller3, 1Texas Tech University, Lubbock, 2Merk Animal Health, DeSoto, KS.

M150  Carcass characteristics of Nellore steers receiving protected linseed oil during different periods of feedlot.
T. M. Pivaro1, W. Henrique1, A. A. M. Sampaio1, J. L. V. Coutinho Filho1, E. A. Oliveira1, B. L. Rosa1, and V. G. Carvalho1, 1FCAV/Unesp, Jaboticabal, SP, Brazil, 2APTA, São José do Rio Preto, SP, Brazil.

M151  Meat fatty acids profile of Nellore steers receiving protected linseed oil during different periods of feedlot.
T. M. Pivaro1, W. Henrique1, E. A. Oliveira1, A. A. M. Sampaio1, B. L. Rosa1, J. L. V. Coutinho Filho1, and V. G. Carvalho1, 1FCAV/Unesp, Jaboticabal, SP, Brazil, 2APTA, São José do Rio Preto, SP, Brazil.

M152  Meat quality of crossbred cattle finished at feedlot and fed increasing levels of linseed oil.
E. A. Oliveira1,2,3, B. L. Rosa1, T. M. Pivaro1, M. B. P. Costa1, V. G. Carvalho1, A. T. Andrade1, W. Henrique1, and A. A. M. Sampaio1, 1FCAV/Unesp, Jaboticabal, SP, Brazil, 2APTA, São José do Rio Preto, SP, Brazil, 3FAPESP Post-doctorate fellowship, São Paulo, SP, Brazil.

M153  A study of the variance in tenderness of pasture and feedlot finished beef cattle.

M154  Partitioning of energy into muscle and fat in relation to beef composite type and age at harvest.
N. P. Y. Welegedara1,2, E. K. Okine1, J. A. Basarab1, Z. Wang1, C. Li1, H. Bruce1, S. Markus1, J. Stewart-Smith1, and L. A. Goonewardene1,2, 1University of Alberta, Edmonton, Alberta, Canada, 2Alberta Agriculture and Rural Development, Edmonton, Alberta, Canada, 3Fundación Produce Michoacán A. C., Facultad de Zootecnia y Ecología. UACH, Chihuahua, México.
Nonruminant Nutrition
Amino Acids and Energy
Sponsor: Lucta

Influence of dietary fat and terminal sire line on growth performance and carcass and meat quality of pigs slaughtered at 115 kg of BW.
G. Coca1, M. P. Serrano1, L. Cámara1, P. Guzmán1, J. D. Berrocoso1, J. Coma1, and G. G. Mateos*1, 1Animal Science Department, Universidad Politécnica de Madrid, Madrid, Spain, 2Valle Company, Lleida, Spain.

The utilization of energy by pigs differing in estimated growth potential.
A. D. Beaulieu*1, D. A. Mills1, J. N. Shea1, J. P. Marriott1, and J. F. Patience2, 1Prairie Swine Centre Inc., Saskatoon, SK, Canada, 2Iowa State University, Ames.

Effect of starch level in pig diets on digestible energy value of crude glycerin using the mobile nylon bag technique.
C. A. Ordoñez-Gomez*1,2, C. Ariza-Nieto1, and G. Afanador-Tellez2, 1CORPOICA, Bogota, Colombia, 2Universidad Nacional de Colombia, Bogota, Colombia.

Dynamic changes in blood flow, oxygen consumption and metabolite responses to acute arginine supplementation in growing-finishing pigs.
B. E. Tan1, Y. L. Yin*1, X. F. Kong1, and G. Y. Wu1,2, 1Institute of Subtropical Agriculture, The Chinese Academy of Sciences, Changsha, Hunan, China, 2Department of Animal Science, Texas A&M University, College Station.

Dietary valine:lysine ratios of 0.80 and 0.85 did not differ performance of primiparous sow and nursing large litters.
S. M. Hong*, P. Y. Zhao, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

Sequence of apparent ileal digestible lysine for growing-finishing gilts.
G. C. Rocha*1, F. C. O. Silva1, R. F. M. Oliveira1, L. Alebrante1, A. Saraiva1, and J. L. Donzele1, 1Federal University of Viçosa, Viçosa, MG, Brazil, 2EPAMIG, Viçosa, MG, Brazil.

Feed efficiency and carcass grade can be improved in finishing pigs by increasing the standardized ileal digestible lysine to metabolizable energy ratio.
J. A. Jendza* and S. K. Baidoo, University of Minnesota, Waseca.

Chemical composition of dietary fat affects fat and energy digestibility when supplemented to lactating sows.
D. S. Rosero*1, J. Odle1, R. D. Boyd2, and E. van Heugten1, 1Department of Animal Sciences, North Carolina State University, Raleigh, 2Hanor Company Inc., Franklin, KY.

Feeding phytonutrients to chickens: the relationship between energy availability and growth performance.

An evaluation of glutamine feed supplementation on the immune response, intestinal morphology, and growth performance of broilers at various stages of development.
S. Khempaka* and W. Molee, School of Animal Production Technology, Institute of Agricultural Technology, Suranaree University of Technology, Muang, Nakhon Ratchasima, Thailand.

Velocity of l-methionine incorporation into the blood plasma of broiler chickens at the first week of age.
A. C. Stradiotti*1,2, C. Ducatti1, J. R. Sartori1, J. A. Bendassolli1, V. C. Pelícia1, P. C. Araújo1, M. K. Maruno1, L. V. C. Girão1, F. G. Lujigi1, R. Fasanaro1, M. M. P. Sartori1, J. C. Denadai1, E. T. Silva1, C. R. Souza-Kruliski1, A. C. Pezzato1, 1São Paulo State University, Faculty of Veterinary Medicine and Animal Science, Botucatu Campus, Botucatu, Brazil, 2São Paulo State University, Institute of Bioscience, Botucatu Campus, Botucatu, Brazil, 3University of São Paulo, Center of Nuclear Energy in Agriculture, “Luiz de Queiroz” Campus, Piracicaba, Brazil, 4FAPESP.

Nonruminant Nutrition
Enzymes
Sponsor: ChemGen

Influence of dietary Quantum phytase on bone strength and bone phosphorus contents of weaned pigs.
S. K. Baidoo*1, Q. Yang1, G. He1, T. D. Crenshaw1, C. L. Wyatt1, and J. A. Jendza1, 1University of Minnesota, SROC, Waseca, 2Department of Animal Science, University of Wisconsin, Madison, 3AB Vista Feed Ingredient, Stillwell, KS.

Dietary effects of Quantum phytase on performance and phosphorus utilization of weaned pigs.
S. K. Baidoo*1, Q. Yang1, G. He1, C. L. Wyatt1, and J. A. Jendza1, 1University of Minnesota, SROC, Waseca, 2AB Vista Feed Ingredients, Stillwell, KS.
Nonruminant Nutrition

Weanling Pig

Sponsor: Archer Daniels Midland

M172 Effects of freeze-dried Lactobacillus reuteri on growth performance, serum indices, and intestinal microflora of weaned pigs.

M173 Effects of two kinds of lactic acid bacteria on productive performance and intestinal microflora of weaned piglets.

M174 Assessment of probiotic properties of Enterococcus faecalis isolated from gastrointestinal tract of piglet and its effect on growth performance of weaned pigs.

M175 Digestibility of feed containing energy and protein ingredients to substitute dried whey and lactose for weanling pigs.
L. V. C. Girão*, F. G. Luiggi, G. Mello, A. C. Stradiotti, C. C. E. J. Villela, N. B. Athayde, V. S. Cantarelli, R. Fasanaro, and D. A. Berto, São Paulo State University, Faculty of Veterinary Medicine and Animal Science, Botucatu Campus, Botucatu, SP, Brazil, University Federal de Lavras, Lavras, MG, Brazil.

M176 Dietary clay does not negatively affect growth performance, nitrogen and iron status, or diarrhea score of weanling pigs.
M. Song*, B. G. Kim, O. Osuna, and H. H. Stein, University of Illinois, Urbana, Konkuk University, Seoul, Korea, Milwhite Inc., Brownsville, TX.

M177 Effects of dry matter content of milk replacer on intake and growth in suckling pigs.

M178 The protein-to-energy ratio is a main driver of growth performance in piglets.

M179 Nucleotides in weaning pig diets.

M180 Time-related changes of serum amino acids in weaning piglets.
Y. Xiao*, T. Wu, A. Chen, L. Yang, and C. Yang, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China.

M181 Comparing different copper sources at pharmacological levels in nursery pigs.
Effects of steam-processed rice, natural vitamin E, and glutamine in diets for weaning piglets.

Physiology and Endocrinology I

Cortisol levels during roping acclimation in rodeo calves.
K. Comeaux, B. Pousson, A. Greathouse, D. Terro, J. Browning, and C. E. Ferguson*, McNeese State University, Lake Charles, LA.

Improving reproductive performance of Ossimi ewes using hormonal and enzymatic treatments.

Prostaglandin-F₂α may not be necessary in short-term progesterone-based estrous synchronization protocols in cyclic ewes.
K. N. D’Souza*, S. L. Rastle-Simpson, Q. S. Baptiste, and M. Knights, West Virginia University, Morgantown.

Is a CIDR as effective as an eponge in a novel follicle wave emergence and estrus synchronization protocol in anestrous ewes?
M. B. Gordon1, M. Bidarimath1, M. Moggy1, C. M. Camara1, J. A. Small2, P. M. Bartlewski2, and D. M. W. Barrett1, 1Department of Plant & Animal Science, Nova Scotia Agricultural College, Truro, NS, Canada, 2Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, Atlantic Food & Horticulture Research Centre, Agriculture & Agri-Food Canada, Truro, NS, Canada.

Effects of parity and litter dynamics on body reserves dynamics across a complete physiological year in Romane ewes reared under extensive grazing conditions.
E. González-García*, V. Gozzo de Figueiredo2, D. Foulquie1, E. Jousserand3, A. Tessniere1, F. Bocquier1, and M. Jouven3, INRA UMR886 Systèmes d’Élevage Méditerranéens et Tropicaux (SELMET), 34060 Montpellier, France, 2Escola Superior de Agricultura, São Paulo, Brazil, 3INRA U8021, Domaine de La Fage, 12250 Roquefort-sur-Soulzon, France.

Pregnancy per AI (P/AI) after presynchronizing estrous cycles with Presynch-10 or PG-3-G before Ovsynch-56 in four dairy herds.
J. S. Stevenson* and S. L. Pulley, Kansas State University, Manhattan.

Effect of bovine somatotropin (BST) injected at fixed-time insemination of Holstein cows exposed to an ovsynch protocol.

Effect of adding a GnRH or PGF₂α between the Presynch and Ovsynch program for first AI in lactating dairy cows.
R. G. S. Bruno*, A. M. Farias1,2, I. A. Hernández-Rivera1, A. E. Navarrette1, D. E. Hawkins1, and T. R. Bilby1, 1Texas A&M University, College Station, 2West Texas A&M University, Canyon.

Application of progesterone insert for the induction of lactation in nonpregnant dairy cows or heifers.
F. Rivera-Acuña**, R. C. Fierros1, E. M. Prado1, P. Luna-Navarez2, J. G. Aceves1, L. R. Avendaño1, and A. C. Correa1, Instituto Tecnológico de Sonora, Ciudad Obregón, México, 2Universidad Autónoma de Baja California, Mexicali, México.


Effect of progesterone (P₄) supplementation after AI on circulating P₄ and development of the corpus luteum (CL) in dairy cattle.
P. L. J. Monteiro*, F. L. M. Silva*, M. Borsato1, G. P. Nogueira2, G. B. Moura2, L. D. Silva2, M. C. Wiltbank, and R. Sartori1, 1University of São Paulo, Piracicaba, SP, Brazil, 2São Paulo State University, Araçatuba, SP, Brazil, 3University of Wisconsin-Madison, Madison, WI.

Reproductive performance of lactating dairy cows managed for first service using timed artificial insemination with or without detection of estrus using an accelerometer system.

Accuracy of pregnancy diagnosis outcomes using transrectal ultrasonography 29 days after artificial insemination in lactating dairy cows.
J. O. Giordano* and P. M. Fricke, University of Wisconsin-Madison, Madison.

Early detection of pregnancy-specific protein B (PSPB) following conception in Holstein heifers.
J. Howard*, C. A. T. Antran1, J. Bransen2, G. Sasser3, and A. Ahmdzadeh, 1University of Idaho, Moscow, 2BioTracking LLC, Moscow, ID.
Possible associations between ova-embryos characteristics in early lactating cows and subsequent reproductive performance.
R. L. A. Cerri*, W. W. Thatcher1, and J. E. P. Santos1; 1University of British Columbia, Vancouver, BC, Canada, 2University of Florida, Gainesville.

Effects of induced clinical and subclinical mastitis on oocyte developmental competence in bovine.
S. Asafi1, O. Furman1, G. Leitner2, D. Wolfenson1, and Z. Roth*, 1The Robert H. Smith Faculty of Agriculture, Food and Environment, the Hebrew University, Rehovot, Israel, 2The Veterinary Institute, Bet Dagan, Israel.

Assessing the relationships of prostaglandin E2 in uterine flush fluid, peripheral blood prostaglandin E2 and progesterone with pregnancy outcome in dairy cattle.
J. L. Fain*, M. W. Overton1, D. J. Hurley2, and G. P. Birrenkott3, 1Clemson University, Clemson, SC, 2University of Georgia, Athens, 3University Autonoma de Zacatecas, Zacatecas, Mexico.

Effect of oral or subcutaneous administration of vitamin E and selenium on milk quality and reproductive function of Holstein cows.

Effects of supplementation with different PUFA during the postpartum periods of early lactating dairy cows, estradiol concentration and luteal function.
E. Dirandeh1, A. Towhidif*, 1, Z. Zeinoaldini3, M. Ganjkhani3, Z. Ansari4, Z. Saberifar3, 1Department of Animal Science, Faculty of Agricultural Science and Engineering, University College of Agriculture and Natural Resources, University of Tehran, Karaj, Tehran, Iran, 2Department of Animal Science, Faculty of Animal Science and Fishery, Sari University of Agricultural and Natural Resources, Sari, Mazandaran, Iran.

Hepatic patatin-like phospholipase domain-containing protein 3 mRNA expression is increased during feed restriction and in transition dairy cows.
M. E. Viner*, S. S. Donkin1, and H. M. White1, 1Department of Animal Science, University of Connecticut, Storrs, 2Department of Animal Sciences, Purdue University, West Lafayette, IN.

Changes of the serum and milk proteome in lactating dairy cows duodenal infused with α-linolenic acid.

Inhibition of respiratory chain complexes, respiration and fatty acid oxidation in bovine liver mitochondria by dietary CLA.

The effects of a soybean and canola diet during pre-pubertal growth on dairy heifer fertility.
M. B. Gordon*, 1E. Thompson1, T. Gowan2, 1M. W. Overton1, 2J. A. Small2, and D. M. W. Barrett2, 1Department of Plant & Animal Science, Nova Scotia Agricultural College, Truro, NS, Canada, 2Atlantic Food & Horticulture Research Centre, Agriculture & Agri-Food Canada, Truro, NS, Canada, 3AgraPoint, Bible Hill, NS, Canada.

Reproduction in grazing dairy cows treated with 14-d CIDR for presynchronization before a timed AI (TAI) compared with AI after observed estrus.

Hormonal therapies on repeat breeder cows of a dairy production unit of central Mexico (Aguascalientes State).

Effects of month of breeding on reproductive efficiency of dairy cows inseminated with sexed or nonsexed semen in a hot arid environment.
E. Sepulveda**, O. Angel-Garcia1, J. M. Guillen1, C. A. Meza-Herrerra2, F. G. Veliz1, and M. Mellado1, 1Universidad Autonoma Agraria Antonio Narro, Torreon, Coahuila, Mexico, 2Universidad Autonoma Chapingo-Unidad Regional Universitaria de Zonas Aridas, Bermejillo, Durango, Mexico.
M212 Effects of follicular wave and progesterone concentration during follicle growth on conceptus global gene expression in dairy cows.
R. S. Bisinotto*, E. S. Ribeiro1, L. F. Greco1, N. Martinez1, R. L. A. Cerri1, W. W. Thatcher1, and J. E. P. Santos1, 1University of Florida, Gainesville, 2University of British Columbia, Vancouver, BC, Canada.

M213 Expression of CYP11A1, CYP17, and CYP19A1 in granulosa cells, and determination of hormone levels in follicular fluid from dominant follicles and follicular cysts in Holstein cows.

M214 Comparison of dry matter intake and somatotropic axis components of Holstein and crossbred dairy cows.
L. G. D. Mendoza*, N. B. Litherland3, M. C. Lucy2, D. H. Keisler3, and R. C. Chebel1, 1Department of Veterinary Population Medicine, University of Minnesota, Saint Paul, 2Department of Animal Science, University of Minnesota, Saint Paul, 3Division of Animal Sciences, University of Missouri, Columbia.

M215 Effect of subclinical mastitis and postpartum uterine disease on expression of estrous behavior in cows.
Y. Lapon2, M. Kain2, G. Leitner3, H. Voet4, and D. Wolfenson**, 1Israel Cattle Breeders Association, Caesarea, Israel, 2Agricultural Research Organization, Bet-Dagan, Israel, 3The Veterinary Institute, Bet Dagan, Israel, 4Faculty of Agriculture, Food and Environment, The Hebrew University, Rehovot, Israel.

M216 Dietary protein:carbohydrate ratio affects glucose tolerance and oxidation in pregnant gilts.
C. C. Metges*, S. Görs, I. Lang, K-P. Brüssow, C. Rehfeldt, and W. Otten, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany.

Production, Management, and the Environment
Dairy I

M217 Measuring dry matter of corn silage, haylage, and TMR samples with a food dehydrator.

M218 Determining surface area of exposed silage on California dairy farms.
D. Meyer*, P. H. Robinson1, P. L. Price1, R. Rauch1, and J. M. Heguy**, 1University of California, Davis, 4University of California Cooperative Extension, Modesto.

M219 Comparison of two methods of collecting calf birthweights (BW) in dairy calves.
N. M. Long* and J. F. Smith, Department of Animal Sciences, University of Arizona, Tucson.

M220 Assessing among-farm variability in heifer body weights.
G. B. Bond**1, M. A. G. von Keyserlingk*, N. Chapinal1, E. A. Pajor2, and D. M. Weary2, 1University of British Columbia, Vancou- ver, BC, Canada, 2University of Calgary, Calgary AB, Canada.

M221 The effects of increased space allowance on dairy calf performance, behavior, and respiratory antibody production.
M. S. Calvo*, L. E. Hulbert2, A. Louie1, L. J. Gershwin2, K. E. Pinkerton4, K. C. Klasing2, C. B. Tucker3, and F. M. Mitloehner1, 1Department of Animal Science, University of California, Davis, 2School of Veterinary Medicine, University of California, Davis, 4Department of Pathology, Microbiology and Immunology, School of Veterinary Medicine, University of California, Davis, 3Department of Anatomy, Physiology, and Cell Biology, School of Veterinary Medicine; Center for Health and the Environment; University of California, Davis.

M222 Growth measurements of organically raised dairy steers compared with conventionally raised dairy steers.
E. A. Bjorklund* and B. J. Heins, Department of Animal Sciences, University of Minnesota, West Central Research and Outreach Center, Morris.

M223 Associations between herd-level feeding management practices, feed sorting, and milk production in freestall dairy farms.
A. D. Sova**, S. J. LeBlanc1, B. W. McBride1, and T. J. DeVries3, 1Dept. of Animal and Poultry Science, University of Guelph, Kemptville Campus, Kemptville, ON, Canada, 3Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Dept. of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.

M224 Comparison of the effects of conductive cooling to fan cooling on lactating dairy cattle.
R. B. Thornton*, W. A. Greene1, J. Bruer2, and T. Steele2, 1The Ohio State University, Wooster, 2Conco Technologies, Chandler, AZ.

M225 Effect of FlipFan cooling system on lactating dairy cattle performance in an open dry-lot commercial dairy in a sub-tropical environment in central Texas.
Correlation between invasive methods for recording physiological parameters and infrared thermography in calves.

Agreement between reticular and vaginal measurement of core temperature in dairy cattle.
J. A. Small*, R. Hayman*, T. Rudderham, A. Freeden, and W. Webster*, 1Agriculture and Agri-Food Canada, Truro, NS, Canada, 2Nova Scotia Agricultural College, Truro, NS, Canada, 3DVM Systems LLC, Denver, CO.

Warm drinking water lowers core temperature in dairy cattle.
J. A. Small*, T. Rudderham, R. Hayman, A. Freeden, and W. Webster, 1Agriculture and Agri-Food Canada, Truro, NS, Canada, 2Nova Scotia Agricultural College, Truro, NS, Canada, 3DVM Systems LLC, Denver, CO.

Influence of time of day, breed, and season on reticulorumen temperature in lactating dairy cows.
D. Liang*, D. L. Ray, J. D. Clark, and J. M. Bewley, University of Kentucky, Lexington.

Udder skin temperature of dairy cows under heat stress and physiological parameters tested by infrared thermography in two cooling system conditions.
R. B. Younes1, G. Licitra2, G. Azzaro2, I. Schadt3, M. Caccamo2, R. Petriglieri3, and S. Carpino3, 1Institut National Agronomique de Tunisie, Tunis, Tunisia, 2CoRFlLaC, Regione Siciliana, Ragusa, Italy, 3DISPA, Catania University, Catania, Italy.

Establishing the summer:winter ratio to evaluate the effects of heat stress on conception rates in US commercial dairies.
H. M. Robertson1,2,3 and T. R. Bilby, 1Department of Animal Science and Wildlife Management, Tarleton State University, Stephenville, TX, 2Texas AgriLife Research and Extension, Texas A&M System, Stephenville.

Utilizing production parameters to establish the summer:winter ratio to evaluate the effects of heat stress on commercial dairies in the southwest.
H. M. Robertson1,2,3 and T. R. Bilby, 1Department of Animal Science and Wildlife Management, Tarleton State University, Stephenville, TX, 2Texas AgriLife Research and Extension Service, Texas A&M System, Stephenville.

Heat stress effects on milk production and udder health in Holstein and Jersey cows.
D. L. Smith, S. H. Ward*, T. Smith, and B. J. Rude, Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State.

Impact of season on the metabolic profile in transition Holstein dairy cows in summer and winter.
K. J. Lager*, E. R. Jordan1,2, R. G. S. Bruno1,2, J. A. H. Rivera3, R. Sprowls4, and D. R. Topliff5, 1Texas AgriLife Extension Service, Texas A&M System, College Station, 2West Texas A&M University, Canyon, 3Texas AgriLife Research, Stephenville, 4Texas Veterinary Medical Diagnostic Laboratory, Amarillo.

Abundance of antibiotic resistance genes in the gut and feces of ionophore-fed lactating cows.

Production and management consequences of abortion in dairy herds of central Mexico.

Prevalence of dairy cattle diseases and abortion in central Mexico.
C. Murillo, R. R. Lozano, C. F. Areachiga*, M. Rincon, and Z. Cortes, Autonomous University of Zacatecas, Zacatecas, Mexico.

Analysis of factors affecting heifer fertility traits in Chinese Holstein.
Y. Wang*, X. Guo1,2, G. Guo1,2, X. Li2, L. Liu2, W. Zheng2, T. Yang2, Q. Liu2, Y. Zhang1, S. Zhang2, and Y. Zhang1, 1College of Animal Science and Technology, China Agriculture University, Beijing, China, 2Beijing Sanyuan Lvhe Dairy Cattle Center, Beijing Sanyuan Breeding Technology Co., Beijing, China, 3Beijing Dairy Cattle Center, Beijing, China, 4Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 5Beijing Capital Agribusiness Group, Beijing, China.

Characterization of certified organic Wisconsin dairy farms: Management practices, feeding regimens, and milk production.

Impact of dairy herd reproductive performance on predicted economic performance, enteric CH4 emission and excretion of N and P using a Markov-chain model.

Reproductive indicators of dairy enterprises in north and west Mexico.

Seasonal variation on milk components and relation to quality payment program.
L. C. Roma Junior*, A. C. S. Gonçalves1, and P. F. Machado1, 2APTA Centro Leste, Ribeirao Preto, Sao Paulo State, Brazil, 1Clinica do Leite, ESALQ/USP, Piracicaba, Sao Paulo State, Brazil.
Ruminant Nutrition

Beef I

M243 Effects of temporary calf removal (CR) prior to fixed-time AI (TAI) on pregnancy rates and subsequent calf performance in suckled beef cows.

M244 Effect of cattle processing and handling on changes in measures of temperament during a 70-d feed efficiency test.

M245 Culling reasons and the association of herd size and milk yield with culling rates in dairy herds in southern Brazil.
R. Almeida*, D. F. F. Silva, L. Alegreani, R. B. Navarro*, J. A. Valloit, and J. A. Horst, Universidade Federal do Paraná, Curitiba, PR, Brazil, Capal Cooperativa Agroindustrial, Arapoti, PR, Brazil, Associação Paranaense de Criadores de Bovinos da Raça Holandesa, Curitiba, PR, Brazil.

M246 Nitrogen utilization efficiency in specialized dairy herds in southern Brazil.
D. Jerszurki1, L. Jerszurki2, R. B. Navarro3, A. Ostrensky4, G. T. Santos5, and R. Almeida*, Universidade Federal do Paraná, Curitiba, PR, Brazil, Universidade Tecnológica Federal do Paraná, Curitiba, PR, Brazil, Capal Cooperativa Agroindustrial, Arapoti, PR, Brazil, Pontifícia Universidade Católica do Paraná, Curitiba, PR, Brazil, Universidade Estadual de Maringá, Maringá, PR, Brazil.

---

Ruminant Nutrition

Beef I

M247 Carcass primary cuts proportions of Nellore bulls stratified for residual feed intake.
F. L. Araujo*, R. H. Branco, C. D. A. Batalha, S. F. M. Bo nilha, A. C. Queiroz, and W. P. Costa, Departamento de Zootecnia, Universidade Federal de Viçosa, Viçosa, MG, Brazil, Centro APTA Bovinos de Corte, Instituto de Zootecnia, Secretário, SP, Brazil.

M248 Creatinine excretion and metabolizable protein requirements for maintenance of Red Norte young bulls.

M249 Measurement of purine derivatives and creatinine excretion in steers fed fescue seed.

M250 Feedlot performance and carcass characteristics of limit-fed steers.
K. Thompson*, P. Gunn, R. Lemenager, M. Claey s, T. Nennich, and S. Lake, University of Wyoming, Laramie, Purdue University, West Lafayette, IN.

M251 Ergovaline disappearance from a ruminally incubated buffer.

M252 Body condition score and heart girth of age between 7 and 18 months of age to estimate pregnancy probability of Hereford heifers mated at 18 months of age.

M253 Use of body weight gain at different ages to evaluate the pregnancy probability and the change in the pregnancy chance of Hereford heifers mated at 18 months of age.

M254 Use of a fescue seed model to study effects of ergot alkaloids on temperature regulation in steers.
G. B. Huntington* and J. H. Eisemann, North Carolina State University, Raleigh.

M255 Deposition of muscular and subcutaneous fat tissues of Nellore steers fed pasture with crude glycerin.

M256 Differences in residual feed intake are largely associated with changes in body weight gain composition.
M. L. Nascimento*, A. R. D. L. Souza, R. R. Tullio, M. M. Alencar, A. N. Rosa, and D. P. D. Lanna, Universidade de Sao Paulo, Piracicaba, Sao Paulo, Brazil, Embrapa Cattle Southeast, Sao Carlos, Sao Paulo, Brazil, Embrapa Beef Cattle, Campo Grande, Mato Grosso do Sul, Brazil.
Effects of trehalose on performance and morbidity of newly received beef steers.
E. M. Domby*, C. H. Ponce, J. S. Schutz, and M. L. Galyean, Department of Animal and Food Sciences, Texas Tech University, Lubbock.

Performance of fattening steers on Marandu pasture supplemented with levels of total digestible nutrient in the water season.

Different supplementation strategies to grazing beef cattle in Brazil.
H. O. A. Santana1, H. J. Fernandes2, M. A. Rezende2, G. L. D. Feijó3, A. Aguiar3, E. P. Rosa3, C. N. F. Guaraldo3, and J. A. da Costa Lima1, 1State University of Mato Grosso do Sul, Aquidauana, MS, Brazil, 2EMBRAPA Beef Cattle Center, Campo Grande, MS, Brazil, 3Federal University of Grande Dourados, Dourados, MS, Brazil, 4University of Florida, Gainesville.

Evaluation of the acid insoluble ash technique as a method for determining apparent diet digestibility in beef cattle.
E. J. Mc Geough*, J. T. Zervoudakis, L. S. Silva*, R. C. Gomez2, S. L. Silva3, J. B. S. Ferraz2, and P. R. Leme3, 1College of Animal Science and Food Engineering, University of São Paulo, Pirassununga, SP, Brazil, 2State University of Londrina, Londrina, PR, Brazil.

Different supplementation strategies to growing Nellore cattle.
S. L. Silva3, A. L. C. Borges4, R. R. Nogueira5, N. M. Rodrigues6, R. R. Silva7, C. G. Pancoti7, and H. F. Lage7, 1Universidade de Antioquia, Medellín, Antioquia, Colombia, 2Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

Supplementation of fattening steers on Marandu pasture in the summer: intake and digestibility.

Performance, feed efficiency and ultrasound carcass traits of Nellore cattle with different classes of residual gain.
M. H. A. Santana8, R. C. Gomez4, S. L. Silva4, J. B. S. Ferraz4, and P. R. Leme4, 1College of Animal Science and Food Engineering, University of São Paulo, Pirassununga, SP, Brazil, 2State University of Londrina, Londrina, PR, Brazil.

Effect of diet type on the expression of genes regulating ruminal epithelium function of cattle.
A. K. Kelly9, S. M. Waters10, K. Keogh11, E. O’Shea12, and D. A. Kenny12, 1School of Agriculture and Food Science, University College Dublin, Dublin, Dublin, Ireland, 2Teagasc Animal Bioscience Department, Dunsany, Co. Meath, Ireland.

Correlations between arrival plasma amino acid concentrations and feedlot performance and effects of arrival sex and antibiotic treatments in high-risk calves.

Evaluation of the acid insoluble ash technique as a method for determining apparent diet digestibility in beef cattle.
E. J. McGeough*, D. A. Kenny1, and P. O’Kiely1, 1Teagasc Animal & Grassland Research and Innovation Centre, Grange, Dunsany, Co. Meath, Ireland, 2School of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Dublin, Ireland.

Feedlot performance and carcass traits of Nellore cattle as affected by sex condition and frame size.

Evaluation of a rapid determination of heat production and respiratory quotient in Holstein steers using the washed rumen technique.
D. H. Kim*, K. R. McLeod4, J. L. Klotz2, A. F. Koontz1, A. P. Foote1, and D. L. Harmon1, 1University of Kentucky, Lexington, 2USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY.

Effects of lipid sources on intake and digestibility of beef cattle finished at pasture.
I. P. C. Carvalho2,3, T. T. Berchielli2,3, G. Fiorentini2,3, J. F. Lage2,3, Y. T. G. Salcedo1, H. V. Brandt Filho1, L. G. Rossi2, C. S. Ribeiro Junior2,3, and L. M. Delevatti1, 1Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, Brazil, 2INCT/CA member, Brazil, 3FAPESP Fundação de Amparo a, 4Pesquisa do Estado de São Paulo, São Paulo, Brazil.

Nutrient mass balance and performance of feedlot cattle fed barley segregated by near infrared spectroscopy.

Development of a fecal starch index to predict the feeding value of barley grain for feedlot cattle.
W. Z. Yang* and T. A. McAllister, Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

Effect of direct-fed microbials on utilization of ruminally degradable protein in receiving steers.
Ruminant Nutrition
Dairy I

M272
Utilizing dietary nutrients to predict nitrogen efficiency in lactating dairy cattle.
N. Swanepoel* and P. H. Robinson, University of California, Davis.

M273
Effects of water iron concentration, valence and source on drinking water preference of lactating cows.
O. N. Genther* and D. K. Beede, Michigan State University, East Lansing.

M274
Effect of cecum starch infusion on hindgut fermentation and inflammatory response in dairy cattle.
S. Li†, H. Khazanehei, E. Khafiipour, and J. C. Plaizier, University of Manitoba, Winnipeg, MB, Canada.

M275
Hepatic triglyceride concentration and fatty acid profile in early lactation Holstein cows fed saturated medium- or long-chain fatty acids.
M. Hollmann*, T. H. Herdt, J. A. Zyskowski, and D. K. Beede, Department of Animal Science, Michigan State University, East Lansing, Department of Large Animal Clinical Sciences, Michigan State University, East Lansing, Diagnostic Center for Population and Animal Health, Michigan State University, East Lansing.

M276
Production and metabolic response of lactating dairy cows to heat stress while supplemented with a dietary antioxidant.

M277
Effect of supplemental fatty acids on production responses and hepatic fatty acid composition and gene expression of dairy cows fed diets containing low concentrations of fatty acids.

M278
Effect of lactation stage on milk production and milk quality in dairy cows in confinement.
J. A. de Freitas*, J. C. de Souza, R. P. Lana, A. F. G. Neto, W. L. Souza, and A. L. dos Santos, Federal University of Parana, Palotina, Parana, Brazil, Federal University of Viçosa, Viçosa, Minas Gerais, Brazil, Federal University of South of Mato Grosso, Aquidauana, Mato grosso do Sul, Brazil.

M279
Comparison of growth curves between two genetic compositions of dairy goats using nonlinear mixed models.
J. G. L. Regadas Filho*, M. T. Rodrigues†, R. A. M. Vieira†, L. F. Brito†, and T. S. Oliveira†, Universidade Federal de Viçosa, MG, Brazil, Universidade Estadual do Norte Fluminense Darcy Ribeiro, Campos dos Goytacazes, RJ, Brazil.

M280
Nonlinear mixed models fitted to growth curves of dairy goats.
J. G. L. Regadas Filho*, M. T. Rodrigues†, R. A. M. Vieira†, L. F. Brito†, and T. S. Oliveira†, Universidade Federal de Viçosa, MG, Brazil, Universidade Estadual do Norte Fluminense Darcy Ribeiro, Campos dos Goytacazes, RJ, Brazil.

M281
Increasing doses of trans-10, cis-12 conjugated linoleic acid (CLA) and changes in milk fat content and secretion of dairy ewes.
M. Baldin†, D. R. M. Alessio†, J. Souza†, M. A. S. Gama, M. P. Soares*, and D. E. Oliveira†, Centro de Ciências Agroveterinárias, UDESC, Lages, SC, Brazil, Esalq/USP, Piracicaba, SP, Brazil, Embrapa, CNPGL, Juiz de Fora, MG, Brazil, Instituto Federal Catarinense, Araquari, SC, Brazil, Centro de Educação Superior do Oeste, UDESC, Chapecó, SC, Brazil.

M282
Impacts of fat level and source on production of high producing California dairy cows.
J. M. Soderstrom*, P. H. Robinson†, and K. Karges†, University of California, Davis, POET Nutrition, Sioux Falls, SD.

M283
Meta-analysis: Impact of grain type and corn harvest and processing practices on digestion and lactation performance by dairy cows.
L. F. Ferraretto* and R. D. Shaver, Department of Dairy Science, University of Wisconsin-Madison, Madison.

M284
Finding a proxy for the inhibiting effects of polyunsaturated fatty acids on milk fat in dairy cows.
G. Maxin*, H. Rulquin, and F. Glasser, INRA-Agrocampus Ouest, Rennes, France, INRA, Thieu, Saint-Gênes-Champanelle, France.

Ruminant Nutrition
Dairy: Calves and Heifers

M285
Crude glycerin as a replacement for corn in starter concentrate for dairy calves: Ruminal and blood parameters.
G. G. O. Napoles†, C. E. Oltramari†, J. T. Silva†, G. B. Mourão†, and C. M. M. Bittar*†, Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, SP, Brazil, Fapesp, São Paulo, SP, Brazil, CNPq, Brasilia, DF, Brazil.
Effect of feed presentation on pre- and post-weaning performance of dairy calves.
E. K. Miller-Cushon1, R. Bergeron2, K. F. Leslie3, G. J. Mason4, and T. J. DeVries*, 1Dept. of Animal and Poultry Science, University of Guelph, Kemptville Campus, Kemptville, ON, Canada, 2Dept. of Animal and Poultry Science, University of Guelph, Campus d’Alfred, Alfred, ON, Canada, 3Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada, 4Dept. of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.

Interactive effects of feeding frequency and feed bunk space on the feeding behavior of limit-fed dairy heifers.
A. M. Greter1, T. F. Duffield2, B. W. McBride3, T. M. Widowski1, and T. J. DeVries*, 1Dept. of Animal and Poultry Science, University of Guelph, Kemptville Campus, Kemptville, ON, Canada, 2Dept. of Animal and Poultry Science, University of Guelph, Kemptville, ON, Canada, 3Dept. of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.

Effect of physical form of forage on performance, feeding behavior, and digestibility of Holstein calves.
C. Montoro1, E. K. Miller-Cushon*, T. J. DeVries2, and A. Bach1,3, 1Department of Ruminant Production, IRTA, Barcelona, Spain, 2Department of Animal and Poultry Science, University of Guelph, Kemptville, ON, Canada, 3ICREA, Barcelona, Spain.

Effects of age on gene expression of transport proteins in ruminal epithelia of milk-fed calves.
M. Oba*, T. B. McFadden, and L. L. Guan, University of Alberta, Edmonton, AB, Canada.

Ruminal and blood parameters of dairy calves managed on different milk-feeding programs.
M. R. Paula1,2, G. G. O. Napoles1,2, M. P. C. Gallo1,3, M. C. Soares1,3, and C. M. M. Bittar*1,2, 1Escola Superior de Agricultura, Piracicaba, SP, Brazil, 2CNPq, Brasilia, DF, Brazil, 3Fapesp, São Paulo, SP, Brazil.

Effects of kelp meal on performance and structural growth of conventional and organic dairy calves.
B. Ozer*, T. F. Duffield, and M. Chahine1, 1University of Idaho, Twin Falls, 2IRTA, Caldes de Montbui, Spain, 3ICREA, Barcelona, Spain.

Intake and performance of Holstein heifers transitioned to group housing from individual pens using differing grain mixes with or without hay the first two weeks after moving.
D. Ziegler*, D. Schimek, B. Ziegler1, H. Chester-Jones2, M. Raeth-Knight3, and G. Golombeski4, 1University of Minnesota Southern Research and Outreach Center, Waseca, 2Hubbard Feeds Inc., Mankato, MN, 3University of Minnesota, St. Paul, 4Hubbard Feeds Inc., Iowa City, IA.

Precision-feeding dairy heifers with different levels of dietary fiber and F:C. Effects on protein utilization, N efficiency, and rumen fermentation.
G. J. Lascano*1,2, 1The California Polytechnic State University, San Luis Obispo, 2The Pennsylvania State University, University Park.

Insulin response is affected by the level of milk replacer offered to young calves.
A. Bach1,2, Ll. Castells3, C. Montoro4, and M. Terre5, 1ICREA, Barcelona, Spain, 2Department of Ruminant Production, IRTA, Barcelona, Spain.

Optimizing particle size and moisture in diets for dairy heifers.
M. A. Khan1, A. Bach2,3, Ll. Castells4, D. M. Weary1, and M. A. G. von Keyserlingk1, 1Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada, 2ICREA, Barcelona, Spain, 3Department of Ruminant Production, IRTA, Barcelona, Spain.

Replacing processed grains with whole corn in starter diet did not affect the performance of dairy calves.

Performance of dairy calves managed on different milk-feeding programs.
M. R. Paula1,2, M. P. C. Gallo1,3, M. C. Soares4, G. B. Mourão5, and C. M. M. Bittar*1,2, 1Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, SP, Brazil, 2CNPq, Brasilia, DF, Brazil, 3Fapesp, São Paulo, SP, Brazil.

Effect of increasing intake of linoleic acid in milk replacer on Holstein calf performance.

Effect of feeding increasing amounts of linoleic acid on health and immunity of unweaned Holstein calves.

Jersey calf blood metabolites in response to liquid feeds with varied fatty acid profiles.
V. A. Swank*, W. S. Bowen, K. M. O’Diam, M. L. Eastridge, and K. M. Daniels, Department of Animal Sciences, The Ohio State University, Columbus.
Ruminant Nutrition
Dairy: Feed Additives I

M305 Effect of live yeast on milk yield and related responses in a commercial dairy herd.
G. E. Higginbotham*, A. R. Castillo1, J. M. Heguy2, and H. A. Rosso2, 1University of California Cooperative Extension, Madera, 2University of California Cooperative Extension, Merced, 3Department of Animal Production, Faculty of Agriculture, Ain Shams University. Cairo, Egypt.

M306 Effects of corn shredlage on lactation performance by dairy cows.
L. F. Ferraretto* and R. D. Shaver, University of Wisconsin-Madison, Madison.

M307 Could live yeast supplement improve milk composition of mid lactating Holstein cows during heat stress?
M. Dehghan-Banadaky*, R. Motamendi, and M. Ebrahimi1, 1University of Tehran, Karaj, Tehran, Iran, 2Islamic Azad University, Tehran, Iran.

M308 Investigation of live yeast supplement on blood metabolites and nutrient digestibility in mid lactating Holstein cows.
M. Dehghan-Banadaky*, R. Motamendi, and M. Ebrahimi1, 1University of Tehran, Karaj, Tehran, Iran, 2Islamic Azad University, Tehran, Iran.

M309 Influence of Salix babylonica extract on daily milk production and composition as well as in vitro gas production in dairy cows.
A. Z. M. Salem*, R. Rojo1, M. Ronquillo2, H. Gado3, N. Pescador1, and F. Peralta1, 1Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de Mexico, Mexico, 2Centro Universitario UAEM Temascaltepec, Universidad Autónoma del Estado de México, Temascaltepec, Estado de México, Mexico, 3Department of Animal Production, Faculty of Agriculture, Ain Shams University, Cairo, Egypt.

M310 A novel approach to measure the bioavailability of rumen protected l-lysine.
K. B. Cunningham*, J. A. Davidson1, S. E. Boucher1, and B. L. Miller1, 1LongView Animal Nutrition Center, Land O’ Lakes Purina Feed, Gray Summit, MO, 2Kemin AgriFoods North America, Des Moines, IA.

M311 Determining the bioavailability of lysine in AjiPro-L using the plasma free amino acid dose response method.
N. L. Whitehouse*, E. S. Fletcher1, A. F. Brito1, C. G. Schwab2, and I. Shinzato1, 1University of New Hampshire, Durham, 2Schwab Consulting LLC, Boscobe, 3Ajinomoto Heartland Inc., Chicago, IL.

M312 Microencapsulated sodium selenite supplementation in dairy cows: Effects on selenium status.
E. Grilli*, P. Fantinati, M. Morlacchini, and A. Piva, DISMVET, Facoltà di Medicina Veterinaria, Ozzano Emilia, Italy, 3Vetagro SpA, Reggio Emilia, Italy, 4Centro Ricerche per la Zootecnia e l’Ambiente, San Bonico, Italy.

M313 Effects of dietary amylase and sucrose on productivity of cows fed low-starch diets.
C. F. Vargas*, M. Engstrom3, and B. J. Bradford1, 1Kansas State University, Manhattan, 2DSM Nutritional Products, Parsippany, NJ.

M314 The effect of essential oil/botanical product on performance and health of calves.
B. L. Miller, T. J. Earlewine*, and T. E. Johnson, Land O’ Lakes Inc., Webster City, IA.

M315 Effects of two sources of rumen-protected fat associated or not with conjugated linoleic acid (CLA) on milk fatty acid profile in dairy ewes.
E. Ticiani*, J. De Souza2, F. Batistel2, M. Baldin1, R. Dresch1, M. A. S. Gama2, F. C. F. Lopes1, and D. E. Oliveira*1, 1Universidade do Estado de Santa Catarina, CEO, Chapecó, Santa Catarina, Brazil, 2Universidade de São Paulo, ESALQ, Piracicaba, São Paulo, Brazil, 3Univesidade do Esatado de Santa Catarina, CAV, Lages, Santa Catarina, Brazil, 4Embrapa Gado de Leite, Juiz de Fora, Minas Gerais, Brazil.
Feeding protected lysine to lactating dairy cows improved milk protein yield.
J. A. Davidson*, S. E. Boucher, and B. L. Miller1, LongView Animal Nutrition Center, Land O’ Lakes Purina Feed, Gray Summit, MO, 2Kemin AgriFoods North America, Des Moines, IA.

The effect of treating corn stover silage with cellulase and Lactobacillus on nutritive value of silage in dairy cows.

The effect of dietary buffers and magnesium oxide on intake, milk yield and composition, and blood metabolites of lactating cows.
J. Chiquette*, M. B. de Ondarza, Universidad de la República, Montevideo, Uruguay.

Effect of live yeast supplementation on milk yield, milk components, and rumen pH in dairy cows.
M. Aguerre*, C. Cajarville, A. Gonzalez, and J. L. Repetto, Departamento de Bovinos, Facultad de Veterinaria, Universidad Nacional de Ingeniería, Lima, Peru.

Combination of bacterial and yeast probiotics: A step forward to unravel their mode of action.

Ruminant Nutrition
General I

Milk fatty acids composition responses to dietary short-medium chain fatty acids and long chain fatty acids in lactating dairy cows.

Effect of sorghum grain supplementation levels on ruminal volatile fatty acids: Comparison between cattle and sheep.
M. Aguerre*, C. Cajarville, L. Assandri, A. Gonzalez2, and J. L. Repetto3, 1Departamento de Bovinos, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay, 2Departamento de Nutrición Animal, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay.

Effects of different ratios of short-medium chain fatty acids to long chain fatty acids on milk composition in dairy cows.
M331 Effects of different fatty acid mixtures on milk fatty acid composition and oxidative stability of milk fat.

M332 Endogenous contribution and urinary recovery of purine derivatives in Nellore cattle.
A. M. Barbosa*, R. F. D. Valaodes, S. de C. V. Filho, D. do Santos Pina, and M. A. Fonseca, Universidade Federal da Bahia, Salvador, Bahia, Brazil, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, Universidade Federal do Mato Grosso, Sinop, Mato Grosso, Brazil, Texas A&M University, College Station.

M333 Effects of dietary inclusion of tannin and polyethylene glycol supplementation on nitrogen metabolism in Saanen dairy goats.
A. Rahimi, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

M334 Intake and apparent total tract digestibility of dry matter and nutrients in Nellore steers fed with whole raw soybean.

M335 Evaluation of published models for predicting dry matter intake of lactating dairy cows.
J. Lee* and S. Seo, Chungnam National University, Daejeon, Republic of Korea.

M336 Effects of roughage source and dietary level of inclusion on total tract apparent digestibility in Nellore cattle.
R. S. Goulart*, L. G. Nussio, R. A. M. Vieira, J. L. P. Daniel, R. C. Amaral, V. P. Santos, and A. V. Pires, University of São Paulo, ESALQ, Piracicaba, SP, Brazil, Department of Animal Sciences, North Dakota State University, Fargo, Universidade Estadual do Norte Fluminense, Campos dos Goytacazes, RJ, Brazil.

M337 Intake and digestibility of diets with different levels of concentrates in cattle feedlot Nellore.

M338 Voluntary intake, apparent digestibility and blood urea levels in hair sheep fed Cynodon nlemfuensis grass mixed with Leucanha leucocephala and supplemented with rumen fermentable energy.

M339 Rumen ammoniacal nitrogen and pH from cattle supplemented with levels of replacement of soybean meal by sunflower cake.

M340 Comparison of three different methods in determination of accurate soluble fraction in feeds for CPM Dairy formulation to improve efficiency and milk prediction accuracy.
P. Yu, B. Liu*, Z. Niu, and D. A. Christensen, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

M341 Economic analysis of the inclusion of macauba pie of dietary lactating dairy cows.
C. S. Ribeiro Junior*, R. A. de Azevedo, A. C. R. dos Santos, L. C. Gerassev, R. N. Bahiense, L. Araújo, and A. R. C. Lima, Federal University of Minas Gerais, Montes Claros, Minas Gerais, Brazil, São Paulo State University, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, São Paulo, Brazil.

M342 Survey of nutritional recommendations used by feedlot nutritionists in Brazil in 2011.

M343 Effects of different ratios of short-medium chain fatty acids to long chain fatty acids on plasma fatty acids profiles in lactating dairy cows.

M344 Effects of total solids in drinking water and milk yield per cow on milk mineral concentrations from California dairy farms.
A. R. Castillo*, N. S. del Ro, N. R. St-Pierre, and W. P. Weis, University of California, Cooperative Extension, Merced, University of California, Cooperative Extension, Tulare, The Ohio State University, Department of Animal Science, Columbus.

M345 Effects of supplementing different sources of fatty acids on lipid metabolism and endocrine responses in mid-lactation dairy cows.
Effect of replacing legume/grass silage with corn silage in dairy cow diets on enteric methane production.
F. Hassanat*, P. R. Gervais1, P. Y. Chouinard3, C. Julien3, F. Tremblay3, D. I. Massé1, and C. Benchara1, 1Dairy and Swine Research and Development Centre-Agriculture and Ag-Food Canada, Sherbrooke, QC, Canada, 2Département des Sciences Animales, Université Laval, Québéc, QC, Canada, 3INRA-Université de Toulouse, Castanet-Tolosan, France.

Effects of supplementing different ratios of short-medium chain fatty acids to long-chain fatty acids on the immune function in mid-lactating dairy cows.

Effects of supplemental extruded full-fat soybean (ESB) on ruminal fermentation, nutrient digestion, blood parameters and productive performance of early lactation dairy cows.
H. Su*, F. Wang1, Y. Zou1, Z. Cao3, M. Ma2, and S. Li3, 1State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, 2Sino-US Dairy Research and Development Center, Beijing, China.

Intake and digestibility by lactating cows fed different levels of palm kernel cake.
R. L. Oliveira*, R. L. N. V. Silva1, A. C. Ferreira1, A. G. Leão2, M. C. A. Santana2, A. A. Pinheiro1, G. G. P. Carvalho2, and L. F. B. Pinto1, 1Universidade Federal da Bahia, Salvador, BA, Brazil, 2Instituto Federal Baitano, Catu, BA, Brazil.

Ruminant Nutrition
Rumen Function and Digestion

Comparison of three marker systems and three sites of digesta sampling to estimate the rumen outflow in bulls fed with corn silage or sugar cane.
P. P. Rotta*, S. de C. V. Filho, L. F. C. Silva, F. A. C. Villadiego, and E. M. Galindo, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

Comparison of in situ nylon bag protocols for analysing ruminal degradation of dry matter and crude protein in forages.
H. van Laar*, J. Doorenbos1, J. D. Steckley1, and J. A. Metcalfe1, 1Nutreco R&D, Boxmeer, the Netherlands, 2Nutreco Canada Agresearch, Guelph, ON, Canada.

Methane emissions and diet digestibility for sheep offered diets varying in fat content and forage quality.

Leucaena diets with or without polyethylene glycol affecting rumen fermentation and methane emission in sheep.
Y. Soltan*, A. Morsy3, R. Lucas1, S. Sallam2, H. Louvardini1, and A. Abdalla1, 1Centre for Nuclear Energy in Agriculture, Universidade de São Paulo, Piracicaba, Sao Paulo, Brazil, 2University of Alexandria, Alexandria, Egypt, 3Animal Production Research Institute, Cairo, Egypt.

Biometrics digestive tube of kids suckled up to 60 days fed different goat milk replacers.

Comparative influence of solvent extracted-peanut meal and soybean meal on apparent digestibility of diets for finishing lambs.
L. R. Flores*, A. Camacho1, N. E. Villalba1, I. J. Lomelí1, and R. Barajas1, 1FMVZ-Universidad Autonóma de Sinaloa, Culiacán, Sinaloa, México, 2Agricola Ganadera Mojolo, Culiacán, Sinaloa, México.

Development of a new marker for utilization in digestibility studies.
C. C. C. Couto Filho1, E. O. S. Saliba1*, M. N. Pereira2, N. M. Rodriguez1, and N. N. Morais Júnior3, 1Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil, 2Universidade Federal de Lavras, Lavras, MG, Brazil, 3Instituto Federal de Educação Ciência e Tecnologia do Espírito Santo, Colatina, ES, Brazil.

Effects of vitamin B12 on in vitro rumen fermentation and microbial enzyme activity.
Y. X. Li, J. K. Wang, Y. M. Wu, and J. X. Liu*, Institute of Dairy Science, MOE Key Laboratory of Molecular Animal Nutrition, Zhejiang University, Hangzhou, China.

Urinary recovery of purine derivatives and microbial production in Nellore cattle.
A. M. Barbosa*, R. F. D. Valadares1, S. de C. V. Filho2, D. do S. Pina1, and M. A. Fonseca2, 1Universidade Federal da Bahia, Salvador, Bahia, Brazil, 2Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 3Universidade Federal do Mato Grosso, Sinop, Mato Grosso, Brazil, 4Texas A&M University, College Station.

Methane emission potential, chemical composition and degradability of banana crop wastes for ruminants.
L. N. Oliveira*, 1, S. L. Cabral Filho1, and L. C. Geraseev1, 1University of Brasilia, Brasilia, Federal District, Brazil, 2Federal University of Minas Gerais, Montes Claros, Minas Gerais, Brazil.
**Small Ruminant Nutrition**

**Effect of breed and sex on fatty acid composition of fat-tailed and tailed lambs.**
A. Yousefi*, H. Kohram, A. Z. Shahnneh, M. Sadeghi, and M. Poorhamdollah, University of Tehran, Karaj, Tehran, Iran.

**The energetic efficiency of growing lambs fed high-concentrate diets with different roughages.**
D. B. Galvani¹, A. V. Pires**, I. Susin¹, V. N. Gouvea¹, A. Berndt¹, L. J. Chagas¹, J. R. R. Dórea¹, A. L. Abdalla¹, and L. O. Tedeschi², ¹EMBRAPA Goats and Sheep, Sobral, CE, Brazil, ²University of São Paulo, “Luiz de Queiroz” College of Agriculture, Piracicaba, SP, Brazil, ³EMBRAPA Southeast Livestock, São Carlos, SP, Brazil, ⁴University of São Paulo, Center for Nuclear Energy in Agriculture, Piracicaba, SP, Brazil, ⁵Texas A&M University, Department of Animal Science, College Station.
Intake and feeding behavior of Morada Nova lambs fed different energy levels.
D. A. Camilo, E. S. Pereira, P. G. Pimentel, M. S. S. Carneiro, I. Y. Mizubutii, M. R. G. F. Costa, G. M. B. Moreno, and J. N. Rocha Junior, Federal University of Ceará, Fortaleza, Ceará, Brazil, State University of Londrina, Londrina, Parana, Brazil.

Different supplement treatments for lactating meat goat does grazing grass/forb pastures.

Effects of level and length of supplementation on BW and harvest characteristics of yearling Boer and Spanish wethers.
R. C. Merkel, T. A. Gipson, Z. Wang, and A. L. Goetsch, Langston University, Langston, OK.

Energy requirements for growth of male and female Saanen goat kids.

Influence of reducing starch and increasing digestible fiber on glucose tolerance test of lactating ewes.
R. S. Gentili, I. Susin, A. V. Pires, E. M. Ferreira, A. Cannas, D. Eysink, M. V. Biehl, and C. P. Nolla, Universidade de Sao Paulo/ESALQ, Piracicaba, Sao Paulo, Brazil, Università degli Studi di Sassari, Sassari, Sardegna, Italy.

Soybean meal supplementation of lambs grazing native pastures in the summer-fall season.
L. Piaggio, M. L. delPino, H. Deschenaux, and M. de J. Marichal, Secretariado Uruguayo de la Lana, Montevideo, Uruguay, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay.

Nutritional quality, intake, and apparent digestibility of mulberry (Morus alba) and star grass (Cynodon nlemfuensis) in goats.

Effect of dietary supplementation of ferrous sulfate on performance and carcass characteristics of meat sheep.
G. Abdelrahim, F. B. O. Scarpino, J. Khatiwada, and A. Gueyec, Alabama A&M University, Huntsville, North Carolina A&T State University, Greensboro, Mount Ida College, Newton, MA.

Effects of diets with different qualities of roughage on fatty acids metabolism in mammary glands of lactating dairy goats.
L. W. Song, C. J. Ao, K. Khas-Erdene, H. Zhang, Y. X. Wu, and S. W. Liu, Department of Animal Science, Inner Mongolia Agricultural University, Huhhot, Inner Mongolia, China, Key Laboratory of Grass and Herbivores of Chongqing, College of Animal Science and Technology, Southwest University, ChongQing, China.

Effects of diets with different forage profiles on the gene expression of enzymes related to fatty acid synthesis in the mammary gland of lactating dairy goats.
H. Zhang, C. J. Ao, K. Khas-Erdene, L. W. Song, and X. F. Zhang, Department of Animal Science, Inner Mongolia Agricultural University, Huhhot, Inner Mongolia, China.

Performance of Ile de France lambs fed with diets containing different percentages of mulberry hay.

Effect of metabolizable protein supplementation to ewes during late gestation on wether offspring feedlot performance, carcass characteristics, and nitrogen balance.

Effects of sources of oil on intake, performance and carcass characteristics of feedlot sheep.
F. B. O. Scarpin, J. M. B. Ezequiel, E. H. C. B. van Cleeft, M. T. C. Almeida, and H. L. Pérez, São Paulo State University, Jaboticabal, São Paulo, Brazil, CNPq, FAPESP.

Lipid sources in diets for feedlot sheep: Blood parameters.
F. B. O. Scarpin, J. M. B. Ezequiel, D. A. V. Silva, and E. H. C. B. van Cleeft, São Paulo State University, Jaboticabal, São Paulo, Brazil, CNPq, FAPESP.

Relationship between phosphorus fluids concentration and phosphorus flows in growing ruminants.
R. M. Patiño, T. Soares da Silva, J. C. da Silva Filho, D. M. S. S. Vitti, J. A. Moreira, and E. H. van Cleeft, University of Sucre, Sinceléjo, Colombia, Federal University of Lavras, Lavras, MG, Brazil, Nuclear Energy Center for Agriculture, Piracicaba, SP, Brazil, Federal University of Rio Grande do Norte, Natal, RN, Brazil, State University of Sao Paulo, Jaboticabal, SP, Brazil.

Mineral requirements for gain in Saanen goats of different sexes.
A. N. Mendonca, C. J. Härter, A. M. A. Teixeira, O. Boaventura Neto, S. F. Souza, and D. Oliveira, UNESP/Sao Paulo State University, Jaboticabal, Sao Paulo, Brazil.

Effect of chromium supplementation on ruminal parameters of Mahabadi goat kids.
A. Emami, A. Zali, M. Ganjkhahloou, A. Hojabri, and A. Akbari, University of Tehran, Tehran, Iran.
I. Moreira*, Brazil, Ibagué, Tolima, Colombia, P. Meda Alducin, J. Maldonado Jaquez, I. Tovar Luna*, and J. Jaimes Jaimes, Universidad Autónoma Chapingo, URUZA, Bermejillo, Mexico.


Effect of copper and zinc on nutrient digestibility and growth performance in goats.

Effect of clinoptilolite (zeolite) substituting for soybean meal on apparent digestibility and energy concentration of feed in growing Pelibuey sheep.

Ruminal fermentation, kinetics and digestibility of hair lambs supplemented with cull pinto bean.

Effect of feeding tannin-containing pine bark on performance, parasite load and blood metabolites in goats.
E. A. Wilson*, S. Solaiman1, B. R. Min1, N. Gurung1, W. McElhenney1, and J. Miller1, Tuskegee University, Tuskegee Institute, AL, 2Louisiana State University, Baton Rouge.

Lamb performance feeding diets with different crude protein level.
P. Meda Alducin, J. Maldonado Jaquez, I. Tovar Luna*, and J. Jaimes Jaimes, Universidad Autónoma Chapingo, URUZA, Bermejillo, Mexico.

Growth and carcass characteristics of lambs fed high-concentrate diets containing increasing levels of crude glycerin.

Influence of level of protein and energy on growth performance and tissue composition of feedlot hair lambs.

Effect of clinoptilolite (zeolite) substituting for soybean meal on apparent digestibility and energy concentration of feed in growing Pelibuey sheep.

Effect of copper and zinc on nutrient digestibility and growth performance in goats.

Effect of clinoptilolite (zeolite) substituting for soybean meal on apparent digestibility and energy concentration of feed in growing Pelibuey sheep.

Influence of level of protein and energy on growth performance and tissue composition of feedlot hair lambs.
F. G. Rios1, H. Davila-Ramos*, A. Estrada-Angulo1, A. Plascencia1, J. J. Portillo1, and J. C. Robles1, FMVZ-UAS, Culiacan, Sinaloa, Mexico, IICV-UABC, Mexicali, BC, Mexico.

Swine Species I
Sponsor: Kemin Industries

Neutral semi-purified glycerin in starting pigs feeding in Brazil.
I. Moreira*, A. G. Gallego1,2, P. C. Pozza1, P. L. O. Carvalho1, L. M. Peňuela-Sierra1,3, and L. M. Huépa1,2, Universidad de Estadual de Maringá, Maringá, Paraná, Brazil, 2Universidad del Tolima, Ibagué, Tolima, Colombia, 3Universidad Cooperativa de Colombia, Ibagué, Tolima, Colombia.

Brazilian neutral semi-purified glycerin on growing and finishing pigs feeding.
I. Moreira*, A. G. Gallego1,2, P. L. O. Carvalho1, C. C. Filho1, T. J. Pasquetti1, and D. Perondi1, Universidad de Estadual de Maringá, Maringá, Paraná, Brazil, Universidad del Tolima, Ibagué, Tolima, Colombia.

Performance and carcass traits of finishing pigs fed on crude glycerin in Brazil.
I. Moreira*, P. L. O. Carvalho1, L. M. Piano1, J. B. Toledo1, A. G. Gallego1,2, and L. M. Peňuela-Sierra1,2, Universidad de Estadual de Maringá, Maringá, Paraná, Brazil, Universidad del Tolima, Ibagué, Tolima, Colombia.

Determination of optimal dose and time of administration of intravaginal triptorelin gel for synchronizing ovulation in weaned sows.
R. Knox1, S. Breen1, J. Taibl1, M. Swanson2, and S. Webel*, University of Illinois, Urbana, Pennatek LLC, Radnor, PA, JBS United Inc., Sheridan, IN.

The effects of arginine supplementation of weaning pig diets on growth performance and IGF expression.
W. C. Wang*, R. J. Chen1,2, J. Pan1, T. J. Li1, and Y. L. Yin1, 1Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, China, 2Rice Research Institute of Sichuan Agricultural University, Chengdu, Sichuan, China, 3Guelph Food Research Center, Agriculture and Agri-Food Canada, Guelph, ON, Canada, Department of Animal Science, Hunan Agricultural University, Changsha, Hunan, China.

Assessment of zero-tannin faba bean and co-fermented corn and wheat DDGS in diets of growing-finishing pigs.
C. Furedi*, P. Lopez1, M. Licayu1, D. Gurney1, E. Kiarie1, and C. M. Nyachoti1, 1The Puratone Corporation, Niverville, MB, Canada, 2University of Manitoba, Winnipeg, MB, Canada.
SYMPOSIA AND ORAL SESSIONS

Graduate Student Competition:
ASAS Western Section Graduate Student Paper Competition
Chair: Holly L. Neibergs, Washington State University
Sponsor: ASAS Western Section
227AB

8:20 AM
Introduction
H. L. Neibergs and J. B. Taylor.

8:30 AM

17 Effect of supplementing activated charcoal on intake of honey mesquite leaves by lambs.
P. Mayaguita*, D. Bailey, and R. Estell1, 1New Mexico State University, Las Cruces; 2USDA-ARS Jornada Experimental Range, Las Cruces, NM.

8:45 AM

18 Pre-breeding β-hydroxybutyrate concentration influences conception date in young postpartum range beef cows.
J. T. Mulliniks*, M. E. Kemp1, R. L. Endecott1, S. H. Cox1, E. J. Scholljegerdes1, T. W. Geary1, and M. K. Petersen1, 1New Mexico State University, Las Cruces; 2Montana State University, Miles City; 3USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City, MT.

9:00 AM

19 Effects of algal meal supplementation to finishing wethers on performance and carcass characteristics.
M. G. Dib*, T. E. Engle, H. Han, N. Roman-Muniz, and S. L. Archibeque, Colorado State University, Fort Collins.

9:15 AM

20 Influence of the level of dried distillers grains with solubles on feedlot performance, carcass characteristics, serum testosterone concentrations, and semen quality of growing rams.

9:30 AM

21 Effect of weaning method on welfare and performance of beef calves during receiving.
E. A. Bailey*, J. R. Jaeger, J. W. Waggoner, L. W. Murray, G. W. Preedy, L. A. Pacheco, D. L. Davis, and K. C. Olson, 1Department of Animal Sciences & Industry, Kansas State University, Manhattan; 2Western Kansas Agricultural Research Center, Kansas State University, Hays; 3Department of Statistics, Kansas State University, Manhattan.

9:45 AM

22 Effects of timing of vaccination (day 0 versus day 14 of a receiving period) with a modified-live respiratory viral vaccine on performance, feed intake and febrile response of beef heifers.

10:00 AM

23 Assessment of chestnut tannin extract supplementation on animal performance and ruminal fermentation profiles in feedlot finishing diets.
J. M. Sieg*, J.-S. Eun, D. R. ZoBell, and B. R. Min, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan; 2Department of Agricultural and Environmental Sciences, Tuskegee University, Tuskegee, AL.

10:15 AM
Break

10:30 AM

24 Evaluation of the incidence, causes, and potential solutions for the occurrence of disabled or non-ambulatory cattle within the California beef and dairy industries.
M. V. Sis*, J. K. Ahola1, H. A. Foster2, D. L. VanOverbeke3, and D. A. Daley4, 1Colorado State University, Fort Collins; 2California Beef Council, Sacramento; 3Oklahoma State University, Stillwater; 4California State University-Chico, Chico.

10:45 AM

25 Effect of two, four, and six-hour intervals between two prostaglandin F2α injections administered with five-day CO-Synch + CIDR protocol on pregnancy rate in beef cows.

11:00 AM

26 Effects of pain mitigation and method of castration on behavior and feedlot performance in culled beef bulls.
P. E. Repenning*, J. K. Ahola, R. J. Callan, T. T. French, R. L. Giles, R. K. Peel, J. C. Whittier, J. T. Fox, and T. E. Engle, 1Department of Animal Sciences, Colorado State University, Fort Collins; 2Department of Clinical Sciences, Colorado State University, Fort Collins; 3JBS Five Rivers Cattle Feeding LLC, Greeley, CO.

11:15 AM

27 Fetal and maternal induction of angiogenic factors during early pregnancy.
K. E. Quinn*, J. D. Lindsey, S. M. Stanbrough, A. K. Ashley, and R. L. Ashley, 1Department of Animal and Range Sciences, New Mexico State University, Las Cruces; 2Center for Animal Health, Food Safety, and Bio-Security, New Mexico State University, Las Cruces.

11:30 AM

28 Effect of swath grazing on forage intake and wastage by ewes.
11:45 AM  29  Maternal diet restriction in beef cows alters fetal cardiovascular hemodynamics and fetal and placental development during early pregnancy.
L. E. Camacho*, C. O. Lemley, K. C. Swanson, and K. A. Vonnahme, Department of Animal Sciences, North Dakota State University, Fargo.

12:00 PM  30  Lunch

1:00 PM  31  Serum exosome profile as related to early pregnancy status in the mare.

1:15 PM  32  Effects of preovulatory estradiol concentration on embryo survival and pregnancy establishment in beef cows.
C. A. Roberts*, G. A. Perry, M. D. MacNeil1, M. A. Minten1, and T. W. Geary1, 2Department of Animal Sciences, North Dakota State University, Fargo, 3North Dakota State University, Hettinger, 4Central Grasslands Research Extension Center, Streeter, ND.

1:30 PM  33  Comparison of single nucleotide polymorphisms associated with feed efficiency in rams.

1:45 PM  34  Identification of single nucleotide polymorphisms associated with feed efficiency in rams.

2:00 PM  35  Out-of-season reproductive performance of ewes synchronized to estrus with various 5-d protocols.
C. G. Jackson*, T. L. Neville1, V. R. G. Mercadante2, K. M. Bischoff, G. C. Lamb2, C. R. Dahlen1, and R. R. Redden1, 1North Dakota State University, Fargo, 2North Florida Research and Education Center, University of Florida, Marianna, 3Hettinger Research Extension Center, North Dakota State University, Hettinger, 4Central Grasslands Research Extension Center, Streeter, ND.

2:15 PM  36  Differences in allele frequency distribution of bovine high-density genotyping platforms in Holsteins and Jerseys.
K. L. Weber*, G. Rincon1, A. L. Van Eennennaam1, B. L. Golden2, and J. F. Medrano2, 1Department of Animal Sciences, University of California, Davis, 2Dairy Science Department, California Polytechnic State University, San Luis Obispo.

2:30 PM  37  Effects of maternal fluoroxetin dosage on lamb serum hormone concentrations and reproductive traits.
P. L. Black*, D. M. Hallford, and T. T. Ross, New Mexico State University, Las Cruces.

3:00 PM  38  Digestibility of algal biofuel co-product in a forage diet.

3:15 PM  39  Effects of preovulatory estradiol concentration on embryo survival and pregnancy establishment in beef cows.
C. A. Roberts*, J. R. Hergenreder, D. L. Ragen*, E. E. Nix, P. G. Hatfield1, R. L. Endecott1, and J. G. P. Bowman1, 1Montana State University, Bozeman, 2Montana State University, Pullman, 3South Dakota State University, Brookings.

3:30 PM  40  Effects of weaning age and winter development environment on heifer grazing distribution.
N. L. Hojer*, M. B. Hubert1, P. S. Johnson1, M. H. Price1, and K. C. Olson1, 1South Dakota State University, Rapid City, 2South Dakota School of Mines & Technology, Rapid City.

3:45 PM  41  Effects of post-AI nutrition on reproductive and growth performance of yearling beef heifers.
R. P. Arias*, P. J. Gunn1, R. P. Lemenager1, G. A. Bridges1, and S. L. Lake1, 1University of Wyoming, Laramie, 2Purdue University, West Lafayette, IN, 3University of Minnesota, St. Paul.
Dietary intake in a group of old mares.
S. Otabachian* and T. Hess, Colorado State University, Fort Collins.

**Animal Health I**

**Chair:** Pedram Rezamand, University of Idaho

**Sponsors:** Elanco Animal Health and Pfizer Animal Health

228AB

9:30 AM 45

Histological examination of the organs of the rats administered varying levels of Vernonia amygdalina leaves.
A. H. Ekeocha*, P. C. Ekeocha, and J. X. Liu, Institute of Dairy Science, MOE Key Laboratory of Molecular Animal Nutrition, Zhejiang University, Hangzhou, China.

9:45 AM 46

Toxicological properties of liquid dishwashing detergent in Swiss albino mice.
M. S. Gulay*, O. Yildiz Gulay, A. Ata, and S. Gungor, Mehtem Akif Ersoy University, Faculty of Veterinary Medicine, Burdur, Turkey.

10:00 AM 47

Isolation of lactobacillus strains with high adhesive ability to the intestinal epithelial cells.
W. M. Zhang*, H. F. Wang1,2, and J. X. Liu, Institute of Dairy Science, MOE Key Laboratory of Molecular Animal Nutrition, Zhejiang University, Hangzhou, China.

10:15 AM 48

Effect of mycotoxins on the intestine: Analysis of the interaction between fusariotoxins.

10:30 AM 49

Dietary supplementation of young broiler chickens with capsicum and turmeric oleoresin increases resistance to necrotic enteritis.
S.-H. Lee*, H. Lillehoj1, S.-I. Jang1, D.-K. Kim1, M.-S. Park1, E. Lillehoj1, and D. Bravo3, Animal and Natural Resources Institute, ARS-USDA, Beltsville, MD, University of Maryland, School of Medicine, Baltimore, Maryland, Pancosma S. A., Geneva, Switzerland.

10:45 AM 50

The identification of candidate genes for BSE and the application to chronic wasting disease in mule deer.
J. Thomson*, V. Bowles1, U. Basu1, Y. Meng1, P. Stothard1, and S. Moore2, University of Alberta, Edmonton, AB, Canada, University of Queensland, Brisbane, Qld, Australia.

11:00 AM 51

Phosphorus utilization in broilers fed soybean and benniseed-based diets with and without microbial phytase supplementation.

11:15 AM 52

Effects of tropical legume supplementation on parasite burden and health parameters in goats.
M. A. Zarate*, J. C. Hamie1, J. J. Romero1, E. N. Muniz2, Y. J. Jang1, K. G. Arriola3, O. C. Queiroz4, and A. T. Desogon1, University of Florida, Gainesville, Empresa Brasileira de Pesquisa Agropecuária, EMBRAPA, Aracajú, Sergipe, Brazil, Gyeongsang National University, Jinju, South Korea.

11:30 AM 53

Carboxymethylation and antioxidant activity of exopolysaccharides.

11:45 AM 54

Risk factors for switch in status from Mycobacterium avium ssp. paratuberculosis test positive to negative; data from the national Johne’s disease control demonstration program.

12:00 PM 55

Expressing an antimicrobial peptide cathelicidin-BF by fusion with SUMO in Bacillus subtilis.
Breeding and Genetics Symposium:
Systems Biology in Animal Breeding: Identifying relationships among markers, genes, and phenotypes
Chair: John B. Cole, Animal Improvement Programs Laboratory, ARS, USDA
Sponsor: Monsanto Co.
125AB

9:30 AM  56  Building SNP-derived regulatory networks.  
A. Reverter*, CSIRO Livestock Industries, Brisbane, Queensland, Australia.

10:10 AM  57  Networks and pathways to guide genomic selection.  
W. M. Snelling**, R. A. Cushman1, J. W. Keele1, C. Maltecca2, M. G. Thomas3, M. R. S. Fortes4,5, and A. Reverter*,  
1USDA, ARS, US Meat Animal Research Center, Clay Center, NE, 2Animal Science, North Carolina State University, Raleigh, 3Animal Sciences, Colorado State University, Fort Collins, 4Cooperative Research Center for Beef Genetic Technologies, CSIRO Livestock Industries, Brisbane, QLD, Australia, 5The University of Queensland, School of Veterinary Medicine, Gatton, QLD, Australia.

10:50 AM  58  Causal graphical models in quantitative genetics and genomics settings.  
G. J. M. Rosa* and B. D. Valente, University of Wisconsin, Madison.

11:30 AM  59  A systems biology definition for semen quality.  
D. Froman*, D. Rhoads2, and S. Burgess3, 1Oregon State University, Corvallis, 2University of Arkansas, Fayetteville, 3University of Arizona, Tucson.

12:00 PM  60  A systems-genetics analysis of bovine skeletal muscle iron content.  

Companion Animals Symposium:
Nutrition Special Needs—The relationship between novel ingredients, environment and gene expression
Chair: Maria Cattai de Goday, University of Illinois
Sponsors: Hill’s Science Diet, Procter and Gamble, and Purina
121AB

9:30 AM  61  Introduction  

9:35 AM  61  Alternative ingredients: Which have scientific merit?  
G. Aldrich*, Pet Food & Ingredient Technology Inc., Topeka, KS.

10:10 AM  62  Benefits of probiotic supplementation in stressful situations in companion animals.  
M. R. Lappin*, Department of Clinical Sciences, Colorado State University, Fort Collins.

10:45 AM  63  Dietary and environmental management of feline lower urinary tract disease (FLUTD).  
K. R. Kerr*, University of Illinois, Urbana.

11:20 AM  64  Functional nutrition: Novel ingredients and new findings.  
I. S. Middelbos*, Novus International Inc., St. Charles, MO.

11:55 AM  65  Nutrigenomics: Using gene expression data to understand and manage pet obesity.  
K. S. Swanson*, University of Illinois, Urbana.
Dairy Foods
Cheese and Products Processing
Chair: Donald McMahon, Utah State University
121C

9:30 AM 66 Influence of proteolysis and amino acid release on bitterness and texture of reduced-fat Cheddar cheese.

9:45 AM 67 Impact of sodium, potassium, magnesium, and calcium salt cations on pH, proteolysis and microbial populations during storage of Cheddar cheese.
D. J. McMahon, N. Farkye, L. V. Moyes, and C. J. Oberg, Western Dairy Center, Utah State University, Logan.

10:00 AM 68 Impact of different types of emulsifiers on the reformability of grated cheese.
C. Akbulut, University of Wisconsin-Madison, Madison.

10:15 AM 69 Phenotypic factors affecting cheese yield and whey losses from individual cows.
C. Cipolat Gotet, M. Penasa, A. Cecchinato, M. De Marchi, and G. Bittante, Department of Agronomy, Food, Natural Resources, Animals and Environment (DAFNAE), University of Padova, Legnaro, Padova, Italy.

10:30 AM 70 Sensory selection of an antimicrobial for use in string cheese.
A. Lammert, L. Collinsworth, N. Farkye, M. Arnold, A. Lathrop, and T. Taylor, Dairy Products Technology Center, California Polytechnic State University, San Luis Obispo.

10:45 AM 71 Microfiltration of skim milk and modified skim milk using a 0.1-μm ceramic uniform transmembrane pressure system at 50, 55, 60, and 65°C.
E. E. Hurt, M. Adams, and D. M. Barbano, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY.

11:00 AM 72 Leveraging existing processing lines for yogurt product innovation through the use of advanced texturizing systems.

11:15 AM 73 Gravity separation of fat, somatic cells, and bacteria in raw and pasteurized milks.
Z. Caplin, C. Melilli, and D. M. Barbano, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY.

11:30 AM 74 Effect of PEF and UV and their combination on selected microorganisms and physico-chemical properties in whey.
A. Dave, M. Walking-Ribeiro, O. Rodríguez-González, M. W. Griffiths, and M. Corredig, Canadian Research Institute for Food Safety, Department of Food Science, University of Guelph, Guelph, ON, Canada; Rodriguez-González Services, Toronto, ON, Canada.

Forages and Pastures Symposium
Impact of Fungal-Endophytes on Pasture and Environmental Sustainability
Chairs: Jim Strickland, USDA-ARS, FAPRU, and Steve Washburn, North Carolina State University
225AB

9:30 AM 75 Introductions.

9:40 AM 76 Fungal endophytes: Forage friend or foe?
C. Young, Noble Foundation, Ardmore, OK.

10:10 AM 77 Lessons from “down-under” in New Zealand and Australia: The critical role of endophyte in pasture quality and production.
D. E. Hume, AgResearch, Palmerston North, New Zealand.

11:10 AM Break
Phases of physiological adaptation to heat stress and fescue toxicosis.

Managing the fungal endophyte/forage symbiosis for optimum forage-animal production.
G. Aiken*, USDA-ARS, FAPRU.
9:45 AM 90  Photoperiod treatment during lactation alters organ weights but does not affect litter weight gain in mice.  
P. A. Bentley* and T. B. McFadden, University of Alberta, Edmonton, Alberta, Canada.

10:00 AM 91  Serotonin (5-HT) affects glucose metabolism in transition rats.  

10:15 AM 92  Inflammatory pathways contribute to the metabolic adaptations to lactation in dairy cattle.  
J. K. Farney*, L. K. Mamedova2, J. F. Coetzeet1, B. Kukanich, L. M. Sordil3, J. E. Minton3, L. C. Holli3, and B. J. Bradfo3, 1Kansas State University, Manhattan, 1Iowa State University, Ames, 2Michigan State University, East Lansing.

10:30 AM 93  Metabolism of butyrate infused in the rumen or abomasum of lactating dairy cows.  
K. J. Herrick*, A. R. Hippen1, K. F. Kalscheur1, D. J. Schingoethe1, D. P. Casper1, S. C. Moreland1, and J. E. van Eys2, 1South Dakota State University, Brookings, 2Nutriad Inc., Elgin, IL.

10:45 AM 94  Effect of breed on the metabolic profile in transition Holstein and Jersey dairy cows.  
K. J. Lager*, E. R. Jordan1, R. G. S. Bruno1, J. A. H. Rivera2, A. M. Farias2, R. Sprowls3, and D. R. Topliff4, 1Texas AgriLife Extension Service, Texas A&M System, College Station, 2West Texas A&M University, Canyon, 3Texas AgriLife Research, Stephenville, 4Texas Veterinary Medical Diagnostic Laboratory, Amarillo.

11:00 AM  Break

11:15 AM 95  Effects of corn silage hybrids and quality of alfalfa hay on nitrogen metabolism and ruminal fermentation of early lactating dairy cows.  
M. S. Holt*, A. J. Young1, J.-S. Eun1, and K. E. Nestor2, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, 2Mycogen Seeds, Indianapolis, IN.

11:30 AM 96  Effects of partial replacement of dietary starch from barley or corn with lactose on the performance of dairy cows.  
G. E. Chibisa*, G. B. Penner1, P. Gorka1, R. Berthiaume2, and T. Mutsvangwa2, 1Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, 2Dairy and Swine Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, Quebec, Canada.

11:45 AM 97  In search of privacy: Dairy cow preference for an isolated calving area.  

12:00 PM 98  II. Identifying within-herd risk factors affecting reproductive performance of lactating dairy cows under field conditions.
S. Bas*, R. L. Nebel2, and G. M. Schuennemann1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Select Sires Inc., Plain City, OH.

J. L. Gordon*, S. J. LeBlanc1, L. Neuder2, T. H. Herdt2, D. F. Kelton1, and T. F. Duffield1, 1University of Guelph, Guelph, ON, Canada, 2Michigan State University, East Lansing.

12:30 PM 100  Ecology of subclinical ketosis in transition dairy cattle.  
J. A. A. McArt*, D. V. Nydam3, and G. R. Oetzel2, 1Cornell University, Department of Population Medicine and Diagnostic Science, Ithaca, NY, 2School of Veterinary Medicine, University of Wisconsin, Madison.

Graduate Student Competition:
ADSA/ASAS Northeast Graduate Paper Competition
Chair: Kristen E. Govoni, University of Connecticut
127C

9:30 AM 101  Metabolomic profiling of the liver in developing chicken embryos and post-hatch chicks reveals unique metabolic differences.  

9:45 AM 102  Effect of resveratrol supplementation on glycemic response in moderately exercised geldings.  
J. L. Zambito*, H. S. Spooner1, and R. Hoffman1, 1West Virginia University, Morgantown, 2Middle Tennessee State University, Murfreesboro.

10:00 AM 103  Effects of intrauterine growth retardation due to poor maternal nutrition on bone formation in sheep.  
S. Neupane*, M. L. Hoffman1, M. A. Kaelin1, E. R. Ackell1, D. M. Kaelin1, S. A. Zinn1, T. D. Crenshaw1, and K. E. Govoni1, 1Department of Animal Science, University of Connecticut, Storrs, 2Department of Animal Science, University of Wisconsin, Madison.
10:15 AM 104  Hypoxia stimulates GLUT1 expression in bovine mammary epithelial cells.  Y. Shao*, K. M. Lounsbury, T. L. Wellman, and F-Q. Zhao, Laboratory of Lactation Physiology, Department of Animal Science, University of Vermont, Burlington, 2Department of Pharmacology, University of Vermont, Burlington.  


11:00 AM 107  Effects of lasalocid and pulse-dosed chlorotetracycline on health, growth, and thyroxine concentrations of prepubertal dairy heifers.  R. Cabral*, P. Erickson, N. Guindon, E. Kent, C. Chapman, K. Aragona, M. Cabral, E. Massa, and M. Branine, 1University of New Hampshire, Durham, 2Pfizer Animal Health, Canov City, CO.  


---  

Graduate Student Competition:  
CSAS Student Competition I  
Chair: Greg Penner, University of Saskatchewan  
Sponsor: Monsanto Co.  

223  

9:30 AM 384  Dynamics of nitrogen retention in entire male pigs immunized with Improvest.  L. Huber*, D. Wey, and C. de Lange, University of Guelph, Guelph, ON, Canada.  

9:45 AM 662  Restricting sulfur amino acid intake in immune system stimulated pigs decreases plasma protein and albumin synthesis.  N. Litvak* and C. F. M. de Lange, University of Guelph, Guelph, ON, Canada.  

10:00 AM 382  Hepatic gene expression analysis of nursery pigs fed simple and complex starter diets.  M. Rudar*, L. D. Skinner, and C. F. M. de Lange, University of Guelph, Guelph, ON, Canada.  


11:00 AM 701  The effect of limiting feed intake on concentration of proteins associated with energy balance in the pregnant beef cow.  K. M. Wood*, C. J. Fitzsimmons, S. P. Miller, B. W. McBride, and K. C. Swanson, 1Dept. of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, 2Agriculture and Agri-Food Canada, Edmonton, AB, Canada, 3Dept. of Agriculture, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 4Dept. of Animal Sciences, North Dakota State University, Fargo.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:45 AM</td>
<td>538</td>
<td>Effect of the forage-to-concentrate ratio on DMI and ruminal fermentation based on timing of feeding relative to feed restriction.</td>
<td>R. I. Albornoz*, J. R. Aschenbach, D. R. Barreda, G. B. Penner, University of Saskatchewan, Saskatoon, SK, Canada, Free University of Berlin, Berlin, Germany.</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>567</td>
<td>Effect of ruminal adaptation on short-chain fatty acid absorption and risk for ruminal acidosis.</td>
<td>T. Schwaiger*, K. A. Beauchemin, G. B. Penner, University of Saskatchewan, Saskatoon, SK, Canada, Lethbridge Research Center, Lethbridge, AB, Canada.</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>794</td>
<td>Effect of dried distillers grains with solubles on enteric methane emissions and nitrogen excretion from finishing beef cattle.</td>
<td>M. Hünerberg*, T. A. McAllister, K. A. Beauchemin, S. M. McGinn, O. M. Harstad, E. K. Okine, University of Alberta, Edmonton, AB, Canada, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, Norwegian University of Life Sciences, Norway.</td>
</tr>
</tbody>
</table>

### Growth and Development

**Chair: Sally Johnson, University of Florida**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:45 AM</td>
<td>110</td>
<td>Agouti signaling protein abundance in cattle—Relationship with fat deposition.</td>
<td>E. Albrecht*, K. Komolka, H. Sauerwein, T. Gotoh, S. Maak, Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany, University Bonn, Bonn, Germany, Kyushu University, Kuju-cho, Oita, Japan.</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>111</td>
<td>Blood glucose and acylated ghrelin in response to duration of maternal undernutrition during gestation in twin sheep pregnancies.</td>
<td>M. E. Field*, R. V. Anthony, M. D. Vetters, C. Flörcke, T. E. Engle, S. L. Archibeque, and H. Han, Colorado State University, Fort Collins.</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>112</td>
<td>Delaying a bovine viral diarrhea vaccine and growth implant with metaphylaxis affects performance, but not health of feedlot heifers.</td>
<td>M. R. McDaniel*, M. E. Hubbert, C. A. Loest, Department of Animal and Range Sciences, New Mexico State University, Las Cruces, Clayton Livestock Research Center, New Mexico State University, Clayton.</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>114</td>
<td>Maternal nutrition of beef cattle on pasture mediates long-term consequences for offspring primarily through effects on growth early in life.</td>
<td>P. L. Greenwood*, L. M. Cafe, and D. L. Robinson, Australian Cooperative Research Centre for Beef Genetic Technologies and NSW Department of Primary Industries, Armidale, NSW, Australia.</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>115</td>
<td>Lean tissue accretion and the efficiency of energy and protein retention are enhanced by intermittent bolus compared to continuous feeding.</td>
<td>S. W. El-Kadi*, C. Boutry, M. C. Gazzaneo, A. Suryawan, R. A. Orellana, H. V. Nguyen, M. L. Fiorotto, and T. A. Davis, USDA/ARS Children’s Nutrition Research Center, Department of Pediatrics, Baylor College of Medicine, Houston, TX.</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>116</td>
<td>Tripalmitolein infusion in finished lambs.</td>
<td>T. A. Burns*, M. C. Miller, A. K. G. Kedegowda, H. M. Stowe, S. M. Calcatera, and S. K. Duckett, Clemson University, Clemson, SC.</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>117</td>
<td>Nutritional milieu of preadipocytes determines the differentiating capabilities of bovine primary stromal vascular cultures.</td>
<td>A. K. G. Kedegowda*, M. C. Miller, T. A. Burns, A. Wright, and S. K. Duckett, Clemson University, Clemson, SC.</td>
</tr>
</tbody>
</table>
11:30 AM 118  Effects of feeding different forage sources on rumen fermentation and gastrointestinal tract development in young calves.  
Ll. Castells*, A. Bach1,2, and M. Terré1,  
1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain,  
2ICREA, Barcelona, Spain.

11:45 AM 113  The effects of intrauterine growth retardation (IUGR) due to poor maternal nutrition on adipose tissue development and metabolic status in sheep.  
M. L. Hoffman*, M. A. Rokosa1, S. Neupane1, S. M. Spignesi1, J. Lee1, S. A. Zinn1, and K. E. Govoni1,  
1Department of Animal Science, University of Connecticut, Storrs,  
2Department of Nutritional Sciences, University of Connecticut, Storrs.

---

International Animal Agriculture Symposium  
Increasing Undergraduate and Graduate Student Training in International Animal Agriculture  
Chair: Jeffrey Bewley, University of Kentucky  
Sponsors: EAAP and Elanco Animal Health  
222AB

9:30 AM 119  What type of employee will international agribusiness companies be seeking?  

10:00 AM 120  The role of animal scientists in assuring food security in developing countries.  

10:30 AM 121  Implementing new technologies in developing countries: Intellectual property, patent laws, and technology transfer agreements.  
K. Krafa*, Kemin Industries Inc., Des Moines, IA.

11:00 AM 122  EAAP-ASAS Speaker Exchange Presentation: A theme-based approach in smallholder dairy training through a partnership between Malawi and Scotland.  
M. G. G. Chagunda*, T. N. Gondwe1, and D. J. Roberts1,  
1Scottish Agricultural College, Edinburgh, UK,  
2Bunda College of Agriculture, Lilongwe, Malawi.

11:30 AM 123  Preparing students for a changing world: Employer prioritized attributes from international engagement.  
L. J. Unruh Snyder*, J. M. Fernandez, and M. A. Russell, Purdue University, West Lafayette, IN.

12:00 PM 124  In-country partnering needed for successful international service learning.  
P. Ebner*, H. Oliver2, and M. Russell1,  
1Department of Animal Sciences, Purdue University,  
2Department of Food Science, Purdue University.

---

Lactation Biology I  
Chair: Kirsty Daniels, Ohio State University  
231C

9:30 AM 125  Serotonin (5-HT) regulates calcium mobilization at the onset of lactation in rats.  
J. LaPorta, T. L. Peters, K. E. Merriman, and L. L. Hernandez*, University of Wisconsin, Madison.

9:45 AM 126  Genes and functions associated with photoperiodic effects on the mammary gland.  
T. B. McFadden1,2* and E. H. Wall1,  
1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada,  
2Department of Medicine, University of Vermont, Burlington.

10:00 AM 127  Effect of ovariectomy on milk yield and mammary gland activity in lactating cow.  
L. Yart1,2*, F. Dessauge1,2, L. Finot1,2, S. Wiart1,2, A. Mottin1,2, A. Eveno1,2, P. G. Marnet1,2, and V. Lollivier1,2,  
1INRA, UMR1348 Pegase, Saint-Gilles, France,  
2Agrocampus Ouest, UMR1348 Pegase, Rennes, France.

10:15 AM 128  Effect of cooling during the dry period on neutrophil gene expression after Streptococcus uberis infection.  
10:30 AM 129 Short-term increases in milking frequency and a higher plane of nutrition did not increase total milk production in pasture-based dairy cows during an extended lactation.

10:45 AM 130 Transcriptome analysis of blood in heat-stressed dairy goats.
A. A. K. Salama*, S. Hamzaoui, B. Badaoui, A. Zidi, and G. Caja, Grup de Recerca en Remugants (G2R), Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, Integrative Biology Group, Parco Tecnologico Padano-CERSA, Lodi, Italy, Centre de Recerca en Agrigenomica (CRAG), Bellaterra, Barcelona, Spain.

11:00 AM 131 Effects of high feeding level on caprine mammary gland development and milk yield potential.

Nonruminant Nutrition
Minerals and Vitamins
Chair: Ryan Dilger, University of Illinois
Sponsor: Evonik Degussa

9:30 AM 132 Determination of endogenous intestinal losses of Ca and digestibility of Ca in canola meal fed to growing pigs.
J. C. Gonzalez-Vega*, C. L. Walk, and H. H. Stein, University of Illinois, Urbana, AB Vista, Marlborough, UK.

9:45 AM 133 The effect of supplemental vitamin D₃ as an oral dose or in early nursery pig diets on pig growth performance and serum 25(OH)D₃ concentrations.

10:00 AM 134 Carbohydrase and phytase complex improves performance and bone mineralization of pigs fed wheat-soybean base diet.


10:30 AM 136 Phosphorus utilization in finishing broiler chickens: Effect of dietary calcium and microbial phytase.
X. Rousseau, M. P. Létourneau-Montminy, M. Magnin, N. Même, Y. Nys, and A. Narcy, BNA NA, Chateau-Gontier, France, INRA UR83 Recherches avicoles, Nouzilly, France, Agriculture and Agri-Food Canada, Lennoxville, Quebec, Canada.

10:45 AM 137 The effect of dietary levels of copper and zinc on rate and efficiency of growth by rainbow trout.

11:00 AM 138 Varied sources of conjugated linoleic acid (CLA) does not alter bone mineral density (BMD), bone mineral content (BMC), or body fat content in postmenopausal ovariectomized rats.

11:15 AM 139 Effects of selenium-enriched exopolysaccharide produced by Enterobacter cloacae Z0206 on growth performance, immunity and antioxidant activities in broiler chickens.
Z. Q. Lu, Y. M. Wang, M. Huang, and Y. Z. Wang, Institute of Feed Science, Zhejiang University, National Engineering Laboratory of Bio-feed Safety and Pollution Prevention, Key Laboratory of Animal Nutrition and Feed science of Ministry of Agriculture, Hangzhou, Zhejiang Province, China.
P. Moriel*, V. Mercadante, A. D. Aguiar, S. E. Johnson, M. J. Hersom, J. M. B. Vendramini, and J. D. Arthington,  
1Range Cattle Research and Education Center, University of Florida, Ona, FL, 2University of Florida, Gainesville.

9:45 AM 141  Effects of metabolic imprinting on growth performance of early-weaned beef steers.  
P. Moriel*, V. Mercadante, A. D. Aguiar, S. E. Johnson, M. J. Hersom, J. M. B. Vendramini, and J. D. Arthington,  
1Range Cattle Research and Education Center, University of Florida, Ona, 2University of Florida, Gainesville.

10:00 AM 142  Correlation of feed intake and efficiency with small intestinal angiogenic factor and receptor expression in finishing cattle born to dams fed varying levels of nutrients during early to mid-gestation.  

10:15 AM 143  Reproductive and productive responses to suckling-restriction treatments and flushing in primiparous grazing beef cows.  

10:30 AM 144  Use of an injectable mineral in beef cattle: Mineral status.  
O. N. Genther* and S. L. Hansen, Iowa State University, Ames.

10:45 AM 145  Use of an injectable mineral in beef cattle: Growth and carcass characteristics.  
O. N. Genther* and S. L. Hansen, Iowa State University, Ames.

11:00 AM 146  Effects of restricted versus conventional dietary adaptation over periods of 9 and 14 days on feedlot performance and carcass traits of Nellore cattle.  

11:15 AM 147  Effect of dietary energy density and control of meal size on growth performance, eating pattern, and carcass and meat quality in Holstein steers fed high-concentrate rations.  
S. Marti*, M. Pérez-Juan, A. Arii, A. Bach, and M. Devant, 1IRTA-Ruminant Production, Animal Nutrition, Management, and Welfare Research Group, Torre Marimon, Caldes de Montbui, Barcelona, Spain, 2IRTA-Monells, Girona, Spain, 3ICREA, Barcelona, Spain.

11:30 AM 148  Dataset-specific dry matter intake prediction equation determination for growing calves.  

11:45 AM 149  The use of biometric measures to assess body fat composition of F1 Nellore × Angus bulls and steers.  
M. A. Fonseca*, L. O. Tedeschii, S. C. Valadarelos Filho, H. J. Fernandes, N. F. De Paula, M. G. Machado, F. A. C. Villadiego, and J. M. Silva Junior, 1Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2Texas A&M University, College Station, Texas, United States, 3Universidade Estadual do Mato Grosso do Sul, Aquidauana, Mato Grosso do Sul, Brazil, 4Universidade Federal Rural de Pernambuco, Garanhuns, Pernambuco, Brazil.

12:00 PM 150  Evaluation of volatile fatty acid stoichiometries and methane predictions for high grain fed beef cattle within a mechanistic digestion model.  
J. L. Ellis*, J. Dijkstra, B. A. Bannink, E. Kebreab, S. Archibeque, and J. France, 1Centre for Nutrition Modelling, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, 2Animal Nutrition Group, Wageningen University, Wageningen, the Netherlands, 3Wageningen UR Livestock Research, Lelystad, the Netherlands, 4Department of Animal Science, University of California-Davis, Davis, 5Animal Sciences, Colorado State University, Fort Collins.

12:15 PM 151  Supplemental vitamin C alleviates negative effects of high sulfur diets on beef quality.  
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 AM</td>
<td>152</td>
<td>Liver gene expression patterns can explain accumulation of lipid in the liver during the transition period.</td>
<td>H. R. Khazanehei*, P. Eck, A. Regassa, D. O. Krause, and J. C. Plaizier, University of Manitoba, Winnipeg, MB, Canada.</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>154</td>
<td>Effects of a moderate-energy diet during the close-up dry period on immunometabolic indices in peripartal dairy cows.</td>
<td>J. S. Osorio*, E. Trevisi, P. Ji, J. K. Drackley, G. Berton, and J. J. Loor, University of Illinois, Urbana.</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>155</td>
<td>Integrating control by gene expression in adipose tissue into a mechanistic, dynamic model of metabolism to investigate the biological basis for variation in genetics of feed conversion efficiency in lactating dairy cattle.</td>
<td>S. Shields* and J. McNamara, Washington State University, Pullman.</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>156</td>
<td>Dietary manipulation of crude protein and starch content affects energy balance in early lactation dairy cows.</td>
<td>S. J. Whelan*, F. J. Mulligan, V. Gath, B. Flynn, and K. M. Pierce, School of Agriculture and Food Science, University College Dublin, Belfield, Dublin 4, Ireland.</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>157</td>
<td>Colostrum yield by multiparous cows is positively correlated with prepartum body fat mobilization.</td>
<td>N. Litherland*, W. Weich, D. Lobao, and Z. Sawall, University of Minnesota, St. Paul.</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>158</td>
<td>A starch-binding agent decreases the in vitro rate of fermentation of wheat.</td>
<td>F. R. Dunshea*, V. M. Russo, I. Sawyer, and B. J. Leury, Melbourne School of Land and Environment, The University of Melbourne, Parkville, Victoria, Australia.</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>160</td>
<td>Effects of feeding moderate-energy high-forage diets with reduced DCAD for 21 or 42 days prepartum on mineral homeostasis and postpartum performance by multiparous dairy cows.</td>
<td>W. D. Weich*, E. Block, and N. B. Litherland, University of Minnesota Department of Animal Science, St. Paul.</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>162</td>
<td>Effects of dry period management and time relative to calving on the expression of genes involved in carbohydrate metabolism in the liver.</td>
<td>H. R. Khazanehei*, P. Eck, A. Regassa, D. O. Krause, and J. C. Plaizier, University of Manitoba, Winnipeg, MB, Canada.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 AM</td>
<td>163</td>
<td>Silage process affects chemical composition and digestion site in high moisture sorghum grain.</td>
<td>M. Torterolo, A. Curbelo, C. Cajarville, J. L. Repetto, and M. Aguerre, Departamento de Bovinos, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay.</td>
</tr>
</tbody>
</table>

Ruminant Nutrition I
Chair: Aimee Wertz, ADM
131ABC
Effects of restricted versus conventional dietary adaptation over periods of 9 and 14 days on rumen papillae of feedlot Nellore cattle.
T. V. B. Carrara², D. D. Millen*², M. D. B. Arrigoni¹, C. L. Martins¹, R. S. Barducci¹, F. T. V. Pereira², L. M. N. Sarti¹, M. C. S. Franzói¹, D. D. Estevam², L. L. Cursino¹, P. L. P. Fontes¹, R. D. L. Pacheco¹, R. A. Rizzieri¹, C. F. da Costa¹, L. D. F. Miranda¹,¹ São Paulo State University (UNESP), Botucatu, São Paulo, Brazil, ²São Paulo State University (UNESP), Dracena, São Paulo, Brazil.

Fatty acid composition of backfat, intermuscular, KPH and tail fat depot sites of Angus cross steers finished on grass or high grain diets.
G. Acetoze*¹ and H. A. Rossow²,¹ Department of Animal Science, University of California, Davis, ²Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California- Davis, Tulare.

Replacing corn and soybean meal in lactating dairy cow diets with field peas (Pisum sativum) on milk production and nitrogen utilization.

Milk production response to increasing net energy intake in dairy cows. A meta-analysis.
C. Jensen*¹², M. R. Weisbjerg¹, and S. Østergaard¹,¹ Department of Animal Science, Aarhus University, Denmark, ²Knowledge Centre of Agriculture, Skejby, Denmark.

ADSA-SAD Undergraduate Competition
Dairy Foods
Chair: Mary Sowerby, University of Florida, Gainesville

11:00 AM 169 Nutritive value of bovine milk as compared with alternative dairy-free beverages.
S. M. Smith* and J. M. Bewley, University of Kentucky, Lexington.

11:15 AM 170 Milk and cognitive abilities: Can dairy products work to improve your memory?
N. L. Leckie* and C. L. Widener, Clemson University, Clemson, SC.

11:30 AM 171 Milk production and pasteurization: Two opposing viewpoints.
M. Sprague* and E. L. Karcher, Department of Animal Science, Michigan State University, East Lansing.

11:45 AM 172 The effects of flavored milk in the cafeteria.
S. M. Vignes* and C. C. Williams, Louisiana State University, Baton Rouge.

12:00 PM 173 Importance of texturants in dairy products.
H. R. Wentworth* and D. R. Olver, The Pennsylvania State University.

12:15 PM 174 Production of functional probiotic and prebiotic dairy foods.

Physiology and Endocrinology
Estrous Cycle Manipulation - Dairy
Chair: Anthony McNeel, USDA-ARS U.S. Meat Animal Research Center
Sponsor: Pfizer Animal Health

11:30 AM 175 Ovulatory responses to withdrawal of progesterone feedback during the early and late luteal phase.
G. E. Mann*¹ and R. S. Robinson¹,¹ University of Nottingham, School of Biosciences, Division of Animal Sciences, Sutton Bonnington Campus, Loughborough, UK, ²University of Nottingham, School of Veterinary Medicine and Science, Sutton Bonnington Campus, Loughborough, UK.
Estrus behavior and fertility responses in lactating grazing dairy cows after a timed AI program using estradiol cypionate.
M. N. Correa*, M. E. Lima¹, C. C. Brauner¹, A. R. T. Krause¹, E. G. Xavier¹, E. Schmitt¹, A. Schneider¹, and F. A. B. Del Pino¹,¹Universidade Federal de Pelotas, NUPEEC, Pelotas, RS, Brazil, 2Granjas 4 Irmaos S/A, Rio Grande, RS, Brazil.

Effect of reusing CIDRs on estrus behavior and fertility responses in a Heatsynch protocol of grazing dairy cows.
C. C. Brauner*, M. E. Lima¹, A. R. T. Krause¹, E. G. Xavier¹, A. Schneider¹, E. Schmitt¹, F. A. B. Del Pino¹, and M. N. Correa¹,¹Universidade Federal de Pelotas, NUPEEC, Pelotas, RS, Brazil, 2Granjas 4 Irmaos S/A, Rio Grande, RS, Brazil.

Effect of intrauterine administration of GnRH on LH secretion in lactating dairy cows.
S. Bas*, M. L. Day¹, and G. M. Schuenemann¹, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Department of Animal Sciences, The Ohio State University, Columbus.

Graduate Student Competition:
ADSA Southern Section (Graduate)
Chair: Kasim Ingawa, NCSU-DRMS
127C

Volatile fatty acids and biohydrogenation intermediates in continuous cultures are returned to normal by addition of potassium carbonate but not by potassium chloride.
P. H. Morris*, J. G. Andrae¹, J. K. Bernard², E. Block³, and T. C. Jenkins³, ¹Clemson University, Clemson, SC, ²University of Georgia, Tifton, ³Arm & Hammer Animal Nutrition, Princeton, NJ.

Dietary l-arginine supplementation effects on growth and health parameters in neonatal Holstein bull calves.
A. N. Vanderlick*, G. A. Holub¹, and W. T. Bissett¹, ¹AgriLife Research Texas A&M University, College Station, ¹College of Veterinary Medicine, Texas A&M University, College Station.

Changes in cortisol levels with alternating access to rotating cow brushes.
R. A. Black*, M. R. P. Elmore², D. L. Ray¹, A. B. Klingenfus¹, B. L. Klingenfus³, J. D. Clark¹, and J. M. Bewley¹, ¹University of Kentucky, Lexington, ²University of Illinois, Urbana, ³Harvest Home Dairy, Crestwood, KY.

ADSA-SAD Undergraduate Competition
Dairy Production
Chair: Mary Sowerby, University of Florida, Gainesville
231A

Glucose transporter and hypoxia-associated gene expression in the mammary gland of transition dairy cattle.
C. N. Niewiadomski*, S. A. Mattmiller, and E. L. Karcher, Michigan State University, East Lansing.

Challenges and inconsistencies associated with goat somatic cell counts.

On-farm culturing as a new management practice.

New approaches to combat milk fat depression.
J. M. Risser* and D. R. Olver, Pennsylvania State University, University Park.

Break

Monitoring the composition of waste milk fed to dairy calves.
E. L. Stayduhar*, K. D. Stevens, M. L. Eastridge, and K. M. Daniels, The Ohio State University, Columbus.

Early pregnancy detection methods in reproductive management.
C. E. Burke* and C. C. Williams, Louisiana State University, Baton Rouge.
3:15 PM 188 Anaerobic digestion and the benefits to dairy farmers. S. K. Luther*, A. C. Wilkie, and M. E. Sowerby, University of Florida, Gainesville.

3:30 PM 189 Supplemental melatonin: A potential strategy for maintaining mammary health in dairy cattle. M. M. Palmer*, D. N. Williams, and J. L. Fain, Clemson University, Clemson, SC.

ADSA Southern Section Symposium
Meeting the Nutrient Requirements of Dairy Cattle During Heat Stress
Chair: Christie Stanley, Land O’Lakes Purina Feed
225AB

2:00 PM 190 Heat stress in young dairy calves. C. C. Williams*, Louisiana State University AgCenter, Baton Rouge.

2:30 PM 191 Managing heat stress in dairy heifers. R. E. James* and S. Neal, Department of Dairy Science, Virginia Tech, Blacksburg.


3:30 PM 193 Lactating cows and changes in dry matter intake during heat stress. J. W. West*, University of Georgia, Tifton.

4:00 PM 194 Use of fat and other feed additives in heat-stressed cattle. L. H. Baumgard*, A. Nayeri1, M. V. Sanz-Fernandez2, J. S. Johnson1, D. B. Snider1, D. P. Bu2, and R. P. Rhoads3, 1Iowa State University, Ames, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agriculture Sciences, Beijing, China, 3Virginia Polytechnic Institute and State University, Blacksburg.

4:30 PM 195 Feeding dairy cattle in a grazing system during heat stress. J. K. Bernard*, University of Georgia, Tifton.

5:00 PM ADSA Southern Section Business Meeting.

ADSA-SAD Undergraduate Competition
Original Research
Chair: Elizabeth Karcher, Michigan State University
231C

2:00 PM 196 Monitoring the incidence of ketosis in fresh cows using milk composition, urine ketones, and milk ketones. K. D. Stevens*, E. L. Stayduhar, M. L. Eastridge, and K. M. Daniels, The Ohio State University, Columbus.

2:15 PM 197 Effect of a liquid acid footbath solution containing a cationic surfactant on digital dermatitis in dairy cattle. T. A. Reiter*, B. A. Beavers2, F. R. Moreira3, K. J. McQueery1, C. L. Wood1, and J. M. Bewley1, 1University of Kentucky, Lexington, 2Beavers Hoofcare Service LLC, Lebanon, KY, 3GEA Farm Technologies, Naperville, IL.


2:45 PM 199 Effects of supplementing propionibacteria in lactation dairy diets on ruminal fermentation in continuous cultures. K. A. Dolecheck*, J. M. Vera1, A. J. Young1, A. H. Smith1, V. Fellner3, and J.-S. Eun1, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, 2Danisco USA Inc., Waukesha, WI, 3Department of Animal Science, North Carolina State University, Raleigh.

3:00 PM 200 Effect of calf starter form and milk source on growth and intake of dairy calves. S. A. McCullough*, T. S. Dennis, and T. D. Nennich, Purdue University, West Lafayette, IN.

3:15 PM Break

3:45 PM  202  Predicting early life illness in Holstein heifer calves.
C. A. Bellmund*, K. C. McRoberts, and D. J. R. Cherney, Cornell University, Ithaca, NY.

4:00 PM  203  Who's listening? The preferred means of communication for Tennessee dairy producers.
M. E. Conley*, G. M. Pighetti, and P. D. Krawczel, University of Tennessee, Knoxville.

4:15 PM  204  Incorporation of palmitic and stearic acids into plasma lipid fractions of lactating dairy cows.

4:30 PM  205  Effect of temperature during drying and mechanical extrusion on soybean meal protein in situ degradability and in vitro digestibility.
B. J. Isenberg*, A. N. Hristov¹, D. M. Kniffen, C. Lee¹, K. S. Heyler¹, T. W. Cassidy¹, and R. A. Fabin², The Pennsylvania State University, University Park, Fabin Bros. Farms, Indiana, PA.

---

Animal Behavior and Well-Being
Use of Animal Behavior to Assess Animal Welfare
Chair: Cassandra Tucker, University of California-Davis
Sponsors: ASAS Foundation and EAAP
121C

2:00 PM  206  Use of animal behavior to assess animal welfare.
E. A. Pajor*, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada.

2:45 PM  207  Prevalence of hock, knee and neck injuries, stall dimensions and lying time on Canadian free-stall dairy farms.
J. C. Zaffino*, C. G. R. Nash¹, J. DeVries¹, S. J. LeBlanc¹, D. F. Kelton¹, J. Gibbons¹, E. Vasseur¹, A. M. de Passillé¹, J. Rushen¹, K. Orsel¹, H. W. Barkema¹, L. Solano¹, G. B. Bond¹, and D. B. Haley¹, University of Guelph, Department of Population Medicine, Guelph, ON, Canada, 2University of Guelph, Department of Animal and Poultry Science, Guelph, ON, Canada, 3Agriculture and Agri-Food Canada, Agassiz, BC, Canada, 4University of Calgary, Department of Production Animal Health, Calgary, AB, Canada, 5Organic Dairy Research Centre, University of Guelph Alfred, ON, Canada.

3:00 PM  208  Gradual cessation of milking reduces milk leakage and anticipatory behavior in dairy cows at dry-off.
G. Zobel*, D. M. Weary¹, K. Leslie¹, and M. A. G. von Keyserlingk¹, Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada, 2Population Medicine, University of Guelph, Guelph, ON, Canada.

3:15 PM  209  Physiological and behavioral responses to bovine respiratory disease.
R. Toaff-Rosenstein*, L. Gershwin¹, A. J. Zanella¹, and C. Tucker¹, Department of Animal Science, University of California-Davis, Davis, 2Department of Pathology, Microbiology and Immunology, School of Veterinary Medicine, University of California-Davis, Davis, 3Chair, Animal Health and Welfare, Scottish Agricultural College, Edinburgh, UK.

3:30 PM  210  ASAS Early Career Achievement Award: Working to foster the discovery, sharing and application of knowledge concerning the well-being of farm animals.
A. Johnson, Iowa State University, Ames.

4:00 PM  211  Effect of prepartum grouping strategy on agonistic behavior of dairy cows.
K. M. Lobeck*, M. I. Endres, P. R. B. Silva, and R. Chebel, University of Minnesota, St. Paul.

4:15 PM  212  Individual differences in calf defense pattern in Red Angus beef cows.

4:30 PM  213  Physiologic and behavioral responses of horses to shaded or unshaded pens in a hot, sunny environment.
K. E. Holcomb*, C. L. Stull¹, and C. B. Tucker¹, University of California at Davis, School of Veterinary Medicine, Population Health & Reproduction, Davis, 2University of California at Davis, Department of Animal Science, Davis.

4:45 PM  214  EAAP-ASAS Speaker Exchange Presentation: Effect of a magnesium rich marine extract on behavior, salivary corticosteroid levels and skin lesions in growing pigs in response to mixing and an out of feed event.
Animal Health II
Chair: Todd Bilby, Texas Agrilife Research and Extension
Sponsors: Elanco Animal Health and Pfizer Animal Health

2:00 PM 215 The effect of yeast cell wall supplementation on the physiological and acute phase responses of crossbred heifers to endotoxin challenge.
N. C. Burdick*, T. R. Young, J. A. Carroll, T. H. Welsh, R. C. Vann, and R. D. Randle, USDA-ARS, Livestock Issues Research Unit, Lubbock, TX; Texas Tech University, Department of Animal and Food Sciences, Lubbock, TX; Prince Agri Products, Inc., Quincy, IL; Texas AgriLife Research, Texas A&M System, College Station, MAFES, Mississippi State University, Raymond; Texas AgriLife Research, Texas A&M System, Overton.

2:15 PM 216 OmniGen-AF supplementation modulates the physiological and acute phase responses of Brahman heifers to an endotoxin challenge.
N. C. Burdick*, J. A. Carroll, T. H. Welsh, R. C. Vann, and R. D. Randle, USDA-ARS, Livestock Issues Research Unit, Lubbock, TX; Texas Tech University, Department of Animal and Food Sciences, Lubbock, TX; Prince Agri Products, Inc., Quincy, IL; Texas AgriLife Research, Texas A&M System, College Station, MAFES, Mississippi State University, Raymond; Texas AgriLife Research, Texas A&M System, Overton.

2:30 PM 218 A description of dairy heifer raising operations in the United States.

2:45 PM 219 Biosecurity practices on dairy heifer raising operations in the United States.

3:00 PM 220 Pre- and postpartum immunomodulatory effects of a dietary supplement on the immune system of dairy heifers.
V. J. Eubanks*, D. J. Hurley, L. O. Ely, F. M. Kautz, S. C. Nickerson, N. E. Forsberg, Y. Q. Wang, K. P. Zanzalari, and J. D. Chapman, University of Georgia, Athens; OmniGen Research LLC, Corvallis, OR; Prince Agri Products Inc., Quincy, IL.

3:15 PM 221 Indoor group housing does not influence performance or measures of innate immune activity of Holstein calves during the neonatal, weaning, and commingling periods.
C. J. Cobb*, D. L. Hanson, M. D. Sellers, A. R. Pepper-Yowell, B. S. Obeidat, and M. A. Ballou, Texas Tech University, Lubbock.

3:30 PM 222 Feed intake, rectal temperature and weight gain in Bos indicus crossbred steers challenged with bovine viral diarrhea virus.
C. A. Runyan*, X. Fang, E. Downey, T. B. Hairgrove, J. E. Sawyer, J. C. Bailey, J. F. Ridpath, and A. D. Herring, Texas A&M University, College Station; Texas AgriLife Research, College Station; Texas AgriLife Extension, College Station; USDA-ARS, Ames, IA.

3:45 PM 223 Correlations of temperament with titer and hematological responses of crossbred steers challenged with bovine viral diarrhea virus.
X. Fang*, E. Downey, C. A. Runyan, J. E. Sawyer, T. B. Hairgrove, J. F. Ridpath, C. A. Gill, W. Mwangi, and A. D. Herring, Texas A&M University, College Station; Texas AgriLife Research, College Station; USDA-ARS, Ames, IA; Texas AgriLife Research, College Station.

4:00 PM 224 cis-9, trans-11 conjugated linoleic acid and NF-κB inhibitor pyrrolidine dithiocarbamate decrease prostaglandin production by bovine endometrial cells treated with lipopolysaccharide.
L. Badinga*, M. S. Gulay, and A. D. Ealy, University of Florida, Gainesville.

4:15 PM 225 Peripartum metabolic, immune, and hematological parameters of Jersey cows diagnosed with periparturient diseases.
P. R. B. Silva*, J. G. N. Moraes, L. G. D. Mendonça, G. Nakagawa, and R. C. Chebel, Department of Veterinary Population Medicine, University of Minnesota, St Paul; Department of Animal Science, University of Minnesota, St Paul.
Yeast cell wall supplementation alters the performance and physiological response of beef heifers following an immune challenge.

T. R. Young*, N. C. Burdick*, J. A. Carroll†, M. A. Jennings‡, J. T. Cribbs†, R. J. Rathmann‡, J. R. Corley‡, and B. J. Johnson†, †Texas Tech University, Department of Animal and Food Sciences, Lubbock, ‡USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, ‡Lesaffre Feed Additives, Milwaukee, WI.

Breeding and Genetics

Dairy Cattle Breeding I—Genetic improvement of animal health

Chair: Christian Maltecca, North Carolina State University

Sponsor: Monsanto Co.

125AB

2:00 PM Genomics of functional traits in dairy cattle.


2:15 PM Genomic selection for enhanced immune response to improve dairy health.

K. Thompson-Crispi, R. Ventura, F. Schenkel, F. Miglior, and B. Mallard, Department of Pathobiology, Ontario Veterinary College, Guelph, ON, Canada, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, Beef Improvement Opportunities, Guelph, ON, Canada, Guelph Food Research Center, Agriculture and Agri-Food Canada, Guelph, ON, Canada, Canadian Dairy Network, Guelph, ON, Canada.

2:30 PM Telomere length assessment of Holstein cows in 10 Pennsylvania dairy herds.


2:45 PM Incidence validation and causal relationship analysis of producer-recorded health event data from on-farm computer systems in the United States.

K. L. Parker Gaddis*, J. P. Cassidy, J. B. Cole, and C. Maltecca, North Carolina State University, Raleigh, Animal Improvement Programs Laboratory, Agricultural Research Service, USDA, Beltsville, MD.

3:00 PM Genetic relationships of mastitis, cystic ovaries and lameness with milk yield and somatic cell score in first-lactation Canadian Holstein cows.

A. Koeck, F. Miglior, S. Loker, D. F. Kelton, A. Sewalem, and F. S. Schenkel, Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, Guelph Food Research Centre, Agriculture and Agri-Food Canada, Guelph, ON, Canada, Canadian Dairy Network, Guelph, ON, Canada, Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

3:15 PM Genetic relationships among health related fatty acids in milk of Canadian Holsteins.

G. Bilal, R. I. Cue, A. F. Mustafa, and J. F. Hayes, McGill University, Macdonald Campus, Ste-Anne de Bellevue, Quebec, Canada.

3:30 PM Crossbreds of Holstein with Jersey and Montbéliarde compared to pure Holsteins for 305-d production and mastitis in a pasture production system.


3:45 PM An update: Responses of production and mastitis to selection for milk yield with a control population in a pasture production system.

B. J. Heins*, University of Minnesota, West Central Research and Outreach Center, Morris.

4:00 PM Genetic analysis of leukosis incidence in a US Holstein cattle population.


4:15 PM Production traits, somatic cell score, and days open of crossbred cows versus pure Holsteins during their first lactation in Italian commercial dairy herds.

F. Malchiodi, M. Penasa, and G. Bittante, Department of Agronomy, Food, Natural Resources, Animals and Environment, University of Padova, Legnaro, Padova, Italy.

4:30 PM Birth weight, gestation length, calving-ease and mortality in Holstein, Jersey, and crossbred cows in a pasture-based dairy herd.

Companion Animals Symposium
Companion Animal Reproduction: To breed or not to breed?
Chair: Jill Cline, K9Crazy Consulting
Sponsors: Hill’s Science Diet, Procter and Gamble, and Purina
123

2:00 PM
Introduction

2:05 PM 239 Canine and feline reproductive biology 101.
M. Kutzler*, Oregon State University, Corvallis.

2:40 PM 240 Companion animal reproduction and nutrition 101.
D. Greco*, Nestle Purina Petcare.


3:50 PM 242 The role of the domestic cat in endangered species conservation.
J. Herrick*, National Foundation for Fertility Research, Lone Tree, CO.

J. F. Kirkpatrick*, Science and Conservation Center, Billings, MT.

5:00 PM 244 Obesity is associated with adverse cardiovascular outcomes and insulin resistance in dogs.
J. L. Adolphe*, T. I. Silver, M. D. Drew, and L. P. Weber, University of Saskatchewan, Saskatoon, SK, Canada.

Dairy Foods Symposium
Maximizing Value of Milk Proteins—Manufacture, applications and market opportunities for milk protein concentrate
Chair: Shantanu Agarwal, Dairy Research Institute
Sponsor: Dairy Research Institute
121AB

2:00 PM
Introduction
S. Agarwal, Dairy Research Institute, Rosemont, IL.

2:05 PM 245 Market trends and opportunities for milk protein concentrates.
V. Lagrange*, US Dairy Export Council, Arlington, VA.

2:35 PM 246 Impact of processing and storage on milk protein concentrate functionality.
J. A. Lucey*, University of Wisconsin-Madison, Madison.

3:15 PM
Break

3:30 PM 247 Advances in processing and development of new milk protein products.
H. Singh*, Riddet Institute, Massey University, Palmerston North, New Zealand.

4:00 PM 248 Manufacture and application of micellar casein concentrates.
D. M. Barbano*, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY.
Performance of spiral wound microfiltration membranes during production of micellar casein concentrate.
L. E. Metzger*, C. Marella, and P. Salunke, Midwest Dairy Foods Research Center, South Dakota State University, Brookings.

Graduate Student Competition:
ADSA Production Division Graduate Student Poster Competition—MS Division
Chair: Matthew Waldron, University of Missouri

2:00 PM 250 Neutrophil function in the transition period and reproductive tract health in dairy cows.
J. A. M. Wittrock*, T. F. Duffield, D. Bienzle, and S. J. LeBlanc, University of Guelph, Guelph, ON, Canada.

2:15 PM 251 Effects of intrauterine infusion with E. coli lipopolysaccharide on systemic and local inflammatory and immune response.
J. G. N. Moraes*1, P. R. B. Silva1, L. G. D. Mendoça1, J. Silva1, M. A. Ballou2, K. N. Galvão1, and R. C. Chebel1, 1Department of Veterinary Population Medicine, University of Minnesota, St. Paul, 2Department of Animal and Food Sciences, Texas Tech University, Lubbock, 3Department of Large Animal Clinical Sciences, University of Florida, Gainesville.

2:30 PM 252 Effects of fresh-cow diseases on reproduction in a large commercial dairy herd.
R. P. Tollefsrud*1, R. L. Larson1, H. M. Scott1, G. A. Hanzlicek1, and D. E. Little2, 1Kansas State University, Manhattan, 2DairyNet Incorporated, Brookings, SD.

2:45 PM 253 Using temperature-sensing reticular boluses to aid in the detection of disease in dairy cows.

3:00 PM Break

L. Bradner*1, S. Robbe-Austerman3, D. Beitz1, and J. Stabel3, 1Iowa State University, Ames, 2USDA-APHIS, National Veterinary Services Laboratory, Ames, IA, 3USDA-ARS, National Animal Disease Center, Ames, IA.

3:30 PM 255 Effects of transient silage DM concentration variation on dairy cows.
L. R. McBeth*1, W. P. Weiss1, N. R. St-Pierre1, and D. E. Shoemaker2, 1The Ohio State University, Wooster, 2Ohio State University Extension, Wooster.

3:45 PM 256 Development of a merit-based genetic selection index for dairy grazing systems.

4:00 PM 257 Effects of stocking rate, supplement strategy and breed in a pasture-based automatic milking system.

Performance of cattle fed diets based on blended by-product pellets varying in rumen available energy and protein content.
M. G. Zenobi*, P. Yu1, D. A. Christensen2, P. G. Jefferson1,2, H. A. Lardner1,2, and J. J. McKinnon1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Western Beef Development Centre, Humboldt, SK, Canada.
Identification of single nucleotide polymorphisms for feed efficiency and performance in crossbred beef cattle.
M. K. Abo-Ismail*, G. Vander Voort, E. J. Squires, K. C. Swanson1,2, J. Thomson3, B. Karisa3, G. Plastow3, S. Moore3, and S. P. Miller1,3, 1Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Animal Sciences Department, North Dakota State University, Fargo, 3Faculty of Agricultural, Life and Environmental Sciences, University of Alberta, Edmonton, AB, Canada.

Assessing how RFI classification in the growing phase predicts RFI classification in the finishing phase.
D. Johns*, G. Vander Voort, C. Campbell, M. Quinton, and I. Mandell, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.

Effects of method of forage finishing and cattle breed on growth performance, carcass characteristics, meat quality, and fatty acid composition.
L. Shepherd*, R. Berthiaume2, C. Lafreniere3, C. Campbell1, L. Pivotto1, and I. Mandell3, 1Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, 2Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada, 3Agriculture & Agri-Food Canada, Kapuskasing, ON, Canada.

Effect of rumen degradable energy source on performance and forage intake of steers grazing stockpiled crested wheatgrass pasture.
F. Anez*1, J. J. McKinnon1, H. A. Lardner1,2, G. B. Penner1, and P. G. Jefferson1,3, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Western Beef Development Centre, Humboldt, SK, Canada.

Effect of maturity on the yield and in situ digestibility of whole-crop cereals.
C. L. Rosser*1, A. Beattie1, H. C. Block2, J. J. McKinnon1, H. A. Lardner1,3, and G. B. Penner1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Agriculture and Agri-Food Canada, Brandon, MB, Canada, 3Western Beef Development Centre, Humboldt, SK, Canada.

Effect of carbohydrate conformation in hulless barley (Hordeum vulgare L.) on in situ rumen and in vitro intestinal nutrient availability.
L. Yang*1,3, J. McKinnon1,3, D. Christensen1,3, B. Rossnagel1,3, A. Beattie2,3, and P. Yu1,3, 1Department of Animal and Poultry Science, 2Crop Development Centre, 3University of Saskatchewan, Saskatoon, SK, Canada.

Liver gene expression patterns can explain accumulation of lipid in the liver during the transition period.

Nonruminant Nutrition Symposium
Swine NRC
Chair: Brian Kerr, USDA-ARS
Sponsor: United Soybean Board
222AB

Introduction
L. Southern*, Louisiana State University Agricultural Center.

Energy.
P. Miller*, University of Nebraska.

Amino Acids I.
L. Adeola*, Purdue University.

Amino Acids II.
N. Trottier*, Michigan State University.

Minerals and Vitamins.
M. Lindemann*, University of Kentucky.

Modeling.
K. de Lang*, University of Guelph.

Ingredient Data Base.
L. Southern*, Louisiana State University Agricultural Center.

Open Question and Discussion
Physiology and Endocrinology

Estrous Cycle Manipulation—Beef

Chair: Robert A. Cushman, USDA-ARS U.S. Meat Animal Research Center

2:00 PM 258 Mean and basal LH concentrations increased in peri-puberal beef heifers during early exposure to androgenized steers.
C. Fiol1, N. Curbelo2, G. Larraz3, L. de Melo Menezes4, and R. Ungerfeld5, 1Departamento de Bovinos, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay, 2Departamento de Fisiología, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay, 3Universidad de Pelotas, Rio Grande del Sur, Brazil.

2:15 PM 259 Plasma progesterone concentration in beef heifers receiving exogenous glucose, insulin, or bovine somatotropin.
B. I. Cappellozza1*, R. F. Cooke1, M. M. Reis1, F. N. T. Cooke1, D. W. Bohnert1, and J. L. M. Vasconcelos2, 1Oregon State University - EOARC, Burns, 2UNESP - FMVZ/DPA, Botucatu, SP, Brazil.

2:30 PM 260 Prediction of estrus in beef cows using ruminal temperature.
B. H. Boehmer* and R. P. Wetteeman, Oklahoma Agricultural Experiment Station, Stillwater.

2:45 PM 261 Comparison of three CIDR-based fixed-time AI protocols for beef heifers.
G. A. Perry1*, J. K. Grant1, J. A. Walker1, G. A. Bridges2, S. G. Kruse3, S. Bird4, K. Heaton5, R. Arias6, and S. L. Lake7, 1Department of Animal Science, South Dakota State University, Brookings, 2North Central Research and Outreach Center, University of Minnesota, Grand Rapids, 3Utah State University, Logan, 4Department of Animal Science, University of Wyoming, Laramie.

3:00 PM 262 Ovarian dynamics and AI pregnancy rates with PGF2α administration 2 d prior to the onset of a 5-d CO-Synch + CIDR program in beef cattle.
L. H. Cruppe1*, G. A. Bridges2, M. V. Biehl3, F. M. Abreu4, A. D. P. Rodrigues5, S. G. Kruse6, M. Maquivar7, J. L. M. Vasconcelos8, and M. L. Day9, 1The Ohio State University, Columbus, 2University of Minnesota, Grand Rapids, 3University of Sao Paulo, Piracicaba, SP, Brazil, 4Sao Paulo State University, Botucatu, SP, Brazil.

3:15 PM 263 Efficacy of a new, once-used, or twice-used CIDR in a 5-day CO-Synch + CIDR estrus synchronization protocol in suckled beef cows.
P. J. Gunn1*, R. P. Lemenager1, L. A. Horstman2, and G. A. Bridges3, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2Department of Veterinary Clinical Sciences, Purdue University, West Lafayette, IN, 3North Central Research and Outreach Center, University of Minnesota, Grand Rapids.

3:30 PM 264 Fixed-time AI in lactating beef cows after GnRH on day 9 of a 14-d CIDR.

Production, Management and the Environment

Beef, Sheep, Swine

Chair: Shane Gadberry, University of Arkansas

2:00 PM 268 Substituting ground redberry juniper leaves and stems for oat hay in lamb feedlot diets: Growth performance, serum urea nitrogen, serum insulin-like growth factor-1, and wool characteristics.
T. R. Whitney1*, C. D. Swening2, J. P. Muir2, C. J. Lupton2, and W. C. Stewart1, 1Texas AgriLife Research, San Angelo, 2Texas AgriLife Research, Stephenville.


Evaluation of body temperature and sweating rate of Senepol cows in the tropics. R. W. Godfrey*, A. J. Weis1, P. E. Hillman2, K. G. Gebremedhin2, C. N. Lee3, and R. J. Collier4, 1University of the Virgin Islands, St Croix, 6, 2Cornell University, Ithaca, NY, 3University of Hawaii, Manoa, 4University of Arizona, Tucson.

Variation in skin surface temperature in different body parts of pigs in response to varying air temperatures. A. Sapkota* and J. J. McGlone, Pork Industry Institute, Texas Tech University, Lubbock.


Effects of different implant management options on performance of pre and post weaned calves. H. B. Jones*, J. D. Rivera2, and R. C. Vann2, 1MAFES South Mississippi Branch Experiment Station, Poplarville, 2MAFES Brown Loam Branch Experiment Station, Raymond, MS.

Comparison of chelated versus inorganic trace minerals on rate and efficiency of gain and pregnancy rates in beef heifers. W. A. Whitehurst*1, J. A. Paterson1, M. M. Harbaci, M. K. Petersen1, G. C. Duff1, and T. W. Geary2, 1Montana State University Bozeman, Bozeman, 2USDA-ARS Fort Keogh, Miles City, MT.

Relationships between postweaning residual feed intake in heifers and efficiency, digestibility, and productivity of Bonsmara cows. A. N. Hafla*, G. E. Carstens1, T. D. A. Forbes2, J. C. Bailey1, J. T. Walter1, J. G. Moreno1, and J. R. Johnson1, 1Texas A&M University, College Station, 2Texas AgriLife Research, Uvalde.

Ruminant Nutrition
Beef
Chair: Shawn Archibeque, Colorado State University
131ABC


Effect incremental levels of exogenous enzyme preparation on extent of ruminal fermentation, nutrient digestibilities and average daily gain in steers. H. Gado*, A. Z. M. Salem*, and B. E. Borhami1, 1Department of Animal Production, Faculty of Agriculture, Ain Shams University, Cairo, Egypt, 2Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca Estado de México, México, 3Department of Animal Production, Faculty of Agriculture (El-Shatby), Alexandria University, Alexandria, Egypt.

Effect of a blend of castor oil and cashew nut shell liquid on performance, eating pattern, rumen health and carcass quality in Holstein bulls fed high-concentrate rations. M. Devant*, A. Aris1, A. Bach2, and J. Torrent3, 1IRTA-Ruminant Production, Animal Nutrition, Management, and Welfare Research Group, Torre Marimon, Caldes de Montbui, Barcelona, Spain, 2ICREA, Barcelona, Spain, 3Oligo Basics USA LLC, Excelsior, MN.

Yeast cell wall supplementation alters the performance of beef heifers during the receiving period. T. R. Young*, N. C. Burdick2, J. A. Carroll2, M. A. Jennings1, J. T. Criibs1, R. J. Rathmann1, J. R. Corley3, and B. J. Johnson1, 1Texas Tech University, Department of Animal and Food Sciences, Lubbock, 2USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 3Lesaffre Feed Additives, Milwaukee, WI.

Feedlot performance of Nellore young bulls fed biodiesel copродuct. R. L. Oliveira*, C. H. da Cruz1, N. B. de Santana Filho1, W. G. Cerutti1, C. A. dos Santos Dias2, E. I. de Souza Costa1, O. L. Ribeiro1, A. G. Leão1, M. C. A. Santana1, and A. A. Pinheiro1, 1Universidade Federal da Bahia, Salvador, Brazil, 2Universidade Federal do Recôncavo Baiano, Cruz Das Almas, Brazil, 3Universidade Federal de Santa Maria, Santa Maria, Brazil.
Effect of corn oil or corn protein supplementation on performance and rumen fermentation characteristics of feedlot lambs consuming a 90% concentrate diet containing 30% DDGS.

Prospects of raising Sahiwal cow calves for veal production under tropical environment.
S. A. Bhatti*, K. Nazir, M. J. Basra, M. S. Khan, M. Sarwar, and M. A. I. Mughal, Institute of Animal Nutrition and Feed Technology, University of Agriculture, Faisalabad, Punjab, Pakistan, Livestock and Dairy Development Department, Punjab, Lahore, Pakistan, Department of Animal Breeding and Genetics, University of Agriculture, Faisalabad, Punjab, Pakistan.

Ruminant Nutrition
Dairy Production II
Chair: Aimee Wertz, ADM
132ABC

Effect of diet composition and incubation time on feed indigestible NDF concentration in dairy cows.
S. J. Kriissan* and P. Huhtanen, Swedish University of Agricultural Sciences, Department of Agricultural Research for Northern Sweden, Umeå, Sweden.

Effect of corn snaplage on lactation performance of Holstein dairy cows.
M. S. Akins*, M. Digman, and R. D. Shaver, Department of Dairy Science, University of Wisconsin-Madison, Madison, U.S. Dairy Forage Research Center, Madison, WI.

Dry heat popping of sorghum grain to increase ruminal starch digestion in dairy cattle.
A. R. Anstis, D. G. Barber, E. Raffrenato, and D. P. Poppi, Agri-Science Queensland, Department of Employment, Economic Development and Innovation, Lawes, Queensland, Australia, School of Agriculture and Food Sciences, The University of Queensland, Gatton, Queensland, Australia, Department of Animal and Wildlife Sciences, University of Pretoria, Pretoria, Gauteng, South Africa.

Daily methane emission profile in Holstein heifers fed rice straw.
G. D. Cruz, P. H. Hai, S. Polyorach, N. Anantassok, P. Beelen, H. D. Rosa, and E. Kebreab, University of California, Davis, Institute of Agricultural Science for Southern Vietnam, Hochiminh City, Vietnam, Khon Kaen University, Khon Kaen, Thailand, Federal University of Alagoas, Rio Largo, Brazil, Sao Paulo State University, Botucatu, Brazil.

The effects of a two ration feeding regimen on intake, milk production, and rumen fermentation in dairy cows.
L. W. Rottman, Y. Ying, P. A. Bartell, and K. J. Harvatine, Penn State University, University Park.

Validation of an acidosis model.
H. M. Golder, W. J. Wales, M. J. Auldist, A. R. Rabiee, E. Bramley, P. Celi, R. King, and L. J. Lean, School of Veterinary and Biomedical Sciences, Murdoch, Western Australia, Australia, Dairy Australia, Southbank, Australia.

Evaluation of two versions of a mechanistic, metabolic model including bacterial pools, to describe FA flux, pH and milk fat in cattle on various pasture supplementation feeding strategies.
J. McNamara, W. Wales, and M. Auldist, Washington State University, Pullman, DPI Ellinbank, Ellinbank, Victoria, Australia.

Multi-component versus one-component analysis: A different way of assessing the effect of TMR chemical composition on milk, fat, and protein yield individual lactation curves.
M. Caccamo, R. F. Veerkamp, G. Licitra, R. Petriglieri, F. La Terra, A. Pozzebon, and J. D. Ferguson, CoRFicient, Regione Siciliana, Ragusa, Italy, WageningenUR Livestock Research, Animal Breeding and Genomics Centre, Lelystad, the Netherlands, Catania University, DISPA, Catania, Italy, University of Pennsylvania, PA.

Intestinal digestibility of long chain fatty acids in lactating dairy cattle: A meta-analysis.
J. C. Ploetz and A. L. Lock, Michigan State University, East Lansing.

Effect of replacing dietary soybean meal with canola meal on production of lactating dairy cows.
Milk yield and composition of dairy cows fed diets combining pasture and total mixed ration.
A. Mendoza¹, C. Cajarville³, E. de la Quintana¹, M. E. Garmendia¹, E. Mutuberría¹, E. de Torres⁴, and J. L. Repetto*,¹
¹Facultad de Veterinaria, Departamento de Bovinos, Montevideo, Uruguay, ²Instituto Nacional de Investigación Agropecuaria, Programa de Producción de Leche, Colonia, Uruguay, ³Facultad de Veterinaria, Departamento de Nutrición Animal, Montevideo, Uruguay, ⁴Facultad de Veterinaria, Campo Experimental No2, Libertad, Uruguay.

Effects of dietary fiber source on lactation performance, nutrient digestion, and rumen microbial protein synthesis in early-lactating dairy cows.

WSASAS Symposium
Beef—Beef production in arid environments
Chair: Rick Funston, University of Nebraska
Sponsor: Western Section ASAS
226ABC

Significant research accomplishments applicable to arid environments.
J. Paterson*, Montana State University-Bozeman, Bozeman.

Cows that fit arid environments.
B. H. Dunn*, South Dakota State University, Brookings.

Supplementation strategies in arid environments.
D. W. Bohnert*, Eastern Oregon Agricultural Research Center, Oregon State University, Burns.

Restocking the cow herd.
D. Peel*, Oklahoma State University, Stillwater.

A systems approach to ranching in arid environments.
Tuesday, July 17

POSTER PRESENTATIONS

Animal Behavior and Well-Being

Physiology Emphasis

T1  Stress affects plasma serotonin, but not tryptophan, in Holstein steer calves.

T2  Development of a novel method for measuring stress in beef cattle.
    D. Moya*, K. S. Schwartzkopf-Genswein, and D. Veira, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

T3  Body temperature and panting in feedlot cattle.
    J. B. Gaughan* and T. L. Mader, The University of Queenslands, Gatton, Qld, Australia.

T4  Use of artificial shade during grazing and its effects on body weight at the end of gestation in red deer (Cervus elaphus).
    M. H. Romero*, L. F Uribe, J. A. Sánchez, and H. Mesa, Universidad de Caldas, Manizales, Caldas, Colombia.

T5  Effectiveness of a non-penetrating captive bolt for the euthanasia of nursing and weaned piglets from 3 to 9 kg.

T6  Trailer compartment and trip duration affect stress of pigs transported under Canadian conditions.
    Y. M. Seddon*, J. Brown, T. Crowe, R. Bergeron, T. Widowski, L. Faucitano, and H. Gonyou, Prairie Swine Centre, Saskatoon, SK, Canada.

T7  Effect of commercial transport by road on prevalence of bruises and meat pH of beef cattle in Brazil.

T8  The effect of water sprinkling on behavior and core body temperature of market hogs transported during summer.

T9  Characteristics of bruises in carcasses of commercial zebu cattle in Colombia.
    M. H. Romero*, L. F Uribe, J. A. Sánchez, and H. Mesa, Universidad de Caldas, Manizales, Caldas, Colombia.

Animal Health II

T11 Intravaginal administration of lactic acid bacteria modulated selected plasma metabolites in transition dairy cows.
    Q. Deng, J. F. Odhiambo, T. Lam, S. M. Dunn, and B. N. Ametaj*, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

T12 Indoor versus outdoor housing during the neonatal, weaning, and commingling periods influences innate immune responses in single-housed Holstein calves.
    M. D. Sellers*, C. J. Cobb, D. L. Hanson, A. R. Pepper-Yowell, and B. S. Obeidat, Department of Animal and Food Sciences, Texas Tech University, Lubbock.

T13 Prevalence of nematodes eggs of the genera Cooperia, Ostertagia, and Haemonchus, before and after treatment of dairy heifers with commercial anthelmintics in commercial dairy farms in Puerto Rico.
    L. López-Soberal*, A. Ruiz-Lugo, A. González-Sanabria, M. Pagán, and G. Ortiz-Colón, University of Puerto Rico, Mayagüez Campus.
Eicosapentaenoic acid and NF-κB inhibitor pyrrolidine dithiocarbamate attenuate prostaglandin production by bovine endometrial cells treated with lipopolysaccharide.  
L. Badinga*, M. S. Gulay, and A. D. Ealy, University of Florida, Gainesville.

Plane of milk replacer nutrition influences the acute phase response of weaned Jersey calves to an oral Salmonella typhimurium challenge.  
D. L. Hanson*, M. D. Sellers, C. J. Cobb, T. J. Earleywine, and M. A. Ballou, 1Department of Animal and Food Sciences, Lubbock, TX; 2Land O’Lakes, Animal Milk Products Co., Shoreview, MN.

Intravaginal probiotics expedited uterine involution in postpartum dairy cows.  
Q. Deng, J. F. Odhiambo, T. Lam, S. M. Dunn, and B. N. Ametaj*, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Plane of nutrition during the pre- and post-weaned periods influences the innate immune activity of Holstein calves.  

Pathophysiological response to an oral Salmonella typhimurium challenge is influenced by the inoculum dose in newborn Colostrum-fed Jersey calves.  

Effect of dietary supplementation with Curcuma longa (turmeric) during Eimeria maxima and Eimeria tenella infection of chickens.  
D. K. Kim*, H. S. Lillehoj, S. H. Lee, S. I. Jang, M. S. Park, and D. Bravo, 1Animal Parasitic Diseases Laboratory, Animal and Natural Resources Institute, United States Department of Agriculture, Beltsville, MD; 2Pancosma SA, Geneva, Switzerland.

Detection of neutralizing antibody titration against rabies virus in dogs.  
A. E. Gazi* and S. Ak, 1Tarim Ilce Mudurlugu, Bozyazi, Turkey; 2Istanbul University, Veteriner Fak. Microbiology, Istanbul, Turkey.

Dairy health records use and management by producers in Washington and Idaho.  
J. R. Wenz*, D. A. Moore, R. A. Jussaume, S. Giebel, S. Poisson, and C. S. Schneider, 1Wasington State University, Pullman, 2University of Idaho, Moscow.

Effect of method of detection and uterine dimensions in the diagnosis of endometritis in lactating dairy cows.  
R. L. A. Cerri**, D. M. Veira, A. M. Tabmasbi, A. M. L. Madureira, S. A. Balios, A. H. Souza, and J. L. M. Vasconcelos, 1University of British Columbia, Vancouver, BC, Canada; 2Agriculture and Agri-Food Canada, Agassiz, BC, Canada; 3Fedowsi University of Mashhad, Iran; 4University of Wisconsin, Madison, 5Sao Paulo State University, Botucatu, SP, Brazil.

Effects of phytoncide supplementation on growth performance, nutrient digestibility, blood profiles, diarrhea score, and fecal microbial shedding in weaning pigs.  
S. Zhang*, J. H. Jung, H. S. Kim, B. Y. Kim, and I. H. Kim, 1Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea; 2Phylus Co. Ltd., Chungbuk, South Korea.

Influence of tannins extract supplementation on feedlot performance of receiving bull-calves naturally infected with gastrointestinal parasites.  

Effects of different levels of fermented oat on growth performance, diarrhea score, fecal microbial shedding, and fecal noxious gas emission in weaning pigs.  
J. P. Wang*, J. P. Lee, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

GPR109A mediates calcium mobilization induced by BHBA in isolated bovine monocytes.  
L. K. Mamedova*, E. C. Titzemeyer, G. M. Pighetti, J. Y. Lu, D. H. Hua, and B. J. Bradford, 1Kansas State University, Manhattan; 2University of Tennessee, Knoxville.

Effects of bacteriophage as an alternative for antibiotics on egg performance, egg quality, fecal microbial shedding, and fecal moisture content in laying hens.  
P. Y. Zhao*, B. R. Lee, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

Effects of bacteriophage as an alternative for antibiotics on growth performance, nutrient digestibility, blood profiles, fecal microbial shedding, diarrhea score, and fecal moisture content in growing pigs.  
S. M. Hong*, H. Y. Baek, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.
T29  Effects of bacteriophage as an alternative for antibiotics on growth performance, nutrient digestibility, relative organ weight, blood profiles, and fecal microbical shedding in broilers.

T30  Changes in bacterial communities in bovine milk when comparing low and high somatic cell count quarters using culture independent analysis.
S. M. Buttram*, K. M. Hunt1, L. K. Fox1, and M. A. McGuire2, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, 2Department of Animal Science, Washington State University, Pullman.

T31  Group housed Holstein bull calves have suppressed innate immune function compared to individually housed calves during weaning.
L. E. Hulbert*, M. S. Calvo1, M. A. Ballou2, K. K. Clasing1, and F. M. Mitloehner1, 1Department of Animal Science, University of California-Davis, Davis, 2Animal and Food Sciences, Texas Tech University, Lubbock.

T32  Effects of dietary herb supplementation on growth performance, and appearance of diarrhea in weaning-growing pigs.
J. P. Wang*, X. Y. Guo, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

T33  Efficacy of a yeast cell wall-derived mycotoxin adsorbent on excretion of aflatoxin B1 in rats.
B. Walters*, T. Smith, and M. Crump, University of Guelph, Guelph, Ontario, Canada.

T34  Biotransformation approaches to alleviate the toxic effects induced by Fusarium toxins in swine.

T35  Impact of cow genetics regarding the osteopontin gene for the immune response to MAP infection.
C. Thibault1, P. L. Dudemaine2, 3, and N. Bissonnette*1, 3, 1Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Center, Sherbrooke, Quebec, Canada, 2Université de Sherbrooke, Sherbrooke, Quebec, Canada.

T36  Polymorphisms in the osteopontin gene are associated with Mycobacterium avium ssp. paratuberculosis infection status.
C. Thibault1, P.-L. Dudemaine2, G. Fecteau2, G. Côté3, O. Labrecque3, and N. Bissonnette*1, 2, 1Agriculture and Agri-Food Canada, Dairy and Swine Research and Development Center, Sherbrooke, QC, Canada, 2Université de Sherbrooke, Sherbrooke, Québec, Canada.

T37  Phytonutrients affect the integrity of the mucus layer and susceptibility to enteric pathogens.
M. Wlodarska1, B. B. Finlay1, and D. Bravo2, 3, 1University of British Columbia, Vancouver, British Columbia, Canada, 2Pancosma, Geneva, Switzerland.

Breeding and Genetics
Applications and Methods in Animal Breeding

T38  Effect of diet and sex on growth of cattle evaluated with non-linear mixed effects models.
A. Dufek*1,2, and E. Václavko3, 1Research Institute for Cattle Breeding, Ltd., Rapotin, Czech Republic, 2Agriresearch Rapotin Ltd., Vikyrovice, Czech Republic.

T39  The effect of the ancestor on inbreeding depression in milk yield during the first lactation.
J. Bezdieck1, L. Stadnik2, F. Louta2, and O. Lata1, 1Agrovyzkum Rapotin Ltd., Vikyrovice, Czech Republic, 2Czech University of Life Sciences Prague, Prague, Czech Republic, 3Research Institute for Cattle Breeding, Ltd., Vikyrovice, Czech Republic.

T40  Association between milk production and Holstein fraction of upgraded dairy cattle in the Thai tropics.
S. Koonawootrittriron1, P. Yodklaew2, M. A. Elzo*, and T. Suwanasopee1, Kasetsart University, Bangkok, Thailand, 3University of Florida, Gainesville.

T41  Genetic analysis of longevity traits in a Holstein cattle population near Benghazi, Libya.
E. Abdalla*, S. A. M. Bozrayda2, and I. A. S. Al-DruSSI1, 1Department of Animal Sciences, University of Wisconsin-Madison, Madison, 2Department of Animal Production, University of Benghazi, Benghazi, Libya.

T42  Ranking of Brown Swiss cattle based on genetic evaluation and grades in judgment at the show ring.
Genetic evaluation of mobility for Brown Swiss dairy cattle.
G. R. Wiggans1, J. R. Wright2, C. J. Muenzenberger1, and R. R. Neitzel1, Animal Improvement Programs Laboratory, USDA-ARS, Beltsville, MD; Brown Swiss Cattle Breeders Association of the USA, Beloit, WI.

Covariance functions, genetic parameters and breeding values for longitudinal ultrasound measures of ribeye area in a Colombian multibreed cattle population.
C. A. Martínez2, M. A. Elzo3, 4, A. Jiménez2, C. Manrique2, and G. Hu2, Universidad Nacional de Colombia, Bogota, Colombia; 1University of Florida, Gainesville; 3, 4Colombian Association of Zebu Cattle Breeders, Bogota, Colombia.

Considerations in using residual feed intake to define feed efficiency in dairy cattle.
M. Vandehaar*, D. M. Spurlock2, L. Armentano2, R. Tempelman2, K. Weigel2, and R. Veerkamp2, Michigan State University, East Lansing, 1Iowa State University, Ames, 2University of Minnesota, Madison, 3Wageningen UR, Wageningen, the Netherlands.

Contribution of heredity, nutrition and management to milk yield improvement in Shanghai from 1998 to 2010.
G. L. Liu1, 2, L. M. Huang1, C. G. Zhang1, X. L. Tang1, and F. S. Fu1, 3State Key Laboratory of Dairy Biotechnology, Shanghai Bright Holstan Co. Ltd., Shanghai, China; 2Shanghai Dairy Breeding Center Co. Ltd., Shanghai, China.

Multiple trait analysis for milk yield and milking time of Holstein Cows.
L. El Faro1, 2, J. P. Pereira1, C. C. P. Paz1, D. A. C. Cruz1, V. L. Cardoso1, and A. B. Bignardi1, 2APTA/SAA, Ribeirão Preto, Sao Paulo, Brazil; 3UNESP, Jaboticabal, Sao Paulo, Brazil; 4Instituto de Zootecnia, Nova Odessa, Sao Paulo, Brazil; 5Federal University of Mato Grosso, Rondonoplis, Mato Grosso, Brazil.

Milk fat:protein ratio in lactating dairy cows: Effects on conception at first postpartum AI.
A. H. Souza1, L. F. Ferrari1, P. D. Carvalho1, A. R. Dresch1, L. M. Vieira1, 2, R. A. Cerri1, 2, M. C. Wiltbank1, and R. D. Shaver1, 1University of Wisconsin-Madison, Madison, 2University of Sao Paolo-VRA, SP 05508, Brazil; 3University of British Columbia, BC, Canada.

S. Shahinfar1, H. Mehrabani-Yeganeh1, C. Lucas1, A. Kalhor2, A. Kazemian1, and K. A. Weigel1, 1Department of Animal Science, University of Tehran, Karaj, Tehran, Iran; 2Center of Excellence: Control and Intelligent Processing, Faculty of Electrical and Computer Engineering, Tehran, Iran; 3Department of Dairy Science, University of Wisconsin-Madison, Madison.

New software for sparse matrix factorization and inversion using the supernodal techniques.
Y. Masuda* and M. Suzuki, Obihiro University of A & VM, Obihiro, Japan.

Genotype x climate interaction in the genetic evaluation for growing traits in Braunvieh cattle.
L. A. Saavedra-Jiménez1, R. Ramírez-Valverde1, R. Núñez-Domínguez1, N. López-Villalobos1, A. Ruíz-Flores1, and J. G. Garcia-Muñiz1, 1, 2Universidad Autónoma Chapingo, Chapingo, México; 3, 4Massey University, Palmerston North, New Zealand.

Relationships among visual scores with feedlot performance and feed efficiency in Bos indicus cattle.
P. H. Cancian*, S. L. Silva1, A. C. Ianni1, F. R. Manicardi1, R. C. Gomes1, and J. B. S. Ferraz2, 1Faculdade de Zootecnia e Engenharia de Alimentos / Universidade de São Paulo (FZEA/USP), Pirassununga, São Paulo, Brazil; 2Departamento de Zootecnia / Universidade Estadual de Londrina (UEL), Londrina, Paraná, Brazil.

Genetic parameters for carcass traits and weaning weight of composite beef cattle in Brazil.
J. Ramírez-Díaz1, T. A. Oliveira1, A. Zampar1, S. F. N. Perttne1, M. A. Elzo1, J. B. S. Ferraz2, and G. B. Mourão*, 1University of São Paulo - ESAIQ, Piracicaba, São Paulo, Brazil; 2University of São Paulo - FZEA, Pirassununga, São Paulo, Brazil; 3University of Florida, Gainesville.

Influence of maternal genetic effect on the estimation of genetic parameters in post-weaning traits.
G. A. Oliveira Júnior*, F. M. Rezende1, J. B. S. Ferraz2, J. P. Eler1, and G. B. Mourão2, 1Faculdade de Zootecnia e Engenharia de Alimentos - Universidade de São Paulo (FZEA/USP), Pirassununga, São Paulo, Brazil; 2Especial de Agricultura Luiz de Queiroz - Universidade de São Paulo, Piracicaba, São Paulo, Brazil; 3University of Florida, Medellín, Ant, Colombia.

Selection for resistance to Haemonchus contortus in Santa Ines hair sheep: Comparisons of methods of animal evaluation at countryside and in the laboratory.

Test-day model for milk yield of dairy buffaloes in Colombia.
N. Hurtado Lugo1, 2, G. M. F. de Camargo1, R. Aspilcuetla1, S. Gutierrez2, E. Taccari1, F. M. M. Gil1, L. G. Albuquerque1, M. Cerón2, and H. Tonhati2, 1State University of São Paulo, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, São Paulo, Brazil; 2University of Antioquia, Medellin, Ant, Colombia.

Random regression models for test-day milk production for first lactation in Colombian buffaloes.
N. Hurtado-Lugo1, 2, M. Cerón2, R. Aspilcuetla1, S. Gutierrez2, L. Albuquerque1, F. R. Araujo Neto1, G. M. F. de Camargo1, and H. Tonhati2, 1Faculty of Agriculture and Veterinary Sciences, State University of São Paulo, Jaboticabal, São Paulo, Brazil; 2Faculty of Agriculture Sciences, University of Antioquia, Medellín, Colombia.
Dairy Foods

Cheese and Dairy Products

T60 Prediction of process cheese functionality using dielectric spectroscopy.
J. K. Amamcharla* and L. E. Metzger, Midwest Dairy Foods Research Center, Dairy Science Department, South Dakota State University, Brookings.

T61 The impact of cation substitution on the flavor of reduced sodium full fat Cheddar cheese.
E. Kang*, M. Kim, D. J. McMahon, and M. A. Drake, 1North Carolina State University, Raleigh, 2Utah State University, Logan.

T62 A novel approach to produce low fat Cheddar cheese.

T63 Effect of grazing on Caciocavallo cheese quality produced in Alta Irpinia.
G. Esposito*, A. Di Francia, F. Napolitano, M. L. Varricchio, A. Braghieri, and F. Masucci, 1Dipartimento di Scienze del Suolo, della Pianta, dell’Ambiente e delle Produzioni Animali, Università, 2degli Studi di Napoli Federico II, Portici (Napoli), Italy, 3Dipartimento di Scienze delle Produzioni animali, Università degli Studi della Basilicata, Potenza, Italy, 4Department of Production Animal Studies, Faculty of Veterinary Science, University of Pretoria, Pretoria, South Africa.

T64 Sensory and instrumental measure of temporal volatile release from cheese.
S. White*, R. E. Miracle, E. A. Foegeding, and M. A. Drake, North Carolina State University, Raleigh.

T65 Light backscatter—Shedding new light on milk coagulation.
R. Miller, A. Villarroel, B. Krahn, and L. Goddik*, Oregon State University, Corvallis.

T66 Selection criteria for lactic cultures in reduced fat Cheddar cheese.
A. C. Biswas*, A. N. Hassan, and L. E. Metzger, Dairy Science Department, South Dakota State University, Brookings.

T67 Influence of salt levels, rate of salting and potassium chloride on whey syneresis from Cheddar cheese curd.
Y. Lu* and D. J. McMahon, Western Dairy Center, Utah State University, Logan.

T68 Effect of different gums supplementation on textural properties of goat milk yogurts.

T69 The role of different sweeteners on WPI flavor contributions in acidic protein beverages.
S. White* and M. A. Drake, North Carolina State University, Raleigh.

T70 Concentrations of IGF-1 and IGFBP-3 in several Korean commercial dairy products by immunoradiometric assay.

T71 The fatty acid composition of butter and cultured butter with lactobacillus acidophilus added to starter.
O. Tsisaryk*, L. Musij, and O. Golubets, 1Lviv National University of Veterinary Medicine and Biotechnologies, Lviv, Ukraine, 2Ukrainian State Research and Production Centre for Standardization, Metrology, Certification and Consumer Rights Production, Kiev, Ukraine.

T72 Effect of sodium reduction on the survival of Listeria monocytogenes and Bacillus anthracis in Cheddar cheese.

T73 Effects of acidification of milk by glucono-δ-lactone (GDL) on the solubility of milk protein concentrate powder.
H. Eshpari*, M. Corredig, and P. Tong, 1University of Guelph, Guelph, Ontario, Canada, 2California Polytechnic State University, San Luis Obispo.

T74 Influence of ethanol on some characteristics of stirred yogurt.
B. Mena* and K. Aryana, 1Louisiana State University, 2Louisiana State University Agricultural Center.
Extension Education

T75 Water use efficiency on small-scale irrigated dairy farms in the Mexicali Valley, México.
L. Avendaño-Reyes*, F. D. Alavarez-Valenzuela, U. Macías-Cruz, A. López-López, P. H. Robinson, and A. Correa; Universidad Autónoma de Baja California, Valle de Mexicali, Baja California, México, University of California, Davis.

T76 Complexity graphics for complex issues in animal science.
M. Boggess*, USDA-ARS, Beltsville, MD.

T77 Factors limiting productive efficiency in small dairies of central Mexico (Aguascalientes State).

T78 Evaluation of on-farm forage dry matter determined by near infrared spectroscopy.
M. S. Akins*, M. Dobberstein, and R. D. Shaver, Department of Dairy Science, University of Wisconsin-Madison, Dinamica Generale US, DeKalb, IL.

T79 Compliance of small and medium-sized farms in adopting recommendations for improved farm productivity and nutrient utilization.

T80 A collaborative bovine artificial insemination course for students attending a Caribbean veterinary school.
J. C. Dalton*, J. Q. Robinson, and J. M. Delarnette, University of Idaho, Caldwell, Ross University School of Veterinary Medicine, Basseterre, St. Kitts, Select Sires Inc., Plain City, OH.

T81 Repro money: A farmer-directed team-based extension program to improve reproductive performance in Wisconsin dairy herds.

T82 Calf-ETERIA: Using calf health and productivity as a template for extension and translation of research information for agriculture.
V. Bielmann*, K. Leslie, T. Wright, and T. DeVries, University of Guelph, Guelph, Ontario, Canada, Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, Ontario, Canada.

T83 Comparison of out-of-season estrus synchronization protocols in meat goats.

T84 Using soil moisture monitoring to improve irrigation in dairy pastures.
T. W. Downing*, Oregon State University, Corvallis.

Food Safety

Food Safety Advances

T85 Occurrence of several antibiotic residues in raw milk in ten provinces of China.
R. W. Han*, J. Q. Wang, N. Zheng, X. M. Xu, Y. P. Zhen, X. Y. Qu, P. Sun, and Z. N. Yu; State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, College of Food Science and Engineering, Qingdao Agricultural University, Qingdao, Shandong, China, Haidu College, Qingdao Agricultural University, Laiyang, Shandong, China.

T86 Occurrence of aflatoxin M1 in raw milk and UHT milk in China.

T87 Purple prairie clover condensed tannins inhibit *Escherichia coli* through disruption of outer and inner membranes.
X. L. Liu*, L. Jin, Z. Xu, Y. Q. Hao, T. A. McAllister, and Y. Wang; AAFC, Lethbridge, AB, Canada, Inner Mongolia Agricultural University, China.

T88 Antimicrobial resistance of *Salmonella enterica* isolated from bulk tank milk and milk filters in the United States.
J. S. Van Kessel*, J. Sonnier, S. Zhao, and J. S. Karns; Environmental Microbial and Food Safety Laboratory, USDA-ARS, Beltsville, MD, Center for Veterinary Medicine, US FDA, Laurel, MD.
T92 The effects of tetracycline analogue on prevalence of resistance genes encoded by *Escherichia coli* isolated from feedlot cattle.
X. Jin1,2, T. A. McAllister1, Q. Li2, and T. W. Alexander*1, 1Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Inner Mongolia Agricultural University, Hohhot, Inner Mongolia, China.

T93 Cranberry juice and cranberry fiber are accepted by newly weaned pigs.
S. D. Eicher*1, B. T. Richert1, and M. H. Rostagno1, USDA-ARS, West Lafayette, IN, 2Purdue University, West Lafayette, IN.

T94 Evaluation of hygienic and sanitary quality of jerked beef commercialized in Salvador city, Bahia, Brazil.
L. Pereira, M. Silva, W. Costa, and R. Matoso*, UFBA, Salvador, Bahia, Brazil.

**Forage and Pastures II**

T95 Productive response of finishing young bulls to tannins supplementation.
M. Velázquez-Martínez1, O. Hernández-Mendo1, S. Pérez-Elizalde1, E. López-Pérez2, and G. Aranda-Osorio*2, 1Colegio de Post-Graduados, Montecillos, Texcoco, México, 2Universidad Autónoma Chapingo, Chapingo, Texcoco, México.

T96 Local equations to predict relative feed value for alfalfa in northern Mexico.
C. Arzola*1, F. Carrera1, R. Copado1, J. Salinas2, C. Rodriguez1, O. Ruiz1, H. Gaytán1, and A. Corral1, 1Universidad Autónoma de Chihuahua, Chihuahua, Chihuahua, Mexico, 2Universidad Autónoma de Tamaulipas, Cd. Victoria, Tamaulipas, México.

T97 A simplified procedure for measuring NDF within situ Dacron bags for corn plant components ground to 6 mm.
L. J. Nuzback, W. M. Rutherford, and F. N. Owens*, Pioneer Hi-Bred International, a DuPont Company, Johnston, IA.

T98 Digestibility and fecal output prediction using acid-detergent lignin, alkaline-peroxide lignin, and acid-detergent insoluble ash in cattle offered bermudagrass hays of varying quality.
J. Kanani*1, D. Philipp1, K. P. Coffey1, E. B. Kegley1, C. P. West1, S. Gadberry2, J. Jennings2, A. Young1, and R. Rhein1, 1University of Arkansas, Division of Agriculture, Fayetteville, 2University of Arkansas, Division of Agriculture, Little Rock.

T99 Diurnal variation in fecal concentrations of indigestible-acid detergent fiber, acid-detergent insoluble ash, and alkaline-peroxide lignin from cattle offered bermudagrass hays of varying quality.
J. Kanani*1, D. Philipp1, K. P. Coffey1, E. B. Kegley1, C. P. West1, S. Gadberry2, J. Jennings2, A. Young1, and R. Rhein1, 1University of Arkansas, Division of Agriculture, Fayetteville, 2University of Arkansas, Division of Agriculture, Little Rock.

T100 Evaluating particle size of dry and wet forages using the Ro-Tap separator and Penn State Particle Size Separator method.

T101 In vitro evaluation of *Miscanthus sacchariflorus* var. as a roughage source for ruminants.
Relationship between dynamic degradation and 48-hour degradation of alfalfa hay in Holstein heifers.
Y. Tian*, Z. Cao1, S. Li1, and S. Yan2, 1State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China, 2College of Animal Science, Inner Mongolia Agricultural University, Huhhot, China.

In vitro organic matter and nitrogen disappearance of Kenyan browse using rumen from goats ingesting grass versus browse.
A. McEwin*, C. Wambui1, J. P. Muir2, J. Githiori1, and B. D. Lambert1, 1Tarleton State University, Stephenville, TX, 2Texas AgriLife Research, Stephenville, 3Edgerton University, Kenya, 4International Livestock Research Institute, Kenya.

Chemical composition and in vitro gas production of mulberry (Morus alba sp.) leaves during regrowth.
R. A. Gomes1, M. H. M. R. Fernandes2, I. A. M. A. Teixeira1, K. T. Resende1, R. A. Reis1, F. S. B. Rey1, and D. C. Soares1, 1UNESP/ Sao Paulo State University, Jaboticabal, Sao Paulo, Brazil, 2Faculdade de Medicina Veterinaria e Zootecnia/USP, Pirassununga, Sao Paulo, Brazil.

Methane-generating potential of Lotus subbiforos ‘El Rincón’ (LR) and Lotus uliginosus var. Maku (LM) harvested in spring.
M. de J. Marchal*, R. Crespi1, G. Arias1, S. Furtado1, M. H. Guerra1, and L. Piaggio1, 1Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay, 2Secretariado Uruguayo de la Lana, Montevideo, Uruguay.

Factors affecting in vitro undigested NDF as estimates of indigestible NDF.
D. R. Mertens*, D. Taysom1, and B. Steinlicht2, 1Mertens Innovation & Research LLC, Belleville, WI, 2Dairyland Laboratories Inc., Arcadia, WI.

Intensive milk production on marandugrass pasture during the rainy season.
C. A. M. Gomide1, A. J. Anjos2, K. G. Ribeiro1, E. A. Salgado1, M. J. F. Morenz1, and D. S. C. Paciullo1, 1Embrapa Dairy Cattle, Juiz de Fora, Minas Gerais, Brasil, 2UFVJM, Diamantina, Minas Gerais, Brasil.

Nutrient digestibility of annual winter forages using different indigestible markers and fecal collection schedules in growing beef heifers.

R. Silva1, R. Rossiello2, É. Junior2, M. Morenz2, and J. Costa Junior*, 1UFBA, Salvador, Bahia, Brazil, 2UFRRJ, Seropédica, Rio de Janeiro, Brazil, 3UFROGS, Rio Grande do Sul, Brazil.

Mixed silage of potato residue and corn straw affects growth performance and blood biochemical parameters in mutton sheep.
D. Wang1, J. Q. Wang*, D. P. Bu2, Y. D. Zhang2, P. Sun2, and L. Y. Zhou2, 1College of Animal Science and Technology, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang, China, 2Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

Effect of different fat protected sources on milk yield and composition in goats fed on corn silage as based diet in dairy goats.
C. Vázquez-Fontes*, R. Ayala2, A. Z. M. Salem2, N. Pescador-Salas2, L. R. Bernal-Martínez2, and M. Gonzalez Ronquillo2, 1Universidad Autonoma del Estado de Mexico, Facultad de Ciencias Agrícolas, 2Facultad de Medicina Veterinaria y Zootecnia, Toluca, Estado de Mexico, Mexico.

Effect of oil palm (Eleias guineensis) effluent plus supplement in the feeding of pigs (Duroc x Pietrain) in the finishing phase during dry season.

Planting date and crop harvest phenological stage effects on biomass and nutritive value of non-photosensitive forage soybean lines in Puerto Rico.
A. Aponte, E. Valencia*, and J. Beaver, University of Puerto Rico, Mayaguez, Mayaguez, PR.

Nutritional characterization of pastures used in Colombian dairies with emphasis on fatty acid profile.

Effect of sowing density and planting date on the establishment of Pennisetum purpureum ‘CT-115’ in a semiarid region of northern Mexico.
E. Gutierrez Ornelas1, J. J. Nava Cabello1, R. Herrera2, H. Bernal Barragan1, E. Treviño Ramirez1, and E. Oliveira Saenz1, 1Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Nuevo León, México, 2Instituto de Ciencia Animal, San José de Las Lajas, Habana, Cuba, 3Red Internacional de Nutrición y Alimentación en Rumiantes, México.

Effect of plant density over the productive performance of gliricidia.
E. N. Muniz*, C. H. A. Rangel1, D. O. Santos1, C. O. Sá1, and J. L. Sá1, 1Embrapa Tabuleiros Costeiros, Aracaju, Sergipe, Brazil, 2Embrapa Semi Árido, Petrolina, Pernambuco, Brazil.
Assessment of the socio-economic value of goods and services from Manitoba grasslands.
S. Kulshreshtha1, M. Undi1, J. Zhang1, M. Ghorbani2, K. M. Wittenberg2, A. A. Stewart3, E. Salvano2, E. Kebreab2, and K. H. Ominski4, 1Dept of Bioresource Policy, Business and Economics, University of Saskatchewan, Saskatoon, SK, Canada, 2Department of Animal Science & National Centre for Livestock and the Environment, University of Manitoba, Winnipeg, MB, Canada, 3Shur-Gro Farm Services Ltd., Waskada, MB, Canada, 4Manitoba Agriculture, Food, and Rural Initiatives, Winnipeg, MB, Canada, 5Dept of Animal Science, University of California, Davis.

Growth and Development II

Effect of residual feed intake on hypothalamic gene expression and meat quality in heat-stressed Angus-sired cattle.

Effect of residual feed intake on meat quality and hypothalamic gene expression in Angus-sired cattle.

Serum IGF1 and hepatic IGF1 mRNA levels in feedlot cattle infected with bovine respiratory disease.
C. A. Gifford1*, B. Wilson1, C. Maxwe11, D. M. Halford2, and C. R. Krehbiel1, 1Oklahoma State University, Stillwater, 2New Mexico State University, Las Cruces.

Relationship between carcass traits and tenderness with residual feed intake and residual average daily gain of Brahman steers.
F. Rouquette1*, R. Randles1, J. Paschal1, T. Machado1, and C. Long1, 1Texas AgriLife Research and Extension Center, Overton, 2Texas AgriLife Extension Service, Corpus Christi, 3Texas A&M University-Kingsville, Kingsville.

Adipocyte location and anabolic implant alter adipocyte transcriptome in steers.
S. K. Duckett1*, J. W. Long, M. D. Owens, S. E. Ellis, and S. L. Pratt, Clemson University, Clemson, SC.

Subcutaneous adipose tissue gene expression in bulls fed ergot alkaloid-containing fescue seed.
T. A. Burns1*, M. C. Miller, H. M. Stowe, S. M. Calcatera, S. L. Pratt, J. G. Andrae, and S. K. Duckett, Clemson University, Clemson, SC.

Growth performance of Mahabadi goat kids fed different levels organic trivalent chromium.
A. Emami, A. Zali, M. Ganjkhani11ou*, A. Hojabri, and A. Akbari, University of Tehran, Tehran, Iran.

Postweaning feed restriction effects on steer feedlot performance and carcass characteristics.
R. L. Endecott1*, B. L. Shipp1, M. D. MacNeil1, L. J. Alexander2, and A. J. Roberts1, 1Department of Animal and Range Sciences, Montana State University, Miles City, 2USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City, MT.

Stearoyl-CoA desaturase (SCD1) localization and intensity in bovine adipose and muscle tissues from implanted and non-implanted steers.
M. Wilder, S. Safayi, S. E. Ellis, and S. K. Duckett*, Clemson University, Clemson, SC.

Body’s growth curve and shape of grazing young bulls, receiving concentrate supplementation with different protein profiles.
H. J. Fernandes11*, A. G. da Silva1, M. F. Paulino1, S. A. Lopes1, L. O. Tedeschi11, J. A. G. Azevêdo1, and A. Aguiar4, 1State University of Mato Grosso do Sul, Aquidauana, MS, Brazil, 2Federal University of Viçosa, Viçosa, MG, Brazil, 3State University of Santa Cruz, Ilhéus, BA, Brazil, 4Texas A&M University, College Station, 5University of Florida, Gainesville.

Mathematical models to describe growth of grazing beef cattle.
H. J. Fernandes1*, V. S. Siquiera1, G. C. Z. N. de Oliveira Coelho1, A. L. B. Netto1, K. O. De Barros2, A. Aguiar2, L. M. Paiva1, and J. C. de Souza2, 1State University of Mato Grosso do Sul, Aquidauana, MS, Brazil, 2Federal University of Mato Grosso do Sul, Aquidauana, MS, Brazil, 3University of Florida, Gainesville.

Dietary fat content and fiber type influence adiposity, lipid oxidative genes and cecal volatile fatty acid concentrations in pigs.
H. Yan1*, V. Almeida, H. Lu, T. Stewart, A. Schinckel, and K. Ajuwon, Purdue University, West Lafayette, IN.

Factors affecting serum IGF-1 and triiodothyronine concentrations as related to fat deposition in feedlot lambs.
F. A. Rodriguez-Almeida1*, D. M. Halford1, J. A. Grado-Ahuir2, D. Briones3, and E. Flores3, 1Universidad Autónoma de Chihuahua, Chihuahua, México, 2New Mexico State University, Las Cruces.
Lactation Biology II

T134  Effects of feed restriction and prolactin-release inhibition at drying-off on milk production, metabolism and mammary gland involution.
S. Ollier*, X. Zhao, and P. Lacasse, 1AAFC-Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada, 2Department of Animal Science, McGill University, Sainte-Anne-de-Bellevue, QC, Canada.

T135  Effects of recombinant bovine somatotropin on blood flow to the mammary gland in early lactating Holstein cows.
H. L. Sánchez-Rodríguez*, R. C. Youngblood, J. E. Curbelo, C. Steadman, R. C. Vann, E. Baravik-Munsell, S. T. Willard, P. L. Ryan, 1Department of Animal and Dairy Sciences, Mississippi State University, 2Brown Loam Branch Experimental Station, Mississippi State University, Raymond, 3Department of Clinical Sciences, Mississippi State University, 4Department of Pathobiology and Population Medicine, Mississippi State University, 5Department of Biochemistry and Molecular Biology, Mississippi State University.

T136  Effects of colostrum versus formula feeding on hepatic glucocorticoid and α- and β- adrenergic receptors in neonatal calves.
D. Rohrbeck, J. Steinhoff-Wagner, E. Kanitz, and H. M. Hammon*, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany.

T137  Fitness of lactation curve functions to daily and monthly test-day milk data in an Ethiopian dairy cattle population.
G. Gebreyohannes, S. Koonawootrittriron, M. A. Elzo*, and T. Suwanasopee, 1 Kasetsart University, Bangkok, Thailand, 2University of Florida, Gainesville.

T138  Effect of rearing intensity on growth performance and on mammary tissue in Holstein yearling heifers.
V. Lollivier, F. Dessauge, M. Bouthinaud, and Y. Le Cozler, INRA, UMR1348 Pegase, Saint-Gilles, France, 1 Agrocampus Ouest, UMR1348 Pegase, Rennes, France.

T139  Obesity and parity affect the mammary gland serotonin (5-HT) system.
K. E. Merriman*, J. LaPorta, and L. L. Hernandez, University of Wisconsin, Madison.

T140  Cooling of heat-stressed cows during the dry period alters lymphocyte but not mammary gland gene expression.

T141  Identification and quantification of milk synthesis and secretion related proteins in bovine milk using a proteomics approach.
J. Lu, S. Boeren, J. Vervoort, H. van Valenberg, J. van Arendonk, K. Hettinga, 1 Dairy Science and Technology Group, Wageningen University, Wageningen, the Netherlands, 2 Laboratory of Biochemistry, Wageningen University, Wageningen, the Netherlands, 3 Animal Breeding and Genomics Centre, Wageningen University, Wageningen, the Netherlands, 4 FrieslandCampina, Amersfoort, the Netherlands.

T142  Physiological state but not gestational photoperiod affects weights of liver and thymus in mice.
P. A. Bentley* and T. B. McFadden, University of Alberta, Edmonton, Alberta, Canada.

Meat Science and Muscle Biology II

T143  Pearson correlation coefficients of multiple methods for measuring water-holding capacity in two pork muscles.
J. W. Rickard, Z. D. Callahan, T. A. Wilmoth, C. S. Perkins, M. E. Wilson, and B. R. Wiegand, University of Missouri, Columbia, 1 West Virginia University, Morgantown.

T144  Carcass and muscle fiber characteristics of ractopamine fed market pigs with a genetic propensity to deposit significant subcutaneous carcass fat.
C. S. Perkins, T. A. Wilmoth, Z. E. Kerley, Z. D. Callahan, M. E. Wilson, and B. R. Wiegand, University of Missouri, Columbia, 1 West Virginia University, Morgantown.

T145  Shelf stability and quality of fresh ground pork and pork sausage from pigs fed a combination of dried distillers grains with solubles, ractopamine hydrochloride, and conjugated linoleic acid.

T146  Effects of genotype and dietary oil supplementation in pigs. 2. Pork quality and fatty acid composition.
T. M. Bertol*, R. M. L. de Campos, J. V. Ludke, N. N. Terra, E. A. P. de Figueiredo, V. L. Kawski, A. Coldebella, and N. M. Lehr, Embrapa Suínos e Aves, Concórdia, SC, Brazil, 1 Fundação Universidade Federal do Vale do São Francisco, Petrolina, PE, Brazil, 2 Universidade Federal de Santa Maria, Santa Maria, RS, Brazil.

T147  Effects of antibiotics on growth performance, plasma biochemical index and meat quality of growing-finishing pigs.
X. Wu, Y. Zhang, X. Liu, H. Yang, and Y. Yin*, Key Laboratory of Agro-Ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, China.
T148 Effects of level of feeding and breed on fatty acid profile of meat from Brazilian native goats.
L. S. Lopes1, M. L. Chizzotti1, M. M. Ladeira2, K. C. Busato3, J. R. R. Carvalho2, R. T. S. Rodrigues2, and D. P. D. Lana1. 1State University of Santa Catarina, Chapecó, SC, Brazil, 2Federal University of Lavras, Lavras, MG, Brazil, 3University of São Paulo, Piracicaba, SP, Brazil.

T149 Effect of dietary organic chromium on meat quality of Mahabadi goat kids.
A. Emami, M. Ganjkhanlou*, A. Zali, A. Hojabri, and A. Akbari-Afjani, University of Tehran, Tehran, Iran.

T150 Influence of dietary zilpaterol hydrochloride on finishing performance, carcass characteristics and meat quality of castrated male goats.
A. Hatefi*, A. Towhidi, M. Ganjkhanlou, and A. Plascencia, 1Department of Animal Science, University of Tehran, Karaj, Alborz, Iran, 2Instituto de Investigaciones en Ciencias Veterinarias, Universidad Autónoma de Baja California, México.

T151 Effect of diet linseed supplementation in ewes during gestation and lactation on fatty acid profile of suckling lamb meat.

T152 The influences of intermittent feeding zilpaterol hydrochloride during two last week finishing period on growth performance in Japanese quails.
A. Towhidi*, M. Mohammadi Arekhlo, H. Moravej, and A. Zare Shahneh, Department of Animal Science, College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran.

Nonruminant Nutrition
Feed Ingredients
Sponsors: Cargill Animal Nutrition

T153 Dietary Aspilia africana leaf on nutrients digestibility and physio-chemical properties of intestinal segments in quails.
O. O. K. Oko*, E. A. Agiang, and I. E. Isi, University of Calabar, University of Calabar, Calabar, Cross River State, Nigeria.

T154 Effects of egg by-product supplementation on the egg production, nutrient digestibility, egg quality, blood profiles, and fecal noxious gas emission in laying hens.
L. Yan*, J. P. Wang, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

T155 Economic evaluation of increasing levels of acerola meal replacing corn in the diet of broilers.
V. C. da Cruz*, L. H. Zanetti1, G. do Valle Polycarpo2, R. F. de Oliveira1, A. L. C. Brichi1, L. C. Carvalho1, O. J. Sabbag1, and C. C. do Valle Polycarpo1, 1São Paulo State University, Dracena Campus, Dracena, São Paulo, Brazil, 2University of São Paulo, Pirassununga Campus, Pirassununga, São Paulo, Brazil.

T156 Effects of egg by-product supplementation on growth performance, nutrient digestibility, blood profiles, relative organ weights, and meat quality in broiler.
H. Y. Baek*, Z. F. Zhang, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

T157 A survey of free and conjugated deoxynivalenol in European feedstuffs.
S.-T. Tran* and T. K. Smith, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.

T158 Effects of sorghum particle size on growth performance and carcass characteristics in finishing pigs.

T159 Chemical composition of canola meal, 00-rapeseed meal, and 00-rapeseed expellers.
T. Maison* and H. H. Stein, University of Illinois, Urbana.

T160 Comparison of growth performance of pigs fed cull chickpeas high in fiber.

T161 Standardized ileal digestibility of Illinois bundleflower, low-oligosaccharide soybean meal and conventional soybean meal.
J. A. Jendza* and S. K. Baidoo, University of Minnesota, Waseca.

T162 Resistant starch content of cereal grains common utilized for pig nutrition.
G. Giuberti, A. Gallo, M. Rzepus, M. Moschini, and F. Masoero*, Università Cattolica del Sacro Cuore, Piacenza, Italy.
T163  Effects of molasses supplementation on the growth performance, nutrient digestibility, blood characteristics, fecal moisture, and fecal noxious gas emission in growing pigs.
J. Li1,2, X. Y. Guo3, D. S. Nam2, and I. H. Kim1, 1Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea, 2Nonghyup Feed Co. Ltd., Seoul, South Korea.

T164  Effects of fermented corn by Bacillus subtilis on the growth performance, nutrient digestibility, fecal microbial shedding, and fecal noxious gas emission in growing pigs.
J. H. Jung*, H. Y. Baek, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

T165  Apparent dry matter digestibility and nitrogen balance in pigs fed high fiber diets.
A. Woldeghebriel*, S. Smith, T. Barios, and B. Pope, North Carolina A&T State University, Greensboro.

---

Nonruminant Nutrition
Health
Sponsor: BASF

T166  Effects of supplemental zinc amino acid complex on physiology and performance in heat-stressed growing pigs.
M. V. Sanz-Fernandez1*, S. C. Pearce1, L. R. Long1, N. K. Gabler1, J. F. Patience1, M. E. Wilson2, M. T. Socha3, R. P. Rhoads3, and L. H. Baumgard1, 1Iowa State University, Ames, 2Inland, Diboll, TX, 3National Center for Agricultural Utilization Research (NCAUR), ARS-USDA, Peoria, IL.

T167  Evaluation of the antioxidative capacity of Lactobacillus plantarum in vitro and its antioxidative effect on weaned pigs.

T168  Evaluation of Oleobiotec in the diet of broilers challenged with Clostridium perfringens compared with an antibiotic administered continuously in feed.
V. Noirot, P. Etienne, M. Champagnac, and D. Eclache*, Laboratoires Phodé, Terssac, France.

T169  Ingestion of a novel galactoglucamannan oligosaccharide-arabinoxylan (GGMO-AX) complex affected growth performance and fermentative and immunological characteristics of broiler chicks challenged with Salmonella typhimurium.
T. A. Faber1*, R. N. Dilger3, M. Iakiviak2, A. C. Hopkins2, N. P. Price2, and G. C. Fahey3, 1University of Illinois, Urbana, 2Temple-Inland, Diboll, TX, 3National Center for Agricultural Utilization Research (NCAUR), ARS-USDA, Peoria, IL.

T170  Effects of oligosaccharides in a soybean meal-based diet on fermentative and immune responses in broiler chicks challenged with Eimeria acervulina.
T. A. Faber1*, R. N. Dilger3, A. C. Hopkins2, N. P. Price2, and G. C. Fahey3, 1University of Illinois, Urbana, 2Temple-Inland, Diboll, TX, 3National Center for Agricultural Utilization Research (NCAUR), ARS-USDA, Peoria, IL.

T171  Effect of Lactobacillus gasseri from chicken origin on the production performance, intestinal flora, and immune function of broiler chickens.
X.-H. Teng*, X. Li, and J. Li, College of Animal Science and Technology, Northeast Agricultural University, Harbin, Heilongjiang, China.

T172  Effect of supplementing curcumin as feed additive on the performance, biochemical profile, immune response and carcass characteristics in broilers.
M. Pavani1, Y. Ramana-Reddy2*, P. Gopal-Reddy2, S. R. Sakunthala-Devi2, T. Monika1, M. Sudhakar-Reddy1, and A. Gopal-Reddy3, 1S. V. Veterinary University, Tirupati, Andhra Pradesh, India, 2Tuskegee University, Tuskegee, AL.

T173  Effect of a mixture of turmeric and capsicum oleoresins on performance and oocyst excretion of broilers challenged with coccidiosis.
C. Oguey1*, V. Brito2, A. Casarin2, and M. Forat3, 1Pancosma, Geneva, Switzerland, 2Euronutec, Queretaro, Mexico, 3Instituto Internacional de Investigacion Animal, Queretaro, Mexico.

T174  Preventive supplementation with L-arginine and glutamine improved self-renewing of intestinal mucosa in LPS-injected rats.
X. Wu1,2, C. Zhang1,3, Z. Ruan2, Z. Deng3, and Y. Yin1,2, 1State Key Laboratory of Food Science and Technology and College of Life Science and Food Engineering, Nanchang University, China, 2Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, China, 3Institute of Biological Resources, Jiangxi Academy of Science, Jiangxi, Nanchang, China.
Physiology and Endocrinology II

T176 Effects of mild heat stress on growth and carcass characteristics in broiler chickens.
E. Sucu1,2, M. V. Sanz-Fernandez2, S. C. Pearce3, A. Nayeri, G. P. Murugesan1, R. R. Rohead3, M. E. Persia4, and L. H. Baumgard*, 1Department of Animal Science, Iowa State University, Ames, 2Department of Animal Science, Uludag University, Bursa, Turkey, 3Department of Animal Science, Virginia Polytechnic Institute and State University, Blacksburg.

T177 Effect of season on copper concentration in blood serum from goats in different reproductive status.

T178 Effects of the beta-2 adrenergic agonist zipetanol hydrochloride in castrated male goats: Plasma insulin, cortisol, thyroids, triglyceride, and glucose concentrations.
A. Hatefi*, A. Towhidii, A. Zail, M. Ganjkhaniou, and A. Plascencia2, 1Department of Animal Science, University of Tehran, Karaj, Alborz, Islamic Republic of Iran, 2Instituto de Investigaciones en Ciencias Veterinarias, Universidad Autónoma de Baja California Mexicali, Baja California, México.

T179 Effect of water deprivation on the thermoregulatory system of desert goats (Capra hircus).
A. Al-Haidary* and E. Samara, King Saud University, Riyadh, Saudi Arabia.

T180 Comparison of the morphological characters of ovulated follicular waves during synchronized and normal estrous cycle in dairy cattle.
M. Poorhamdollah*, H. Kohram1,2, A. Z. Shahnai1, and A. Sadeghi-Seifidmazg1, 1University of Tehran, Karaj, Tehran, Iran, 2Shahid Chamran University, Ahvaz, Iran, 3Isfahan University of Technology, Isfahan, Iran.

T181 Effect of methionine supplementation during postpartum period in dairy cows. II: Embryo quality.
A. H. Souza*, P. D. Carvalho1, A. R. Dresch1, L. M. Vieira1,2, K. S. Hackbart1, D. Luchini1, S. Bertsic1, N. Betzold1, M. C. Wiltbank1, and R. D. Shaver1, 1University of Wisconsin-Madison, Madison, 2University of Sao Paulo-VRA, Brazil, 3Adisseo, Alpharetta, GA, 4US Dairy Forage Research Farm, Prairie du Sac, WI.

T182 Lactation and physiological performance in Holstein dairy cows managed under summer heat stress conditions in northwest Mexico.
P. Luna-Nevarez*, C. Leyva-Corona1, F. Rivera-Acuña1, J. F. Medrano2, G. Rincon1, G. A. Silver3, D. M. Hallford4, R. L. Ashley5, and M. G. Thomas6, 1Instituto Tecnologico de Sonora, Ciudad Obregon, Sonora, Mexico, 2University of California, Davis, 3New Mexico State University; Las Cruces, 4Colorado State University, Fort Collins.

T183 Relative quantification of mRNA abundance for LH receptor, angiogenin and p450scc, and determination of hormone levels in dominant follicles and follicular cysts from dairy cows.

T184 Hormonal regulation of the hedgehog system in ovarian granulosa and theca cells of cattle.
L. J. Spicer*, P. Y. Aad, and N. B. Schreiber, Oklahoma State University, Stillwater.

T185 Pregnancy per AI of conventional versus sex sorted semen in dairy heifers subjected to a modified CIDR-PGF2α-GnRH timed-AI protocol.
J. Howard*, C. Autran1, J. Branen2, K. Carnahan3, R. Kasimanickam3, G. Sasser2, and A. Ahmadzadeh3, 1University of Idaho, Moscow, 2BioTracking LLC, Moscow, ID, 3Washington State University, Pullman.

T186 Insulin action on hepatic gene expression in dairy cows with different fat mobilization during early lactation.
H. M. Hammon*, U. Kautzsch1, C. Weber2, B. Kuhla2, M. Röntgen3, and R. M. Bruckmaier2, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2Veterinary Physiology, Vetuisse Faculty, Bern, Switzerland.

T187 Modulation of the metabolic response to an endotoxin challenge in Brahman heifers through OmniGen-AF supplementation.
N. C. Burdick*, J. A. Carroll1, J. D. Chapman2, T. H. Welsh3, R. C. Vann4, and R. D. Randel5, 1USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 2Prince Agri Products Inc., Quincy, IL, 3Texas AgriLife Research, Texas A&M System, College Station, 4MAFES, Mississippi State University, Rayhond, 5Texas AgriLife Research, Texas A&M System, Overton.

T188 Ultrasound body composition traits response to an endotoxin challenge in Brahman heifers supplemented with OmniGen-AF.
R. C. Vann*, N. C. Burdick1, J. A. Carroll1, J. D. Chapman1, T. H. Welsh4, and R. D. Randel5, 1MAFES-Brown Loam Experiment Station, Raymond, MS, 2USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 3Prince Agri Products Inc., Quincy, IL, 4Texas AgriLife Research, Texas A&M University, College Station, 5Texas AgriLife Research, Texas A&M University, Overton.

T189 Hepatic expression of mitochondrial respiratory complex genes of pure and crossbred beef cows grazing different herbage allowances of native pastures.
Expression of adipokines and their receptors in adipose tissue of pure and crossbred beef cows grazing different herbage allowances of native pastures.

Use of bovine pregnancy-associated glycoproteins (bPAGs) to diagnose pregnancy in postpartum Nelore beef cows.
A. M. Meyer*

Maternal feed efficiency during gestation is correlated with offspring birth weight and girth in nutrient restricted and control-fed ewes.
A. M. Meyer*, K. A. Vonnahme2, D. A. Redmer1, L. P. Reynolds2, and J. S. Caton2, 1Department of Animal Science, University of Wyoming, Laramie, 2Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo.

Nutrient intake during lactation affects performance of beef cows and calf growth.
Production, Management and the Environment
Beef, Swine, Sheep

T210
Management and facility factors that affect mortality in grow-finishing pigs.
P. S. Agostini*1,2, A. G. Fahey2, E. G. Manzanilla1, J. V. O’Doherty2, C. de Blas3, and J. Gasa1,2,3Universitat Autònoma de Barcelona, Bellaterra, Spain, 4University College Dublin, Belfield, Dublin, Ireland, 5Universidad Politécnica de Madrid, Madrid, Spain.

T211
Housing and management factors that affect feed conversion ratio in grow-finishing pigs.
P. S. Agostini*1,2, A. G. Fahey2, E. G. Manzanilla1, J. V. O’Doherty2, C. de Blas3, and J. Gasa1,2,3Universitat Autònoma de Barcelona, Bellaterra, Spain, 4University College Dublin, Belfield, Dublin, Ireland, 5Universidad Politécnica de Madrid, Madrid, Spain.

T212
Management and facility factors that affect the variability of average daily gain in grow-finishing pigs.
P. S. Agostini*1,2, A. G. Fahey2, E. G. Manzanilla1, J. V. O’Doherty2, C. de Blas3, and J. Gasa1,2,3Universitat Autònoma de Barcelona, Bellaterra, Spain, 4University College Dublin, Belfield, Dublin, Ireland, 5Universidad Politécnica de Madrid, Madrid, Spain.

T213
Effects of herb supplementation on growth performance, litter performance, and diarrhea occurrence in lactating sows and piglets.
J. H. Jung*, J. P. Lee, and I. H. Kim, Department of Animal Resource and Science, Dankook University, Cheonan, Choongnam, South Korea.

T214
Wood to Feed: Diversifying income opportunities by increasing the livestock feeding value of woody plant species.
T. R. Whitney*, J. W. Walker1, W. C. Stewart2, R. J. Ansley1, B. D. Lambert1, A. F. Cibils4, C. B. Scott1, J. L. Johnson3, T. Bader2, W. Winters1, L. O. Tedeschii, G. E. Carstens5, and J. P. Muir2,6Texas AgriLife Research, San Angelo, 7Texas AgriLife Research, Vernon, 8Texas AgriLife Research, Stephenville, 9New Mexico State University, Las Cruces, 10Angelo State University, San Angelo, TX, 11Texas AgriLife Extension, Stephenville, 12Cedar Beetle, Concan, TX, 13Novas Wood Group, Houston, TX, 14Texas A&M University, College Station.

T215
Effect of body size on feed intake and methane emissions from ewes offered fresh ryegrass.
M. D. Fraser, H. Fleming, V. J. Theobald, and J. M. Moorby*, Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, UK.

T216
Fifty years of the Wyoming ram test: How have sheep changed?

T217
The environmental and economic impact of removing growth-enhancing technologies from United States beef production.
J. L. Capper1 and D. J. Hayes1,1 Washington State University, Pullman, 2Iowa State University, Ames.

T218
Drought management: Replacing hay with a field pea/co-product supplement fed daily or on alternate days.
D. G. Landblom*1 and S. Senturklu2,1North Dakota State University-Dickinson Research Extension Center, Dickinson, 3Canakkale Onsekiz Mart University, BMYO, Canakkale, Turkey.

T219
Effect of grazing stockpiled perennial forages on beef cow performance, nutrient intake and soil nutrients.
H. A. Lardner1,2 and D. Damiran1,2Western Beef Development Centre, Humboldt, Saskatchewan, Canada, 3Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.
The environmental, economic and social implications of improving yield and average daily gain in beef production.
R. R. White* and J. L. Capper, Washington State University, Pullman.

Body development and endocrine relations at puberty in crossbred heifers.

Effects of weaning age and winter development environment on heifer performance.

Effects of prepartum grouping strategy on health, reproductive, and productive parameters of dairy cows.
P. R. B. Silva*1, J. G. N. Moraes1, L. G. D. Mendonça1, A. A. Scanavez1, G. Nakagawa1, M. I. Endres2, J. Fetrow1, and R. C. Chebe1, 1Department of Veterinary Population Medicine, University of Minnesota, St Paul, 2Department of Animal Science, University of Minnesota, St Paul.

Effects of prepartum grouping strategy on body condition score and metabolic parameters of peripartum dairy cows.
P. R. B. Silva*,1, J. G. N. Moraes1,2, L. G. D. Mendonça1, A. A. Scanavez1, G. Nakagawa1, M. I. Endres2, and R. C. Chebe1, 1Department of Veterinary Population Medicine, University of Minnesota, St Paul, 2Department of Animal Science, University of Minnesota, St Paul.

Heterosis of productivity rates in the breeding cycle of pure and crossbred Hereford and Angus cattle grazing native pastures at low and high allowances.
A. C. Espasandin1,2, M. do Carmo1, C. R. López-Mazz1,2, M. Carriquiry1, and P. Soc1, 1Udaler School of Agronomy, Department of Animal and Grass Production, School of Agronomy, Udaler, Uruguay, 2Estación Experimental Bernardo Rosengurt, Cerro Largo, Uruguay. 3Estación Experimental, Paysandú, Uruguay.

Effects of dried distillers grains fed for programmed rate of body weight gain in beef heifers grazing native rangelands prior to breeding on growth and reproductive performance.

Beef heifer growth and reproductive performance responses to stockpiled fall forage allowances.
B. L. Bailey*, K. M. Krause, and T. C. Griggs, West Virginia University, Morgantown.

Effects of climate and moon illumination on grazing activity of weaned beef calves during early summer.

Riparian management practices in the Manitoba landscape: Off-stream watering systems for beef cattle.
A. A. Rawluk*, G. H. Crow1, D. M. Veira2, P. Bullock1, L. A. Gonzalez1, and K. H. Ominski1, 1University of Manitoba, Winnipeg, Manitoba, Canada, 2Agriculture & Agri-Food Canada, Agassiz, British Columbia, Canada, 3Commonwealth Scientific and Industrial Research Organisation, Townsville, Queensland, Australia.

Effects of injectable trace minerals on the humoral immune response to porcine red blood cell challenge and fertility in beef heifers.
P. Moriel1, P. G. M. A. Martins*, G. C. Lamb2, L. J. Havenga1, and J. D. Arthington1, 1University of Florida, Range Cattle Research and Education Center, Ola, 2University of Florida, North Florida Research and Education Center, Marianna, 3MultiMin USA Inc., Fort Collins, CO.

Effect of propionate salt inclusion in postpartum supplementation on young cow reproductive performance.
J. A. Walker*, G. A. Perry, and K. C. Olson, South Dakota State University, Brookings.

Metabolizable protein supply alters pregnancy and subsequent retention rate during heifer development while grazing dormant winter forage.
J. T. Mulliniks*, D. E. Hawkins2, K. K. Kane1, S. H. Cox1, L. A. Torell1, E. J. Scholljegerdes1, and M. K. Petersen3, 1New Mexico State University, Las, 2West Texas A&M University, Canyon, 3USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City, MT.

Winter growing rate of gain on subsequent growth of beef steers grazing a subtropical pasture in summer.

Effects of weaning age and winter development environment on heifer performance.

Blended byproduct feeds in finishing rations on performance, carcass, and fecal characteristics of yearling heifers.

Transit effects on fecal E. coli. O157:H7 prevalence and coliform concentrations in feedlot cattle.
C. C. Aperce*, C. A. Alvarado, C. L. Van Bibber, K. A. Miller, and J. S. Drouillard, Kansas State University, Animal Sciences and Industry, Manhattan.
Cattle anthelmintic resistance testing and training in North Carolina.
N. C. Whitley1, M. L. Alley2, R. M. Kaplan3, S. Howell3, K. Moulton3, R. A. Franco4, and A. E. Cooper4, 1North Carolina A&T State University, Greensboro, 2North Carolina State University, Raleigh, 3University of Georgia, Athens.

Effects of temperament on physiological responses, feedlot performance, and carcass characteristics of Nelore steers.
C. L. Francisco1,4, A. M. Jorge4, F. D. Rezende5, A. Schmidek1, J. M. B. Benatti6, M. H. Faria7, E. Oba1, and R. F. Cooke4, 1Universidade Estadual Paulista - FMVZ, Botucatu, SP, Brazil, 2APTA, Colina, SP, Brazil, 3Universidade Estadual Paulista - FCAV, Jaboticabal, SP, Brazil, 4Oregon State University, EOARC, Burns.

Skin temperature differentials in relation to residual feed intake in beef cattle using infrared thermography.
L. S. Martello1,2, P. R. Leme1, S. da Luz e Silva1, R. da Costa Gomes1, C. A. Zotti1, C. L. Oliveira2, and T. F. Canata3, 1Faculdade de Zootecnia e Engenharia de Alimentos, Universidade de São Paulo, Pirassununga, SP, Brazil, 2Faculdade de Zootecnia, Universidade Estadual de Londrina, Londrina, PR, Brazil.

Ruminant Nutrition
Beef: Co-products
Sponsor: SoyBest

Microbial community shifts during anaerobic digestion of finishing cattle manure with and without distillers grains in the diet.

Effects of crude glycerin on in vitro gas production and VFA profiles in Nelore feedlot steers.
E. H. C. B. van Cleef*, R. P. Lemenager1, J. F. Lage2, R. C. Canesin3, C. S. Ribeiro Junior3, and T. T. Berchielli3, 1Universidade Estadual Paulista (UNESP) - FCAV, Jaboticabal, SP, Brazil, 2Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), São Paulo, SP, Brazil, 3Instituto Nacional de Ciência e Tecnologia em Ciência Animal (INCT-CA), Brasília, DF, Brazil.

Effect of lipid sources addition on nutrient intake of steers finished at feedlot.
G. Fiorentini*, I. P. C. Carvalho*, P. R. Leme, S. da Luz e Silva, R. da Costa Gomes, C. A. Zotti, C. L. Oliveira, and T. F. Canata, 1Faculdade de Zootecnia e Engenharia de Alimentos, Universidade de São Paulo, Pirassununga, SP, Brazil, 2Faculdade de Zootecnia, Universidade Estadual de Londrina, Londrina, PR, Brazil.

Feeding distillers grains as an energy source to gestating and lactating beef heifers: Impact on steer progeny longissimus muscle fatty acid profile.
P. J. Gunn*, G. A. Bridges, R. P. Lemenager, and J. P. Schoonmaker, Department of Animal Sciences, Purdue University, Lafayette, IN, 2North Central Research and Outreach Center, University of Minnesota, Grand Rapids.

Effect of distillers grain supplementation on fescue intake and utilization.

Effect of soybean hull level on diet digestibility and growth performance of beef calves.

Ruminal fermentation and blood metabolites of Holstein steers fed diets differing in wheat processing and fat source.
K. Erjaei, A. Zali, M. Ganjkhanlou*, and M. Dehghan-Banadaky, University of Tehran, Tehran, Iran.

Feedlot performance and fatty acid composition of muscles from Holstein steers fed diets differing in wheat processing and fat source.
K. Erjaei, A. Zali, M. Ganjkhanlou*, and M. Dehghan-Banadaky, University of Tehran, Tehran, Iran.

Evaluation of the ruminal bacterial diversity of cattle fed diets containing citrus pulp pellets (CP) using bacterial tag-encoded FLX amplicon pyrosequencing (bTEFAP).
P. R. Broadway*, T. R. Callaway, J. A. Carroll, N. C. Burdick, J. R. Donaldson, R. J. Rathmann, B. J. Johnson, J. T. Cribbs, L. M. Durso, D. N. Miller, D. J. Nisbet, and T. B. Schmidt, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Food and Feed Safety Research Unit, Southern Plains Agricultural Research Center, USDA-Agricultural Research Service, College Station, TX, 3Livestock Issues Research Unit, USDA, Agricultural Research Service, Lubbock, TX, 4Department of Biological Sciences, Mississippi State University, Mississippi State, 5Agroecosystem Management Research Unit, USDA-Agricultural Research Service, Lincoln, NE, 6Department of Animal and Dairy Sciences, Mississippi State University, Mississippi State.

Rumen dynamics of neutral detergent fiber in grazing steers supplemented with lipid sources.
I. P. C. Carvalho*, T. T. Berchielli, G. Fiorentini, E. Detmann, L. G. Rossi, J. F. Lage, Y. T. G. Salcedo, and C. S. Ribeiro Junior, 1Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, Brazil, 2Universidade Federal de Viçosa, Viçosa, 3INCT/CA member, Brazil, 4FAPESP, Sao Paulo, Brazil.
Effects of supplementation with a pressed dried distillers grain block on beef cow performance and hay intake during late gestation.
C. L. Marshall*, 1 J. D. C. Molle1, J. M. Kern1, R. A. Vraspi1, A. N. Schaeffer2, S. L. Lake1, and A. M. Meyer1, 1Department of Animal Science, University of Wyoming, Laramie, 2SweetPro LLC, Walhalla, ND.

Supplementing urea in beef finishing diets containing 25% modified distillers grains has no influence on cattle performance, but does decrease marbling in yearling steers.
L. J. Garbel* and B. P. Holland, South Dakota State University, Brookings.

Effects of alternate day feeding of dried distillers grains plus solubles on ruminal ammonia concentration, blood urea nitrogen, nonesterified fatty acids, and insulin-like growth factor I in forage-fed steers.
S. I. Klein*, 1 A. M. Meyer1, Q. P. Larson2, J. S. Caton1, and C. R. Dahlen1, 1Department of Animal Sciences, North Dakota State University, Fargo, 2Department of Animal Sciences, University of Wyoming, Laramie.

Carass traits of steers finished in feedlot fed crude glycerin.

Performance of Nellore steers receiving protected linseed oil during different periods of feedlot.
W. Henrique*, V. G. Carvalho1, T. M. Pivaro1, J. L. V. Coutinho Filho1, A. A. M. Sampaio2, E. A. Oliveira1, 3, and B. L. Rosa1, 1Sao Paulo Agency for Agribusiness Technology, Sao Jose Rio Preto, Sao Paulo, Brazil, 1FCAV/Sao Paulo State University, Jaboticabal, Sao Paulo, Brazil, 3FAPESP Post-doctorate fellowship, Sao Paulo, Sao Paulo, Brazil.

Performance of crossbred heifers and steers fed increasing linseed oil levels.
W. Henrique*, B. L. Rosa1, E. A. Oliveira1, 3, A. A. M. Sampaio2, T. M. Pivaro1, A. T. Andrade4, and V. G. Carvalho1, 1Sao Paulo Agency for Agribusiness Technology, Sao Jose Rio Preto, Sao Paulo, Brazil, 1FCAV/Sao Paulo State University, Jaboticabal, Sao Paulo, Brazil, 3FAPESP Post-doctorate fellowship, Sao Paulo, Sao Paulo, Brazil.

Performance of growing Nellore steers on pasture in the dry season fed crude glycerin.

Palatability of post-extraction algal residue as a protein supplement for cattle.
M. L. Drewery*, J. E. Sawyer, and T. A. Wickersham, Texas A&M University, College Station.

Protein sources and nitrogen associated with the residual biodiesel glycerin supplements to fattening cattle during the rainy season: performance productive.
A. J. Neto1, J. T. Zervooodakis1, L. da Silva Cabral1, L. K. H. Zervooodakis1, R. L. Galati1, P. V. R. Paulino2, L. C. R. P. Silva1, R. P. da Silva1, J. Q. Soares1, and T. de Paulo Trindade1, 1Universidade Federal de Mato Grosso, Cuiabá, Mato Grosso, Brazil, 2Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

Ruminant Nutrition
Dairy II
Sponsor: West Central

Oocyte and embryo quality of dairy cows fed omega 3 and 6 fatty acids sources in the transition period and early lactation.

Effects of different PUFAs supplementation during the postpartum periods of early lactating dairy cows. I: Milk production and composition.
E. Dirandeh1, A. Towhidi1, M. Ganjkhanlou1, S. Zeinoaldini1, Z. Ansari Pirzarei2, and A. R. Zareenezhad4, 1Department of Animal Science, Faculty of Agricultural Science and engineering, University College of Agriculture and Natural Resources, University of Tehran, Karaj, Tehran, Iran, 2Department of Animal Science, Faculty of Animal Science and Fishery, Sari University of Agricultural and Natural Resources, Sari, Mazandaran, Iran, 3Mahdasht Dairy Farm, Sari, Mazandaran, Iran.

Effects of lipid and propionic acid infusions on feed intake of lactating dairy cows.
S. E. Stocks* and M. S. Allen, Michigan State University, East Lansing.

Relationships between ruminal volatile fatty acid concentrations, milk production, digestibility, and milk fatty acid composition in dairy cows.
A. N. Hristov*, K. J. Shingfield1, P. Huhtanen1, J. L. Firkins4, and K. Harvatine1, 1The Pennsylvania State University, University Park, 2MTT Agrifood Research Finland, Jokioinen, Finland, 3Swedish University of Agricultural Sciences, Umeå, Sweden, 4The Ohio State University, Columbus.
Occurrence and concentration of mycotoxins, molds and yeasts in total mixed rations from South Dakota and Minnesota dairy farms.
F. Diaz-Royon*,1, A. García1, K. F. Kalscheur2, K. A. Rosentrater3, J. S. Jennings1, and K. Mjoun3, 1Dairy Science Department, South Dakota State University, Brookings, 2Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, 3Alltech South Dakota, Brookings.

Feed restriction, but not l-carnitine infusion, affects the liver transcriptome with an evident induction of gluconeogenesis and inhibition of energy production and sterol synthesis in mid-lactating dairy cows.

A comparison of methods to analyze physical effective factor and physically effective NDF in TMR and orts.
S. D. Ranathunga*, K. F. Kalscheur, and D. P. Casper, Dairy Science Department, South Dakota State University, Brookings.

Effect of post-ruminal supplementation of phytoneutrients on bacterial diversity in feces of dairy cows.
J. Oh*, A. N. Hristov1, C. Lee1, K. Heyler1, T. Cassidy1, S. Dowd1, and D. Bravo1, 1The Pennsylvania State University, University Park, 2MR DNA Molecular, Shallowater, TX, 3Pancosma, Geneva, Switzerland.

Applicability of the plasma free amino acid dose response approach for determining lysine bioavailability of ruminally protected lysine products.
N. L. Whitehouse*, E. S. Fletcher1, A. F. Brito1, and C. G. Schwab1, 1University of New Hampshire, Durham, 2Schwab Consulting LLC, Boscobel, WI.

Physiological variables associated with reproductive success in dairy cows with different prepartum feeding strategies.

Plasma responses to intra-ruminal or post-ruminal administration of 2-hydroxy-4-methylthio-butanoic acid and its isopropyl ester in dairy cattle to evaluate rumen escape.

Casein and fatty acid fractions in milk are affected by parity and nutritional regulated body condition score at the beginning of the transition period in dairy cows under grazing conditions.
V. Artegoitia*, 1, A. Meikle2, L. Olazabal1, J. P. Damian2, M. L. Adriën1, D. A. Mattiauda1, J. Bermudez1, A. Torres1, and M. Carriquiy1, 1Facultad de Agronomía, Universidad de la República Oriental del Uruguay, Montevideo, Uruguay, 2Facultad de Veterinaria, Universidad de la República Oriental del Uruguay, Montevideo, Uruguay, 3Laboratorio Tecnológico del Uruguay, Montevideo, Uruguay.

Arterial amino acid concentrations drives milk yield in postpartum transition dairy cows.
M. Larsen* and N. B. Kristensen, Department of Animal Science, Aarhus University, Foulum, Tjele, Denmark.

Productive performance of dairy cows fed with omega 3 and 6 fatty acids sources in the transition period and early lactation.

Effects of 18-carbon fatty acids on triacylglycerol accumulation in bovine mammary epithelial cells in vitro.

Effects of 18-carbon fatty acids on cell proliferation and triacylglycerol accumulation in bovine mammary epithelial cells in vitro.

Lipopolysaccharide-induced alterations in milk fatty acid composition and mRNA expression of genes related to fatty acid metabolism.

Hepatic expression of GH-IGF axis genes in Holstein cows with different nutritional managements during early lactation.
A. L. Astessiano*, 1, P. Chillbroste2, M. Fajardo3, J. Laporta4, J. Gili5, D. A. Mattiauda6, A. Meikle6, and M. Carriquiy7, 1School of Agronomy, UDELAR, Montevideo, Uruguay, 2School of Veterinary Medicine, UDELAR, Paysandú (EEMAC), Uruguay, 3School of Veterinary Medicine, UDELAR, Montevideo, Uruguay.

New discovery on bovine glutathione peroxidase 3.
H. R. Khazanehei*, P. Eck, and J. C. Plaizier, University of Manitoba, Winnipeg, MB, Canada.
Ruminant Nutrition
Dairy: Feed additives II
Sponsor: West Central

Effect of post-ruminal supplementation of phytoneutrients on total-tract digestibility, nitrogen losses, and milk production and composition in dairy cows.
J. Oh*,1, A. N. Hristov1, C. Lee1, K. Heyler1, T. Cassidy1, and D. Bravo3,1The Pennsylvania State University, University Park, 2Pancosma, Geneva, Switzerland.

Effects of plant extracts on microbial population, methane emission and ruminal fermentation characteristics in in vitro.

Adding plant oils to dairy goat diets: Changes in milk fatty acids with sampling time.
A. L. Martínez Marín1, P. Gómez-Cortés2, G. Gómez Castro1, M. Juarez1, L. M. Pérez Alba1, M. Pérez Hernández2, and M. A. de la Fuente*,1, 1Universidad de Córdoba, Córdoba, Spain, 2Instituto de Investigación en Ciencias de la Alimentación, Madrid, Spain.

Supplementing rumen-protected Met and Lys in low protein diets based on corn distillers grains fed to lactating dairy cows.
N. E. Lobos*,1, G. A. Broderick2, and M. J. de Veth1, 1University of Wisconsin, Madison, WI, 2U.S. Dairy Forage Research Center, Madison, WI, 3Balchem Corporation, New Hampton, NY.

Performance and diet digestibility of dairy cows supplemented with Bacillus subtilis spores.
V. L. Souza1, V. A. Silva1, N. M. Lopes1, O. F. Zacaroni1, R. A. M. Pereira1, J. A. de Freitas*,1, R. Almeida2, and M. N. Pereira1, 1Universidade Federal de Lavras, Lavras, Brazil, 2Universidade Federal do Paraíba, Curitiba, Brazil, 3Empresa de Pesquisa Agropecuária de Minas Gerais, Lavras, Brazil.

Milk fatty acids composition of dairy ewes fed increasing levels of an unprotected CLA (UnCLA) supplement.
D. R. M. Alessio1, M. Baldini1, R. Dresch1, J. Souza1, M. A. S. Gama1, M. P. Soares1, and D. E. Oliveira*,1,1Centro de Ciências Agroveternárias, UDESC, Lages, SC, Brasil, 2Esalq/USP, Piracicaba, SP, Brasil, 3Embrapa, CNPGL, Juiz de Fora, MG, Brasil, 4Instituto Federal Catarinense, Araquari, SC, Brasil, 5Centro de Educação Superior do Oeste, UDESC, Chapecó, SC, Brasil.

Effect of monensin and tallow on methane estimation and protozoan and bacterial populations in dairy cows.
T. F. Gressley*,1, M. J. de Veth1, 1University of Delaware, Newark, 2Balchem Corporation, New Hampton, NY.

Effect of dietary methionine supplementation in early lactation dairy cows I: dry matter intake, milk yield, milk composition and component yields.
A. H. Souza*,1, P. D. Carvalho1, A. R. Dresch1, L. M. Vieira*,1,2, K. S. Hackbart1, D. Luchini1, S. Bertics2, N. Betzold1, M. C. Wiltbank1, and R. D. Shaver1, 1University of Wisconsin-Madison, Madison, 2University of Sao Paulo-VRA, SP 05508, Brazil, 3Adisseo, Alpharetta, GA, 4U.S. Dairy Forage Research Farm, Prairie du Sac, WI.

Effect of dietary antioxidant and increased rumen unsaturated fatty acid load on milk fat yield and fatty acid composition.
J. C. Ploetz*,1, C. L. Preuselt, and A. L. Lock, Michigan State University, East Lansing.

Effects of condensed tannins on ruminal VFA profile in fistulated Holstein cows fed sainfoin (Onobrychis vicifolia).
H. Khalilivandi-Behroozyar*,1, 2, M. Dehghan-Banadak2, K. Rezayazdi1, and F. Ghaziani1, 1Department of Animal Science, University of Tehran, Karaj, Tehran, Iran, 2Department of Animal Science, University of Urmia, Urmia, West Azerbaijan, Iran.

Influence of ionophore source and a proprietary nutrition supplement on the performance and rumen metabolism of Holstein calves previously fed a high plane of milk replacer.
K. K. Guatam*,1, C. J. Cobb1, B. S. Obeidat1, M. L. Galvean1, B. L. Miller2, J. A. Davidson2, K. L. Perfield1, T. A. Brooks1, and M. A. Ballou1, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Land O’ Lakes Purina Feed, Gray Summit, MO, 3Elanco, Greenfield, IN.
V. L. de Souza1, J. A. de Freitas1, S. L. Viechingski2, P. H. N. Pinto1, M. N. Pereira1, and J. C. Souza1, 1Federal University of Parana, Curitiba, Parana, Brazil, 2FAG, Cascavel, Parana, Brazil, 3Federal University of Lavras, Lavras, Minas Gerais, Brazil, 4Federal University of South of Mato Grosso, Aquidauana, Mato Grosso do Sul, Brazil, 5iguacu Farm - Star Milk, Vera Cruz do Oeste, Parana, Brazil.

T293 Interaction between vitamin E and rumen-protected conjugated linoleic acid on milk composition in grazing dairy cows.
M. Ramírez-Mella1, O. Hernández-Mendo1, J. E. Ramírez-Bribiesca1, R. D. Améndola-Massititi2, M. M. Crosby-Galván1, J. A. Burgueño-Ferreira3, and G. Aranda-Osorio1, 1Colegio de Postgrado, Montecillos, Texcoco, México, 2Universidad Autónoma Chapino, Chapingu, Texcoco, México, 3Centro Internacional de Mejoramiento de Maiz y Trigo, Estado de México, México.

T294 Assessment of lysine released from rumen-protected lysine products exposed to high and low moisture TMR over 24 hours.

T295 Does mechanical mixing of TMR compromise protection efficacy of rumen-protected lysine products?

T296 Ionophore source in a calf starter influences the performance of calves during the immediate post-weaned period.
C. J. Cobb1, B. S. Obeidat1, D. L. Hanson1, M. D. Sellers1, B. L. Miller1, J. A. Davidson1, K. L. Perfield1, and M. A. Ballou1, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Land O Lakes Purina Feed, Gray Summit, MO, 3Elanco, Greenfield, IN.

T297 Effects of microbial additives on nutrient metabolism in continuous culture of rumen contents.
W. Braman* and L. C. Solórzano, Chr. Hansen Inc., Milwaukee, WI.

T298 Immunometabolic indices in dairy cows supplemented with Smartamine M or MetaSmart during the peripartal period.
J. S. Osorio1, 2, E. Trevisi1, 2, P. Ji1, 2, D. Luchini1, 2, J. K. Drackley1, 2, G. Berto1, 3, and J. J. Loor1, 3, 1University of Illinois, Urbana, 2Universitas Cattolica del Sacro Cuore, Piacenza, Italy, 3Adisseo, Alpharetta, GA.

T299 Ruminal biohydrogenation and abomasal fatty acid flow in dairy cows fed with fatty acids unsaturated sources.
J. E. Freitas1, 2, R. V. Barletta1, K. Havartine1, S. L. D. A. Robassini1, M. D. S. Oliveira1, B. C. Venturelli1, E. F. Jesus1, F. G. Vilela1, G. D. Calomeni1, J. R. Gandra1, T. S. Caneas1, and F. P. Rennó1, 1University of São Paulo, Pirassununga, SP, Brazil, 2Penn State University, University Park, 3State University Julio de Mesquita, Jaboticabal, SP, Brazil.

T300 Evaluation of models ruminal biohydrogenation in dairy cows fed unsaturated fatty acids sources.
J. E. Freitas1, 2, R. V. Barletta1, K. Havartine1, V. P. Bettero1, M. D. S. Oliveira1, B. C. Venturelli1, R. Gardinal1, J. R. Gandra1, C. E. Araújo1, F. G. Vilela1, V. G. C. Lacuna1, and F. P. Rennó1, 1University of São Paulo, Pirassununga, SP, Brazil, 2Pennsylvania State University, University Park, 3State University Julio de Mesquita, Jabaticabal, SP, Brazil.

Ruminant Nutrition
Feeds

T301 Evaluating the mineral composition of Vernonia amygdalina leaf.
A. H. Ekeocha*, University of Ibadan, Ibadan, Oyo, Nigeria.

T302 Determination of the nutritional value of some perennial forage species for ruminants.
C. Bayourthe1, 2 and C. Julien1, 2, INRA, UMR1289 TANDEM, Tissus Animaux Nutrition Digestion Ecosystème et Métabolisme, Castanet Tolosan Cedex, France, 1Université de Toulouse, INPT-ENSAT, INP-ENVT, UMR1289 TANDEM, Castanet Tolosan Cedex, France.

T303 Dry matter changes in corn silage with rain.
H. A. Rossow1, L. Kallaway2, 3, N. Falcony3, and T. Meister4, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California-Davis, Tulare, 2Alpha Dairy Consulting, Visalia, CA, 3John Deere Forage Products, Moline, IL.

T304 Canola meals from different production plants differ in ruminal protein degradability.
G. A. Broderick1, S. Colombini2, M. A. Karsi3, L. Nernberg4, and D. Hickling4, 1U.S. Dairy Forage Research Center, Madison, WI, 2University of Milan, Milan, Italy, 3Yüzüncü Yıl University, Van, Turkey, 4Canola Council of Canada, Winnipeg, MB, Canada.

T305 Influence of different levels of exogenous enzymes preparation at two application methods on in vitro ruminal fermentation of some fibrous feeds in sheep.
A. Z. M. Salem1, H. Gado2, N. E. Odongo3, R. Rojo4, M. M. Y Elghandour4, and A. Olmido5, 1Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de Mexico, Mexico, 2Faculty of Agriculture, Ain Shams University, Cairo, Egypt, 3Animal Production and Health Section, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, International Atomic Energy Agency, Vienna, Austria, 4CU-UAEM- Temascaltepec, Universidad Autónoma del Estado de México, Estado de México, México.
Composition of diets fed to different groups of lactating cows on California dairies.
A. R. Castillo*, 1, N. Silva del Rio, 2, N. R. St-Pierre, 1, and W. P. Weiss, 3, 1University of California, Cooperative Extension, Merced, 2University of California, Cooperative Extension, Tulare, 3The Ohio State University, Department of Animal Science, Columbus.

Ruminal degradability, duodenal flow, and intestinal digestibility of protein from canola meal or corn and wheat distillers grains in growing beef heifers.
C. Li1, 2, J. Q. Li, 3, K. A. Beauchemin, 4, and W. Z. Yang5, 4, 1Research Centre, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada, 2College of Animal Science, Inner Mongolia Agricultural University, Hohhot, Inner Mongolia, China.

Utilization of infrared thermography image analysis in ruminant feeding experiments.
Leste, Ribeirao Preto, Sao Paulo State, Brazil
M. H. Ramos

Tables of nutritive values for farm animals in tropical and Mediterranean regions: an important asset for improving the use of local feed resources.

Quality evaluation of Italian rye grass and whole crop barley with homofermentative and heterofermentative lactic acid bacteria.
H. Lee1, M. Jeong1, S. Kim1, L. Mamuad1, B. Cha1, E. Kang1, C. Jeong1, D. Kim1, D. Kim1, 2, and S. Lee1, 2, 1Sunchon National University, Suncheon, Republic of Korea, 2National Institute of Animal Science, Sunchon, Korea.

Sunflower cake in multiple supplements for cattle grazing in the dry season: pH and ruminal ammonia nitrogen.
R. P. da Silva1, 2, A. C. Mesacas1, J. T. Zervoudakis1, L. K. Hatamoto-Zervoudakis1, L. da Silva Cabral1, F. de Paula Leonel1, R. G. F. da Silva1, J. Q. Soares1, C. R. P. Silva1, A. J. Neto1, A. de Oliveira Zanette1, and J. F. W. Koscheck1, 1Federal University of Mato Grosso, Cuiaba, Mato Grosso, Brazil, 2University of ST John King Del, Sao Joao Del-Rei, Minas Gerais Brazil.

Prediction of carbohydrate fractions in some tropical grasses.
R. S. Fukushima*, 2, C. B. Bacha, A. P. Fuzeto, A. C. R. Port, and A. V. Vargas, Universidade de Sao Paulo, Pirassununga, SP, Brazil.

Using the acetyl bromide lignin method to quantify lignin content in forages.
Universidade de Sao Paulo, Pirassununga, SP, Brazil
R. S. Fukushima*, 2, C. B. Bacha, A. P. Fuzeto, A. C. R. Port, and A. V. Vargas, Universidade de Sao Paulo, Pirassununga, SP, Brazil.

Prediction of kinetic degradability parameters and passage of materials originated from intercropping between brachiaria grass and plantations of corn and soybeans.
T. S. de Oliveira*, 1, V. S. de Oliveira1, T. M. de Oliveira Alves1, J. C. Pereira1, and R. A. M. Vieira1, 1Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, 2Universidade Estadual Norte Fluminense, Campos dos Goytacazes, Rio de Janeiro, Brazil.

Utilization of infrared thermography image analysis in ruminant feeding experiments.
M. S. V. Salles*, 1, 2, S. C. Silva1, L. C. Roma Junior1, C. E. L. Oliveira, F. A. Salles, C. M. M. Bittar2, and L. El Faro1, 1APTA Centro Leste, Ribeirão Preto, São Paulo State, Brazil, 2FZEA USP, Pirassununga, São Paulo State, Brazil, 3ESALQ USP, Piracicaba, São Paulo State, Brazil.

Evaluating and refining the CNCPS feed library.
R. J. Higgs*, L. E. Chase, D. A. Ross, and M. E. Van Amburgh, Department of Animal Science, Cornell University, Ithaca, NY.

**Ruminant Nutrition**

Investigation on the nutritive value of Vernonia amygdalina leaves (bitter leaves) for ruminant animals.
A. H. Ekeocha*, 1University of Ibadan, Ibadan, Oyo, Nigeria.

Screening of dairy cows for ketosis by routine analysis of β-hydroxybutyrate in DHIL test milk samples.
D. E. Santschi* and D. M. Lefebvre, Valacía, Ste-Anne-de-Bellevue, Quebec, Canada.

Prediction of empty body weight of adult Pelibuey ewes.
A. J. Chay-Canul*, 1, J. C. Ku-Vera*, 1, A. J. Ayala-Burgos1, J. G. Magaña-Monforte1, and L. O. Tedeschi1, 1División Académica de Ciencias Agropecuarias, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México, 2Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma de Yucatán, Yucatán, México, 3Department of Animal Science, Texas A&M University, College Station.

Increased lamb production by implanting melatonin to induce out of season breeding.
T. Wuliji*, 3, 2, Lincoln University, Jefferson City, MO, 3University of Nevada, Reno.

Effects of different levels of quebracho tannins and sunflower oil on nutrients digestibility and milk fatty acids composition in dairy ewes.
S. N. Al-Dobaib*, 1, H. E. M. Kamel1, M. A. M. Shehab-El-Deen1, and M. Y. Al-Saiady2, 1Qassim University, Buriedah-51452, Saudi Arabia, 2Arabian Agricultural Services Company, Riyadh-11593, Saudi Arabia.
T321 Relationships between residual feed intake and performance of Nelore bulls in feedlot.
T. P. Guimarães1, J. J. de Resende Fernandes2, K. K. G. Moreira1, M. D. de Freitas Neto1, V. R. M. Couto1, B. J. M. Lemos1, L. F. N. Souza1, and É. G. Moraes1, 1Universidade Federal de Goiás, Goiânia, Goiás, Brazil, 2Nelore Qualitas, Goiânia, Goiás, Brazil.

T322 Adipose tissue preferences for acetate in finishing steers.

T323 Effects of different amino acid patterns on the expression of four major milk protein genes in primary cultured bovine mammary epithelial cells.

T324 Evaluation of equations to predict body composition in Nellore bulls.
L. F. Costa e Silva*, S. C. Valadares Filho, E. Detmann, M. I. Marcondes, and P. P. Rotta, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

T325 Performance of Holstein dairy cows under different feeding strategies in early lactation.

T326 Effect of dietary cation-anion difference (DCAD) on beef tenderness.

T327 Performance of early lactation cows fed whole versus chopped sugarcane.
J. E. P. de la Ossa*, J. A. Mattiouda, E. M. Balbinbo, 1Universidade Federal de Viçosa, Viçosa, MG, Brazil, 2APEMIG, Viçosa, MG, Brazil, 3CNPq, Viçosa, MG, Brazil.

T328 The relationship of feed efficiency and visceral organ size in growing lambs fed a concentrate or forage-based diet.
R. A. Vraspir*, M. J. Ellison, K. M. Cammack, and A. M. Meyer, University of Nebraska, Lincoln, NE.

T329 Performance of Nelore young bulls grazing Brachiaria brizantha ‘Xaraes’ supplemented with different lipid sources.
A. L. S. Valente*, R. A. Reis, T. T. Berchielli, T. Borgui, I. P. Carvalho de Carvalho, and L. G. Rossi, Sao Paulo State University, Jaboticabal, Sao Paulo, Brazil.

T330 Seminiferous tubule traits of lambs fed with cottonseed co-products (Gossypium ssp.).
T. Paim*, P. Viana, E. Brandão, S. Amador, T. Barbosa, C. Cardoso, A. Abdalla, C. McManus, and H. Louvandini, 1Center of Nuclear Energy in Agriculture, Piracicaba, SP, Brazil, 2College of Agronomy and Veterinary, University of Brasilia, Brasilia, DF, Brazil, 3Animal Production Department, University of Rio Grande do Sul, Porto Alegre, RS, Brazil.

T331 Fatty acid profile of meat from lambs fed with cottonseed co-products.
T. Paim, P. Viana, E. Brandão, S. Amador, T. Barbosa, C. Cardoso, B. Berenchttein, C. McManus, A. Abdalla, and H. Louvandini, 1Center of Nuclear Energy in Agriculture, Piracicaba, SP, Brazil, 2College of Agronomy and Veterinary, University of Brasilia, Brasilia, DF, Brazil, 3Animal Production Department, University of Rio Grande do Sul, Porto Alegre, RS, Brazil.

T332 Inclusion of urea in spineless cactus diets for Girolando steers.
R. A. S. Pessoa*, R. da Silva Lima, W. G. do Nascimento, I. Ferraz, and P. C. Vasconcelos, 1Universidade Federal Rural de Pernambuco, Animal Science Department, Recife, Pernambuco, Brazil, 2Universidade Federal Rural de Pernambuco, Unidade Acadêmica de Garanhuns, Garanhuns, Pernambuco, Brazil, 3Instituto Agronômico de Pernambuco, Recife, Pernambuco, Brazil.

T333 Levels of roughage supplementation with cottonseed hull for cattle grazing during the rainy transition season: Performance.

T334 Blood cell and metabolic profile of Nelore bulls ranked by residual feed intake.

T335 Carcass evaluation of subjected to feed restriction.
A. R. C. Lima*, M. H. M. da Rocha Fernandes, I. A. M. de Almeida Teixeira, K. T. de Resende, and R. G. Aparecido, Sao Paulo State University, Faculty of Agriculture and Veterinary Sciences, Jaboticabal, Sao Paulo, Brazil.
Carcass traits and meat quality of goats subjected to feed restriction.

The relationship between feed efficiency and pancreatic α-amylase and trypsin activity in growing lambs.

Effect of zinc concentration on performance and carcass characteristics of feedlot steers.

Biochemical blood parameters and liver enzymes of Saanen dairy goats fed with diets containing tannin and polyethylene glycol supplement.
A. Rahimi*, A. A. Naserian†, R. Valizadeh‡, A. Tahmasbi§, B. Saremi*∥, and A. R. Shahdadi¶, Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran.

Levels of concentrate for crossbred Holstein-Zebu cows under grazing.
C. P. Ghedini*, R. P. Lana†, A. S. Oliveira‡, J. Perotttoni§, D. C. Abreu*∥, R. L. Albino¶, J. E. P. de la Ossa††, R. M. Paula‡‡, P. E. P. Barros§§, and F. G. Silva¶¶, Universidade Federal de Viçosa, Viçosa, MG, Brazil, Universidade Federal do Mato Grosso, Sinop, MT, Brazil, Universidade Federal de Lavras, Lavras, MG, Brazil, Universidade Federal de Santa Maria, Santa Maria, RS, Brazil.

The relationship between feed efficiency traits and fertility in young beef bulls.

Influence of tannins extract addition on feedlot-performance of bulls fed sorghum-based diets.

Performance of milking crossbred cows under pasture as a function of levels of concentrate in the diet.
D. C. Abreu*, R. P. Lana†, A. S. Oliveira‡, C. P. Ghedini§, R. M. Paula¶, R. L. Albino∥, F. G. Silva¶¶, and E. M. Baldino∥∥, Universidade Federal de Viçosa, Viçosa, MG, Brazil, Universidade Federal do Mato Grosso, Sinop, MT, Brazil.

Effect of supplementation of tannin-extract in corn silage based-diets on performance of growing bulls under commercial feedlot conditions.
M. A. Espino‡‡‡, and R. Barajas*∥∥, Pronutrient Developers, León, Guanajuato, México.

Effect of pasture type and dietary lipid supplementation on animal performance, carcass composition and fatty acid composition of muscle and adipose tissue in lamb.
N. S. Brooks*, J. L. Duynisveld†, D. M. W. Barrett‡, Y. A. Papadopolou§§, J. Wort∥∥∥, A. H. Fredeen¶¶¶, and K. E. Glover¶¶¶¶, Nova Scotia Agricultural College, Truro, NS, Canada, AgraPoint, Truro, NS, Canada, Agriculture and Agri-Food Canada, Nappan, NS, Canada, Agriculture and Agri-Food Canada, Truro, NS, Canada.

The effect of diet on feed intake traits and relationships with carcass traits in sheep.

Effects of roughage level and corn processing method on finishing performance of Nellore bulls.
M. Caetano*, R. S. Goulart†, P. M. Rizzo‡, S. L. Silva§, P. R. Leme∥, J. S. Drouillard¶, and D. P. D. Lanna∥∥, University of Sao Paulo, ESALQ, Piracicaba, SP, Brazil, North Dakota State University, Fargo, University of Sao Paulo, FZEA, Pirassununga, SP, Brazil, Kansas State University, Manhattan.

Estimation of carcass and body fat composition using biometric measurements of grazing beef cattle.
N. F. De Paula††, L. O. Tedeschi‡‡, M. F. Paulino§§, H. J. Fernandez∥∥∥, M. A. Fonseca*∥∥∥, V. R. M. Couto¶¶¶, I. F. S. Maciel∥∥∥∥, and D. M. Almeida¶¶¶¶, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil, Texas A&M University, College Station, Universidade Estadual do Mato Grosso do Sul, Aquidauana, Mato Grosso do Sul, Brazil.

Performance of dairy kids submitted to different sources of goat milk replacers.
M. I. Marcondes*, L. S. Knupp, A. L. Silva, L. M. Carvalho, M. M. S. Santos, J. S. A. A. Santos, C. G. Vitor, and C. M. Veloso, Universidade Federal de Viçosa, Viçosa, MG, Brazil.
Early feeding of low levels of fat supplement suppresses postprandial in vitro rumen metabolism.
O. Baptiste*, K. D’Souza, S. Simpson, S. Chavez, E. Nestor, M. Knights, and E. Felton, West Virginia University, Morgantown.

Ruminant Nutrition
Young Stock

Effects of limiting concentrate during growing period on performance and plasma variables, and gene expression of hepatic gluconeogenic enzymes in Holstein calves.

Plane of nutrition during the pre- and post-weaned periods influences the performance and innate immune activity of Jersey calves.
D. L. Hanson*, C. J. Cobb, M. D. Sellers, T. J. Earleywine, and M. A. Ballou, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Land O’ Lakes, Animal Milk Products Co., Shoreview, MN.

Influence of tannins-extract supplementation on plasma urea nitrogen concentration of bull-calves grazing Bermuda grass.

The influence of grassland management and housing on voluntary dry matter intake in heifers.
O. Latal*, J. Pozdisek, and J. Bezdícek, 1Agrovýzkum Rapotín Ltd., Vikyrovice, Czech Republic, 2Research Institute for Cattle Breeding Ltd., Vikyrovice, Czech Republic.

Effect of time of access to temperate forage on intake and digestibility of organic matter and fiber fractions in heifers.

Assessment of bone metabolism in pregnant heifers with high and low residual feed intake.
R. Dias1, J. Kim1, S. Lopez2, Y. Montanholi1, B. Smith3, S. Miller2, and J. France1, 1University of Guelph, Guelph, Ontario, Canada, 2Universidad de León, León, León, Spain.

Dried citrus pulp alters feedlot performance of crossbred heifers during the receiving period.
J. T. Cribbs1,2, T. R. Young1, M. A. Jennings1, N. C. Burdick2, J. A. Carroll3, T. R. Callaway4, T. B. Schmidt4, B. J. Johnson4, and R. J. Rathmann1, 1Texas Tech University, Lubbock, 2USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 3USDA-ARS, Food and Feed Safety Research Unit, College Station, TX, 4Mississippi State University, Department of Animal and Dairy Science, Starkville.

Effect of time of access to temperate pasture on nitrogen utilization, digestibility of nitrogen and microbial protein synthesis in heifers.
N. Hernández1, A. Félix2, A. Pérez-Ruchel2, M. Aguerre2, C. Cajjarville2, and J. L. Repetto*1, 1Departamento de Bovinos, Facultad de Veterinaria, UdelaR, Montevideo, Uruguay, 2Departamento de Nutrición, Facultad de Veterinaria, UdelaR, Montevideo, Uruguay.

Comparison of pH, volatile fatty acids, and microbial quantification on rumen samples from young calves obtained via canula or stomach tube.
M. Terré*, Ll. Castells1, and A. Bach2,3, 1Institut de Recerca i Tecnologia Agroalimentàries, Caldes de Montbui, Spain, 2Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain.

Effects of limiting concentrate during growing period on performance and plasma variables, and gene expression of hepatic gluconeogenic enzymes and visfatin in Korean native beef calves.
J. D. Lohakare*, S. S. Chang1, N. K. Singh1, E. G. Kwon2, J. Ghassimi Nejad1, K. I. Sung1, and S. K. Hong2, 1College of Animal Life Sciences, Kangwon National University, Chunchon, South Korea, 2Hanwoo Experimental Station, National Institute of Animal Science, RDA, Pyeongchang, South Korea.

How the provision of forage in pre-weaned calves affects performance and digestibility after weaning.
Ll. Castells1, A. Bach2, C. Montoro1, E. M. Rodríguez1, P. Ureña1, and M. Terré1, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2ICREA, Barcelona, Spain.
Small Ruminant Production

T363 The effects of confinement and protein levels on carcass traits of kids raised under mixed-species grazing system.
S. Gebrelul*, L. Gray, R. Marshall, and C. Chisley, Southern University Ag Center, Baton Rouge, LA.

T364 Fatty acids profile in Longissimus dorsi of Santa Ines lambs fed with different energy levels.

T365 The effect of induction hypothyroidism on carcass quality and performance in lamb.
Y. Baghcheghi*, A. Yousefi, A. Z. Shahnem, M. G. Khano, and M. Poorhamdollah, University of Tehran, Karaj, Tehran, Iran.

T366 Effect of transient hypothyroidism on lamb’s meat quality.
Y. Baghcheghi*, A. Z. Shahnem, A. Yousefi, M. Poorhamdollah, and M. Joki, 1Department of Animal Sciences, University of Tehran, Karaj, Tehran, Iran, 2Department of Food Sciences, University of Tehran, Karaj, Tehran, Iran.

T367 Biochemical and hormonal response and chemical composition of milk following ACTH administration in goats fed lemon-grass (Cymbopogon citratus (DC.) Stapf).
T. S. Canaes**, S. N. Macedo, C. G. Lima, V. A. Pimentel, and J. A. Negrão, 1Sao Paulo University, Sao Paulo, Sao Paulo, Brazil, 2Federal University of Espirito Santo, Sao Mateus, Espirito Santo, Brazil.

T368 Forage yield and quality changes in mixed cattle and goats grazing practices.
Y. Ghebreiyessus*, S. Gebrelul, M. Berhane, and R. Payne, Southern University Ag Center, Baton Rouge, LA.

T369 Quantitative traits of carcass of Ile de France lambs fed diets containing different percentages of hay mulberry.

T370 Relationships among internal fat depots and subcutaneous fat in sheep.

T371 Impact of different stocking rates of goats under pine silvopasture systems on understory biomass, crown cover density, and animal productivity.

T372 Influence of trenbolone acetate and estradiol ear-implant level on feedlot-performance of hair lambs.

T373 Femur biometry and densitometry of Saanen goats subjected to feed restriction.

T374 Influence of dry period length on blood leukocyte subsets of Sarda dairy ewes and their offspring.
P. Bonelli, C. Carzedda, A. Fenu, G. Sparu, C. Dimauro**, R. Re, P. Nicolaussi, and SPG Rassu, 1Istituto Zooprofilattico Sperimentale della Sardegna, Sassari, Italy, 2Dipartimento di Agraria, Sezione di Scienze Zootecniche, University of Sassari, Italy.

T375 Effects of plant extracts and monensin on metabolite status and performance of peripartum ewes.

T376 Efficacy of a bovine colostrum replacement product for goat kids.
S. Hart*, S. Genova, D. M. Haines, and B. Bah, 1American Institute for Goat Research, Langston Univ., Langston, OK, 2Boren Veterinary Teaching Hospital, Oklahoma State Univ., Stillwater, 3Department of Veterinary Microbiology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, SK, Canada, 4The Saskatoon Colostrum Co., Saskatoon, SK, Canada.

T377 Effect of chromium supplementation on carcass traits and blood parameters of Mahabadi goat kids.
A. Emami, M. Ganjkhanlou*, A. Zali, A. Akbari, and A. Hojabri, University of Tehran, Tehran, Iran.

T378 Pasture lambing: An alternative to intensive indoor management at lambing.
N. L. Pettifor* and M. L. Thonney, Cornell University, Ithaca, NY.

T379 Evaluation of the impact of dietary sericea lespedeza on rumen microflora and innate immunity in goats.

T380 Effect of continuous suckling/ewe-rearing and supplementation on growth performance of Katahdin lambs.
S. L. Rastle-Simpson*, K. N. D’Souza, M. Knights, and Q. S. Baptiste, West Virginia University, Morgantown.
Pre-partum nutritional supplementation strategies in goats managed under grazing conditions: 2. Serum glucose concentration profiles and milk production.

Comparison of different mathematical models applied to lactation adjustment of F1 sheep in an organic production system. 
J. C. Angeles Hernandez, B. Albarran Portillo, A. V. Gomez Gonzalez, N. Pescador Salas, and M. Gonzalez Ronquillo, Universidad Autónoma del Estado de Mexico, Facultad de Medicina Veterinaria y Zootecnia, Toluca, Estado de Mexico, Mexico.

Pre-partum nutritional supplementation strategies in goats managed under grazing conditions: 1. Doe and offspring BW dynamics.

Pre-partum nutritional supplementation (energy or protein) strategies in goats managed under grazing conditions: 3. Offspring growth dynamics and doe milk production.

Effects of ground linted cottonseed on growth and carcass characteristics of feedlot lambs fed high-concentrate diets.

Effect of concentrate versus forage diet on feed intake and reproductive traits in crossbred ewes.

Influence of level of zilpaterol hydrochloride supplementation at different live weight on carcass characteristics of feedlot lambs.

Fatty acids in milk of goats fed sunflower seeds at different crude protein levels in the diet and thrombogenicity and atherogenicity indexes.

Swine Species II
Sponsor: Monsanto Co.

Genistein decreases LPS-stimulated production of TNF-α in porcine peripheral blood mononuclear cells.
L. Seefeldt and J. Clapper. South Dakota State University, Brookings.

Effect on an oral endotoxin challenge in pigs.
S. Schaumberger and G. Schatzmayr. Biomin Research Center, Tulln, Austria.

Effect of Actigen supplementation in gestation and lactation on sow and piglet performance, colostrum Ig level and milk composition.

Effect of maternal Actigen supplementation during gestation and lactation on piglet gut development and gene expression.

Effect of social ranks on oxidative stress status, reproductive performance, and immune status of sows housed in groups during gestation.
Y. Zhao, W. L. Flowers, and S. W. Kim. North Carolina State University, Raleigh.
Novel strategies to stimulate GLP-2 secretion and intestinal adaptation in weanling piglets.
1 Feed Additives Division, Lucta S. A., Montornés del Vallés, Spain, 2 USDA/ARS Children’s Nutrition Research Center, Department of Pediatrics, Baylor College of Medicine, Houston, Texas, 3 Departamento de Producción Animal, Universidad Politécnica de Madrid, ETS Ingenieros Agrónomos, Madrid, Spain, 4 Department of Biomedical Sciences, University of Copenhagen, Copenhagen, Denmark.

Teaching/Undergraduate and Graduate Education
T395 Student perceptions and moral conflict of animal use in society.
M. Amstutz, K. Bennett-Wimbush*, and D. Willoughby, Ohio State ATI, Wooster.

T396 Developing horsemanship skills through the understanding of equine behavior.
M. Nicodemus* and S. Lindsey, Mississippi State University, Mississippi State.

T397 A web-based computer simulator to teach dairy farm management.
S. Calsamiglia*, L. Castillejos, A. Ferret, G. Vera, and G. Espinosa, Universidad Autonoma de Barcelona, Barcelona, Spain.

T398 Relationships between course schedule and student academic performance and attendance in undergraduate animal science courses.
K. Stutts, M. Beverly*, S. Kelley, M. McMillan, A. Bullion, and L. McMillan, Sam Houston State University, Huntsville, TX.

T399 The effects of note-taking method on academic performance in undergraduate animal science courses.
K. Stutts*, M. Beverly, S. Kelley, M. McMillan, A. Bullion, and L. McMillan, Sam Houston State University, Huntsville, TX.
SYMPOSIA AND ORAL SESSIONS

ADSA Foundation Scholar Lecture: Production
Chair: Lance Baumgard, Iowa State University
121C

9:30 AM  Introduction.
L. Baumgard, Iowa State University.
9:40 AM  Got Inflammation? The complex links between metabolic and inflammatory pathways in the dairy cow.
B. A. Bradford*, Kansas State University.

ADSA Multidisciplinary and International Leadership Keynote (MILK) Symposium
How Dairy Exporters Can Provide Food Security
Chair: Katharine F. Knowlton, Virginia Tech
Sponsor: ADSA
121AB

9:30 AM  Introduction
K. F. Knowlton, Virginia Tech.
9:45 AM  301 Making safe, affordable, abundant food a global reality.
T. A. Armstrong*, Elanco Animal Health, Greenfield, IN.
10:30 AM  302 How dairy foods aid in food security.
11:15 AM  303 Development of local dairy production: The Indian experience.
G. Sohani*, BAIF Development Research Foundation, Pune, Maharashtra, India.

Animal Health III
Chair: Holly Neibergs, Washington State University
Sponsors: Elanco Animal Health and Pfizer Animal Health
228AB

9:30 AM  304 Effect of vaccination technique and antibody level on primary and secondary response in beef calves after vaccination against bovine viral diarrhea virus.
M. R. Rey**, J. C. Rodriguez-Lecompte¹, T. Joseph¹, J. Morrison², A. Yitbarek¹, K. M. Wittenberg¹, M. Undi¹, and K. H. Ominski¹, ¹Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada, ²Department of Biosystems Engineering, University of Manitoba, Winnipeg, MB, Canada, ³Veterinary Diagnostic Services, Manitoba Agriculture, Food and Rural Initiatives, Winnipeg, MB, Canada.
9:45 AM  305 Bacteria counts in on-farm pasteurized milk for dairy calves versus season and time post-pasteurization.
D. J. Wilson¹, K. A. Rood¹, and G. M. Goodell², ¹Utah State University, Logan, ²The Dairy Authority, Greeley, CO.
10:00 AM  306 Salmonella carriage rates in neonatal dairy calves.
E. M. Chavez², R. B. Harvey¹, K. Andrews², T. S. Edrington², C. M. Scanlan³, and G. R. Hagevoort¹, ¹Agricultural Science Center at Clovis, New Mexico State University, Clovis, ²Food and Feed Safety Research Unit, Agricultural Research Service, USDA, College Station, TX, ³Department of Veterinary Pathobiology, Texas A&M University, College Station.
10:15 AM  307 The association between colostrum bacteria counts and immunoglobulin absorption, calf growth and mortality.
A. Lago*, J. Quigley², J. Polo², and J. Campbell², ¹DairyExperts, Tulare, CA, ²APC Inc., Ankeny, IA.
10:30 AM  308 Adding an anti-inflammatory lactic acid bacteria to a Bacillus-based direct-fed microbial improves calf immune development.
M. Duersteler*, K. N. Novak², C. A. Wehnes¹, M. E. Davis¹, D. R. Shields², and A. H. Smith¹, ¹Danisco USA Inc., Waukesha, WI, ²Merrick’s Inc., Union Center, WI.
An evaluation of the efficacy of Metacam NSAID therapy for improving calf vigor, general health and overall performance in newborn Ontario dairy calves.
C. Murray*, S. Deelen, D. B. Haley, T. Duffield, and K. Leslie, University of Guelph, Guelph, ON, Canada.

Innate immunological or metabolic status prior to an oral *Salmonella typhimurium* challenge is not predictive of a heightened acute phase response in weaned Jersey calves.
M. A. Ballou*, M. D. Sellers, D. L. Hanson, A. R. Pepper-Yowell, C. J. Cobb, and B. S. Obeidat, Department of Animal and Food Sciences, Texas Tech University, Lubbock.

Outdoor group-housed calves have improved performance and heightened innate immune responses during the neonatal and weaning periods compared to outdoor single-housed calves.
C. J. Cobb*, D. L. Hanson, M. D. Sellers, A. R. Pepper-Yowell, B. S. Obeidat, and M. A. Ballou, Texas Tech University, Lubbock.

Immune, health, and growth responses of beef calves administered modified-live virus respiratory vaccine during the presence of maternal antibody versus a traditional vaccination regimen.
J. G. Powell*, J. T. Richeson1, E. B. Kegley1, K. P. Coffey1, G. F. Erf1, A. H. Brown1, W. Downum1, and D. T. Ensley1, 1University of Arkansas, Fayetteville, 2West Texas A&M University, Canyon, 3Boehringer Ingelheim Vetmedica Inc., St. Joseph, MO.

Dietary adjuvanting prior to vaccine administration increases maternal antibody transfer to calves.
A. D. Rowson, T. H. Schell, Y. Wang, N. E. Forsberg, and S. B. Puntenney*, OmniGen Research LLC, Corvallis, OR.

Correlation between circulating white blood cell counts and level of protective immune response against bovine viral diarrhea virus elicited by a modified live vaccine.
S. M. Falkenberg*, J. Ridpath1, J. R. Tait2, B. Vander Lay1,2, and J. M. Reecy2, 1USDA-ARS-National Animal Disease Center, Ames, IA, 2Iowa State University, Ames.

Omnigen-AF restores GR-1, L-selectin, and RANTES expression by immunosuppressed murine PMN challenged with lipopolysaccharide in a MyD88-dependent manner.
R. J. Ortiz-Marty*, N. E. Forsberg2, J. D. Chapman1, and I. K. Mullarky*, 1Virginia Polytechnic Institute and State University, Blacksburg, 2OmniGen Research LLC, Corvallis, OR, 3Prince Agri Products Inc., Quincy, IL.

ARPAS Symposium
Feed Efficiency: Opportunities for improvement, economics, and integration with environmental sustainability
Chair: Bill Sanchez, Diamond V
Sponsor: ARPAS

9:30 AM
Introduction
B. Sanchez, Diamond V.

9:35 AM
Feed efficiency: Basic principles and opportunities for improvement.
M. VandeHaar*, L. Armentano2, D. M. Spurlock3, J. Patience4, and J. Taylor4, 1Michigan State University, East Lansing, 2University of Wisconsin, Madison, 3Iowa State University, Ames, 4University of Missouri, Columbia.

10:15 AM
Impact of milk yield, herd size, and feed efficiency on economic change between and within California dairies from 2006 through 2010.

11:00 AM
Integrating productivity and whole-farm efficiency to achieve environmental sustainability.
J. L. Capper*1 and D. E. Bauman2, 1Washington State University, Pullman, 2Cornell University, Ithaca, NY.
Bioethics Symposium
Bioethical Challenges in Education: New challenges and opportunities
Chair: Jodie Pennington, Lincoln University
Sponsor: Elanco Animal Health
227AB

9:30 AM  Introduction
J. Pennington, Lincoln University.

C. C. Croney*, W. R. Stricklin, and D. Scott, 1Purdue University, 2University of Maryland, College Park, 3University of Montana.

10:05 AM  319  Challenges and opportunities in teaching agricultural animal bioethics: Part 2
C. C. Croney, W. R. Stricklin*, and D. Scott, 1Purdue University, 2University of Maryland, College Park, 3University of Montana.

10:35 AM  Break

10:50 AM  320  Assessing the merits of animal welfare assessment tools: A philosophical framework from virtue ethics and narrative ethics.
R. Anthony*, University of Alaska, Anchorage.

11:30 AM  321  Challenges and opportunities for bioethical education in extension/outreach activities.
H. M. Zaleski* and D. Newman, 1University of Hawaii at Manoa, Honolulu, 2North Dakota State University, Fargo.

12:10 PM  Panel Discussion and Comments

Breeding and Genetics
Dairy Cattle Breeding II—Applied molecular biology and genomics
Chair: John B. Cole, Animal Improvement Programs Laboratory, ARS, USDA
123

9:30 AM  322  Effects of genomic inbreeding on production, reproduction, and udder health in Holstein dairy cows.
D. W. Bjelland*, K. A. Weigel, D. J. Nkrumah, and N. Vukasinovic, 1University of Wisconsin-Madison, Madison, 2Pfizer Animal Genetics, Kalamazoo, MI.

9:45 AM  323  Maternal grandsire confirmation and discovery in dairy cattle.
G. R. Wiggans, B. A. Cooper*, P. M. VanRaden, J. R. O’Connell, and L. R. Bacheller, 1Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD, 2University of Maryland School of Medicine, Baltimore.

10:00 AM  324  Sequence analysis and methylation patterns of the bovine IWS1 gene localized to a region of BTA2 involved in postnatal growth.
I. G. Imumorin*, M. De Donato, S. O. Peters, A. M. Corn, Y. Bing, H. E. Rudolfo, M. Al-Abri, and T. Hussain, 1Cornell University, Ithaca, NY, 2Universidad de Oriente, Cumana, Venezuela, 3Federal University of Agriculture, Abeokuta, Nigeria, 4Sultan Qaboos University, Muscat, Oman, 5University of Veterinary and Animal Sciences, Lahore, Pakistan.

10:15 AM  325  Characterization of sequence diversity of IFNAA and INFBI in Pakistani breeds of cattle.
T. Hussain*, M. E. Babar, A. Nadeem, A. Ali, A. Wajid, M. Al Abri, M. De Donato, S. O. Peters, and I. G. Imumorin, 1Institute of Biochemistry and Biotechnology, University of Veterinary and Animal Sciences, Lahore, Pakistan, 2Department of Animal Science, Cornell University, Ithaca, NY, 3IIBCA, Universidad de Oriente, Cumana, Venezuela.

10:30 AM  326  Effect of GHR Alu polymorphism on reproductive performance of Holstein cows.
A. Schneider*, M. N. Corrêa, and W. R. Butler, 1Veterinary College, Federal University of Pelotas, Pelotas, RS, Brazil, 2Department of Animal Science, Cornell University, Ithaca, NY.

10:45 AM  327  Genomic evaluation of rectal temperature in Holstein cattle.
S. Dikmen*, J. B. Cole, D. J. Null, and P. J. Hansen, 1Department of Animal Science, Faculty of Veterinary Medicine, Uludag University, Bursa, Turkey, 2Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD, 3Department of Animal Sciences, University of Florida, Gainesville.
Feasibility of genomic prediction of fatty acids composition in milk of dairy cattle from Luxembourg using single-step procedure.  
P. Faux1, V. M.-R. Arnould1,2, H. Soyeurt1,3, and N. Gengler1,3, 1Animal Science Unit, Gembloux Agro-Bio Tech, University of Liege, Gembloux, Belgium, 2CONVIS s.c., Ettelbruck, Luxembourg, 3National Fund for Scientific Research (FNRS), Brussels, Belgium.

Microsatellite markers based genetic evaluation of Pakistani cattle breeds.  
M. E. Babar1, T. Hussain1, A. Nadeem1, A. Ali1, A. Wajid1, S. A. Shah1, A. Abbas1, Z. Ahmad1, M. De Donato1,3, S. O. Peters1, and I. G. Imumorin1, 1Institute of Biochemistry and Biotechnology, University of Veterinary and Animal Sciences, Lahore, Pakistan, 2Dept. Animal Science, Cornell University, Ithaca, NY, 3IIBCA, Universidad de Oriente, Cumana, Venezuela.

Effects of β-casein, κ-casein and β-lactoglobulin gene allelic variants on milk production and protein composition traits of Brown Swiss cows.  
C. Ribeca1, A. Cecchinato, M. Penasa, V. Bonfatti, F. Tiezzi, P. Carnier, and G. Bittante, Department of Agronomy, Food, Natural Resources, Animals and Environment (DAFNAE), Legnaro, Padova, Italy.

Associations between single nucleotide polymorphisms in multiple candidate genes on milk yield, composition, coagulation properties and individual cheese yield in Brown Swiss cows.  
A. Cecchinato1, C. Ribeca, M. Penasa, C. Cipolat Gotet, M. De Marchi, A. Maurmayr, and G. Bittante, Department of Agronomy, Food, Natural Resources, Animals and Environment (DAFNAE), University of Padova, Legnaro, Padova, Italy.

Sin and vaccine treatment effects on immune response to BVDV 1b challenge.  
E. D. Downey1, X. Fang1, C. A. Runyan1, J. E. Sawyer2, T. B. Hairgrove3, J. F. Ridpath4, C. A. Gill1, and A. D. Herring1, 1Texas A&M University, College Station, 2Texas AgriLife Research, College Station, 3Texas AgriLife Extension, College Station, 4National Animal Disease Center, USDA-ARS, Ames, IA.

Genome-wide DNA methylation fluctuation in mastitis mice infected by Staph. aureus.  
Y. Yu1, Y. Wei1, L. Fan1, Y. He1, and Y. Wang1, China Agricultural University, China.

CSAS Symposium
Are We Experiencing a Paradigm Shift in How We Feed Livestock As Industrial Agriculture Evolves in the 21st Century?
Chair: Gregory Penner, University of Saskatchewan
Sponsor: Canadian Society of Animal Science
223

9:15 AM 334
Introduction
G. Penner, University of Saskatchewan, Saskatoon, SK, Canada.

9:20 AM 335
Are we experiencing a paradigm shift in how we feed livestock as industrial agriculture evolves in the 21st century?
J. Newman1, American Feed Industry Association, Arlington, VA.

10:05AM 335
Rethinking and expanding the role of co-products and crop residues as livestock feeds.
S. S. Donkin1 and M. J. Cecava1, Purdue University, West Lafayette, IN, 2Archer Daniels Midland Company, Decatur, IL.

10:50 AM 335
Feeding low starch diets to swine.
A. D. Beaulieu1 and R. T. Zijlstra2, Prairie Swine Centre Inc., Saskatoon, SK, Canada, 2University of Alberta, Edmonton, AB, Canada.

11:20 AM 337
Alternatives to starch-based feeding programs for growing and finishing cattle.
J. J. McKinnon1 and T. A. McAllister2, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, 2Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada.

11:50 AM 338
Ethanol co-products for dairy cows: There goes our starch ... now what?
H. Paz and P. J. Kononoff1, University of Nebraska-Lincoln, Lincoln.

11:00 AM 328
Extension Education I
Chair: Elaine Grings, South Dakota State University
128AB

9:30 AM 339 The Missouri Show-Me-Select Replacement Heifer Program: A retrospective on marketing and sales.

9:45 AM 340 The Missouri Show-Me-Select Replacement Heifer Program: Prebreeding reproductive evaluation of heifers and subsequent pregnancy outcome after fixed-time AI.

10:00 AM 341 The Missouri Beef Project: An industry partnership designed to link economic incentives with technology adoption.
D. J. Patterson*, D. S. Brown, S. E. Poock, and M. F. Smith, University of Missouri.

Forages and Pastures I
Chair: Matt Poore, North Carolina State University
225AB

9:30 AM 348 Sustainable goat farming: Pasture enhancement and identification of suitable forages for goats.
U. Karki*, L. B. Karki2, N. K. Gurung1, and A. Elliott1,1Tuskegee University, Tuskegee, AL, 2PadmaDal Memorial Foundation, Auburn, AL.

9:45 AM 349 Effects of co-grazing on herbivory patterns and performance by cattle and goats grazing native tallgrass rangeland infested by sericea lespedea (Lespedeza cuneata).
L. A. Pacheco*, W. H. Fick2, G. W. Preedy2, E. A. Bailey1, D. L. Davis1, and K. C. Olson1, 1Department of Animal Sciences & Industry, Kansas State University, Manhattan, 2Department of Agronomy, Kansas State University, Manhattan.

10:00 AM 350 Effect of different regrowth ages of Andropogon gayanus grass silages on intake, digestive efficiency and methane emissions in sheep.
G. O. Ribeiro Junior*, L. C. Gonçalves, and N. M. Rodriguez, School of Veterinary, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

10:15 AM 351 Effects of feeding perennial peanut hay on growth, development, attainment of puberty, and fertility in beef replacement heifers.
10:30 AM 352 Effects of different sources of rumen-degradable protein supplementation on performance of cows and calves grazing limpograss stockpiled pastures in Florida.

10:45 AM 353 Effects of three levels of rumen-undegradable protein supplementation on performance of early weaned calves receiving stargrass.
J. M. B. Vendramini*, J. D. Arthington, and L. E. Sollenberger, 1University of Florida/IFAS Range Cattle Research and Education Center, Ona, 2University of Florida, Department of Agronomy, Gainesville.

11:00 AM 354 Ruminal availability of iron in forages.
Y. L. Huang*, K. E. Lloyd, C. L. Pickworth, and J. W. Spears, 1North Carolina State University, Raleigh, 2Southwest University for Nationalities, Chengdu, Sichuan, China.

11:15 AM 355 Nutritional profile of native warm season grass grown as a mono- or multi-species pasture.
B. S. Oloyede, B. J. Rude, H. T. Boland, and B. S. Baldwin, Mississippi State University, Starkville.

11:30 AM 356 Using switchgrass to produce stocker cattle gain and bioenergy feedstock I: Production potential.

11:45 AM 357 Using switchgrass to produce stocker cattle gain and bioenergy feedstock II: Economic potential.

12:00 PM 358 Investigating the nutritive value of Panicum maximum leaves for ruminant animals.
A. H. Ekeocha*, University of Ibadan, Ibadan, Oyo, Nigeria.

12:15 PM 359 Evaluating the mineral composition of Panicum maximum leaves.
A. H. Ekeocha* and O. T. Bankole, University of Ibadan, Ibadan, Oyo, Nigeria.

Horse Species I
Chair: Carrie Hammer, North Dakota State University
Sponsor: Zinpro Corp.
229AB

9:30 AM 360 Influence of maternal plane of nutrition and arginine supplementation on mares and their foals: Determination of voluntary dry matter intake of mares during late pregnancy.
K. N. Winsco*, J. A. Coverdale, T. A. Wickersham, C. J. Hammer, and J. L. Lucia, 1Department of Animal Science, Texas A&M University, College Station, 2Department of Animal Sciences, North Dakota State University, Fargo, 3Center for Nutrition and Pregnancy, North Dakota State University, Fargo.

9:45 AM 361 The effect of hay steaming on forage quality and intake by horses.

10:00 AM 362 High non-structural carbohydrate diet in ponies alters location and absorptive capacity of glucose, phosphorus and glutamine across the gastrointestinal tract.
B. E. Aldridge*, A. D. Woodward, J. S. Radcliffe, R. J. Geor, L. J. McCutcheon, and N. L. Trottier, 1Purdue University, West Lafayette, IN, 2Michigan State University, Department of Animal Science, East Lansing, 3Michigan State University, Department of Large Animal Clinical Science, East Lansing.

10:15 AM 363 Exercise-induced suppression of lymphocyte function is unaffected by a higher level of dietary selenium.

10:30 AM 364 Feeding graded amounts of lysine to yearling Thoroughbred colts does not activate the mTOR signaling pathway.

10:45 AM 365 Influence of oral glucosamine supplementation on young horses in training: Pharmacokinetics.
J. L. Lucia*, K. L. Gehl, J. A. Coverdale, C. E. Arnold, R. Dabareiner, and E. D. Lamprecht, 1Department of Animal Science, Texas A&M University, College Station, 2Large Animal Teaching Hospital, Texas A&M University, College Station, 3Cargill Animal Nutrition, Elk River, MN.

11:00 AM 366 Effects of prolonged exercise and citrulline supplementation on metabolic status in equine blood and skeletal muscle.
Selenium supplementation and immune function.
M. Brummer*, S. Hayes, A. Betancourt, A. A. Adams, D. W. Horohov, and L. M. Lawrence, University of Kentucky, Lexington.

Effect of strenuous exercise on stallion sperm quality.

Lactation Biology II
Chair: Eric Scholljegerdes, New Mexico State University

122C
9:30 AM 369 Milk fat synthesis in thyroid hormone responsive spot 14 null mice is acutely responsive to trans-10, cis-12 conjugated linoleic acid (CLA).
K. J. Harvatine*, M. Tanino1, Y. R. Boisclair2, and D. E. Bauman2. 1Penn State University, University Park, 2Cornell University, Ithaca, NY.

9:45 AM 370 Increased milk production by Holstein cows consuming endophyte-infected fescue seed during the dry period.
R. L. Baldwin*, A. V. Capuco1, C. M. Evock-Clover1, P. Grossi1, R. K. Choudhary1, T. H. Elsasser1, G. Bertoni1, E. Trevisi1, D. L. Harmon1, and K. R. McLeod1. 1Bovine Functional Genomics Lab, USDA-ARS, Beltsville, MD, 2Istituto di Zootecnica, Università Cattolica del Sacro Cuore, Piacenza, Italy, 3Department of Animal and Avian Sciences, University of Maryland, College Park, 4Department of Animal Sciences, University of Kentucky, Lexington.

10:00 AM 371 Association between plasma insulin and progesterone concentrations and the composition of milk fatty acids and lipids.
N. Argov-Argaman*, H. Malka, and R. Mesilati-Stahy, Animal Science Department, Hebrew University, Rehovot, Israel.

10:15 AM 372 Ontogeny of nuclear and cytoplasmic myoepithelial cell markers in pre-weaning Holstein heifers.
S. Safayi1, N. Korn1, A. DiMascio2, R. M. Akers1, A. V. Capuco4, and S. Ellis1. 1Clemson University, Clemson, SC, 2University of Georgia, Athens, 3Virginia Polytechnic Institute and State University, Blacksburg, 4USDA-ARS, Beltsville Agricultural Research Center, Beltsville, MD.

10:30 AM 373 Ultrasonographic monitoring of mammary parenchyma growth in preweaned Holstein heifers.
K. M. Esselburn*, T. M. Hill1, K. M. O’Diam1, V. A. Swank1, H. G. Bateman1, R. L. Schlotterbeck1, and K. M. Daniels1. 1Department of Animal Sciences, The Ohio State University, 2Ohio Agricultural Research and Development Center, Wooster, 3Nurture Research Center, Provimi North America, Brookville, OH.

10:45 AM 374 Proteomic analysis of the nuclear phosphorylated proteins in dairy cow mammary epithelial cells treated with prolactin.

11:00 AM 375 Analysis of differentially expressed miRNA in dairy cow mammary gland identifies HK2-regulating miRNAs.
Z. Li*, H. Y. Liu, and J. X. Liu, Institute of Dairy Science, MOE Key Laboratory of Molecular Animal Nutrition, Zhejiang University, Hangzhou, China.

Meat Science and Muscle Biology Symposium
In Utero Factors that Influence Postnatal Muscle Growth, Carcass Composition, and Meat Quality
Chair: Brian Bowker, USDA-ARS
Sponsors: Cargill Animal Nutrition and EAAP

122AB
9:30 AM 376 Fetal programming of skeletal muscle mitochondrial function and insulin sensitivity: Perspectives from non-human primates and mouse models.
J. A. Houck1, K. L. Grove2, and C. E. McCurdy*, 1Department of Pediatrics, University of Colorado, 2National Primate Research Center, Oregon Health and Sciences University.
Manipulating mesenchymal progenitor cell differentiation to optimize performance and carcass value of beef cattle.
M. Du*, Department of Animal Sciences, Washington State University, Pullman.

10:50 AM 378 EAAP-ASAS Speaker Exchange Presentation: In utero nutrition related to fetal development, postnatal growth, and pork quality.
N. Oksbjerg*, Aarhus University-Foulum, Dept. of Food Science, Tjele, Denmark.

11:30 AM 379 Maternal nutrition on pasture mediates long-term consequences for offspring primarily through effects on growth early in life of beef cattle.
P. L. Greenwood*, L. M. Cafe, and D. L. Robinson, Australian Cooperative Research Centre for Beef Genetic Technologies, and NSW Department of Primary Industries, UNE, Armidale NSW, Australia.

Nonruminant Nutrition
Management/Metabolism
Chair: Ryan Dilger, University of Illinois
222AB

9:30 AM 380 Diet form and by-product level affect growth performance and carcass characteristics of grow-finish pigs.

9:45 AM 381 Influence of ingredient complexity, feed form, and length of feeding of the phase I diets on nutrient digestibility and productive performance of Iberian pigs.

10:00 AM 382 Hepatic gene expression analysis of nursery pigs fed simple and complex starter diets.
M. Rudar*, L. D. Skinner, and C. F. M. de Lange, University of Guelph, Guelph, ON, Canada.

A. V. Hansen1, A. B. Strathe1, P. K. Theil2, and E. Kebreab*, 1Department of Animal Science, University of California, Davis, 2Department of Animal Science, Faculty of Science and Technology, Aarhus University, Tjele, Denmark.

10:30 AM 384 Dynamics of nitrogen retention in entire male pigs immunized with Improvest.
L. Huber*, D. Wey, and C. de Lange, University of Guelph, Guelph, ON, Canada.

10:45 AM 385 Effects of dietary protein and lipid levels on growth and stress tolerance of juvenile tilapia (Oreochromis niloticus).
C. G. Hooley1, F. T. Barrows3, J. A. Paterson1, and W. M. Sealey2, 1Montana State University, Bozeman, 2United States Fish and Wildlife Service, Bozeman, MT, 3US Department of Agriculture, Agriculture Research Service, Bozeman, MT.

11:00 AM 386 Comparison of the in vitro fermentation activity of fecal inocula from piglets and dogs.
S. Brambillasca*, C. Deluca, A. Britos, and C. Cajarville, Departamento de Nutrición Animal, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay.

11:15 AM 387 Prediction of voluntary feed intake in weaner pigs using physicochemical properties of bulky diets.
Physiology and Endocrinology Symposium: The Current Status of Heat Shock in Early Embryonic Survival and Reproductive Efficiency
Chair: Robert A. Cushman, USDA-ARS U.S. Meat Animal Research Center
Sponsor: ASAS Foundation 222C

9:30 AM 392 Introduction

C. M. Barros* and R. A. Satrapa, Department of Pharmacology, Institute of Biosciences, University of Sao Paulo State, Botucatu, Sao Paulo, Brazil.

10:05 AM 389 Associations between heat shock protein 70 genetic polymorphisms and calving traits in crossbred Brahman cows.
C. Rosenkrans*, M. Brown, H. Brown, and M. Looper, University of Arkansas, Fayetteville, USDA-ARS, El Reno, OK.

10:35 AM Break

H. Khatib*, University of Wisconsin, Madison.

11:20 AM 391 Consequences of heat shock on development of the preimplantation bovine embryo: Role of free radicals, antioxidants, apoptosis, and heat shock proteins.
P. J. Hansen* and M. Sakatani, University of Florida, Gainesville, Kyushu-Okinawa Agricultural Research Center, National Agriculture and Food Research Organization, Kumamoto, Japan.

11:50 AM Concluding Questions.

Production, Management and the Environment
Beef Production
Chair: Marcia Endres, University of Minnesota 226ABC

9:30 AM 392 GPS/GIS technology in range cattle management.
D. M. Anderson*, USDA-ARS, Jornada Experimental Range, Las Cruces, NM.

10:15 AM 393 Detection of pregnancy in Arizona range cattle using near infrared spectroscopy of feces.
D. R. Tolleson* and D. W. Schafer, University of Arizona, V Bar V Ranch, Rimrock.

10:30 AM 394 Effect of beef heifer development system on ADG, reproduction, and feed efficiency during first pregnancy.

10:45 AM 395 Use of MTB-100, provided through a mineral mix, in a strategic supplementation plan to alleviate the effects of fescue toxicity when lactating beef cows graze endophyte-infected tall fescue.

11:00 AM 396 Effects of anti-phospholipase A2 antibody (aPLA2) supplementation on DMI, feed efficiency and blood differentials of steers fed forage and grain-based diets.

11:15 AM 397 Effects of acclimation to human handling on temperament, physiological responses, and performance of beef steers during feedlot receiving.

11:30 AM 398 Effects of 24-h transport or 24-h nutrient restriction on acute-phase and performance responses of feeder cattle.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presentation Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30 AM</td>
<td>399</td>
<td>Precision processing barley grain improves the feeding value of barley grain in beef cattle.</td>
<td>W. Z. Yang*, M. Oba*, and T. A. McAllister*, 1Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>400</td>
<td>Effect of rumen degradable energy source on performance and forage intake of steers grazing stockpiled crested wheatgrass pasture.</td>
<td>F. Anez*, J. J. McKinnon†, H. A. Lardner†, G. B. Penner‡, and P. G. Jefferson†, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Western Beef Development Centre, Humboldt, SK, Canada.</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>401</td>
<td>Effects of sugarcane fiber digestibility and concentrate level on intake and growth of finishing Nellore bulls.</td>
<td>B. S. Mesquita, D. O. Souza, J. F. Penso, M. H. A. Santana, J. B. S. Ferraz, and L. F. P. Silva*, Universidade de São Paulo, Pirassununga, SP, Brazil.</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>403</td>
<td>Comparison of receiving strategies on feedlot performance in beef calves at weaning.</td>
<td>K. L. Neuhold*, J. K. Ahola†, C. W. Shonk†, T. E. Engle†, and J. J. Wagner†, 1Colorado State University, Fort Collins, 2Agriculture, Research, Development and Education Center, Wellington, CO, 3Southeast Colorado Research Center, Lamar.</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>405</td>
<td>Effects of method of forage finishing and cattle breed on growth performance, carcass characteristics, meat quality, and fatty acid composition.</td>
<td>L. Shepherd*, R. Berthiaume†, C. Lafreniere†, C. Campbell†, L. Pivotte†, and I. Mandell†, 1Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, 2Agriculture &amp; Agri-Food Canada, Sherbrooke, QC, Canada, 3Agriculture &amp; Agri-Food Canada, Kapuskasing, ON, Canada.</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>406</td>
<td>Evaluation of weight gain pattern between 7 and 18 months of age of Hereford heifers and reproductive performance when mated at 18 months of age.</td>
<td>J. B. G. Costa Junior*, J. O. J. Barcellos†, J. C. Whittier†, I. D. P. S. Diaz†, L. Canellas†, V. Peripolli†, J. K. Ahola†, and R. K. Peel†, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil, 2Colorado State University, Fort Collins, 3Universidade Estadual Paulista, Jaboticabal, Sao Paulo, Brazil.</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>407</td>
<td>Evaluation of feed efficiency and feeding behavior traits in performance tested bulls.</td>
<td>J. G. Moreno*, G. E. Carstens‡, D. Crews‡, L. O. Tedeschi‡, L. R. McDonald‡, and S. Williams‡, 1Texas A&amp;M University, College Station, 2Colorado State University, Fort Collins, 3Midland Bull Test, Columbus, MT.</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>409</td>
<td>Feeding distillers grains as an energy source to gestating and lactating beef heifers: Effect on feedlot performance, carcass characteristics, and glucose tolerance of steer progeny.</td>
<td>P. J. Gunn*, G. A. Bridges†, R. P. Lemenager†, and J. P. Schoonmaker†, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2North Central Research and Outreach Center, University of Minnesota, Grand Rapids.</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>410</td>
<td>Effects of roughage concentration in dry-rolled corn-based diets containing wet distillers grains with solubles on performance and carcass characteristics of finishing beef steers.</td>
<td>K. E. Hales* and H. C. Freely, USDA, ARS, US Meat Animal Research Center, Clay Center, NE.</td>
</tr>
</tbody>
</table>
Impacts of feeding a citrus extract on measures of heat stress, as well as production, of high producing dairy cows during summer heat.
J. M. Soderstrom*, P. H. Robinson1, and J. M. Clauzel1, 1Department of Animal Science, University of California-Davis, Davis, 2Phodé Laboratoires, Terssac, France.

Meta-analysis of the effects of dietary sugar on intake and productivity of dairy cattle.
C. F. Vargas*,1, C. D. Reinhardt1, J. L. Firkins2, and B. J. Bradford1, 1Kansas State University, Manhattan, 2Ohio State University, Columbus.

Potential use of specific milk fatty acids to predict enteric methane emissions from lactating dairy cows.

Nitrogen concentration and source alter products from fermentation of glucose by mixed ruminal microbes.
M. B. Hall*, U.S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

Interactions in rumen pool characteristics by dairy cows fed two concentrations of a novel co-product from corn wet milling with different forage sources.
D. M. Shepherd*,1, J. L. Firkins1, and P. von Behren1, 1Department of Animal Sciences, The Ohio State University, Columbus, 2Cargill Corn Milling, Blaire, NE.

Fates of medium-chain fatty acids fed to lactating dairy cows.
M. Hollmann*,1, M. S. Allen1, T. H. Herdt3,4, J. S. Zyskowski1, K. M. Lebbin1, J. P. Steibel1, and D. K. Beede1, 1Department of Animal Science, Michigan State University, East Lansing, 2Department of Large Animal Clinical Sciences, Michigan State University, East Lansing, 3Diagnostic Center for Population and Animal Health, Michigan State University, East Lansing.

The effect of rumen digesta inoculation on the time course of recovery from diet induced milk fat depression in dairy cows.
D. E. Rico*, Y. Ying, A. R. Clarke, and K. J. Harvatine, Penn State University, University Park.

Effect of carbohydrate conformation in hulless barley (Hordeum vulgare L.) on in situ rumen and in vitro intestinal nutrient availability.
L. Yang*,1,3, J. McKinnon1,3, D. Christensen1,3, B. Rossnagel2,3, A. Beattie2,3, and P. Yu1,3, 1Department of Animal and Poultry Science, 2Crop Development Centre, 3University of Saskatchewan, Saskatoon, SK, Canada.

Palmitic acid increased milk yield and feed efficiency across production level of lactating cows.
P. Piantoni*, A. L. Lock, and M. S. Allen, Michigan State University, East Lansing.

Palmitic acid increased the yield of milk fat and improved feed efficiency across production level of cows compared with stearic acid.

Linseed oil reduces methane emissions from grazing dairy cows.
T. M. Boland*,1, K. M. Pierce1, J. D. Rowntree1, D. A. Kenny2, and A. K. Kelly1, 1University College Dublin, Lyons Research Farm, Newcastle, Co. Dublin, Ireland, 2Animal Bioscience Centre, Teagasc, Grange, Dunsany, Co. Meath, Ireland.

Effects of different protein supplements on AA availability in dairy cows.
G. Maxin*, D. R. Ouellet, and H. Lapierre, Dairy and Swine Research and Development Center, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.

Nitrogen balance of growing West African Dwarf ewe fed Mexican sunflower leaf meal based diets.
A. H. Ekeocha*, University of Ibadan, Ibadan, Oyo, Nigeria.
9:45 AM 424 Excess iodine intake by the ewe in late pregnancy programs on the lamb for reduced immunoglobulin G absorption. T. M. Boland*, University College Dublin, Lyons Research Farm, Newcastle, Co. Dublin, Ireland.

10:00 AM 425 Effects of different NFC/NDF ratios of TMR on ruminal pH and VFA in meat sheep. J. Liu*, Q. Y. Diao, Y. Tu, Y. G. Zhao, X. H. Gao, and L. H. Zhao, Key Laboratory of Feed Biotechnology of Ministry of Agriculture/Feed Research Institute, Chinese Academy of Agricultural Sciences, Beijing, China.

10:15 AM 426 Protein supplementation of low-quality forage: Effects of amount and frequency on intake and nutrient digestibility by lambs. M. L. Van Emon*, C. S. Schauer1, and D. W. Bohnert1, 1Department of Animal Sciences, North Dakota State University, Fargo; 2Hettinger Research Extension Center, North Dakota State University, Hettinger, 3Eastern Oregon Agricultural Research Center, Oregon State University, Burns.

10:30 AM 427 Effect of feeding differently processed sweet sorghum (Sorghum bicolor L. Moench) bagasse based complete diet on nutrient utilization and microbial N supply in growing ram lambs. N. Nalini Kumari1, Y. Ramana Reddy*, M. Blumme1, T. Monika1, B. V. S. Reddy1, and Ch. Ravinder Reddy1, 1S. V. Veterinary University, Tirupati, Andhra Pradesh, India, 2International Livestock Research Institute (ILRI), Patancheru, Andhra Pradesh, India, 3International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Andhra Pradesh, India.


11:00 AM 429 Factors affecting dry matter intake of grazing goats in the Brazilian rangelands. M. A. D. Bomfim*, L. O. Tedeschi2, and N. F. De Paula1, 1Embrapa Goats and Sheep, Sobral, Ceara, Brazil, 2Texas A&M University, College Station, 3Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

11:15 AM 430 Effects of diet on carcass quality and consumer taste panel acceptance of intact or castrated hair lambs. J. D. Kohler*, W. W. Miller1, J. L. Vest1, J. M. Burke3, M. A. Brown1, K. R. Maddock Carlin4, M. D. Hudson5, and E. L. Walker1, 1Missouri State University, Springfield, 2Dale Bumpers Small Farms Research Center, Booneville, AR, 3USDA ARS Grazinglands Research Laboratory, El Reno, OK, 4North Dakota State University, Fargo.

11:30 AM 431 Exploring the combined effects of dietary tannins and saponins on sheep infected with Haemonchus contortus. G. Copani1, H. Hall2, J. Miller5, A. Priolo1, and J. Villalba*, 1University of Catania, Catania, Sicily, Italy, 2Utah State University, Logan, 3Louisiana State University, Baton Rouge.

11:45 AM 432 Effect of feeding sericea lespedeza pellets on Haemonchus contortus in goats. D. S. Kommuru*, T. H. Terrill1, N. C. Whitley2, J. E. Miller3, and J. M. Burke4, 1Fort Valley State University, Fort Valley, GA, 2North Carolina A&T State University, Greensboro, 3Louisiana State University, Baton Rouge, 4USDA/ARS/DBSFRC, Booneville, AR.

ASAS/ADSA Northeast Section Symposium
The Future of Animal Agriculture Programs in the Northeast in the Face of Reducing Animal Holdings on Campus
Chair: Heather Dann, William H. Miner Agricultural Research Institute
Sponsor: ASAS/ADSA Northeast Section
122C

2:00 PM 433 Welcome and Introduction.

2:05 PM 434 The challenges associated with sustaining livestock farms for undergraduate teaching programs. T. Etherton1, and M. Wilson*, 1The Pennsylvania State University, University Park, 2West Virginia University, Morgantown.

2:40 PM 435 Budgeting for teaching programs in animal science with shrinking resources. M. G. Hogberg*, Iowa State University, Ames.


3:50 PM Panel Discussion

4:10 PM NE ASAS/ADSA Business Meeting, Awards, and Reception.
Animal Health IV  
Chair: Todd Bilby, Texas AgriLife Research and Extension  
228AB

2:00 PM 436  
I. Demographic trends in livestock inventory and number of operations in the United States.  
G. M. Schuenemann* and W. P. Shulaw, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus.

2:15 PM 437  
II. Effect of trends in livestock inventory and number of operations on food animal veterinary practices in the United States.  
G. M. Schuenemann* and W. P. Shulaw, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus.

2:30 PM 438  
Estimation of genetic parameters for hoof lesions in Canadian Holstein cows.  
N. Chapinal*1,2, A. Koeck3, S. Mason4, A. Sewalem5,6, D. Kelton7, and F. Miglior5,6, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada, 3Centre for Genetic Improvement of Livestock, Department of Animal & Poultry Science, University of Guelph, Guelph, ON, Canada, 4Alberta Milk, Edmonton, AB, Canada, 5Guelph Food Research Centre, Agriculture and Agri-Food Canada, Guelph, ON, Canada, 6Canadian Dairy Network, Guelph, ON, Canada.

2:45 PM 439  
An international overview of the recording and use of functional traits in dairy cattle breeding and management.  
J. B. Cole*, K. F. Stock1, J. Pryce1, A. Bradley2, N. Gengler5, L. Andrews6, and C. Egger-Danner7, 1Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD, 2Vereinigte Informationssysteme Tierhaltung v.W. (vit), Verden, Germany, 3Department of Primary Industries, Victorian AgriBiosciences Centre, Bundoorra, Victoria, Australia, 4Quality Milk Management Services Ltd., Westbury-sub-Mendip, United Kingdom, 5University of Liège, Gembloux Agro-Bio Tech (GxABT), Animal Science, Gembloux, Belgium, 6Holstein UK, Rickmansworth, United Kingdom, 7ZuchtData EDV-Dienstleistungen GmbH, Vienna, Austria.

3:00 PM 440  
Effect of intrapartal dextrose therapy on reproductive performance of lactating dairy cows with clinical endometritis.  
M. G. Maquivar*, G. M. Schuenemann1, S. Bas1, and T. A. Brick2, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Large Animal Medicine and Surgery Academic Program, St. George’s University, Grenada, West Indies.

3:15 PM 441  
Efficacy of two herbal remedies as alternatives to antibiotic dry cow therapy: preliminary microbiology results.  

3:30 PM 442  
Comparison of low versus high calcium “anionic” diets for prevention of hypocalcemia and milk fever.  
J. P. Goff*1 and R. L. Horst1, 1Iowa State University, Ames, 2Heartland Assays, Ames, IA.

3:45 PM 443  
Variation in metabolic, hematologic, and innate immunologic parameters in early postpartum dairy cows is not largely influenced by dairy, days in milk, or parity.  

4:00 PM 444  
Production and metabolic response of lactating dairy cows supplemented with a dietary antioxidant to intramammary infusion of lipopolysaccharide during thermoneutral and heat stress conditions.  
A. L. Kenny*, Y. M. Yang2, N. M. Barkley1, R. R. Rodrigues1, G. I. Zanton2, and M. R. Waldron1, 1Oregon State University, Corvallis, 2USDA Agricultural Research Service, Poisonous Plant Research Laboratory, Logan, UT.

4:15 PM 445  
Potential risk of western juniper-induced abortion in beef cattle.  
C. T. Parsons*, D. R. Gardner*, K. D. Welch1, D. Cook1, J. A. Pfister2, and K. E. Panter2, 1Oregon State University, Corvallis, 2USDA Agricultural Research Service, Poisonous Plant Research Laboratory, Logan, UT.

4:30 PM 446  
Assessment of daily milk fat and protein composition and the milk fat-protein ratio early postpartum as a predictor for subclinical ketosis in dairy cows.  
F. S. Lima*, C. A. Risco1, R. V. K. Pereira2, K. N. Galvão1, and J. E. P. Santos1, 1University of Florida, Gainesville, 2Cornell University, Ithaca, NY.
Breeding and Genetics
Advances in Genomic Methodology
Chair: Katie Olson, ABS Global Inc.
125AB

2:00 PM 447 Iterative combination of national phenotype, genotype, pedigree, and foreign information.
P. M. VanRaden*, Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.

2:15 PM 448 Adaptation of BGF90 package for genomic computations.
I. Misztal*, A. Aguilar, S. Tsuruta, and A. Legarra, University of Georgia, Athens, INIA Las Brujas, Canelones, Uruguay, INRA, UR631 Station d’Amélioration Génétique des Animaux (SAGA), Castanet-Tolosan, France.

2:30 PM 449 Methods to include foreign information in national evaluations.
P. M. VanRaden and M. E. Tooker*, Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.

2:45 PM 450 Characteristics and use of the Illumina BovineLD BeadChip.
G. R. Wiggans*, P. M. VanRaden, T. A. Cooper, C. P. Van Tassell, T. Sonstegard, and B. Simpson, Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD, Bovine Functional Genomics Laboratory, ARS, USDA, Beltsville, MD, GeneSeek, Lincoln, NE.

3:00 PM 451 Partitioning genetic (co)variances leading to alternative derivation of single-step type genomic prediction equations allowing joint estimation of GEBV and SNP effects.
N. Gengler*, G. Nieuwhof, K. Konstantinov, and M. Goddard, ULg - Gembloux Agro-Bio Tech, Gembloux, Belgium, ADHIS, Bundoora, Australia, DPI, Bundoora, Australia, University of Melbourne, Melbourne, Australia.

3:15 PM 452 Use of canonical discriminant analysis for detecting selection signatures in cattle.

3:30 PM 453 Genome-wide association mapping including phenotypes from relatives without genotypes.
H. Wang*, I. Misztal, A. Aguilar, A. Legarra, and W. Muir, Department of Animal and Dairy Science, University of Georgia, Athens, INIA Las Brujas, Canelones, Uruguay, INRA, UR631 Station d’Amélioration Génétique des Animaux (SAGA), Castanet-Tolosan, France, Department of Animal Science, Purdue University, West Lafayette, IN.

3:45 PM 454 Genotyping by sequencing (GBS): A novel, efficient and cost-effective genotyping method in cattle.

4:00 PM 455 Models’ predictive ability of breeding values for a small data set of genotyped animals.

4:15 PM 456 Improving efficiency of inferring genetic architecture parameters in whole genome prediction models.

4:30 PM 457 A multi-compartment model for genomic selection in admixture populations.
E. Hay*, S. Smith, and R. Rekaya, University of Georgia, Athens.

4:45 PM 458 Bayesian integration of external information into the single step approach for genomically enhanced prediction of breeding values.
J. Vandenplas*, I. Misztal, P. Faux, and N. Gengler, University of Liege - Gembloux Agro-Bio Tech, Gembloux, Belgium, National Fund for Scientific Research, Brussels, Belgium, University of Georgia, Animal and Dairy Science Department, Athens.

5:00 PM 459 Conceptual comparison between standard multiple-trait and structural equation models in animal breeding applications.
Breeding and Genetics
Beef Cattle Breeding I—Production traits
Chair: D. H. Crews Jr., Colorado State University

2:00 PM 460 Incorporation of external EBV into the American Gelbvieh Association carcass national cattle evaluation.  
S. E. Speidel*, R. M. Enns1, and S. Willmon1, 1Colorado State University, Fort Collins, 1American Gelbvieh Association, Westminster, CO.

2:15 PM 461 Across-population estimation of heritability of carcass traits in beef cattle: Meta- vs. mega-analyses.  
H. Okut*,1,2, X.-L. Wu1, D. Giana1, G. J. M. Rosa1, S. Bauck1, and B. W. Woodward2, 1University of Wisconsin, Madison, 2Merial Limited, Duluth, GA, 3University of Yuzuncu Yil, Van, Turkey.

2:30 PM 462 Accuracies with different genomic models for traits with maternal effects.  
D. A. L. Lourenco*,1, I. Misztal1, H. Wang1, I. Aguilar2, and S. Tsuruta1, 1University of Georgia, Athens, 2Instituto Nacional de Investigación Agropecuaria INIA, Las Brujas, Canelones, Uruguay.

2:45 PM 463 Cumulative discounted gene expression for economically relevant traits for terminal and maternal purpose in cattle production system.  

3:00 PM 464 Cluster and meta analyses of genetic parameters for feed intake traits in beef cattle.  
I. D. P. S. Diaz*,1, D. H. Crews1, and R. M. Enns1, 1Universidad Estadual Paulista, Jaboticabal, Sao Paulo, Brazil, 2Colorado State University, Fort Collins.

3:15 PM 465 Marbling change patterns of rib eye area by slaughter age using random regression sire model.  
K. Kato*, Y. Nakahashi, and K. Kuchida, Obihiro University of Agriculture & Veterinary Medicine, Obihiro, Japan.

3:30 PM 466 Estimation of heterotic effects on stayability in beef cattle.  
E. M. Huff*,1, B. W. Brigham1, S. Willmon1, and R. M. Enns1, 1Department of Animal Science, University of Colorado, Fort Collins, 1American Gelbvieh Association, Westminster, CO.

3:45 PM 467 Comparison of single breed and admixed reference populations for across-breed prediction of direct genomic breeding values in Red Angus beef cattle.  
M. Saatchi*, R. D. Schnabel1, J. F. Taylor2, and D. J. Garrick1,3, 1Department of Animal Science, Iowa State University, Ames, 2Division of Animal Science, University of Missouri, Columbia, 3Institute of Veterinary, Animal and Biomedical Sciences, Massey University, Palmerston North, New Zealand.

4:00 PM 468 Adipose and muscle tissue expression of two genes (NCAPG and LCORL) located in a chromosomal region associated with cattle feed intake and gain.  

4:15 PM 469 Identification of single nucleotide polymorphisms for feed efficiency and performance in crossbred beef cattle.  
M. K. Abo-Ismail*, G. Vander Voort1, E. J. Squires1, K. C. Swanson1,2, J. Thomson1, B. Karisa2, G. Plastow3, S. Moore1, and S. P. Miller1,3, 1Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Animal Sciences Department, North Dakota State University, Fargo, 3Faculty of Agricultural, Life and Environmental Sciences, University of Alberta, Edmonton, AB, Canada.

4:30 PM 470 Withdrawn by author

4:45 PM 471 Genetic and environmental influences on movement patterns of beef cattle grazing foothill rangeland.  
D. Bailey*, D. Jensen1, M. Thomas1, D. Boss1, and R. Welling1, 1New Mexico State University, Las Cruces, 2Montana State University, Havre, 3Colorado State University, Fort Collins, 4CashCattleBiz.com, Vaughn, MT.
Cell Biology Symposium
Molecular Basis for Feed Efficiency
Chair: James Sartin, Auburn University
Sponsors: ADSA, ASAS, and EAAP
121AB

2:00 PM Introduction
2:05 PM 472 Unique roles for agouti proteins and melanocortin signaling in lower vertebrates. C. Zhang1,2, P. M. Forlano1, and R. D. Cone*, 1Department of Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, Nashville, TN, 1Department of Cell and Developmental Biology, Oregon Health Science University, Portland, 1Department of Biology and The Aquatic Research and Environmental Assessment Center, Brooklyn College of The City University of New York, Brooklyn.

2:50 PM Introduction

3:40 PM Introduction
3:45 PM 474 EAAP-ADSA Speaker Exchange Presentation: Genetics of feed efficiency in dairy and beef cattle. D. P. Berry* and J. J. Crowley1, 1Teagasc, Moorepark Dairy Production Research Center, Fermoy, Co. Cork, Ireland, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

4:30 PM Introduction
4:35 PM 475 Feed efficiency: Mitochondrial function to global gene expression. W. G. Bottje* and B.-W. Kong, Department of Poultry Science, Center of Excellence for Poultry Science, University of Arkansas, Fayetteville.

Companion Animals Symposium
Impact of Anthropomorphism on Companion and Captive Animal Husbandry
Chair: Greg Aldrich, Pet Food & Ingredient Technology Inc.
Sponsors: Hill’s Science Diet, Procter and Gamble, and Purina
121C

2:00 PM Introduction
2:05 PM 476 Capitalizing on human health trends to improve feline health and wellbeing. M. R. Lappin*, Department of Clinical Sciences, Colorado State University, Fort Collins.

2:40 PM 477 Effect of anthropomorphism on companion and captive animal husbandry. T. M. Edling*, Petco Animal Supplies Inc., San Diego, CA.


3:50 PM 479 Antimicrobial cathelicidin peptides: What are they and how do they help protect the dog? T. Melgarejo* and F. Blecha, Kansas State University, Manhattan.

4:25 PM 480 New findings in the obligate carnivore-omnivore debate: Regulation of macronutrient intake in cats and dogs. A. K. Hewson-Hughes*, V. L. Hewson-Hughes1, A. Colyer1, A. T. Miller1, S. M. McGrane1, S. R. Hall1, R. F. Butterwick1, S. J. Simpson1, and D. Raubenheimer*, 1Waltham Centre for Pet Nutrition, Waltham-on-the-Wolds, Leicestershire, UK, 1University of Sydney, Sydney, Australia, 1Massey University, Auckland, New Zealand.
Dairy Foods Symposium
Bioactive Components in Milk and Dairy Products: Recent international perspectives and progress in different dairy species
Chair: Young Park, Fort Valley State University
Sponsor: EAAP

122AB

2:00 PM Introduction
Y. Park, Fort Valley State University, Fort Valley, GA.

2:05 PM 481 Bioactive components in cow milk and products.
H. J. Korhonen*, MTT Agrifood Research Finland, Jokioinen, Finland.

2:35 PM 482 Bioactive components in buffalo milk and products.
M. Guo*, University of Vermont, Burlington.

3:05 PM Break

3:20 PM 483 Bioactive components in goat milk and products.
Y. W. Park*, Fort Valley State University, Fort Valley, GA.

3:50 PM 484 EAAP-ADSA Speaker Exchange Presentation: Bioactive components in sheep milk and products.
M. A. de la Fuente* and M. Juarez, Instituto de Investigacion en Ciencias de la Alimentacion, Madrid, Spain.

4:20 PM 485 Biosynthesis and secretion of bioactive compounds in milk in relation to genetic, molecular, and endocrine mechanisms.

Forages and Pastures II
Chair: Limin Kung, University of Delaware

225AB

2:00 PM 486 Corn hybrid and plant density effects on corn silage quality and yield.

2:15 PM 487 Characterization of aerobic deterioration of corn silage treated with stabilizers.
C. Merrill*, A. P. T. P. Roth, M. A. Santos, M. C. Der Bedrosian, and L. Kung, University of Delaware, Newark.

2:30 PM 488 Exogenous fibrolytic enzyme effects on preingestive fiber hydrolysis and release of sugars and phenolics from bermudagrass haylage.
J. J. Romero*, K. G. Arriola1, M. A. Zarate1, C. R. Staples1, C. F. Gonzalez2, W. Vermerris3, and A. T. Adesogan4, 1Department of Animal Sciences, IFAS, University of Florida, Gainesville; 2Department of Microbiology and Cell Science, IFAS, University of Florida, Gainesville; 3Department of Agronomy, IFAS, University of Florida, Gainesville.

2:45 PM 489 Indigestible NDF in predictions of grass and red clover silage digestibility.
S. J. Krizsan*, H. M. Alamouti2, and P. Huhtanen3, 1Swedish University of Agricultural Sciences, Department of Agricultural Research for Northern Sweden, Umeå, Sweden; 2Zanjan University, Department of Animal Science, Zanjan, Iran.

3:00 PM 490 The effect of inoculants containing Lactobacillus buchneri on the fermentation of alfalfa silage harvested at two dry matters.
M. C. Der Bedrosian*, B. G. Case, M. C. Santos, J. Lim, and L. Kung, University of Delaware, Newark.

3:15 PM 491 Alfalfa/grass mixtures yield more DM, CP, NDF, and dNDF than alfalfa in monocultures.
J. Paulson*, D. Holen, and P. Peterson, University of Minnesota, St. Paul.

3:30 PM 492 Effect of land clearing and tillage methods on weed incidence under maize-cassava inter-cropping system.
A. H. Ekeocha*, University of Ibadan, Ibadan, Oyo, Nigeria.

3:45 PM 493 Agronomic characteristics of pearl millet genotypes for forage production in southwestern Nigeria.
B. Ogunlolu*, A. Jolaosho, O. Onifade, B. Odugwu, and P. Dele, Department of Pasture and Range Management, University of Agriculture, Abeokuta, Ogun State, Nigeria.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Code</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:30 PM</td>
<td>496</td>
<td>Variability and implications of indigestible neutral detergent fiber in C3 and C4 forages.</td>
<td>E. Raffrenato*1, D. M. McNeill2, D. G. Barber3, M. N. Callow4, and D. P. Poppi5, 1School of Agriculture and Food Sciences, The University of Queensland, Gatton, Queensland, Australia, 2School of Veterinary Science, The University of Queensland, Gatton, Queensland, Australia, 3Agri-Science Queensland, Department of Employment, Economic Development and Innovation, Lawes, Queensland, Australia, 4Department of Animal and Wildlife Sciences, University of Pretoria, Pretoria, Gauteng, South Africa.</td>
<td></td>
</tr>
<tr>
<td>4:45 PM</td>
<td>497</td>
<td>Fecal NIRS relationship with intake and diet digestibility of grazed Bahiagrass by cows determined by n-alkanes.</td>
<td>S. W. Coleman*, C. C. Chase, and D. G. Riley, USDA ARS, El Reno, OK, USDA ARS, Clay Center, NE, Texas Agrilife, College Station.</td>
<td></td>
</tr>
<tr>
<td>5:00 PM</td>
<td>498</td>
<td>Dry season nutrient availability of vegetation species selected by the African elephant (Loxodonta africana) in the Pongola Game Reserve, South Africa.</td>
<td>E. Cuthbert*, P. Yu, and D. A. Christensen, University of Saskatchewan, Saskatoon, SK, Canada.</td>
<td></td>
</tr>
</tbody>
</table>

**Horse Species II**  
**Chair: Carrie Hammer**  
229AB

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Code</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:15 PM</td>
<td>500</td>
<td>Influence of maternal plane of nutrition and arginine supplementation on mares and their foals: Glucose and insulin dynamics.</td>
<td>A. E. Hanson*, K. N. Winsco, J. A. Coverdale, C. J. Hammer, and A. N. Wolford, Texas A&amp;M University, College Station, North Dakota State University, Fargo.</td>
<td></td>
</tr>
<tr>
<td>3:00 PM</td>
<td>503</td>
<td>Influence of probiotics on microflora in the gastrointestinal and reproductive tracts of horses.</td>
<td>K. Barnhart*, J. M. Reddish, C. Dyer, J. Saul, M. A. Coutinho da Silva, and K. Cole, Department of Animal Sciences, The Ohio State University, Columbus, Department of Veterinary Clinical Sciences, The Ohio State University, Columbus.</td>
<td></td>
</tr>
</tbody>
</table>
2:00 PM 505  Energy, phosphorus, and amino acid digestibility in Lemna protein concentrate, fish meal, and soybean meal fed to weanling pigs.  
O. J. Rojas* and H. H. Stein, University of Illinois, Urbana.

2:15 PM 506  Amino acid digestibility in camelina seeds and camelina expellers fed to growing pigs.  

2:30 PM 507  Withdrawal patterns of DDGS on performance, belly firmness, and fatty acids in pigs—A cooperative study.  

2:45 PM 508  Wheat-DDGS pig finishing diet reduces feed cost but does not improve net profit of production.  

3:00 PM 509  The effects of corn- or sorghum-based diets with or without sorghum dried distillers grains and solubles on lactating sow and litter performance.  

3:15 PM  Break

3:30 PM 510  Amino acid digestibility in blood products fed to weanling pigs.  

3:45 PM 511  Amino acid digestibility in hydrolyzed feather meal fed to pigs.  

4:00 PM 512  Nutritive value and relationship between nutrient content and protein quality of soybean meals according to origin.  

4:15 PM 513  Influence of soybean meal source and micronization (fine grinding) of soybean meal on productive performance and digestive traits of Iberian pigs from 30 to 51 days of age.  

4:30 PM 514  Net portal absorption of amino acids in Iberian pigs fed with acorn.  

4:45 PM 515  Gas production, in vitro organic matter disappearance, volatile fatty acid concentrations and physicochemical characteristics of fibrous sources for pigs.  
M. Chimonyo* and S. P. Ndou, Animal and Poultry Science, Pietermaritzburg, South Africa.

---

Physiology and Endocrinology  
Pregnancy  
Chair: George Perry, South Dakota State University  
222C

2:00 PM 516  Membrane progesterone receptors (α, β, and γ) in early pregnancy.  
R. L. Ashley*, S. M. Stanbrough, K. E. Quinn, J. D. Lindsey, and A. K. Ashley, New Mexico State University, Las Cruces.

2:15 PM 517  Expression of PRSS, the plasminogen activator system and its activity in the ovine placenta during stage 2 of parturition.  
Physiological responses to repeated transportation of gestating Brahman cows.
D. M. Price*1, A. W. Lewis1, D. A. Neuendorff1, J. A. Carroll2, T. H. Welsh1, R. C. Vann1, and R. D. Randel1, 1Texas Agrilife Research, Texas A&M University System, Overton, 2USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 3Texas Agrilife Research, Texas A&M System, College Station, 4MAFES, Mississippi State University, Raymond.

Reduced fertility in female progeny from beef heifers on dietary restriction during development.

The impact of cow nutrient status during the second and third trimester on development of the reproductive axis and fertility of daughters.

Feeding distillers grains as an energy source to gestating and lactating beef heifers: Impact on growth, puberty attainment and reproductive processes in female progeny.
P. J. Gunn*, 1J. P. Schoonmaker1, R. P. Lemenager1, and G. A. Bridges2, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2North Central Research and Outreach Center, University of Minnesota, Grand Rapids.

Chronic uterine infusion of melatonin or melatonin receptor antagonist alters ovine placental efficiency and fetal blood flow during mid-gestation.
C. O. Lemley*, L. E. Camacho, and K. A. Vonnahme, North Dakota State University, Fargo.

Influence of metabolizable protein supplementation during late gestation on vasoreactivity of maternal placental arteries in sheep.
L. A. Lekatz*1, A. Reyaz2, M. S. Sane2, F. Yao2, S. T. O’Rourke2, C. Schwartz2, M. L. Van Emon1, C. S. Schauer3, K. M. Carlson1, C. O. Lemley2, and K. A. Vonnahme1, 1Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo, 2Department of Pharmaceutical Sciences, North Dakota State University, Fargo, 3Hettinger Research Extension Center, North Dakota State University, Hettinger.

Transgenerational effects of n-3 and n-6 supplementation under the control of transcription factors related to lipid metabolism.
C. B. Jacometo1, S. Halfen1, F. T. da Rosa1, A. Schneider2, C. C. Brauner1, F. A. B. Del Pino2, J. J. Loor2, N. J. L. Dionello1, L. F. M. Pfeifer1, E. Schmitt*1, and M. N. Corrêa1, 1Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil, 2University of Illinois, Urbana, 3Embrapa Rondônia, Porto Velho, RO, Brazil.

Production, Management and the Environment
Dairy
Chairs: Stephanie Hill-Ward, Mississippi State University, and Marcia Endres, University of Minnesota
227AB

Use of electrical conductivity for the detection of subclinical mastitis in dairy cows in Saudi Arabia.
A. Alyemni2, R. Aljummah1, M. Ayadi1, M. Hussein2, and M. Alshaikh*2, 1Abrasco, Riyadh, Saudi Arabia, 2King Saud University, Riyadh, Saudi Arabia.

Effect of feeding duration on growth, health, and economics of group-fed dairy calves in an organic production system.
B. J. Heins* and E. A. Bjorklund, University of Minnesota, West Central Research and Outreach Center, Morris.

Survey of lameness, body condition score, hygiene, and hock lesions of Colorado dairy cows housed in outdoor dirt lots or free stalls with outdoor access.
R. Woiwode*, T. Grandin, and I. Roman-Muniz, Colorado State University, Fort Collins.

Economics of using sheath protectors at the time of AI in dairy cows.
S. Bas*1, K. N. Galvão2, and G. M. Schuenemann1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Department of Large Animal Clinical Sciences, University of Florida, Gainesville.

Effect of AI technicians on reproductive performance and economics of lactating dairy cows.
G. M. Schuenemann*1, S. Bas1, and K. A. Galvão2, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Department of Large Animal Clinical Sciences, University of Florida, Gainesville.

The effect of reproductive performance on the herd value assessed by integrating a daily dynamic programming with a daily Markov chain model.
A. S. Kalantari* and V. E. Cabrera, Department of Dairy Science, University of Wisconsin-Madison, Madison.
Ruminant Nutrition

Beef Production III

Chair: Shawn Archibeque, Colorado State University

TUESDAY 131ABC

2:00 PM 538  Effect of the forage-to-concentrate ratio on DMI and ruminal fermentation based on timing of feeding relative to feed restriction.
R. I. Albornoz*, J. R. Aschenbach, D. R. Barreda, and G. B. Penner, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Free University of Berlin, Berlin, Germany, 3University of Alberta, Edmonton, AB, Canada.

2:15 PM 539  Rumen and cecum methane emissions between steers that are either negative or positive for residual gain.
H. Freetly*, K. Hales, and J. Wells, USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.

2:30 PM 540  Evaluation of a complete-feed (RAMP) receiving diet.
C. J. Schneider*, B. L. Nuttelman1, W. A. Griffin2, D. B. Burken3, R. A. Stock2, T. J. Klopfenstein1, and G. E. Erickson1, 1University of Nebraska-Lincoln, Lincoln, 2Cargill Inc., Blair, NE.

2:45 PM 541  Effects of RAMP on feed intake and ruminal pH during adaptation to finishing diets.
C. J. Schneider*, A. L. Shreck2, R. A. Stock2, T. J. Klopfenstein1, and Galen Erickson1, 1University of Nebraska-Lincoln, Lincoln, 2Cargill Inc., Blair, NE.

3:00 PM 542  Effect of maturity on the yield and in situ digestibility of whole-crop cereals.
C. L. Rosser*, A. Beattie1, H. C. Block3, J. J. McKinnon3, H. A. Lardner2,3, and G. B. Penner1, 1University of Saskatchewan, Saskatoon, SK, Canada, 2Agriculture and Agri-Food Canada, Brandon, MB, Canada, 3Western Beef Development Centre, Humbolt, SK, Canada.

3:15 PM 543  Rumen bacterial population responses to inclusion of wet distillers grains plus solubles in finishing diets of feedlot cattle.
G. M. Shippe*, W. E. Pinchak, D. W. Pitta, B. Milligan, S. L. Ivey, and J. C. MacDonald, 1Texas AgriLife Research, Amarillo, 2Texas AgriLife Research, Vernon, 3Department of Clinical Studies, School of Veterinary Medicine, University of Pennsylvania, Kennett Square, 4New Mexico State University, Las Cruces.

3:30 PM 544  Effect of sugarcane fiber digestibility and mode of conservation on intake and rumen pH of growing Nellore steers.

3:45 PM 545  Impact of diet on the abundance and diversity of fecal Escherichia coli shed from cattle in overwintering environments.
Comparison of different supplemental cobalt forms on fiber digestion and cobalamin levels.
W. L. Kelly*, 1, C. K. Larson*, 2, M. K. Petersen, 1, and R. C. Waterman*, 1
USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City, MT; 2Zinpro Corporation, Eden Prairie, MN.

Comparison of animal and dietary effects on ruminal methanogens and their association with protozoa in beef cattle.
M. Zhou*, 1, M. Hünéberg, 1, K. A. Beauchemin*, 1, T. A. McAllister, 1, E. K. Okine, 1, and L. L. Guan, 1
Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada; 2Agriculture and Agri-Food Canada Lethbridge Research Centre, Lethbridge, Alberta, Canada.

Withdrawn by author

Assessing how RFI classification in the growing phase predicts RFI classification in the finishing phase.
D. Johns*, 1, G. Vander Voort, C. Campbell, M. Quinton, and I. Mandell, Department of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada.

Ruminant Nutrition
Dairy: Feed additives

Chair: Rick Kohn, University of Maryland

132ABC

Effects of trace mineral source on oxidative metabolism, subclinical endometritis, and performance of transition dairy cows.
T. Yasui*, 1, C. M. Ryan, 1, R. O. Gilbert, 1, K. Perryman, 2, and T. R. Overton, 1
Cornell University, Ithaca, NY; 2Micronutrients Inc., Indianapolis, IN.

Effects of essential oils on methane production, fermentation, abundance and diversity of rumen microbial populations.
A. Patra*1, 2 and Z. Yu*1
The Ohio State University, Columbus, OH; 1West Bengal University of Animal and Fishery Sciences, Kolkata, India.

Effect of dietary fat and Rumensin on ruminal bacteriome revisited using metagenomic analysis.
M. Kim1, M. Morrison2, 3, M. Eastridge1, and Z. Yu*1
The Ohio State University, Columbus, OH; 2CSIRO Livestock Industries, St Lucia, QLD, Australia.

Effect of dietary potassium on water intake and rumen dynamics.
S. E. Fraley*, 1, M. B. Hall, 1, and T. D. Nennich, 1
Purdue University, West Lafayette, IN; 2USDA-ARS, Madison, WI.

Effects of rumensin in lactating dairy cow diets with differing starch levels.
M. S. Akins*, 1, K. L. Perfield, 2, H. B. Green, 2, and R. D. Shaver, 1
Department of Dairy Science, University of Wisconsin-Madison, Madison, WI; 2Elanco Animal Health, Greenfield, IN.

Feeding blood meal or two rumen-protected lysine sources in early lactation dairy cows and the effect of withdrawal on production parameters.
J. E. Nocek*1 and I. Shinzato, 1
Spruce Haven Farm and Research Center, Auburn, NY; 1Ajinomoto Heartland Inc., Chicago, IL.

Evaluation of dietary betaine (in heat-stressed Holstein cows in lactation.
L. W. Hall*1, 2, F. R. Dunseha, 1, J. D. Allen1, A. Wood, 1, S. D. Anderson, 1, S. Runguan1, J. L. Collier, 1, N. M. Long, 1, and R. J. Collier, 1
The University of Arizona, Tucson, AZ; 2The University of Melbourne, Parkville, Vic, Australia.

Effect of dietary phytate on phosphorus digestibility in dairy cows.
P. P. Ray* and K. F. Knowlton, Virginia Polytechnic Institute and State University, Blacksburg.

Application of rumen-protected lysine to lower crude protein diets for lactating dairy cows.
J. P. Pretz*1, M. J. de Veth, 1, R. S. Ordway, 1, and M. J. Brouk, 1
Kansas State University, Manhattan; 2Balchem Corp., New Hampton, NY.

A meta-analysis of the effects of feeding yeast culture produced by anaerobic fermentation of Saccharomyces cerevisiae, on milk production of lactating dairy cows.
G. D. Poppy*1, 2, A. R. Rabiee1, I. J. Lean1, W. K. Sanchez, 2, K. L. Dorton, 1, and P. S. Morley, 1
Colorado State University, Fort Collins, CO; 2Diamond V, Cedar Rapids, IA; 3SBScibus, Camden, NSW, Australia.

Impact of feeding yeast culture under normal and SARA conditions in lactating dairy cows.
S. Li*, 1, E. Tesfaye1, H. Khazanehei, 1, M. Scott, 1, I. Yoon, 1, E. Khafipour, 1, and J. C. Plaizier, 1
University of Manitoba, Winnipeg, MB, Canada; 2Diamond V, Cedar Rapids, IA.
Effects of chromium propionate supplementation during the periparturient period and early lactation on metabolism, performance, and subclinical endometritis in dairy cows.

T. Yasui*, J. A. A. McArt†, C. M. Ryan†, R. O. Gilbert†, D. V. Nydam†, F. Valdez†, and T. R. Overton†, *Cornell University, Ithaca, NY; †Kemin Industries, Des Moines, IA.

Ruminant Nutrition II
Chair: Guillermo Scaglia, Louisiana State University Ag Center
129AB

Study of effects of conjugated linoleic acid (CLA) on milk production and composition, and milk fatty acid profile of Holstein dairy cows.

A. Mahdavi*, K. Rezayazdi, A. Z. Shahneh, and M. Dehghan-Banadaky, Department of Animal Science, College of Agriculture and Natural Resources, University of Tehran, Karaj, Tehran, Iran.

Measurement and regression models of methane emissions from sheep.


Response of postpartum dairy cows to contrasting feeding strategies: Grazing plus supplements versus confinement on milk and solids production.

M. Sprunck†, D. A. Mattiauda†, G. Motta†, M. Fajardo†, and P. Chilibroste‡*, †Facultad de Agronomía, Paysandú, Uruguay, ‡Agencia Nacional de Investigación e Innovación, Montevideo, Montevideo, Uruguay.

Effects of rumen-protected γ-aminobutyric acid on feed intake, performance and antioxidant status in transition cows.

D. M. Wang*, C. Wang†, H. Y. Liu†, and J. X. Liu†, †Institute of Dairy Science, MoE Key laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China, ‡College of Forestry and Biotechnology, Zhejiang A & F University, Lin’ an, Hangzhou, China.

Productive performance by lactating cows fed with different levels of Palm kernel cake.


Effect of ruminal adaptation on short-chain fatty acid absorption and risk for ruminal acidosis.

T. Schweiger†, K. A. Beauchemin†, and G. B. Penner‡, †University of Saskatchewan, Saskatoon, SK, Canada, ‡Lethbridge Research Center, Lethbridge, AB, Canada.

Effect of simultaneous reduction of ruminally degradable protein and ruminally undegradable protein in dairy cattle.

M. Aguilar* and M. D. Hanigan, Virginia Polytechnic Institute and State University, Blacksburg.

Effects of dietary forage-to-concentrate ratio and sulfur concentration on ruminal fermentation and sulfur metabolism in feedlot heifers.

S. Amat*, J. J. McKinnon, G. B. Penner, E. Simko, and S. Hendrick, University of Saskatchewan, Saskatoon, SK, Canada.

Intake, digestibility and microbial protein synthesis in heifers fed pasture, total mixed ration or both.


A technology that enhances the utilization of low quality forages in ruminant animals.

H.-L. Mao†, H.-L. Mao‡, J. K. Wang‡, J. A. Ye‡, J. X. Liu‡, and I. Yoon‡, †Institute of Dairy Science, Zhejiang University, Hangzhou, China, ‡Diamond V, Cedar Rapids, IA.

In vitro manipulation of Jersey cow rumen ecology with microbes from the wildebeest, horse and zebra.

F. N. Fon* and I. V. Nsahlai, University of KwaZulu-Natal, Pietermaritzburg, South Africa.

Growth curve analysis of Sahiwal calves up to six-month age given milk or milk replacer up to weaning.

M. S. Khan†, S. A. Bhatti‡, and H. A. Ahmad‡, †Department of Animal Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan, ‡Institute of Animal Nutrition and Feed Technology, University of Agriculture, Faisalabad, Pakistan, ‡Dept. Biology, Jackson State University, Jackson, MS.
Small Ruminant Symposium
Novel Uses of Natural Bioactive Compounds in Small Ruminant Production and Future Directions
Chair: Sandra Solaiman, Tuskegee University

2:00 PM  Introduction
S. Solaiman, Tuskegee University.

2:05 PM  574  Bioactive compounds and their mode of action in forage-fed ruminants.
T. N. Barry*, Massey University, Palmerston North, New Zealand.

2:35 PM  575  Consequences of plant secondary compounds on ruminant nutrition.
B. R. Min* and S. Solaiman, Department of Agricultural and Environmental Sciences, Tuskegee University, Tuskegee, AL.

3:05 PM  Break

3:15 PM  576  Bioactive compounds for control of internal parasites.
T. H. Terrill*, Fort Valley State University, Fort Valley, GA.

3:45 PM  577  Emerging opportunities and challenges on exploitation of bioactive plant secondary compounds to mitigate environmental impacts by ruminants.
J.-S. Eun* and B. R. Min1, 1Utah State University, Logan, 2Tuskegee University, Tuskegee, AL.

4:15 PM  578  Bioactive plant compounds and food safety.
R. C. Anderson*, Southern Plains Agricultural Research Center, United States Department of Agriculture/Agricultural Research Service, College Station, TX.

4:45 PM  Discussion

Swine Species
Chair: J. Scott Radcliffe, Purdue University

2:00 PM  579  Industry productivity analysis: Grow-finish traits.
C. E. Hostetler*,1 and M. T. Knauer2, 1National Pork Board, Des Moines, IA, 2North Carolina State University, Raleigh.

2:15 PM  580  Periweaning failure to thrive syndrome in nursery pigs is associated with gastrointestinal lesions, but not enteric pathogens.

2:30 PM  581  Umbilical vein blood-oxygen relationship with pre-weaning growth in piglets.

2:45 PM  582  Breed difference of porcine sirtuin 1 and its regulation by insulin.

3:00 PM  Break

3:30 PM  583  Growth response and blood profile of weaner pigs fed additive-enhanced agro-industrial by-product based diet.
A. O. K. Adesehinwa1, O. O. Mgbere1, O. O. Obi1, B. A. Makanjuola1, and I. A. Okere1, 1Institute of Agricultural Research & Training, Obafemi Awolowo University, Ibadan, Oyo State, Nigeria, 2Hatfield International Biometrical Service Centre, Houston, TX.

3:45 PM  584  An evaluation of the effects of a blend of essential oil compounds (Crina Piglets AF), a feed-grade antibiotic program, and their combination in nursery diets on the growth and economic performance of pigs in a commercial research facility.
J. Bergstrom*, D. Campbell1, C. Paulus2, and M. DeBeer1, 1DSM Nutritional Products, Parsippany, NJ, 2DSM Nutritional Products, Kaiseraugst, Switzerland.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Number</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
</table>

### Teaching/Undergraduate and Graduate Education

**Graduate and Undergraduate Teaching**  
Chair: Mark Hanigan, Virginia Polytechnic Institute and State University

223

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Number</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 PM</td>
<td>586</td>
<td>Gender has a substantial impact on student success in introductory animal science courses.</td>
<td>C. G. Jackson*, B. J. Williams, and E. P. Berg, North Dakota State University, Fargo, Hutchinson Community College, Hutchinson, KS.</td>
<td></td>
</tr>
<tr>
<td>2:15 PM</td>
<td>587</td>
<td>Meeting the changing needs of animal science majors.</td>
<td>G. M. Hill* and J. E. Link, Michigan State University, East Lansing.</td>
<td></td>
</tr>
<tr>
<td>2:30 PM</td>
<td>588</td>
<td>Addressing agricultural and societal issues using a variety of teaching methods.</td>
<td>E. L. Walker*, Missouri State University, Springfield.</td>
<td></td>
</tr>
<tr>
<td>2:45 PM</td>
<td>589</td>
<td>Assessing the land-grant mission through undergraduate demographic data: A quantitative approach.</td>
<td>S. Archibeque-Engle* and K. Pond, Colorado State University, Fort Collins.</td>
<td></td>
</tr>
<tr>
<td>3:00 PM</td>
<td>590</td>
<td>Student perceptions of ethics and animal intelligence influenced by introductory animal science course.</td>
<td>A. L. Adams*, G. A. Holub, W. S. Ramsey, and T. H. Friend, Texas A&amp;M University, College Station.</td>
<td></td>
</tr>
<tr>
<td>3:30 PM</td>
<td>592</td>
<td>Beef production student instructional video project.</td>
<td>C. L. Pickworth* and S. Boyles, The Ohio State University, Wooster, The Ohio State University, Columbus, North Carolina State University, Raleigh.</td>
<td></td>
</tr>
<tr>
<td>4:00 PM</td>
<td>594</td>
<td>Why your school should host a Block and Bridle National Convention.</td>
<td>M. W. Orth*, Michigan State University, East Lansing.</td>
<td></td>
</tr>
<tr>
<td>4:15 PM</td>
<td>595</td>
<td>Enhancing the student learning experience through an undergraduate research program.</td>
<td>E. L. Karcher* and N. L. Trottier, Department of Animal Science, Michigan State University, East Lansing.</td>
<td></td>
</tr>
</tbody>
</table>
WSASAS Symposium
Growing Beef Cattle—The future of stocker/backgrounding systems in beef production
Chair: Gerald Horn, Oklahoma State University
Sponsors: ASAS Foundation and Western Section ASAS
226ABC

2:00 PM 598  ASAS Early Career Achievement Award: Improving the production, environmental, and economic efficiency of the stocker cattle industry in the Southeastern United States.

2:30 PM 599  Growth, development, and the expression of genes in marketable tissues.
P. A. Lancaster*, E. D. Sharman, M. A. Vaughn, C. R. Krehbiel, G. W. Horn, J. D. Starkey, and U. DeSilva, *Oklahoma State University, Stillwater, †Texas Tech University, Lubbock.

3:10 PM 600  Opportunities for grazing cattle systems.
J. C. MacDonald*† and F. T. McCollum, †Texas AgriLife Research, Amarillo, ‡West Texas A&M University, Canyon, †Texas AgriLife Extension, Amarillo.

3:50 PM 601  Opportunities for drylot backgrounding systems in the beef industry.
B. P. Holland*, Department of Animal Science, South Dakota State University, Brookings.

4:30 PM  Wrap-Up: Summary and future research directions.
G. Horn, Oklahoma State University.
Wednesday, July 18

POSTER PRESENTATIONS

Animal Behavior and Well-Being

Behavior Emphasis

W1 Ruminal fermentation and behavior in Simmental heifers fed TMR with non-forage fiber sources in feedlots.
S. P. Iaira*, J. L. Ruiz de la Torre, M. Rodríguez-Prado, X. Manteca, S. Calsamiglia, and A. Ferret, Universitat Autònoma Barcelona, Bellaterra, Spain.

W2 Foraging behavior of beef cows grazing native grassland: Effect of herbage allowance on temporal and spatial grazing patterns.
S. Scarlato*, M. Carriquiry1, M. Do Carmo1, A. Faber1, C. Genro3, E. Laca2, and P. Soca1, 1Univiersidad de la República, Paysandu Uruguay, 2University of California, Davis, 3Embrapa, Bage, Bage, RS, Brazil.

W3 Feeding behavior of grazing buffalo calves fed different types of supplement in tropical conditions.
R. M. Patiño*, L. G. Altabona, and L. M. Botero, University of Sucre, Sincelejo, Colombia.

W4 Effects of housing systems on behavioral responses of newborn Holstein calves.
S. V. Matarazzo*, T. T. Fonseca1, J. P. P. Arcaro2, F. P. Campos2, and S. A. de A. Fernandes3, 1Universidade Estadual de Santa Cruz, UESC, Ilhéus, BA, Brazil, 2Instituto de Zootecnia de Nova Odessa, Nova Odessa, SP, Brazil, 3Universidade Estadual do Sudoeste da Bahia, Itapetinga, BA, Brazil.

W5 A preliminary study on the behavior of rodeo animals just prior to bucking events.
E. A. Pajor*, T. Grandin1, G. B. Bond1, and C. Goldhawk1, 1University of Calgary, Calgary, Alberta, Canada, 2Colorado State University, Fort Collins.

W6 Determining the effects of castration with or without analgesia on growth performance, hematology, and behavior in neonatal beef cattle.
A. C. Brown*, J. G. Powell1, M. S. Gadberry2, E. B. Kegley1, J. T. Richeson1, J. L. Reynolds1, and Y. V. Thaxton1, 1University of Arkansas Division of Agriculture, Fayetteville, 2University of Arkansas Division of Agriculture, Little Rock, 3West Texas A&M University, Canyon.

W7 Pain and pessimism: Dairy calves show negative bias in judgment tasks following hot-iron disbudding.

W8 The effect of previous experience on the adaptation to headlocks by Holstein dairy cows.
P. D. Krawczel* and J. M. Hale, Department of Animal Science, University of Tennessee, Knoxville.

W9 Lying behavior of lactating dairy cows is influenced by lameness especially around feeding time.
C. Yunta1, I. Guasch1, and A. Bach1, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Barcelona, Spain, 2La Pirenaica, La Seu d’Urgell, Lleida, Spain, 3ICREA, Barcelona, Spain.

W10 Effect of grouping calves post-weaning according to pre-grouping feed intake on eating behavior.
C. M. Matuk1, M. Chahine1, A. Bach1, B. Ozer1, M. E. de Haro Martí1, J. B. Glaze1, T. Fife1, and M. Nelson1, 1University of Idaho, Twin Falls, 2IRTA, Caldes de Montbui, Spain, 3ICREA, Barcelona, Spain, 4University of Idaho, Gooding.

W11 Association between behavioral patterns and risk of elevated somatic cell count in lactating dairy cows.
M. E. A. Watters1, K. Meijer1, H. W. Barkema2, K. E. Leslie3, M. A. G. von Keyserlingk4, and T. J. DeVries5, 1Dept. of Animal and Poultry Science, University of Guelph, Kemptville Campus, Kemptville, ON, Canada, 2Dept. of Production Animal Health, University of Calgary, Calgary, Alberta, Canada, 3Dept. of Population Medicine, University of Guelph, Guelph, Ontario, Canada, 4Animal Welfare Program, University of British Columbia, Vancouver, British Columbia, Canada.

W12 Association of social rank during the prepartum period with health, reproduction, and milk production of dairy cows.

W13 To move or not to move: When should dairy cows be moved to maternity pens?
K. L. Proudfoot*, M. B. Jensen2, and M. A. G. von Keyserlingk1, 1University of British Columbia, Vancouver, British Columbia, Canada, 2Aarhus University, Tjele, Denmark.

W14 Web forums as a method for engagement on contentious issues in dairying: Should cows have access to pasture?

W15 Social learning of feeding behavior in weaned pigs: Effects of the familiarity with conspecific model on flavor preferences.
Effect of feeding DDGS diets on behaviors of gestating sows in different housing systems.
Y. Z. Li*, L. J. Johnston1, S. K. Baidoo2, C. E. Phillips3, L. H. Wang4, X. L. Xie1, and G. C. Shurson1, 1West Central Research and Outreach Center, University of Minnesota, Morris, 2Southern Research and Outreach Center, University of Minnesota, Waseca, 3Dept. Animal Science, University of Minnesota, St Paul.

Piglet behavior as a measure of viability.

Habitat selection and ranging patterns of the African elephant (Loxodonta africana) in the Pongola game reserve, South Africa.
E. Cuthbert*, F. M. van Beest, D. A. Christensen, and R. Brook, University of Saskatchewan, Saskatoon, SK, Canada.

Animal Health III

Impaired vitamin E status in post-partum dairy cows as a complication of left displaced abomasum.
G. Bobe*, K. Lytle, and M. Traber, Oregon State University, Corvallis.

Validation of three sampling strategies for estimating lameness prevalence in dairy herds.
A. Hoffman1, D. A. Moore*2, J. R. Wen2, and J. Vanegas2, 1Washington State University, 2Oregon State University.

Effects of feeding endophyte-infected fescue seed to Holstein cows during the dry period on plasma nitric oxide (NO), xanthine oxidase (XO), and haptoglobin (Hp) status in newborn calves.

Leukocyte profiles of cows with claw horn disorders.

Investigation on a bio-hygienizing additive for oral use in dairy cows: Effect on milk somatic cell count.
P. Luparia*, M. Poggianella1, and V. Bronzo2, 1SOP srl, Busto Arsizio, VA, Italy, 2Università di Milano, Milan, Italy.

Oral administration of lipopolysaccharide and lipoteichoic acid modulated innate and humoral immunity in periparturient dairy cows.

Repeated oronasal administration of lipopolysaccharide modulated selected markers of innate and humoral immune responses in periparturient dairy cows.

Effect of polyunsaturated fatty acids (PUFA) on the infection of bovine epithelial cells with Chlamydia psittaci.
A. Jaudszus1, M. Grün1, G. Jahreis1, K. Sachse1, and H. Sauerwein1, 1Institute of Nutrition, Department of Nutritional Physiology, Friedrich Schiller University Jena, Jena, Germany, 2Institute of Molecular Pathogenesis, Friedrich-Loeffler-Institute (FLI), Federal Research Institute for Animal Health, Jena, Germany, 3Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Bonn, Germany.

Immune status of dairy calves in the northern plains of Costa Rica: Year 1.

Effects of Calibrin-Z on weanling pigs fed diets with naturally occurring deoxynivalenol.
F. Chi1, S. L. Johnston1, and D. C. Mahan2, 1Amlan International Inc., Chicago, IL, 2The Ohio State University, Columbus.

Reproductive toxicity of liquid dishwashing detergent on male Swiss albino mice.
A. Ata, M. S. Gulay*, S. Gunorg, O. Yildiz Gulay, and A. Demirtas, Mehmet Akif Ersoy University, Faculty of Veterinary Medicine, Burdur, Turkiye.

Valuation of antimicrobial activities of 29 kinds of Chinese herbs against E. coli.
L. C. Xiao1,2, X. F. Kong1, M. Q. Huang1,2, X. Q. Guo3, and Y. L. Yin4, 1Research Center for Healthy Breeding of Livestock and Poultry and Key Laboratory for Agro-ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, China, 2College of Animal Science and Technology, Jiangxi Agricultural University, Nanchang, Jiangxi, China.
W31 Putrescine stimulates the mammalian target of rapamycin signaling pathway and protein synthesis in porcine tropho-derm cells.
X. F. Kong1,2, B. E. Tan1,2, Y. L. Yin1,2, L. A. Jaeger3, F. W. Bazer2,3, and G. Y. Wu1,2, 1Research Center for Healthy Breeding of Livestock and Poultry and Key Laboratory for Agro-ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, China, 2Faculty of Nutrition and Department of Animal Science, Texas A&M University, College Station, 3Department of Veterinary Integrative Biosciences, Texas A&M University, College Station.

W32 Dietary arginine supplementation confers immunostimulatory effects on inactivated Pasteurella multocida vaccines immunized mice.
W. K. Ren1, Y. L. Yin1, L. X. Zhou1, Y. Wang2, and Y. Peng2, 1Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, China, 2Chongqing Key Laboratory of Forage & Herbivore, College of Animal Science and Technology, Southwest University, Chongqing, China.

W33 Prevalence of clinical and subclinical ketosis at 8 and 30 days in milk and its relationships with parity, dry period length, peak milk yield and change in body condition score in a Jersey herd in the highlands of Costa Rica.

W34 Effects of soy isoflavones on the male reproductive regulation in Huanjiang male pigs.
X. Yuan1, L. Li1, J. Fan1, B. Zhang1, C. Xiao1, and Y. Yin1, 1Institute of Subtropical Agriculture, the Chinese Academy of Science, Changsha, Hunan, China, 2College of Animal Sciences, Hunan Agricultural University, Changsha, Hunan, China, 3Nutrition Research Division, Food Directorate, Health Products and Food Branch, Health Canada, Ottawa, Canada.

W35 Estimate of serum IgG concentration using refractometry with or without caprylic acid fractionation.
K. M. Morrill*, A. Lago, J. Polo, J. D. Quigley, and H. D. Tyler, 1Cornell Cooperative Extension, Westport, NY, 2Iowa State University, Ames, 3APC Inc., Ankeny, IA.

W36 Haptoglobin is a potential early indicator of postpartal diseases.
D. Sabedro1, E. Ramsing1, C. Shriver-Munsch1, J. Males1, W. Sanchez1, I. Yoon1, and G. Bobe*, 1Oregon State University, Corvallis, 2Diamond V, Cedar Rapids, IA.

P. Rezamand1, K. M. Hunt2, J. S. Watts1, J. D. Blickenstaff1*, B. J. Bradford2, and L. K. Mamedova1, 1University of Idaho, Moscow, 2Kansas State University, Manhattan.

W38 Dried citrus pulp modulates the physiological and acute phase responses of crossbred heifers to an endotoxin challenge.
N. C. Burdick*, J. T. Cribs2, J. A. Carroll1, T. R. Callaway3, T. B. Schmidt4, B. J. Johnson2, and R. J. Rathmann2, 1USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 2Texas Tech University, Department of Animal and Food Sciences, Lubbock, 3USDA-ARS, Food and Feed Safety Research Unit, College Station, TX, 4Mississippi State University, Department of Animal and Dairy Science, Mississippi State.

**Beef Species**

W39 Survey of beef quality assurance on California dairies.
S. Aly1, H. Rosso1, G. Acetoze1, T. Lehenbauer1, M. Payne1, D. Meyer1, J. Maas1, and B. Hoar1, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California-Davis, Tulare, 2Department of Animal Science, University of California-Davis, Davis, 3Western Institute of Food Safety and Security, University of California-Davis, Davis, 4Veterinary Medicine Extension, School of Veterinary Medicine, University of California-Davis, Davis.

W40 Effects of stabilizing oxidative balance through dietary means on growth performance, antioxidant metabolites and fertility factors in bulls.
T. J. Wistuba*, M. Becker, S. Court, and G. I. Zanton, Novus International Inc., St. Charles, MO.

W41 Phenotypic correlations of the residual intake and gain with ultrasound carcass traits and other feed efficiency measures in Nellore cattle.
R. C. Gomes1,2, S. L. Silva3, M. H. A. Santana3, J. B. S. Ferraz2, P. Rossi3, and P. R. Leme2, 1Department of Animal Science, State University of Londrina, Londrina, Parana, Brazil, 2College of Animal Science and Food Engineering, University of Sao Paulo, Pirassununga, Sao Paulo, Brazil, 3Federal University of Parana, Curitiba, Parana, Brazil.

W42 Estimation of genetic parameters for carcass and image analysis traits of Japanese Black (Wagyu) in Australia.
S. Maeda1, J. Grose2, and K. Kuchida1, 1Obihiro University of A&VM, Obihiro, Hokkaido, Japan, 2Wagyu Genetics Pty Ltd., Brisbane, QLD, Australia.

W43 Effect of different feeding system on the fatty acid and lipid oxidation of raw and cooked meat of Sarda-Bruna young bulls.
Analysis of twin births, calf stillbirth, abortion and calf death before 28 days of age in Irish Charolais and Limousin populations.
A. M. Doyle*, R. D. Evans1, and A. G. Fahey1, 1School of Agriculture and Food Science, University College Dublin, Ireland, 2Irish Cattle Breeding Federation, Bandon, Co. Cork, Ireland.

The effect of limiting feed intake on visceral organ mass and performance in the pregnant beef cow.
K. M. Wood*, C. J. Fitzsimmons2,3, S. P. Miller1, I. B. Mandell, B. W. McBride1, and K. C. Swanson1, 1Dept. of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, 2Agriculture and Agri-Food Canada, Edmonton, AB, Canada, 3Dept. of Agriculture, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 4Dept. of Animal Sciences, North Dakota State University, Fargo.

Whole cottonseed can promote as much rumination activity as barley straw when incorporated in TMR fed beef heifers at finishing period.
S. P. Iraira*, J. L. Ruiz de la Torre, M. Rodríguez-Prado, X. Manteca, S. Calsamiglia, and A. Ferret, Universitat Autònoma Barcelona, Bellaterra, Spain.

Protein supplementation of low-quality forage: Effects of amount and frequency on cow performance and intake and nutrient digestibility by steers.
D. W. Bohnert1, R. F. Cooke1, B. I. Cappellozza1, D. L. McGuire*, and S. J. Falck2, 1Eastern Oregon Agricultural Research Center, Oregon State University, Burns, 2Eastern Oregon Agricultural Research Center, USDA-ARS, Burns.

Using corn stover and DDGS to conserve stockpiled forages and improve reproductive performance and progeny growth in fall-calving beef cows.
P. J. Gunn*, R. P. Lemenager1, and G. A. Bridges1, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2North Central Research and Outreach Center, University of Minnesota, Grand Rapids.

Meta-analysis on the effects of supplementing distiller’s grains to beef cows during early lactation on reproductive efficiency and pre-weaning progeny growth.
P. J. Gunn*, J. P. Schoonmaker1, R. P. Lemenager1, and G. A. Bridges1, 1Department of Animal Sciences, Purdue University, West Lafayette, IN, 2North Central Research and Outreach Center, University of Minnesota, Grand Rapids.

Effects of water stress and plant population on corn plant yields and composition.

Prediction of preweaning ADG in beef calves from milk fatty acid methyl esters.
Z. Deng*, M. A. Brown2, Y. Peng1, S. Coleman1, and R. G. Mateescu1, Oklahoma State University, Stillwater, 2USDA-ARS, Grazinglands Research Laboratory, El Reno, OK, Xi’an Vertexe Electronics Technology Co. Ltd., Xi’an, Shaanxi, China.

Correlation of IGF-1, growth hormone, and leptin to breeding beef heifer productivity.
C. J. Mueller*, D. Keisler1, H. DelCurto1, and T. DelCurto1, 1Eastern Oregon Agricultural Research Center, Oregon State University, Union, 2University of Missouri, Columbia.

Exposure of prepubertal beef bulls to cycling females does not enhance sexual development.
N. Miller* and K. Fike, Kansas State University, Manhattan.

Breeding and Genetics
Molecular Biology and Genomics

Protection and stabilization of whole blood at room temperature does not influence DNA yield, purity, and integrity.
R. Flores*, M. Udtha1, J. E. Sanner1, E. A. Backes2, L. S. Wilbers2, and J. D. Caldwell2, 1The University of Texas Health Science Center at Houston, Houston, 2Lincoln University, Jefferson City, MO.

Maximum differences analysis: An empirical method for genome-wide association studies.

Adjustment of selection index coefficients and polygenic variance to improve regressions and reliability of genomic evaluations.
P. M. VanRaden, J. R. Wright*, and T. A. Cooper, Animal Improvement Programs Laboratory, USDA-ARS, Beltsville, MD.

Use of canonical discriminant analysis to distinguish among three bovine breeds by using a low number of selected SNP markers.
C. Dimauro*, M. Cellesi, R. Steri, S. Sorbolini, and NPP Macciotta, Dipartimento di Agraria, Università di Sassari, Sassari, Italy.

Reliability of genomic breeding values at different reference population’s designs when some or all animals are genotyped.
M. Pszczola1,2, T. Strabel1, J. A. M. van Arendonk1, and M. P. L. Calus1, 1Animal Breeding and Genomics Centre, Wageningen UR Livestock Research, Lelystad, the Netherlands, 2Animal Breeding and Genetics Centre, Wageningen University, Wageningen, the Netherlands, 1Department of Genetics and Animal Breeding, Poznan University of Life Sciences, Poznan, Poland.
W59  Dealing with uncertainty of dependent variables in genome wide association studies.  

W60  Increased use of young bulls in dairy cattle breeding programs.  
H. D. Norman, J. I. Hutchison*, and J. B. Cole, Animal Improvement Programs Laboratory, ARS, USDA, Beltsville, MD.

W61  Accuracy and bias for final score in US Holsteins from adding genomic information on bulls and cows.  
S. Tsuruta*, I. Misztal, and T. J. Lawlor*, University of Georgia, Athens, Holstein Association USA Inc., Brattleboro, VT.

W62  SNPs that affect microRNA binding sites in the bovine ACACA gene are associated with polyunsaturated fatty acid (PUFA) content of Canadian Holstein cows.  
E. M. Ibeagha-Awemu*, K. A. Akwanji, Z. Wang, and X. Zhao, Dairy and Swine Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, Department of Animal Science, McGill University, Ste-Anne-De-Bellevue, QC, Canada, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

W63  Genomic-polygenic evaluation of postweaning weight and ultrasound carcass traits in an Angus-Brahman multibreed population.  

W64  Genomic-polygenic evaluation of Angus-Brahman cattle for carcass traits with the Illumina 3K chip.  

W65  Using low-density commercial DNA-marker panels on prediction accuracy for expected progeny differences of selection criteria: An application in a marker-assisted breeding program for Nellore cattle in Brazil.  
J. B. S. Ferraz*, F. M. Rezende, R. C. G. Silva, X. Wu, S. Bauck, P. Eler, and E. C. Mattos, 1University of Sao Paulo/FZEA/ZAB/GMAB, Pirassununga, SP, Brazil, 2Igenity Livestock Production Business Unit, Merial Ltd., Duluth, GA, 3Department of Animal Science, Univ. of Wisconsin, Madison.

W66  SNP AY428575.1:g.346G>A of the bovine TCAP gene: Genotyping with PCR-RFLP and occurrence in Nelore animals (Bos indicus) and Angus (B. taurus) × Nelore.  
B. Borges*, R. Curi, A. Tamanaha, and L. A. Charduto, 1College of Agrarian and Veterinary Sciences, UNESP, Jaboticabal, SP, Brazil, 2College of Animal Production and Veterinary Medicine, Animal Breeding and Nutrition Department, UNESP, Botucatu, SP, Brazil, 3Bioscience Institute, Chemistry and Biochemistry Department, UNESP, Botucatu, SP, Brazil.

Y. Wang*, L. Liu, Q. Xu, Q. Chu, Y. Yu, H. Wu, D. Wang, P. Yuan, and A. Liu, 1College of Animal Science and Technology, China Agricultural University, Beijing, China, 2College of Biology, Beijing Jiaotong University, Beijing, China, 3Institute of Animal Husbandry and Veterinary Medicine, Beijing Academy of Agriculture and Forestry Sciences, Beijing, China, 4Xiertala Breeding Farm, Hailaer Farm Buro, Hailaer, Inner Mongolia, China, 5Hailaer Farm Buro, Hailaer, Inner Mongolia, China.

W68  Molecular characterization of constitutive androstane receptor (CAR) and its association with feed efficiency of Nelore (Bos indicus) cattle.  
P. Alexandre, M. H. A. Santana, R. C. Gomes, J. B. S. Ferraz*, and H. Fukumasu, College of Animal Science and Food Engineering - Animal Breeding and Biotechnology Group (USP/FZEA/ZAB/GMAB), Pirassununga, SP, Brazil.

W69  Assessment of 16 candidate genes for growth and maternal ability traits in Mexican Charolais cattle.  
L. A. Meza-García, V. I. Pacheco-Contreras*, G. M. Parra-Rincón, 1Laboratorio de Biociencias, Universidad Nacional Autónoma de México, México, 2Avante Animal Production, Mexico City, Mexico.

W70  Distribution of molecular markers and determination of molecular breeding values associated with feed efficiency, beef tenderness, and marbling in Senepol cattle.  

W71  Function analysis of liver X receptor α regulating fatty acid synthesis in mammary epithelial cells of dairy goats.  
W. Wang, J. Luo*, Y. Zhong, X. Lin, and H. Shi, Shaanxi Key Laboratory of Molecular Biology for Agriculture, College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, China.

W72  Structural and functional analysis of fatty acid synthase gene promoter of Xiong Saanen dairy goat.  
J. Li, J. Luo*, and Y. Sun, Shaanxi Key Laboratory of Molecular Biology for Agriculture, College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, China.

W73  Use of different statistical approaches to study genetic variability of OAR6 in sheep breeds farmed in Italy.  
R. Steri, A. Criscone, E. Ciani, B. Moioli, P. Crepaldi, L. Niccolosi, D. Marletta, E. L. Nicolazzi, A. Passeri, G. Catillo, F. Pilla, and N. P. P. Macciotta*, 1Università di Sassari, Sassari, Italy, 2Università di Catania, Catania, Italy, 3Università di Bari, Bari, Italy, 4CRA, Rome, Italy, 5Università di Milano, Milan, Italy, 6Università Cattolica, Piacenza, Italy, 7Università del Molise, Campobasso, Italy.

W74  Genotyping of five Chinese local pig breeds focused on meat quality by using PCR-RFLP based on halothane and Mx1.  
Dairy Foods
Microbiology and Dairy Chemistry

Viability of free and encapsulated Lactobacillus acidophilus ATCC 4356 in yogurt and artificial human gastric digestion system.
F. Ortakci*1,2 and S. Sert2, 1Western Dairy Center Nutrition Dietetics and Food Sciences Department, Logan, UT, 2Ataturk University, Erzurum, Turkey.

Complete genome sequence of Bifidobacterium animalis subspecies lactis BF-6.
A. Baker1, A. Negrete-Raymond2, K. Polzin1, M. Souza1, Y. Yu*3, J. Loquasto1, J. Amos3, and R. Roberts1, 1Cargill Texturizing Solutions, Waukesha, WI, 2Cargill Biotechnology Development Center, Navarre, MN, 3The Pennsylvania State University, Department of Food Science, University Park.

Growth of yogurt culture bacteria in the presence of two antimicrobials.
M. Vives1,2 and M. Sanchez-Vega*1,2, 1Louisiana State University, 2Louisiana State University Agricultural Center.

Acquired resistance of yogurt culture bacteria to two different antimicrobials.
M. Vives1,2 and M. Sanchez-Vega*1,2, 1Louisiana State University, 2Louisiana State University Agricultural Center.

Isolation of an oligotrophic Lactobacillus species that may be associated with late gas production and splits in cheese.
C. J. Oberg*1,2, M. Culumber1, T. Oberg1, T. R. Broadbent1, and D. J. McMahon1, 1Department of Microbiology, Weber State University, Ogden, UT, 2Western Dairy Center, Utah State University, Logan.

Influence of various health beneficial spices on the acid tolerance of Streptococcus thermophilus ST-M5.
M. Sanchez-Vega*1,2 and K. Aryana*1,2, 1Louisiana State University, 2Louisiana State University Agricultural Center.

Bile tolerance of Lactobacillus delbrueckii ssp. bulgaricus LB-12 subjected to mild sonication intensities at different temperatures.
M. Moncada*1,2 and K. Aryana*1,2, 1Louisiana State University, 2Louisiana State University Agricultural Center.

A new approach to make milk calibration standards for electronic somatic cell counters.
J. Podoll, D. M. Barbano*, and K. L. Wojciechowski, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY.

Freezing and thawing milk calibration standards for electronic somatic cell counters.
L. V. Marzo1 and D. M. Barbano*2, 1University of Sao Paulo, Pirassununga, Brazil, 2Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY.

Protease activity of Streptococcus thermophilus ST-M5 subjected to mild sonication intensities at different temperatures.
M. Moncada*1,2 and K. Aryana*1,2, 1Louisiana State University, 2Louisiana State University Agricultural Center.

Prediction of fatty acid chain length and unsaturation of milk fat by mid-infrared milk analysis.
K. L. Wojciechowski1, D. M. Barbano*1, and E. de Jong3, 1Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY, 3Delta Instruments, Drachten, the Netherlands.

A ruggedness study: Casein content of milk by Kjeldahl analysis for milk concentrates and non-bovine milks.
K. L. Wojciechowski and D. M. Barbano*, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY.

A review of the pH influenced casein-whey protein interactions in heated milk.
H. Taterka*, B. Guamis, and M. Castillo, Universitat Autònoma de Barcelona, Barcelona, Spain.

Gel-based shotgun proteomics analysis of cow milk fat globules.
In vitro true organic matter digestibility, partitioning factor, and ruminal microbial protein synthesis of crown rust resistant and susceptible oat cultivars in Northern Mexico.

H. Bernal Barragán1,2, M. A. Cerrillo Soto1,2, A. S. Juárez Reyes1,2, M. Guerrero Cervantes1,2, N. C. Vásquez Aguilar1, F. G. Rios Rincón1,2, E. Gutiérrez Ornelas1,2, and J. E. Treviño Ramírez1, Universidad Autónoma de Nuevo León, Fac. Agronomía, San Nicolás de los Garza, NL, México, 2Universidad Juárez del Estado de Durango, Fac. Medicina Veterinaria y Zootecnia, Durango, México, 3Universidad Autónoma de Sinaloa, Fac. Medicina Veterinaria y Zootecnia, Culiacán, Sin, México, 4Red Internacional de Nutrición y Alimentación en Rumiantes, México.

Effect of rate of application of various commercial exogenous fibrolytic enzymes on preingestive fiber hydrolysis and release of sugars and phenolics from bermudagrass haylage.

J. J. Romero1, K. G. Arriola1, M. A. Zarate1, C. R. Staples1, C. F. Gonzalez1, W. Vermerris1, and A. T. Adesogan1, Department of Animal Sciences, IFAS, University of Florida, Gainesville, 2Department of Microbiology and Cell Science, IFAS, University of Florida, Gainesville, 3Department of Agronomy, IFAS, University of Florida, Gainesville, 4Innovation Center for U.S. Dairy, Rosemont, IL.

Forages and Pastures III
A preliminary evaluation of corn silage affected by Hurricane Irene in 2011.
J. M. Lim*1, E. A. Cummings1, H. M. Darby2, and L. Kung1; 1University of Delaware, Newark, 2University of Vermont, Burlington.

Feeding red clover cut at sundown and harvested as baleage did not improve milk yield in late-lactation dairy cows.
N. T. Antaya*1, A. F. Brito1, R. Berthiaume1, G. F. Tremblay1, N. L. Whitehouse1, G. M. Soule1, N. E. Guidon1, and E. S. Fletcher1, 1University of New Hampshire, Durham, 2Dairy and Swine R&D Centre/Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 3Soils and Crops R&D Centre/Agriculture and Agri-Food Canada, Québec City, QC, Canada.

The effect of feeding normal corn silage, BMR corn silage or 50:50 mixture of the two on the production performance of lactating cows.
J. M. Lim*1, M. C. Santos1, M. C. der Bedrosian1, K. E. Nestor2, and L. Kung1; 1University of Delaware, Newark, 2Mycogen Seeds, Indianapolis, IN.

Effects of an esterase-producing inoculant and chop-length on fermentation and aerobic stability of barley silage.
W. Addah*1,2, J. Baah1, E. K. Okine1, and T. A. McAllister1, 1Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada.

Effects of applying bacterial inoculant with different shooting height on fermentation quality of barley silage.
D. H. Kim*1, H. J. Lee1, S. M. Amanullah1, S. C. Kim1, Y. M. Song2, H. Y. Kim3, and S. B. Kim4; 1Division of Applied Life Science (BK21), Gyeongsang National University, Jinju, Gyeongsangnamdo, South Korea, 2Department of Animal Science (Inst. Agric. Life Sci.), Gyeongsang National University, Jinju, Gyeongsangnamdo, South Korea, 3Department of Animal Resource Technology, GNUST, Jinju, Gyeongsangnamdo, South Korea, 4Dairy Science Division, NIAS, Cheonan, Chungnam, South Korea.

Effects of bacterial inoculant and shoot height on fermentation quality of barley silage.
H. J. Lee*1, D. H. Kim1, S. M. Amanullah1, S. C. Kim1, Y. M. Song2, H. Y. Kim3, and S. B. Kim4; 1Division of Applied Life Science (BK21), Gyeongsang National University, Jinju, Gyeongsangnamdo, South Korea, 2Department of Animal Science (Inst. Agric. Life Sci.), Gyeongsang National University, Jinju, Gyeongsangnamdo, South Korea, 3Department of Animal Resource Technology, GNUST, Jinju, Gyeongsangnamdo, South Korea, 4Dairy Science Division, NIAS, Cheonan, Chungnam, South Korea.

Effects of inoculant blends on emissions of volatile organic compounds, oxides of nitrogen, carbon dioxide, ammonia, and dry matter losses in alfalfa silage.
R. B. Franco*1, J. A. McGarvey2, D. H. Putnam3, P. G. Green4, and F. M. Mitloehner1; 1Department of Animal Science, University of California, Davis, 2United States Department of Agriculture, Agricultural Research Service, Albany, CA, 3Department of Plant Sciences, University of California, Davis, 4Department of Civil and Environmental Engineering, University of California, Davis.

Screening of bacteriocinogenic lactic acid bacteria from tropical legume silage.
M. Silva, H. Mantovani, O. Pereira*, C. Moraes, A. Ribon, and W. Souza, Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil.

Chemical composition and fermentation profile of Brachiaria brizantha and Campo Grande Stylosanthes mixed silages.
J. P. Rigueira, O. Pereira*, K. Ribeiro, A. Cezário, and W. Souza, Federal University of Viçosa, Viçosa, Minas Gerais, Brazil.

Feedtech CustomChop F-20 enhances the fermentation characteristics of elephant grass (Pennisetum purpureum) after 45 d of ensiling.
A. A. Rodríguez*1, L. C. Solórzano1, and T. Hemling1; 1University of Puerto Rico, Mayagüez, PR, 2Chr. Hansen, Milwaukee, WI, 3DeLaval Manufacturing, Kansas City, MO.

Intake and total apparent digestibility of nutrients of corn and Stylosanthes silages in diets for sheep.
L. Silva, O. Pereira*, K. Ribeiro, S. Valadares Filho, and T. Silva, Federal University of Viçosa, Viçosa, Minas Gerais, Brazil.

Condensed tannins concentrations of prairie legume forages at different phenological stages.
Y. Li1,2, A. D. Iwaasa*1, Y. Wang1, L. Jin1, and G. Han1; 1Semiarid Prairie Agricultural Research Centre, Agriculture and Agri-Food Canada, Swift Current, Saskatchewan, Canada, 2Colleges of Ecology and Environment Science, Inner Mongolia Agricultural University, Huhhot, China, 3Lethbridge Research Center, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada.

Mixing purple prairie clover with alfalfa reduced alfalfa N transforming to ammonia-N.
L. Jin1,2, Z. Xu1, A. D. Iwaasa3, Y. G. Zhang1, M. P. Schellenberg1, T. A. McAllister4, and Y. Wang1; 1AAFC, Lethbridge, AB, Canada, 2Northeast Agricultural University, China, 3SPARC-AAFC, Swift Current, SK, Canada.

Effect of sainfoin condensed tannins on the N transformation of alfalfa forage preserved as silage.
Y. Wang1, Z. Xu1, S. Acharya, and T. A. McAllister, AAFC, Lethbridge, AB, Canada.

Effect of application rate of a fibrolytic enzyme product on in vitro ruminal fermentation of three low-quality substrates.
A. Díaz1, I. Mateos1, C. Soro1, E. N. Odongo1, M. D. Carro1,2, and M. J. Ranilla*1,2; 1Dpto. Producción Animal, Universidad de León, Campus de Vegazana, León, Spain, 2Instituto de Ganadería de Montaña (CSIC-ULE), Grulleros, León, Spain, 3International Atomic Energy Agency, Vienna, Austria.
**Growth and Development III**

**W121** Effect of hay or corn silage in pre-weaned calf diets on eating behavior and rumen development.
F. X. Suarez-Mena* and A. J. Heinrichs, The Pennsylvania State University, University Park.

**W122** Exogenous palmitic and palmitoleic acids respond differently in stearoyl-CoA desaturase (SCD1) inhibited bovine adipocytes.
A. K. G. Kadegowda*, T. A. Burns, and S. K. Duckett, Clemson University, Clemson, SC.

**W123** Steroyl-CoA desaturase 1 (SCD1) inhibition decreases de novo fatty acid synthesis in primary bovine adipocytes.
A. K. G. Kadegowda*, T. A. Burns, N. Tharayil, S. L. Pratt, and S. K. Duckett, Clemson University, Clemson, SC.

**W124** Metabolic differences in hepatocytes from Iberian and Landrace pigs.

**W125** Effect of betaine and conjugated linoleic acid on porcine subcutaneous adipose tissue lipolysis.
M. L. Rojas-Cano1, M. Martinez-Perez2, M. Lachica1, L. Lara1, T. Ramsay3, and I. Fernandez-Figares*, CSIC (Spanish National Research Council), Granada, Spain; Instituto de Ciencia Animal, La Habana, Cuba; BARC, ANRI. USDA, Beltsville, MD.

**W126** T-box (Tbx)-2 is required for proliferation of osteoblast cells.
N. Francis1, S. M. Tornaquindici1, S. Mohan2, and K. E. Govoni*, 1Department of Animal Science, University of Connecticut, Storrs; 2Musculoskeletal Disease Center, Jerry L. Pettis VA Medical Center, Loma Linda, CA.

**W127** Comparison of feed form (pelleted vs. textured) on growing performance and rumen papillae development of dairy steers.
J. A. Davidson*, T. E. Johnson, B. L. Miller, J. A. Cunningham, H. C. Puch, K. M. O’Diam, and K. M. Daniels, Land O’ Lakes Research Farm, Land O’ Lakes Purina Feed, Webster City, IA; The Ohio Agricultural Research and Development Center, The Ohio State University, Wooster.

**W128** Effect of parenteral administration of glutamine on autophagy of liver cell and immune responses in weaned calves.
Z. Hu*, Z. Cao, and S. Li, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

**W129** Influence of hay type on ruminal papillae surface area of growing dairy steers from 13 to 22 wk of age.

**W130** Intake and performance of dairy heifers 12 to 24 wk of age following a full potential calf feeding program.

**W131** Effects of milk feeding strategies on performance, ruminal development, and metabolic and hormonal profile of Holstein calves.

**W132** Ontogenic changes of hepatic glucocorticoid and α1- and β2-adrenergic receptors in neonatal calves.
D. Rohrbeck, J. Steinhoff-Wagner, E. Kanitz, and H. M. Hammon*, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany.

**W133** L-Arginine regulates expression of myokines and adipokines in myoblast and adipocyte cells.
H. S. Yang, X. Xiong, Y. L. Yin*, and X. F. Kong, Hunan Provincial Engineering Research Center of Healthy Livestock, Key Laboratory of Agro-ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, Chinese Academy of Sciences, Hunan, Changsha, China.

**W134** Role of estrogen receptor-α (ER-α) and insulin-like growth factor receptor-1 (IGFR-1) in estradiol-stimulated proliferation of cultured bovine satellite cells.

**Horse Species**

**W135** Trends in equine farm management and conservation practices.
B. J. McIntosh* and S. A. Hawkins, The University of Tennessee, Knoxville.

**W136** The effects of feed-borne Fusarium mycotoxins on the presence and severity of equine gastric ulcer syndrome and the efficacy of a glucomannan mycotoxin adsorbent.
W137 Comparison of high fat, high fiber, and high starch diets on serum levels of insulin, IGF-1, and glucose in growing horses.
C. A. Craige*, S. R. Cooper, L. J. Spicer, and S. T. Kawcak, Oklahoma State University, Stillwater.

W138 Horses decrease water intake when supplements are added to drinking water.
M. E. Gordon*, B. L. Miller, and M. L. Jerina, Land O' Lakes Purina Feed LLC, Gray Summit, MO.

W139 The effects of coprophagy on the hindgut bacterial community of neonatal foals.

W140 Influence of maternal plane of nutrition and arginine supplementation on mares and their foals: Foaling parameters.
K. N. Winsco*, J. A. Coverdale, C. J. Hammer, K. L. Gehl, A. E. Hanson, J. L. Lucia, and A. N. Wolford, Department of Animal Science, Texas A&M University, College Station, Department of Animal Sciences, North Dakota State University, Fargo, United States Department of Agriculture, Agricultural Research Service, Forage-Animal Production Research Unit, Lexington, KY.

W141 Mineral concentrations of cool season grasses as affected by specie and season.

W142 Effects of late gestation on conformation and movement in mares.
H. Roberts*, J. M. Reddish, and K. Cole, Department of Animal Sciences, The Ohio State University, Columbus.

W143 Exercise response in unfit horses of different selenium status.

W144 The effect of antibiotic administration on fermentative characteristics of equine feces.
B. E. Davis*, M. Lawrence, M. D. Flythe, S. H. Hayes, C. Wilson, A. L. Fowler, M. Brummer, and L. A. Strasinger, University of Kentucky, Lexington, United States Department of Agriculture, Agricultural Research Service, Forage-Animal Production Research Unit, Lexington, KY.

W145 Effects of probiotic supplementation on stress and immune responses in horses.

W146 Biochemical markers of bone metabolism in growing Quarter Horses fed a higher starch versus a higher fat diet.

W147 Anthelmintic resistance testing and training on horse farms in the Southeast.
N. C. Whitley*, R. M. Kaplan, R. K. Spann, A. M. Zajac, K. Moulton, R. A. Franco, C. Swanson, A. E. Cooper, and V. R. Jackson, North Carolina A&T State University, Greensboro, University of Georgia, Athens, Virginia Tech MARE Center, Middleburg, VA-MD Regional College of Veterinary Medicine, Blacksburg, VA, Virginia Cooperative Extension, Albemarle County, Charlottesville, VA.

Lactation Biology III

W148 Estradiol enhances apoptosis in bovine mammary epithelial cells in vitro.

W149 Evaluation of mitogenic properties of colostrum and colostrum replacer (CR) on growth of bovine mammary epithelial cells (BMEC) in vitro.

W150 Effects of intra-mammary infusions of casein hydrolysate, EGTA, and lactose at drying-off on mammary gland involution.
B. Ponchon*, P. Lacasse, N. Siirani, S. Ollier, and X. Zhao, Department of Animal Science, McGill University, Sainte-Anne-de-Bellevue, QC, Canada, AAFC-Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada.

W151 Expression of amino acid transporter LAT1 and the regulation by prolactin in mammary gland of dairy cow.
L. Feng, Y. Lin, Q. Li*, X. Gao, and N. Zhang, Key Laboratory of Dairy Science, Ministry of Education, Northeast Agricultural University, Harbin, Heilongjiang, China.

W152 Bzw2 promotes proliferation and lactation of mammary epithelial cell in dairy goat.
R. Sun, Q. Li*, H. Yan, J. Zhao, X. Gao, and N. Zhang, The Key Laboratory of Dairy Science, Ministry of Education, Northeast Agricultural University, Harbin, Heilongjiang, China.

W153 CLA and diet induced milk fat depression reduces milk fat across the entire day.
K. Cook, K. J. Harvatine*, and D. E. Bauman, Penn State University, University Park, Cornell University, Ithaca, NY.
Nonruminant Nutrition

Feed Additives

Effects of dietary Aviplus-S supplementation on growth performance, fecal characteristics, and blood profiles in weanling pigs.
J. H. Cho*, L. Yan, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

Effects of Alcopro supplementation as energy source on growth performance, nutrient digestibility, and blood characteristics in growing pigs.

Effects of calibrin-Z on weanling pigs fed diets with no mycotoxin contamination.
F. Chi1, S. L. Johnston*, and D. C. Mahan, Amlan International Inc., Chicago, IL, *The Ohio State University, Columbus.

Bovine lactoferramin-lactoferricin produced by Pichia pastoris fed-batch fermentation improves intestinal microflora in weaned piglets.
X. S. Tang and Y. L. Yin*, Institute of Subtropical Agriculture, the Chinese Academy of Sciences, Changsha, China.

Effects of feeding capsicum oleoresin, garlicon, or turmeric oleoresin on gene expression of ileal mucosa of pigs.
Y. Liu*, M. Song*, T. M. Che1, J. A. Soares-Almeida1, J. J. Lee1, D. Bravo1, C. W. Maddox1, and J. E. Pettigrew1, University of Illinois, Urbana, *Pancosma SA, Geneva, Switzerland.

Productive performance in post-weaned pigs conditioned by pre and postnatal porcine digestive peptides (PDP) exposure through maternal diet.
J. Figueroa*, D. Solà-Oriol1, E. Borda1, S. A. Guzmán-Pino1, and J. F. Pérez1, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain, *Bioibérica, Barcelona, Spain.

Effects of chitosan nanoparticles loaded with chromium ions on growth, blood metabolites, immune traits and tissue chromium in finishing pigs.

Effects of fermented chlorella supplementation on growth performance, nutrient digestibility, and blood characteristics in growing pigs.
B. R. Lee*, J. Li1, S. U. Lim1, and I. H. Kim1, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea, *Ace M&F Ltd., Seoul, South Korea.

The efficacy of using the external marker LIPE to predict digestibility values in Nile tilapia (Oreochromis niloticus) fed contrasting diets.
R. Jones1, O. Evans1, E. A. Teixeira2, E. O. S. Saliba2, V. B. Silva2, K. C. M. Filho2, J. S. Saliba2, S. J. Meale*, and A. V. Chaves1, Faculty of Veterinary Science, University of Sydney, Sydney, NSW, Australia, *Laboratório de Aquacultura da Universidade Federal de Minas Gerais, Escola de Veterinária, Departamento de Zootecnia, Belo Horizonte, MG, Brazil.

Validation of the external marker Nanolip as an indicator of apparent nutrient and energy digestibility in juvenile Nile Tilapia (Oreochromis niloticus).
O. Evans1, R. Jones1, E. A. Teixeira2, E. O. S. Saliba2, V. B. Silva2, K. C. M. Filho2, J. S. Saliba2, S. J. Meale*, and A. V. Chaves1, Faculty of Veterinary Science, University of Sydney, Sydney, NSW, Australia, *Laboratório de Aquacultura da Universidade Federal de Minas Gerais, Escola de Veterinária, Departamento de Zootecnia, Belo Horizonte, MG, Brazil.
Nonruminant Nutrition Management

W167 Total serum cholesterol and triglycerides concentrations in broilers fed with diets containing different sources of oil associated with conjugated linoleic acid (CLA).
V. C. da Cruz*, R. F. de Oliveira, G. do Valle Polycarpo, V. B. Fascina, L. H. Zanetti, G. A. M. Pasquali, R. Crivellari, L. C. Carvalho, and C. C. do Valle Polycarpo, 1 São Paulo State University, Dracena Campus, Dracena, São Paulo, Brazil, 2 University of São Paulo, Pirassununga Campus, Pirassununga, São Paulo, Brazil, 3 São Paulo State University, Botucatu Campus, Botucatu, São Paulo, Brazil, 4 São Paulo State University, São José do Rio Preto Campus, São José do Rio Preto, São Paulo, Brazil.

W168 Effect of dietary oregano (Origanum vulgare L.) essential oil on growth performance of broiler chickens fed with diets of different metabolizable energy levels.
E. van Eerden, L. Star, P. van der Aar, and L. Z. Jin*, 1 Schothorst Feed Research, Lelystad, the Netherlands, 2 Meriden/Meritech Biotech, Guangzhou, China.

W169 Growth performance, nutrient digestibility, and carcass traits of rabbits fed diets added with DDGS or hemicellulases and glucanases.

W170 Evaluation of n-3 fatty acid and probiotic supplementation on growth performance, nutrient digestibility, blood characteristics, relative organ weight, and breast meat characteristics in broilers.
L. Yan*, S. M. Hong, and I. H. Kim, Department of Animal Resource & Science, Cheonan, Choongnam, South Korea.

W171 Effects of YGF-251 extract supplementation on egg production, egg weight, egg quality, blood characteristics, and fecal noxious gas emission in laying hens.
S. C. Kim*, S. Zhang, and I. H. Kim, Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea.

W172 Growth performance and carcass characteristics of Japanese quail fed different levels of zeolite.
Gene expression of myosin heavy chain isoforms and β-adrenergic receptors induced by ractopamine feeding duration in finishing pigs.
1University of Sao Paulo/ESALQ, Piracicaba, SP, Brazil, 2University of Sao Paulo/FZEA, Pirassununga, SP, Brazil, 3Purdue University, West Lafayette, IN.

Influence of pellet size on pellet quality and performance and nutrient utilization of broilers.

Nonruminant Nutrition
Minerals and Vitamins

W182 Effects of increasing inclusion of supplemental magnesium oxide (MgO) on laying performance and eggshell quality in 72-week-old brown egg-laying hens.

W183 Evaluating the impact of pre-weaning calcium and phosphorus supplementation on growth performance and carcass characteristics of low and high birth-weight pigs.
P. L. Y. C. Chang**, C. H. Stahl**, and E. van Heugten†, 1Department of Animal Science, North Carolina State University, Raleigh, 2Laboratory of Developmental Nutrition, North Carolina State University, Raleigh.

W184 Bone ash and strength traits of young pigs fed diets with no supplemental vitamin D were compromised within a four-week trial.

W185 Estimates of relative bioavailability of monocalcium and dicalcium phosphates based on whole body DXA scans to determine the efficiency of dietary P use by growing pigs.

W186 Effects of sulfur concentration in diets containing distillers dried grains with solubles on carcass characteristics and tissue mineral concentrations in growing-finishing pigs.
B. G. Kim*, D. Y. Kil, D. C. Mahan, G. M. Hill, and H. H. Stein, 1Konkuk University, Seoul, Korea, 2Chung-Ang University, Anseong-si, Korea, 3Ohio State University, Columbus, 4Michigan State University, East Lansing, 5University of Illinois, Urbana.

Physiology and Endocrinology III

W187 Effects of ruminally digested and undigested snakeweed extracts on female Sprague-Dawley rats.
R. A. Halalsheh*, D. M. Hallford, and T. T. Ross, New Mexico State University, Las Cruces.

W188 Effect of niacin on heat shock protein gene expression in transformed bovine mammary epithelial cells.

W189 Effects of betaine on heat induced heat shock protein expression in primary bovine mammary epithelial cells.

W190 Cloning and responsiveness of bovine glucose-6-phosphatase promoter to cyclic AMP and glucocorticoids.
Q. Zhang*, S. Koser, and S. Donkin, Purdue University, West Lafayette, IN.

W191 Effects of heat stress on insulin production in β-TC-6 pancreatic cells.
M. V. Sanz-Fernandez*, R. L. Boddicker, J. W. Ross, R. P. Rhoads, and L. H. Baumgard, 1Iowa State University, Ames, 2Virginia Polytechnic Institute and State University, Blacksburg.

W192 Relationship of single nucleotide polymorphisms of the bovine NOS2 and NOS3 genes with disease resistance in feedlot steers.
A. J. Davis*, D. L. Kreider, E. B. Kegley, J. T. Richeson, and D. L. Galloway, Animal Science Department, University of Arkansas Division of Agriculture, Fayetteville.
Hypothalamic and abomasal mRNA expression of regulatory feed intake genes in cows grazing different herbage allowances of native pastures.


Identification of short-chain fatty acid (SCFA) receptor transcripts in ruminal papillae and responses to SCFA infusion.


Calibration of a dynamic, mechanistic model of amino acid and insulin effects on protein synthesis in animal tissues to represent liver and skeletal muscle.

E. R. El-Haroun1, J. J. Kim2, D. P. Bureau1, A. R. Willms1, and J. P. Cant1, 1University of Guelph, Guelph, Ontario, Canada, 2University of Giza, Giza, Cairo, Egypt.

Expression of adiponectin and leptin receptors and angioptin-like protein 4 (ANGLP4) mRNA differed in the of pure and crossbred beef cows grazing different herbage allowances of native pastures.


Gene expression analysis of glutathione peroxidase, catalase, and superoxide dismutase (Mn) in white blood cells from dairy cows receiving an apple base nutraceutical supplement.


Measurements of saliva secretion and salivary fluxes of metabolites from jugular–arterial concentration differences, hemoglobin concentration, and jugular blood flow.

A. C. Storm*, M. Larsen1, and N. B. Kristensen1, 2, Aarhus University, Department of Animal Science, Tjele, Denmark, 2Syddanskvej, Vojens, Denmark.

Is colostrum quality in dairy cows related to postpartum health, production, or fertility?

A. R. Dresh*, A. H. Souza1, P. D. Carvalho1, L. M. Vieira2, J. L. M. Vasconcelos3, R. A. Cerri4, M. C. Wittbank5, and R. D. Shaver6, 1University of Wisconsin-Madison, Madison, 2University of Sao Paulo-VRA, SP, Brazil, 3Sao Paulo State University Botucatu, SP, Brazil, 4University of British Columbia, BC, Canada.

Effect of 17β-estradiol on cGMP-PK1 expression in myometrial longitudinal muscles.

O. Y. Gulay*, A. Bulbul1, M. S. Gulay1, K. Altunbas2, and O. O. Akkaya3, 1Mehmet Akif Ersoy University, Faculty of Veterinary Medicine, Burdur, Türkiye, 2Afyonkocatepe University, Faculty of Veterinary Medicine, Afyonkocatepe, Türkiye.

Expression of sex steroid receptors in placental tissues during early pregnancy in sheep.

L. P. Reynolds*, P. P. Borowicz1, M. L. Johnson1, J. Haring2, R. Ashley1, and A. T. Grazul-Bilska2, 1Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo, 2Department of Animal and Range Sciences, New Mexico State University, Las Cruces.

Carrnover effects on progesterone concentrations and fetal numbers in ewes given human chorionic gonadotropin.

C. M. Richardson*, R. A. Halalshieh, D. M. Hallford, and T. T. Ross, New Mexico State University, Las Cruces.

Serum testosterone concentrations after feeding in rams treated with GnRH.

M. M. Guardiiero*, F. L. M. Silva1, A. A. Johnson2, R. S. Gentil3, P. L. J. Monteiro1, D. M. Polizel1, R. A. Souza1, I. Susin1, E. Oba3, G. B. Mourão1, and R. Sartori1, 1University of São Paulo, Piracicaba, SP, Brazil, 2Texas A&M University, College Station, 3São Paulo State University, Botucatu, SP, Brazil.

The potential effects of dietary nitrate on pregnancy mechanisms in ewes.


Effects of intravenous glucose infusion and nutritional balance on expression of enzymes responsible for catabolism of progesterone in cattle.

F. Vieira1, R. Cooke2, A. Abolin3, P. Lima1, and J. L. Vasconcelos4, 1DPA-FMVZ-UNESP, Botucatu, SP, Brazil, 2Oregon State University, Burns, 1IBB-UNESP, Botucatu, SP, Brazil.

Ex vivo model for endotoxic laminitis in ruminants.

S. Schaumberger*, N. Reisinger, and G. Schatzmayr, Biomin Research Center, Tulln, Austria.

Effect of different centrifugation protocols and comparison of four extenders for storage of cooled Caspian horse spermatozoa for 48 hours.

H. Nouri1, A. Towhidi1, and M. Bahreini1, 1Department of Animal Science, Faculty College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran, 2Animal Breeding Center of Iran (A.I. lab), Iran.

Pigs fed camelina meal increases liver CYP8B1 expression.

W. J. Meadus*, P. Duff2, T. McDonald2, and W. Caine1, 1AAFC-Lacombe, Lacombe, AB, Canada, 2Olds College, Olds, AB, Canada.

Effect of exogenous testosterone on testes characteristics of large white pigs in a humid environment.

A. O. Ladokun*, J. R. Ot te1, O. M. Alabi1, and D. O. Adejum o2, 1University of Agriculture, Abeokuta, Ogun, Nigeria, 2University of Ibadan, Ibadan, Oyo, Nigeria, 3Bowen University, Iwo, Osun, Nigeria.
W210  Effect of heat stress on phosphatidylinositol-3 kinase signaling in gilt ovaries.

W211  Acute duration heat stress alters expression of cellular bioenergetic-associated genes in skeletal muscle of growing pigs.
S. G. L. Won*, G. Xie1, R. L. Boddicker1, J. N. Rhoades1, T. L. Scheffler1, J. M. Scheffler1, M. C. Lucy2, T. J. Safranski1, J. T. Selsby1, S. Lonergan1, L. H. Baumgard2, J. W. Ross1, and R. P. Rhoads1, University of Missouri, Columbia, Missouri, Columbia, Iowa State University, Ames, University of Missouri, Columbia, Virginia Polytechnic Institute and State University, Blacksburg.

W212  Effect of heat stress (HS) on thermal regulation during pregnancy in first parity sows.

W213  Hair cortisol concentrations—Influence of color and location in Holstein cows.
R. L. A. Cerri*, M. A. Tabmasbi1, and D. M. Veira1, Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, Fedowsi University of Mashhad, Mashhad, Iran, Agriculture & Agri-Food Canada, Agassiz, BC, Canada.

W214  Animal and ovarian parameters affect fertilization and embryo quality in high-producing lactating dairy cows.

W215  Relationships between sperm motility and in vivo and in vitro fertility of Holstein and Jersey bulls.
M. D. Utt1, M. A. Coutinho da Silva2, C. A. Messerschmidt3, J. M. Delane ette3, C. E. Marshall4, F. A. Abreu1, and M. L. Day1, Department of Animal Sciences, The Ohio State University, Columbus, Department of Clinical Sciences, College of Veterinary Medicine, The Ohio State University, Columbus, Select Sires Inc., Plain City, OH.

W216  Placement of semen in uterine horns failed to improve fertilization rates in superovulated Holstein cows.
P. D. Carvalho*, A. H. Souza2, A. R. Dresch1, L. M. Vieira3,4, K. S. Hackbart1, D. Luchini1, S. Bertics5, N. Betzold5, M. C. Wiltbank6, and R. D. Shaver7, University of Wisconsin-Madison, Madison, University of Sao Paulo-VRA, SP 05508, Brazil, Adisseo, Alpharetta, GA, U.S. Dairy Forage Research Farm, Prairie du Sac, WI.

W217  Influence of sex and breed of the calf on synchronization and pregnancy rates in cows submitted to timed AI.
A. P. Lemes*, R. F. G. Peres2, A. D. P. Rodrigues1, M. M. Guardiero1, E. Oba1, G. B. Mourão3, and R. Sartori1, University of São Paulo, Piracicaba, SP, Brazil, Agropecuária Fazenda Brasil, Barra do Garças, MT, Brazil, São Paulo State University, Botucatu, SP, Brazil.

W218  The requirement of GnRH on the onset of the 5-d Select Synch + CIDR program in beef heifers.
F. M. Abreu*, L. H. Cruppe1, M. V. Biehl1, A. D. P. Rodrigues1, M. D. Utt1, G. A. Bridges4, J. L. M. Vasconcelos1, and M. L. Day1, The Ohio State University, Columbus, Sao Paulo State University, Botucatu, SP, Brazil, University of Sao Paulo, Pirassununga, SP, Brazil, University of Minnesota, Grand Rapids, São Paulo State University, Botucatu, SP, Brazil.

W219  Efficacy of the “CoPGF” approach to induce luteolysis in the 5-d CO-Synch + CIDR program in lactating beef cows.
M. V. Biehl1*, L. H. Cruppe1, F. M. Abreu1, A. D. P. Rodrigues1, M. L. Mussard1, G. A. Bridges4, A. V. Pires5, and M. L. Day1, The Ohio State University, Columbus, University of Minnesota, Grand Rapids, University of Sao Paulo, Piracicaba, SP, Brazil, Sao Paulo State University, Botucatu, SP, Brazil.

W220  Effects of GnRH and administering number of PGF2α doses in the 5-d timed AI program on ovarian responses and fertility of dairy heifers.
F. S. Lima1*, E. S. Ribeiro1, R. S. Bisinotto1, N. Martinez1, L. F. Greco1, K. N. Galvão1, C. A. Risco1, W. W. Thatcher1, M. Amstalden1, and J. E. P. Santos1, University of Florida, Gainesville, Texas A&M University, College Station.

W221  Comparison between the GGPG and two PGF2α based resynchronization programs on fertility in lactating dairy cows.
R. G. S. Bruno*, A. M. Farias1, K. L. Jager1, D. E. Hawkins1, and T. R. Bilby2, Texas A&M University, College Station, West Texas A&M University, Canyon.

W406  Inflammatory pathways contribute to the metabolic adaptations to lactation in dairy cattle.

Production, Management and the Environment Dairy II

W222  Evaluation of management, nutrient consistency and sanitation of automated calf feeders.
Performance, health, behavior and respiratory antibody production of individually vs. grouped housed dairy calves.
M. S. Calvo1, C. J. Neumeier*1, L. E. Hulbert1, A. Louie1, L. J. Gershwin1, K. E. Pinkerton1, C. B. Tucker1, K. C. Klasing1, and F. M. Mitloehner1, 1Department of Animal Science, University of California, Davis, 2School of Veterinary Medicine, University of California, Davis, 3Department of Pathology, Microbiology and Immunology, School of Veterinary Medicine, University of California, Davis, 4Department of Anatomy, Physiology, and Cell Biology, School of Veterinary Medicine, Center for Health and the Environment, University of California, Davis.

Performance and welfare of high-yielding dairy cows subjected to 5 or 8 cooling sessions daily in a hot and humid climate.

Effects of presynchronization with GnRH or prostaglandin F2α before the start of a resynchronization protocol on reproductive performance of dairy cows.
A. A. Scanavez, L. G. D. Mendonça1, J. G. N. Moraes1, P. R. B. Silva1, G. Lopes1, and R. C. Chebel*1, 1Department of Veterinary Population Medicine, University of Minnesota, Saint Paul, 2Accelerated Genetics, Baraboo, WI.

Seasonal effect of a reduced dose of prostaglandin F2α on estrus response in lactating dairy cows.

Degree of agreement between the ration formulated and the ration fed on seven California dairies.
N. Silva-del-Río1, 1, and A. R. Castillo1, 1Veterinary Teaching and Research Center, Tulare, CA, 1University of California, Cooperative Extension, Merced.

Nitrogen and phosphorus utilization by dairy cows on small and medium-sized farms.

Basic economic indexes on small and medium sized dairy farms.

Technological level of Holstein cattle herds in the West and North of Mexico.

Association of stocking density, production, and behavioral patterns of dairy cows milked in automatic milking systems.
J. A. Deming1, R. Bergeron1, K. E. Leslie1, and T. J. DeVries*1, 1Dept. of Animal and Poultry Science, University of Guelph, Kemptville Campus, Kemptville, ON, Canada, 2Dept. of Animal and Poultry Science, University of Guelph, Campus d’Alfred, Alfred, ON, Canada, 3Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada.

Performance of dairy cows managed with automatic milking and three contrasting feeding systems.
S. A. Utsumi*1 and D. K. Beede, Michigan State University, East Lansing.

Potential for a real-time location system for dynamic tracking of dairy cow location within dairy facilities.
R. A. Black*1, T. S. Stombaugh1, S. R. Luciani1, M. P. Sama1, R. L. Klingensfus1, A. B. Klingensfus1, and J. M. Bewley1, 1University of Kentucky, Lexington, 2AirISTA, Sparks, MD, 3Harvest Home Dairy, Crestwood, KY.

Effects of prepartum dietary energy density and postpartum extruded full-fat soybean (ESB) supplementation on energy balance and productive performance of transition dairy cows.
H. Su*, F. Wang, Z. Yang, Z. Cao, and S. Li, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

Physiological and productive responses to seasonal variation in transition dairy cows.
H. Su*, F. Wang, Z. Yang, Z. Cao, and S. Li, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

Production, Management and the Environment

Environmental Quality

Using dietary saponin extracts to reduce methane emissions from steers.
W. Li* and W. Powers, Michigan State University, East Lansing.

Does total condensed tannin concentration predict rumen methane production in vitro?
H. D. Naumann*, L. O. Tedeschi1, J. P. Muir2, B. D. Lambert1, 1, 3, D. K. Andrade Silva2, and M. A. Fonseca3, 1Texas A&M University, College Station, 2Texas AgriLife Research, Stephenville, 3Tarleton State University, Stephenville, TX, 4Federal Rural University of Pernambuco, Garanhuns, Pernambuco, Brazil, 5Federal University of Viçosa, Viçosa, Minas Gerais, Brazil.
W238  Methane production from novel oat varieties measured by gas production.

W239  Effect of crude glycerin on methane emissions of male beef calves finished in feedlot.
       J. F. Lage*, T. T. Berchielli*, I. P. C. Carvalho1, A. Berndt1, R. T. S. Frighetto1, E. A. Sanvito1, R. A. Silva1, A. F. Ribeiro1, L. M. Dellevatti1, E. E. Dallantonii1, R. L. Simonetti1, and R. A. Reis1, 1Universidade Estadual Paulista, Jaboticabal, São Paulo, Brazil, 2Embrapa Pecuária Sudeste, São Carlos, São Paulo, Brazil, 3Embrapa Meio Ambiente, Jaguariaíva, São Paulo, Brazil.

W240  Prediction of methane emission from enteric fermentation of growing-finishing Hanwoo steers using IPCC methodology.

W241  Enteric methane emissions by dairy cows grazing temperate pastures.
       N. Nelson*, K. Steensma1, S. Utsumi1, D. K. Beede1, S. Zimmerman1, and P. Zimmerman2, 1Michigan State University, East Lansing, 2C-Lock Technology Inc., Rapid City, SD.

W242  Estimation of greenhouse gas emissions from beef cattle production systems using whole-farm models.
       A. W. Alemu*, K. H. Ominski1, M. Tenuta1, and E. Kebreab1, 1University of Manitoba, Winnipeg, MB, Canada, 2University of California, California, Davis.

W243  Isotope ratio mass spectrometry monitoring of nitrogen volatilization from cattle feces and 15N-labeled synthetic urine.

W244  Identifying ammonia hotspots on a Colorado dairy using conditional passive samplers and inverse modeling.
       C. Williams*, J. Ham, and K. Shonkwiler, Colorado State University, Fort Collins.

W245  Effects of alun and aluminum chloride on volatile fatty acid concentration and pathogen populations in Hanwoo (Korean native cattle) manure.
       C. M. Kim1, S. C. Kim2, S. M. Amanullah2, H. J. Lee1, J. H. Choi1, and I. H. Choi2, 1Department of Chemistry, Sookmyung Women’s University, Seoul, South Korea, 2Department of Animal Science (Inst. Agric. Life Sci.), Gyeongsang National University, Jinju, South Korea, 3Division of Applied Life Science (BK 21), Gyeongsang National University, Jinju, South Korea, 4Department of Chemistry, Hanyang University, Seoul, South Korea, 5Department of Companion Animal & Animal Resources Science, Joongbuk University, Kumsan, South Korea.

W246  Whole-farm balances of phosphorus and potassium on dairy farms.
       D. Fulawka, T. L. Garner, K. H. Ominski, D. Flaten, and J. C. Plaizier*, University of Manitoba, Winnipeg, MB, Canada.

W247  Foliar uptake and utilization of phosphorus by grazing cattle as influenced by nitrogen fertilization regime.

W248  Soil CO2 emission during the dry season under different grazing intensities in Southern Brazil.

W249  Using a batch culture system to measure volatile organic compounds as the primary substrates for methanogenesis in anaerobic digestion of dairy waste.
       C. L. Ross*, K. C. Das, and M. A. Froetschel, University of Georgia, Athens.

Ruminant Nutrition
       Beef: Feed Additives

W250  Live yeast and adaptation protocols on finishing feedlot Nellore cattle fed high concentrate diets.

W251  Effect of slow release urea supplementation during the dry season on Nellore cattle performance in Brazil.
       D. P. Pantoni*, D. S. Graça1, M. H. Ramos2, and P. C. Molina2, 1Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil, 2Research Institute Flávio Guarani - Rehagro, Belo Horizonte, Minas Gerais, Brazil.

W252  Intake, digestibility and digestion kinetics of beef steers supplemented with slow-release urea in diets with two concentrate levels.
Dose response effects of liofilmycin propionate plus chlortetracycline or monensin plus tylosin on growth performance, carcass merit and health of growing-finishing beef steers.
M. E. Branie*, M. E. Hubbert, M. L. Galyean, and B. D. Hunsaker, 1Pfizer Animal Health, Canon City, CO, 2New Mexico State University, Clayton, 3Texas Tech University, Lubbock, 4Summit Research LLC, Wellington, CO.

Adipose gene expression patterns in finishing steers fed steam-flaked corn diets supplemented with dietary Aspergillus oryzae extract containing α-amylase activity.
D. E. Graugnard*1, K. M. Brennan1, J. S. Jennings2, and J. J. Wagner2, 1Alltech Center for Animal Nutrigenomics and Applied Animal Nutrition, Nicholasville, KY, 2Southeast Colorado Research Center, Colorado State University, Lamar.

Effect of Saccharomyces cerevisiae CNCM I-1077 supplementation on zootecnical performances and feeding behavior of dairy bull calves during growing period.
C. Loncke1, L. Van Nespen1, C. Launay1, E. Sulmont1, L. Dussert2, and V. Demey1, 1INZO, Chierry, France, 2Lallemand SAS, Blignac, France.

Effects of medicinal feed additive (MFA) program fed with varying levels of wet distillers grains (WDGS) on growth performance, carcass characteristics and health of growing / finishing beef steers.
M. E. Branie*, M. E. Hubbert, and B. D. Hunsaker, 1Pfizer Animal Health, Canon City, CO, 2New Mexico State University, Clayton, 3Summit Research LLC, Wellington, CO.

Basal diet affects ruminal in situ degradation rate of urea and Optigen II in steers.
V. B. Holder*, J. S. Jennings, and J. M. Tricarico, 1University of Kentucky, Lexington, 2Alltech, Brookings, SD, 3Innovation Center for U.S. Dairy, Rosemont, IL.

Effect of feeding chelated forms of Zn, Cu, and Mn in combination with methionine on growth and reproductive development of heifers.
R. Harvey*, Y. Wang1, G. I. Zanton1, T. J. Wistuba2, and M. S. Kerley1, 1University of Missouri, Columbia, 2Novus International Inc., St. Charles, MO.

The effect of combination of metal amino acid chelates, Se yeast, mannaoligosaccharides, and dietary antioxidants on the health and growth performance of high-risk calves.
T. J. Wistuba*, G. I. Zanton1, D. Nuzback1, M. Andersen1, and E. Larsen2, 1Novus International Inc., St. Charles, MO, 2Larsen Nutritional Solutions, Fowler, CO.

Effect of addition of increasing doses of chitosan in diets of Nellore cattle on the intake and digestibility total nutrients.
R. V. Barletta1, A. P. C. Araújo, R. Gardinal, R. D. Mingoti, B. C. Ventureli, J. E. Freitas, J. R. Gandra, M. C. B. Santos, B. C. Benevento, V. G. C. Lacuna, and F. P. Renô, 1University of Sao Paulo, Sao Paulo, Brazil.

Ruminal parameters, microbial protein production, protein efficiency and nitrogen balance on beef steers supplemented with slow-release urea in diets with two concentrate levels.
P. D. B. Benedeti1, P. V. R. Paulino*1, T. S. Martins1, E. F. Lisboa1, L. H. P. Silva1, C. R. V. Teixeira1, L. C. Alves1, M. S. Duarte1, R. Mezzomo1, J. C. M. Lima1, J. P. I. S. Monnerat1, M. I. Marcondes1, S. C. Valadares Filho1, and M. Manella1, 1Universidade Federal de Viçosa, Viçosa, MG, Brazil, 2Alltech do Brasil, Curitiba, PR, Brazil.

Impact of an all-natural liquid fermentation prototype on performance of feedlot cattle.

Effect of β-carotene supplementation on fatty acid profile and expression of genes involved in vitamin A metabolism in beef cattle.
K. N. Condon*, J. N. Waddell, M. C. Claey, R. P. Lemenager, and J. P. Schoonmaker, Purdue University, West Lafayette, IN.

Analysis of rumen methanogen diversity in cattle divergent for residual feed intake using next generation sequencing technology.
C. A. Carberry*, 1, D. A. Kenny1, C. J. Creevey1, and S. M. Waters, 1Animal and Bioscience Department, Animal and Grassland Research and Innovation Centre, Teagasc, Grange, Co. Meath, Ireland, 2School of Agriculture, Food Science and Veterinary Medicine, University College Dublin, Belfield, Dublin 4, Ireland.

Ruminant Nutrition

Co-Products

In vitro intestinal amino acid digestibility of distillers grains varies with grain source and milling process.
C. Li1, J. Q. Li1, K. A. Beauchemin1, and W. Z. Yang*, 1College of Animal Science, Inner Mongolia Agricultural University, Hohhot, Inner Mongolia, China, 2Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.
W266 Urea treatment of different levels of pistachio hull and its relation to gas production in vitro.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Agricultural Sciences & Natural Resources University of Gorgan, Gorgan, Golestan, Iran, ³Bonn University, Bonn, Germany.

W267 Effect of different levels of pistachio hull on in vitro gas production.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Agricultural Sciences & Natural Resources University of Gorgan, Gorgan, Golestan, Iran, ³Bonn University, Bonn, Germany.

W268 Increased dietary tannin by addition of pistachio hull and its relation to fermentation parameters and protozoa content of rumen in Balochi male lambs.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Agricultural Sciences and Natural Resources University of Gorgan, Gorgan, Iran, ³Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany.

W269 Effects of feeding pistachio hull and polyethylene glycol supplementation on milk fatty acids composition in Saanen dairy goats.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Agricultural Sciences & Natural Resources University of Gorgan, Gorgan, Golestan, Iran, ³Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany.

W270 Effects of feeding pistachio hull and polyethylene glycol (PEG) supplementation on milk fatty acids composition in Saanen dairy goats.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Agricultural Sciences & Natural Resources University of Gorgan, Gorgan, Golestan, Iran, ³Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany.

W271 Milk fatty acid profile of Saanen dairy goats fed diets containing pistachio hull tannin and polyethylene glycol supplementation.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, B. Saremi*², and A. Reza Shahjadi³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany, ³Agricultural Sciences & Natural Resources University of Gorgan, Gorgan, Golestan, Iran.

W272 Effects of pistachio hull and polyethylene glycol supplementation on milk yield and compositions in Saanen dairy goats.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Agricultural Sciences & Natural Resources University of Gorgan, Gorgan, Golestan, Iran, ³Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany.

W273 Liver enzymes and immune system response of Saanen dairy goats supplemented with pistachio hull and polyethylene glycol.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Agricultural Sciences & Natural Resources University of Gorgan, Gorgan, Golestan, Iran, ³Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany.

W274 Effects of pistachio tannins on nitrogen metabolism in Balochi male lambs.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, B. Saremi*², and A. R. Shahjadi³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany, ³Agriculture Sciences and Natural Resources University of Gorgan, Gorgan, Iran.

W275 Different levels of tannin by dietary addition of pistachio hull and plasma metabolic profile in Balochi male lambs.
A. Rahimi¹, A. A. Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, and B. Saremi*², ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Bonn University, Bonn, Germany.

W276 Replacing alfalfa with different levels of pistachio hull and its effects on feed intake and digestibility of nutrients in total tract, rumen and post-rumen in Balochi male lambs.
A. Rahimi¹, A. Ali Naserian¹, R. Valizadeh¹, A. Tahmasbi¹, A. R. Shahjadi², and B. Saremi*³, ¹Ferdowsi University of Mashhad, Mashhad, Khorasan Razavi, Iran, ²Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Germany, ³Agriculture Sciences and Natural Resources University of Gorgan, Gorgan, Iran.

W277 Effect of increasing amounts of corn dried distillers grains with solubles in dairy cow diets on enteric methane emissions, digestibility, and milk production.
C. Benchaar¹, F. Hassanat¹, R. Gervais¹, P. Y. Chouinard¹, C. Julien¹, F. Tremblay¹, D. I. Massé¹, and H. V. Petit¹, ¹Dairy and Swine Research and Development Centre-Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²Département des Sciences Animales-Université Laval, Québec, QC, Canada, ³INRA-Université de Toulouse, Castanet-Tolosan, France.
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>W280</td>
<td>Effect of dried distillers grains with solubles (DDGS) on duodenal microbial crude protein (MCP) flow in steers as determined with DNA microbial markers.</td>
<td>E. Castilho-Lopez, T. J. Klopfenstein, and P. J. Kononoff, University of Nebraska-Lincoln, Lincoln.</td>
</tr>
<tr>
<td>W281</td>
<td>Effect of canola meal on growth performance, carcass quality and meat fatty acid profiles of feedlot cattle.</td>
<td>M. L. He, T. A. McAllister, D. Gibb, and J. J. McKinnon, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, University of Saskatchewan, Saskatoon, SK, Canada, Viterra Feed Products, Lethbridge, AB, Canada.</td>
</tr>
<tr>
<td>W285</td>
<td>Inclusion of triticate dried distiller grains and flaxseed in feedlot cattle diets increases alpha-linolenic acid in beef without affecting carcass or meat quality traits.</td>
<td>M. L. He, L. M. Hernandez-Calva, T. A. McAllister, J. L. Aalhus, M. E. R. Dugan, and J. J. McKinnon, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, University of Saskatchewan, Saskatoon, SK, Canada, Lacombe Research Centre, Agriculture and Agri-Food Canada, Lacombe, AB, Canada.</td>
</tr>
<tr>
<td>W286</td>
<td>Effects of increasing distillers grain and monensin on feed intake and ruminal fermentation in feedlot cattle diets.</td>
<td>L. Xu, Y. Jin, C. Li, and W. Z. Yang, Research Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, College of Animal Science, Inner Mongolia Agricultural University, Hohhot, Inner Mongolia, China.</td>
</tr>
<tr>
<td>W287</td>
<td>Modeling nutrient supply from combined feeds of corn with wheat dried distillers grains with solubles at different ratios in ruminants.</td>
<td>D. Damiran, M. Yari, L. Yang, X. Zhang, and P. Yu, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.</td>
</tr>
<tr>
<td>W289</td>
<td>Effect of replacing barley grain with glycerol in feedlot diets on nutrient digestibility, methane emissions, growth, fatty acid profiles and carcass traits of lambs.</td>
<td>J. S. Avila, S. J. Meale, T. A. McAllister, M. L. He, O. M. Harstad, K. A. Beauchemin, S. M. McGinn, and A. V. Chaves, Faculty of Veterinary Science, University of Sydney, Sydney, NSW, Australia, Lethbridge Research Centre, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada, Facultad de Ciencias Veterinarias, Universidad de Concepción, Chillan, Chile, Norwegian University of Life Sciences (UMB), Ås, Norway.</td>
</tr>
<tr>
<td>W291</td>
<td>Effect of replacing wheat offal with dried oil palm slurry on the performance and carcass traits of Ndama weaners.</td>
<td>M. K. Adebuomi and J. A. Aderiyi, Department of Animal Science, University of Ibadan, Ibadan, Oyo State, Nigeria.</td>
</tr>
</tbody>
</table>
Nitrogen balance and microbial efficiency in sheep fed with diets containing glycerin.

Blood parameters of Nelore steers fed with glycerin.

Levels of replacement of corn by glycerin in multiple supplements for Nelore steers grazing in dry season: Performance.

Ruminant Nutrition
Dairy: Feeds and co-products

Productive response of lactating cows fed low-fat dried distillers grains with solubles in combination with rumen-inert fat.
H. A. Ramirez Ramirez*, P. J. Kononoff, and K. Karges, 1Department of Animal Science, University of Nebraska, Lincoln, 2Dakota Gold Research Association, Sioux Falls, SD.

Production performance and ruminal fermentation of dairy cows fed diets replacing starch from corn with non-forage fiber from distillers grains.

Effect of supplementing dairy cow diets with different forms of palm oil-based supplements on the fatty acid profile of milk fat.
P. C. Aikman1, K. E. Kliem1, R. M. Kirkland*, A. K. Jones1, S. L. Potterton1, and C. K. Reynolds1, 1University of Reading, Reading, UK, 2Volac International Ltd., Royston, UK.

Influence of corn silage hybrid on lactation performance by dairy cows.
M. S. Akins* and R. D. Shaver, Department of Dairy Science, University of Wisconsin-Madison, Madison.

Sugar cane silage for lactating dairy cows.
M. I. Marcondes*, F. L. Andrade1, R. A. V. Vergara1, A. S. Trece1, T. E. Silva1, W. L. Cardoso1, and A. B. Fonseca1, 1Universidade Federal de Viçosa, Viçosa, MG, Brazil, 2University of New Hampshire, Durham.

Influence of dietary starch and forage NDF concentrations on digestion and lactation performance by dairy cows.
L. F. Ferraretto* and R. D. Shaver, University of Wisconsin-Madison, Madison.

Processed corn stover as a corn silage replacement feed for lactating dairy cattle.
S. S. Donkin*, J. E. Williams, K. M. Hunt, K. M. Steinkamp, and M. A. McGuire, Department of Animal and Veterinary Science, University of Idaho, Moscow.

Effects of feeding camelina meal on milk production and composition in lactating Holstein cows.
B. C. Casperson*, J. E. Williams, K. M. Hunt, K. M. Steinkamp, and M. A. McGuire, Department of Animal and Veterinary Science, University of Idaho, Moscow.

Comparison of the NRC (2001) model and the DVE/OEB system in the prediction of protein supply to dairy cows from hulless barley (Hordeum vulgare L.) with altered carbohydrate traits.
L. Yang1,1, D. Christensen1, J. McKinnon1, B. Rossnagel1, A. Beattie2,3, and P. Yu1,1, 1Department of Animal and Poultry Science, 2Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Influence of different forage and dried distillers grains with solubles concentrations on sorting behavior of lactating dairy cows.
S. D. Ranathunga*, K. F. Kalscheur, and D. P. Casper, Dairy Science Department, South Dakota State University, Brookings.

Effects of sudden additions of condensed distillers solubles to diets of lactating dairy cows on milk production and milk components.
S. E. Fraley*, J. R. Townsend, and T. D. Nennich, Purdue University, West Lafayette, IN.

Occurrence and concentration of mycotoxins, molds and yeasts on corn co-products from South Dakota and Minnesota dairy farms.
F. Diaz-Royon*, A. Garcia1, K. F. Kalscheur1, K. A. Rosentrater2, J. S. Jennings3, and K. Mjoun4, 1Dairy Science Department, South Dakota State University, Brookings, 2Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, 3Alltech South Dakota, Brookings.
Effects of whole flaxseed or whole linola on milk production, milk composition, and blood parameters of dairy cows in Quebec, Canada.

M. R. Dubé, H. V. Petit*, N. Guay, C. M. Oliver, C. M. Jérôme, and C. M. Depauw, 1Dairy Science Department, South Dakota State University, Brookings, 2Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, 3Alltech South Dakota, Brookings.

Effects of feeding brown midrib corn silage with a high dietary concentration of alfalfa hay during early and mid lactation on milk production of Holstein dairy cows.

M. S. Holt*, A. J. Young, X. Dai, K. E. Nestor, and J.-S. Eun, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, 2Utah Agricultural Experiment Station, Utah State University, Logan, 3Mycogen Seeds, Indianapolis, IN.

Effects of harvest date and a BMR hybrid on yield and nutrient composition of corn plants harvested for silage.


Chemical and nutrient availability of hulless barley (Hordeum vulgare L.) with altered carbohydrate characteristics.

L. Yang*, J. McKinnon, D. Christensen, B. Rossnagel, A. Beattie, and R. Yu, 1Department of Animal and Poultry Science, 2Crop Development Centre, 3University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Effects of dietary protein content and source of grain on milk production and nitrogen efficiency in early lactating primiparous Holstein cows.

H. Mirzaei Alamouti* and A. Mohammad, University of Zanjan, Zanjan, Iran.

Lactational performance, chewing behavior, and ruminal fermentation of dairy cows fed diets differing in amount and digestibility of NDF from two sources of corn silage.


Reduced protein for late-lactation dairy cows fed ryegrass haylage-based diets.

V. R. Moreira*, A. B. D. Pereira*, L. K. Zeringue, C. Leonardi, B. F. Jenny, C. C. Williams, and M. E. McCormick, 1LSU AgCenter SE Research Sta., Franklinton, LA, 2LSU AgCenter School of Animal Sciences, Baton Rouge, LA, 3LSU Health Sciences Center, New Orleans, LA.

Energy intake of dairy cows grazing native rangeland in México.


R. Martineau, D. R. Ouellet, and H. Lapierre*, Dairy and Swine R&D Centre Agriculture and Agri-Food Canada, Sherbrooke, Quebec, Canada.

Milk production, milk composition and blood parameters of cows fed whole flaxseed or whole linola.

H. V. Petit†*, R. N. do Prado‡*, M. F. Palin†, and C. Benchari†, 1Dairy and Swine Research and Development Centre, Sherbrooke, QC, Canada, 2Universidade Estadual de Maringa, Maringa, PR, Brazil.

Ruminant Nutrition

Dairy: Rumen function and digestion

In situ ruminal degradability of soybean meal (SBM), canola meal (CM), and corn or wheat dried distillers grains (DDG).

G. Maxin*, D. R. Ouellet, and H. Lapierre, Dairy and Swine Research and Development Center, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.

Effect of carbohydrate source on performance and ruminal responses of dairy cows fed low-starch diets.


Duodenal bioavailability of quercetin and rutin in German Holstein cows.

A. Gohlke*, C. J. Ingelmann, C. J. Bond, A. C. Storm, M. S. Holt*, and M. Huerta-Bravo, 1Aarhus University, Department of Food Science, Tjele, Denmark, 2Aarhus University, Department of Animal Science, Tjele, Denmark.
Ruminant Nutrition
General III

W335 Variation in chemical composition among breeding lines of novel oat varieties as ruminant feeds.
J. M. Moorby*, A. A. Cowan, and A. H. Marshall, Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, UK.

W336 Ruminal metabolism in continuous culture fermentation when administering high concentration of inorganic selenium in mixed cultures of ruminal microorganisms.
J. M. Vera1, T. Z. Davis2, D. N. Miller1, K. E. Panter2, D. R. ZoBell1, and J.-S. Eun2, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, 2Poisonous Plant Research Laboratory, USDA-ARS, Logan, UT, 1Agroecosystem Management Research Unit, USDA-ARS, Lincoln, NE.
W337  Effects of algae on ruminal fermentation and digestion in continuous culture fermenters.  

W338  Digestion response of dairy heifers to the supplementation of autolyzed yeast.  
D. R. Gomide1, R. F. Lima1, N. M. Lopes1, R. C. Oliveira1, A. Ganner2, R. A. N. Pereira3, and M. N. Pereira*, 1Universidade Federal de Lavras, Lavras, Brazil, 2Biomin Research Center, Tulln, Austria, 3Empresa de Pesquisa Agropecuaria de Minas Gerais, Lavras, Brazil.

W339  The effect of several sodium and potassium salts on rumen pH.  
R. Garcia-Gonzalez*, C. Yunta, and H. van Laar, Nutreco R&D, Bosmeer, the Netherlands.

W340  Effect of polyethylene glycol on in vitro fermentation kinetics and digestibility of native tree fruits.  
F. Aviles-Nova*, J. G. Estrada-F, O. Castelan-Ortega, B. Albarran-P, and A. Ramirez-O, 1Centro Universitario UAEM-Temascaltepec, Universidad Autonoma del Estado de Mexico, Temascaltepec, Edo. de Mexico, Mexico, 2Instituto de Ciencias Agropecuarias y Rurales (ICAR) de la UAEM, Toluca, Edo. de Mexico, Mexico, 3Facultad de Medicina Veterinaria y Zootecnia de la UAEM, Toluca, Edo. de Mexico, Mexico.

W341  Chemical composition and in vitro digestibility of foliage trees, and their use in feeding lambs in the dry tropics of central highlands of Mexico.  
S. Rojas-Hernandez1, D. Castelan-Ortega, A. Garcìa-Martínez2, J. Olivares-Perez2, J. G. Estrada-F1, and F. Aviles-Nova*, 1U. A. Medicina Veterinaria y Zootecnia, Universidad Autonoma de Guerrero, Ciudad Altamirano, Guerrero, Mexico, 2CU - Temascaltepec, Universidad Autonoma del Estado de Mexico, Temascaltepec, Edo. de Mexico, Mexico, 3Facultad de Medicina Veterinaria y Zootecnia - Universidad Autonoma del Estado de Mexico, Toluca, Edo. de Mexico, Mexico, 4Instituto de Ciencias Agropecuarias y Rurales, Toluca, Edo. de Mexico, Mexico.

W342  Effect of replacing barley grain with wheat dry distillers grains with solubles on in situ degradation kinetics, growth, and fatty acid profiles of lambs.  
J. S. Avila1, S. J. Meale*, A. S. O’Hara1, A. Horadogoda2, D. Palmer1, T. A. McAllister2, and A. V. Chaves3, 1Faculty of Veterinary Science, University of Sydney, Sydney, NSW, Australia, 2Lethbridge Research Center, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada.

W343  Could essential oils of thyme (Zataria multiflora) and peppermint (Mentha piperita) improve calf growth performance?  
M. Ebrahimi, M. Ganjkhanlou, and M. Dehghan-Banadaky*, University of Tehran, Karaj, Tehran, Iran.

W344  In vitro investigation of various adsorbents to adsorb aflatoxin B1.  
M. Savari, M. Dehghan-Banadaky*, K. Rezayazdi, and M. Javan-Nikkah, University of Tehran, Karaj, Tehran, Iran.

W345  Influence of Yucca schidigera on in vitro gas production and fermentation of rumen fluid.  
K. D. Boden* and C. A. Loest, New Mexico State University, Las Cruces.

W346  Effects of inclusion of bioethanol co-product on changes in the metabolic characteristics of the proteins in oat grain in ruminants.  
D. Damiran, M. Yari, L. Yang*, Z. Niu, and P. Yu, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

W347  Evaluation of forage indigestible NDF and relations with analytical parameters by principal component analysis.  
A. Gallo, S. Bruschi, G. Giuberti, M. Moschini, and F. Masoero*, Università Cattolica del Sacro Cuore, Piacenza, Italy.

W348  Utilization of Yucca schidigera to alter hydrogen sulfide gas production from rumen fluid in vitro.  
J. Browne-Silva* and C. A. Loest, New Mexico State University, Las Cruces.

W349  Effect of monensin and bismuth subsalicylate on hydrogen sulfide in continuous culture fermenters.  
M. Ruiz-Moreno*, E. Binversie, and M. D. Stern, Department of Animal Science, University of Minnesota, St. Paul.

W350  Alteration of fasting heat production during fescue toxicosis in Holstein steers.  
A. F. Koontz*, A. P. Foote1, D. H. Kim1, L. P. Bush2, J. L. Klotz2, K. R. McLeod1, and D. L. Harmon1, 1Department of Animal and Food Sciences, University of Kentucky, Lexington, 2Department of Plant and Soil Sciences, University of Kentucky, Lexington, 3USDA-ARS, Forage-Animal Production Research Unit, Lexington, KY.

W351  Influence of maternal nutrition and prenatal adenovirus-VEGF gene therapy on fetal visceral tissues and crypt cell proliferation at d 130 of gestation.  
N. M. Chapel1,2, R. D. Yunusova1, R. P. Aitken1, J. S. Milne1, D. J. Carr1,2, P. P. Borowicz2, A. L. David1, J. M. Wallace2, and J. S. Caton1, 1Center for Nutrition and Pregnancy, Department of Animal Sciences, North Dakota State University, Fargo, 2Rowett Institute of Nutrition and Health, University of Aberdeen, Scotland, UK, 3Prenatal Cell and Gene Therapy Group, UCL Institute for Women’s Health, University College London, UK.

W352  Effect of dried fermentation biomass on microbial fermentation in continuous culture.  
A. Carpenter*, E. Binversie1, M. Ruiz-Moreno1, J. Usry1, I. Shinzato2, and M. D. Stern1, 1Department of Animal Science, University of Minnesota, St. Paul, 2Ajinomoto Heartland Inc., Chicago, IL.
Plasma metabolites and rumen ammonia concentration in steers fed high-forage diets and supplemented non-protein nitrogen.
C. L. Cox*, R. H. Pritchard, B. P. Holland, and J. S. Jennings, South Dakota State University, Brookings, Alltech Inc., Brookings, SD.

Gossypol and total phenols of eleven varieties of whole cottonseed (Gossypium hirsutum) in the north of Argentina.

Influence of nitrogen fertilization and fibrolytic enzymes on digestibility and utilization of the nutrients of ryegrass (Lolium multiflorum var. Jumbo) hay fed to Holstein steers.

Ruminant Nutrition
Other Ruminants

Diurnal pH of the first compartment stomach of alpacas fed alfalfa or grass hay supplemented with oats, corn, and corn/oats/barley.
B. Harris*, T. F. Robinson, and N. I. Bot, Brigham Young University, Provo, Bott Veterinary Services and Consulting, Elk Ridge, UT.

Effect of castration on performance and carcass traits of crossbreed lamb on different time on feed.
M. R. Mazon*, P. R. Leme, L. S. Oliveira, R. F. Carvalho, C. A. Zotti, L. E. Zanoni, D. M. C. Pesce, and S. da Luz e Silva, Faculdade de Zootecnia e Engenharia de Alimentos (FZEA/USP), Pirassununga, São Paulo, Brazil, Pontificia Universidade Católica de Minas Gerais (PUC Minas), Poços de Caldas, Minas Gerais, Brazil.

Efficacy of novel feed products to reduce locoweed toxicity in wether lambs.
F. A. Allataifeh*, C. A. Loest, M. N. Sawalhah, L. N. Tracey, J. Browne-Silva, J. B. Taylor, and D. M. Hallford, New Mexico State University, Las Cruces, USDA-ARS, Dubois, ID.

Swainsonine excretion, nutrient digestibility, and nitrogen retention of lambs fed alfalfa hay, locoweed, and novel feed additives.
F. A. Allataifeh, C. A. Loest, M. N. Sawalhah, F. Castillo, A. F. Cibils, and E. J. Scholljegerdes, New Mexico State University, Las Cruces.

The serosal-to-mucosal urea flux across the cervine ruminal epithelium is not affected by mucosal ammonia or phloretin.
M. E. Walpole*, G. B. Penner, M. Woodburry, and T. Mutsvangwa, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, Department of Large Animal Clinical Services, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

Ruminant Nutrition
Feed Additives

Effects of different feed additives on performance and carcass traits of feedlot cattle.

Effect of Propionibacterium freudenreichii supplementation in diets containing canola or flaxseed oils on in vitro methanogenesis and lipid biohydrogenation.
S. Ding, S. J. Meale, M. L. He, J. Long, A. Y. Alazeh, T. A. McAllister, and A. V. Chaves, Veterinary Science, University of Sydney, Sydney, NSW, Australia, Lethbridge Research Center, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada, Department of Animal Science, Northeast Agricultural University, Haerbin, Heilongjiang, China.

Efficacy of an autolysed yeast product (Levabon Rumen) for ruminants versus live yeast and yeast culture in vitro.
A. Ganner*, C. Stoiber, I. Dohnal, K. Deckardt, F. Klevenhusen, G. Schatzmayr, and Q. Zebeli, Biomin Research Center, Tulln, Lower Austria, Austria, University of Veterinary Medicine, Vienna, Austria.
Effect of dietary supplementation of a yeast product on performance and morbidity of newly received beef heifers.

C. H. Ponce*1, J. S. Schutz2, C. Elrod2, J. Y. Anele2, and M. L. Galyean1, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Varied Industries Corp. Inc., Mason City, IA.

Effect of oregano, ginger and thyme oils in vitro rumen fermentation and methane emission.


Effect of some essential oils on rumen fermentation and methane emission in vitro.


Effect of abomasal inorganic phosphorus infusion on phosphorus absorption in lactating dairy cows.


Effects of essential oils on rumen fermentation and methane production of a mixed diet.

I. Mateos1, A. Diez1, C. Soro1, D. Yañez-Ruiz1, M. D. Carro1,2, and M. J. Ranilla*1,2, 1Dpto. Producción Animal, Universidad de León, Campus de Vegazana, León, Spain, 2Instituto de Ganadería de montaña (CSIC-ULE), Finca Marzanas, Grulleros, León, Spain, 3Estación Experimental del Zaidín (CSIC), Camino del Jueves, Armilla, Granada, Spain.

Effect of feeding Bacillus subtilis and Bacillus licheniformis on dry matter and nutrient intake and digestibility by lambs fed a low quality roughage diet.

E. Martinez-Loarte*, A. A. Rodríguez, and L. C. Solórzano, University of Puerto Rico, Mayaguez, PR.

Efficacy of live yeast Saccharomyces cerevisiae (strain Sc 47) and/or yeast cell wall on rumen fermentation and digestive utilization of corn silage-based diet in mid-lactating dairy cows.

C. Bayourthe*1,2, C. Julien1,2, E. Auclair1, and J. P. Marden1, 1INRA, UM1289 Tissus Animaux Nutrition Digestion Ecosystème et Métabolisme TANDEM, Castanet Tolosan Cedex, France, 2Université de Toulouse, INP-ENSAT, INP-ENVT, UM1289 TANDEM, Castanet Tolosan Cedex, France, 3Lesaffre Feed Additives, Marquette Lez Lille, France.

Effect of live yeast Saccharomyces cerevisiae (strain Sc 47) on nutrient digestion and ruminal fermentation in relation with rumen degradable protein content of the diet.

C. Julien1,2, J. P. Marden1, E. Auclair1, R. Moncoulon1,2, and C. Bayourthe1,2, 1INRA, UM1289, Tissus Animaux Nutrition Digestion Ecosystème et Métabolisme (TANDEM), Castanet Tolosan Cedex, France, 2Université de Toulouse, INP-ENSAT, INP-ENVT, UM1289 TANDEM, Castanet Tolosan Cedex, France, 3Lesaffre Feed Additives, Marquette Lez Lille, France.

Effects of difructose anhydride III supplementation on serum calcium, dry matter intake and energy status in periparturient dairy cows.

M. Teramura*, S. Wynn1, T. Sato1, and M. Hanada2, 1Nippon Beet Sugar Manufacturing Co. Ltd., Obihiro, Hokkaido, Japan, 2Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan.

Effects of monensin and extracts of hops and Yucca schidigera applied alone or in combination on rumen fermentation in vitro.

N. Narvaez, Y. Wang*, and T. A. McAllister, AAFC, Lethbridge, AB, Canada.

Concentrate level and combined use of ionophore and virginiamycin on feeding behavior of Nelore steers fed high grain diets.

A. J. C. Nuñez*, S. Wynn1, H. Gado1, J. S. Schutz2, F. T. Mercado1, F. Pinese1, R. R. Casagrande1, P. R. Leme1, and J. C. M. Nogueira Filho1, 1USP/FZEA, Pirassununga, SP, Brazil, 2USP/ESALQ, Piracicaba, SP, Brazil, 3Purdue University, West Lafayette, IN.

Effect of different doses of exogenous enzymes preparation on in vitro gas production and ruminal fermentation activities of some fibrous feeds in cows.

M. M. Y. Elghandour1, C. G. Peñuelas-Rivas1, M. Ronquillo1, A. Z. M. Salem*, H. Gado2, and N. E. Odongo3, 1Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de Mexico, Mexico, 2Facultad de Agricultura, Ain Shams University, Cairo, Egypt, 3Animal Production and Health Section, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, International Atomic Energy Agency, Vienna, Austria.

Nutrient intake and ruminal parameters in response to Bacillus subtilis included on beef steer diet.


Effect of exogenous fibrolytic enzymes on in vitro rumen fermentation of corn silage.

Small Ruminant Reproduction, Parasites, and Environment

W379 Effects of meat goat breed, sex, and conditions before and between measures on behavior in pens with barb wire and electric fence strands.
Y. Tsukahara*, T. A. Gipson, G. D. Detweiler, T. Sahl, and A. L. Goetsch, Langston University, Langston, OK.

W380 GIS grid analysis of utilization of adjacent pastures by two herds of goats.
T. A. Gipson*, S. P. Hart, and R. Heinemann1, Langston University, Langston, OK, 2Kiamichi Forestry Research Station, Oklahoma State University, Idabel.

W381 Ruminal methane emission by Boer and Spanish does supplemented with garlic.

W382 Effects of Roscovitine on maturation and fertilization of ovine oocyte in vitro.
S. Nasrollahi*, A. Z. Shahnhe, S. Zeinoldin, H. Kohram, and M. Poorhamdollah, University of Tehran, Karaj, Tehran, Iran.

W383 Anthelmintic efficacy of medicinal herbs in goats infected with nematode parasites.
R. Z. Zhong1,2, Z. Wang*, D. Zhou1, A. L. Goetsch1, S. P. Hart1, and T. Sahl1, Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences, Changchun, China, 3Langston University, Langston, OK.

W384 The effects of confinement and protein levels on the growth and parasitic loads of kids raised under mixed-species grazing system.

W385 The anthelmintic effect of Juniper and Tifton 85 on the infective larval stage of Haemonchus contortus in an in vitro system.
S. A. Armstrong1,2, B. D. Lambert1, T. R. Whitney1, J. P. Muir1, and A. McEwin1, Tarleton State University, Stephenville, TX, 2Texas Agrilife Research, Stephenville, 3Texas Agrilife Research, San Angelo.

W386 Panicled tickclover, a native herbaceous legume, suppresses internal parasites without negative effects on kid performance.
N. M. Cherry1, M. Bullinger1, B. D. Lambert1, J. P. Muir1, and T. Whitney2, Texas A&I Research, Stephenville, Texas A&I Research, San Angelo, 1Department of Animal Science, Tarleton State University, Stephenville, TX.

W387 Relative resistance to gastrointestinal nematode parasitic infection in sheep and goats.

W388 Effects of supplementing fat sources in pre-mating ewe diets on reproductive performance.
Z. Mohammadi1, H. Mirzaei Alamout1, M. H. Shahir1, H. Amanlo1, and M. Yavari1, University of Zanjan, Zanjan, Iran, 2University of Hamedan, Hamedan, Iran.

W389 Effect of equine chorionic gonadotropin dosage and administration moment on reproductive performance in Pelibuey ewes.
A. González-Reyna1, J. Hernández-Mélendez1, F. A. Lucero-Magaña1, J. Cedillo-Monroy2, and J. F. Vázquez-Armijo2, 1Universidad Autónoma de Tamaulipas, Facultad de Ingeniería y Ciencias, Cd. Victoria, Tamaulipas, Mexico, 2Universidad Autónoma del Estado de México, Temascaltepec, Universidad Autónoma del Estado de México, Temascaltepec, Mexico, Mexico.

W390 Blood metabolites and insulin concentrations during pregnancy in ewes carrying one to five fetuses and supplemented with propylene glycol.

W391 Withdrawn by author

W392 Bone morphogenetic protein 15 (BMP-15) in crossbred goat fertility.

W393 Induction of sexual activity of male goats during the reproductive resting season.

W394 Induction to sexual activity of goats from the Mexican semidesert during the seasonal anestrus throughout the “female-to-female effect.”
J. M. Guillen-Muñoz2, O. Angel-García1, M. A. De Santiago-Miramontes1, G. Arellano-Rodríguez1, C. A. Meza-Herrera2, M. Meliado1, F. G. Véliz2, and R. Rodríguez-Martínez1, Universidad Autónoma Agraria Antonio Narro, Torreón, Coahuila, México, 2URUZA, Universidad Autónoma Chapingo, Gómez Palacio, Durango, México, 3Universidad Autónoma Agraria Antonio Narro, Saltillo, Coahuila, México.

W395 Influence of different GnRH treatments in an 11-d CIDR timed AI synchronization program in Santa Inés ewes.
M. V. Biehl1, A. V. Pires1, L. Susini2, R. S. Gentili2, E. M. Ferreira2, F. M. Abreu1, M. V. C. Ferraz Junior3, L. H. Cruppe1, and M. L. Day3, 1The Ohio State University, Columbus, 2University of Sao Paulo, Piracicaba, SP, Brazil, 3University of Sao Paulo, Pirassununga, SP, Brazil.
Effect of AI method on pregnancy rate following an 11d-CIDR estrus synchronization program in Santa Ines ewes.
M. V. Biehl*, A. V. Pires3, I. Susin2, R. S. Gentili2, E. M. Ferreira2, M. V. C. Ferraz Junior3, D. D. Nepomuceno2, F. M. Abreu1, L. H. Cruppe1, and M. L. Day1; 1The Ohio State University, Columbus, 2University of Sao Paulo, Piracicaba, SP, Brazil, 3University of Sao Paulo, Pirassununga, SP, Brazil.

Swine Species III

Industry productivity analysis—Sow farm traits.
C. E. Hostetler*1 and M. T. Knauer2, 1National Pork Board, Des Moines, IA, 2North Carolina State University, Raleigh.

Welfare of Camborough sows in gestation crates or pens.
W. Chaya1 and J. McGlone2, 1Department of Animal and Food Sciences, Texas Tech University, Lubbock, 2Pork Industry Institute, Department of Animal and Food Sciences, Texas Tech University, Lubbock.

Relationships of birth weight and weaning weight on performance traits in purebred pigs.
R. L. Cutshaw1, A. Schinckel1, J. Fix2, M. Brubaker3, and M. Einstein1, 1Purdue University, West Lafayette, IN, 2National Swine Registry, West Lafayette, IN, 3Whiteshire Hamroc LLC, Albion, IN.

Length of productive life and lifetime production of Landrace, Yorkshire and crossbred sows raised under Thai tropical conditions.
S. Koonawoottrirun1, U. Nopibool1, M. A. Elzo2, and T. Suwanasopee3, 1Kasetsart University, Bangkok, Thailand, 2University of Florida, Gainesville.

In utero heat stress alters postnatal body composition parameters in growing pigs.
R. L. Boddicker*1, N. J. Boddicker1, J. N. Rhoades1, S. Pearce1, J. Johnson1, M. C. Lucy2, T. J. Safranski2, N. K. Gabler1, J. T. Selsby3, J. Patience3, R. P. Rhoads2, L. H. Baumgard2, and J. W. Ross1, 1Iowa State University, Ames, 2University of Missouri, Columbia, 3Virginia Polytechnic Institute and State University, Blacksburg.

Implementing a total traceability system for the pig chain based on electronic ear tags and molecular markers.
P. Grassi1, G. Caja1, J. H. Mocket1, A. Costa1, J. Soler2, M. Gispert2, J. Tibau2, M. A. Rojas-Olivares2, and A. Sánchez1, 1Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain, 2Institut de Recerca i Tecnologia Agroalimentàries, Monells, Girona, Spain.
**SYMPOSIA AND ORAL SESSIONS**

**Alpharma/Beef Species Joint Symposium**
**Redefining the Replacement Heifer Paradigm**
**Chair: Matt Hersom, University of Florida**
**Sponsors: Alpharma Animal Health and Pfizer Animal Health**

**222AB**

**10:30 AM**
**Introduction**
M. Hersom, *University of Florida*.

**10:35 AM 602**
**Pubertal issues for beef replacement heifers.**
C. L. Gasser*, *Southern Utah University, Cedar City*.

**11:10 AM 603**
**Development systems for replacement beef heifers.**
R. N. Funston*, *University of Nebraska, West Central Research and Extension Center, North Platte*.

**11:45 AM 604**
**Interactions of feed efficiency with beef heifer reproductive development.**
R. D. Randel* and T. H. Welsh, 1Texas AgriLife Research, Overton, 2Texas AgriLife Research, College Station.

**12:20 PM 605**
**Enterprise level implications of heifer development.**
R. L. Endecott*, A. J. Roberts2, and J. T. Mulliniks3, 1Department of Animal and Range Sciences, Montana State University, Miles City, 2USDA-ARS, Fort Keogh Livestock and Range Research Laboratory, Miles City, MT, 3Department of Animal and Range Sciences, New Mexico State University, Las Cruces.

**Breeding and Genetics**
**Beef Cattle Breeding II—Applied genomics**
**Chair: Richard Tait, Iowa State University**

**225AB**

**10:30 AM 606**
**Genomic technologies to increase production of Certified Angus Beef (CAB).**
J. D. Nkrumah*, P. Boddureddy1, M. Kelly1, S. L. Northcutt2, M. McCully3, K. Anderson1, J. Rumph1, W. Herring1, J. Osterstock1, and S. DeNise1, 1Pfizer Animal Genetics, Kalamazoo, MI, 2Angus Genetics Inc., St Joseph, MO, 3Certified Angus Beef, Wooster, OH.

**10:45 AM 607**
**Genomic selection for dry matter intake using a combined European and Australian reference population.**
Y. de Haas*, J. E. Pryce3, M. P. Calus1, E. Wall2, M. P. Coffey1, H. D. Daetwyler3, B. J. Hayes1, and R. F. Veerkamp1, 1Animal Breeding and Genomics Centre of Wageningen UR Livestock Research, Wageningen, the Netherlands, 2Sustainable Livestock Systems Group at Scottish Agricultural College, Easter Bush, Midlothian, United Kingdom, 3Biosciences Research Division of Department of Primary Industries Victoria, Bundoora, VIC 3083, Australia.

**11:00 AM 608**
**Whole transcriptome sequencing of seven bovine tissues reveals gene expression profiles, splicing variants, and novel coding regions to improve genome annotation.**
J. Thomson*, U. Basu1, Y. Meng1, X. Liao1, S. Moore2, and P. Stothard1, 1University of Alberta, Edmonton, AB, Canada, 2University of Queensland, Brisbane, Qld, Australia.

**11:15 AM 609**
**An ensemble-based approach to imputation of high-density genotypes for genomic selection with application to purebred Angus cattle.**
C. Sun*, X.-L. Wu1,2, K. A. Weigel1, G. J. M. Rosa1,2, S. Bauck1, B. W. Woodward1, R. D. Schnabel1, J. F. Taylor1, and D. Gianola1,3, 1Department of Dairy Science, University of Wisconsin, Madison, 2Department of Animal Sciences, University of Wisconsin, Madison, 3Department of Biostatistics and Medical Informatics, University of Wisconsin, Madison, 4Merial Limited, Duluth, GA, 5Division of Animal Sciences, University of Missouri, Columbia.

**11:30 AM 610**
**Gene expression analysis of longissimus and semitendinosus muscle from Angus and Charolais finishing steers.**
J. W. Buchanan*, A. K. Sexten1, J. W. Dillwith1, C. R. Krehbiel1, and R. G. Mateescu1, 1Oklahoma State University, Stillwater, 2Kansas State University, Manhattan.

**11:45 AM 611**
**Single nucleotide polymorphisms in the NPY, leptin, and IGF-1 genes in Angus cattle: I Effects on feed efficiency.**
A. I. Trujillo*, A. Casal, and P. Chilibroste, Universidad de la Republica, Facultad de Agronomia, Montevideo, Montevideo, Uruguay.
12:00 PM 612 Single nucleotide polymorphisms in the NPY, Leptin, and IGF-1 genes in Angus cattle: II Effects on serum IGF-1 and leptin concentrations.  
A. I. Trujillo*, A. Casal, and P. Chilibroste, Universidad de la Republica, Facultad de Agronomia.

12:15 PM 613 A distributed parallel computing approach for tuning Bayesian regression models for genomic selection with application to Angus cattle.  
X.-L. Wu1,2, H. Okut1, C. Sun1, G. J. M. Rosa2, S. Bauck3, B. W. Woodward1, R. D. Schnabel4, J. F. Taylor4, and D. Gianola1,2. 1Department of Dairy Science, University of Wisconsin, Madison, 2Department of Animal Sciences, University of Wisconsin, Madison, 3Merial Limited, Duluth, GA, 4Division of Animal Sciences, University of Missouri, Columbia.

12:30 PM 614 Quantitative traits and genomics of heterosis in Wagyu × Angus F1 progeny.  
L. F. Zhang1,2, J. J. Michal1, J. V. O’Fallon1, Z. X. Pan1,3, C. T. Gaskins1, J. J. Reeves1, J. R. Busboom1, M. V. Dodson1, R. W. Wright1, and Z. Jiang1,2. 1Department of Animal Sciences, Washington State University, Pullman, 2College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China, 3College of Animal Sciences and Technology, Nanjing Agricultural University, Nanjing, Jiangsu, China.

Companion Animals  
Chair: Jill Cline, K9Crazy Consulting  
Sponsor: ASAS Foundation

10:30 AM 615 ASAS Early Career Achievement Award: Use of genomic biology to study companion animal microbiota.  
K. S. Swanson*, University of Illinois, Department of Animal Science, Urbana.

11:00 AM 616 Pheromones and interomones that change heart rate and behavior of anxious dogs.  
G. Thompson* and J. J. McGlone, Texas Tech University, Lubbock.

11:15 AM 617 Genome-wide linkage scan for loci associated with canine hypoadrenocorticism.  
A. M. Oberbauer* and J. M. Belanger, University of California-Davis, Davis.

11:30 AM 618 Effects of dietary macronutrient composition on postprandial endocrine response in domestic cats.  
P. Deng1, T. K. Ridge2, T. K. Graves2, J. K. Spears1, and K. S. Swanson1,2, 1Department of Animal Sciences, University of Illinois, Urbana, 2Department of Veterinary Clinical Medicine, University of Illinois, Urbana, 3Division of Nutritional Sciences, University of Illinois, Urbana, 4Nestlé Purina PetCare, St. Louis, MO.

11:45 AM 619 Digestibility of day-old, whole ground, extruded, and canned chicken-based diets in African wildcats.  
K. R. Kerr*, C. L. Morris3, S. L. Burke3, L. M. Garner1, and K. S. Swanson1,2, 1Division of Nutritional Sciences, University of Illinois, Urbana, 2Department of Animal Sciences, University of Illinois, Urbana, 3Henry Doorly Zoo, Omaha, NE.

12:00 PM 620 Dietary protein:carbohydrate ratio alters kitten fecal microbiota as analyzed by 454 pyrosequencing.  
S. Hooda*1, B. M. Vester Boler1, R. R. Kerr1, S. E. Dowd2, and K. S. Swanson3, 1University of Illinois, Department of Animal Sciences, Urbana, 2MR DNA Molecular Research LP, Shallowater, TX.

12:15 PM 621 Influence of indigestible starch content in dry expanded diets on stool characteristics of dogs differing in body size.  
R. Goudez1,2, M. Weber3, L. Martin1, V. Leray1, V. Biourge1, H. Dumon1, and P. Nguyen1, 1LUNAM University, Oniris, National College of Veterinary Medicine, Food and Science and Engineering, Nutrition and Endocrinology Unit, Nantes, France, 2Royal Canin Research Center, Aimargues, France.

12:30 PM 622 Influence of fresh citrus pulp and apple pomace on the digestibility of nutrients in dogs.  
S. Brambillasca*, C. Deluca, A. Britos, and C. Cajarville, Departamento de Nutricion Animal, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay.
Dairy Foods
Microbiology and Chemistry
Chair: Young Park, Fort Valley State University

10:30 AM 623 Impact of NaCl substitution with KCl on cell-wall extract and cell-free supernatant proteinase activities of *Lactobacillus delbrueckii* ssp. *bulgaricus* and *Streptococcus thermophilus* and *Lactobacillus acidophilus* and *Lactobacillus casei* at different pH and salt levels.
M. M. Ayyash¹, F. Sherkat², and N. P. Shah*¹, ³, ¹Victoria University, Melbourne, Vic, Australia, ²RMIT University, Melbourne, Vic, Australia, ³The University of Hong Kong, Pokfulam, Hong Kong.

10:45 AM 624 Survival of microencapsulated probiotic *Lactobacillus paracasei* LBC-1e during manufacture of Mozzarella cheese and simulated gastric digestion.
F. Ortakci*, J. R. Broadbent, W. R. McManus, and D. J. McMahon, Western Dairy Center Department of Nutrition, Dietetics, and Food Science, Utah State University, Logan.

11:00 AM 625 Characterization of *Lactobacillus* sp. GF103 as potential probiotics in vitro.
X. L. Dong¹, Q. Y. Diao*¹, N. F. Zhang¹, Y. Tu¹, M. Zhou¹, ², L. H. Zhao¹, and X. H. Gao³, ¹Key Laboratory of Feed Biotechnology of Ministry of Agriculture/Feed Research Institute, Chinese Academy of Agricultural Sciences, Beijing, China, ²College of Animal Science Xinjiang Agricultural University, Urumqi, China.

11:15 AM 626 Microbial safety assessment of Juustoleipa cheese manufacture.
B. Ganesan*, D. Irish, and C. Brothersen, Western Dairy Center, Utah State University, Logan.

11:30 AM 627 Viability of probiotic bacteria and yeasts in traditional and commercial kefir following frozen storage.
K. V. O’Brien*, C. A. Boeneke, K. J. Aryana, and W. Prinyawiwatkul, Louisiana State University, Baton Rouge.

11:45 AM 628 Probing the foaming characteristics of milk proteins.
J. A. Stankey*¹ and J. A. Lucey², ³, ¹University of Wisconsin-Madison, Department of Food Science, Madison, ²Wisconsin Center for Dairy Research, Madison.

12:00 PM 629 The influence of Bactoscan total bacteria counting (TBC) and preliminary incubation (PI) counting on subsequent infrared milk component results.
K. L. Wojciechowski and D. M. Barbano*, Cornell University, Department of Food Science, Northeast Dairy Foods Research Center, Ithaca, NY.

12:15 PM 630 Protective action of serum amyloid A3 against *Salmonella* Dublin infection.
A. Domènech*, A. Arls¹, A. Bach¹, ², and A. Serrano¹, ¹Institut de Recerca i Tecnologia Agroalimentària (IRTA), Caldes de Montbui, Barcelona, Spain, ²Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain.

Dairy Foods
Physico-Chemical Properties
Chair: Tonya Schoenfuss, University of Minnesota

10:30 AM 631 Development of whey protein concentrate incorporated dietetic kulfi.
H. G. Ramachandra Rao*¹ and A. Girì¹, ¹Dairy Science College, Bangalore, Karnataka, India, ²National Dairy Research Institute, Karnal, Haryana, India.

10:45 AM 632 Application of ultrasound spectroscopy to monitor lactose crystallization.
J. K. Amamcharla*, L. E. Metzger¹, and R. Tweedie², ¹Midwest Dairy Foods Research Center, Dairy Science Department, South Dakota State University, Brookings, ²Industrial Tomography Systems plc, Manchester, UK.

11:00 AM 633 Heat induced aggregation of whey proteins as influenced by shear, pH, and protein concentration.
M. Dissanayake, L. Ramchandran, and T. Vasiljevic*, Advanced Food Systems Faculty Research Unit, School of Biomedical and Health Sciences and Institute for Sustainability and Innovation, Victoria University, Werribee Campus, VIC, Australia.

11:15 AM 634 Effect of pH and protein concentration on denaturation kinetics of whey proteins.
M. Dissanayake, L. Ramchandran, and T. Vasiljevic*, Advanced Food Systems Faculty Research Unit, School of Biomedical and Health Sciences and Institute for Sustainability and Innovation, Victoria University, Werribee Campus, VIC, Australia.
Comparison of heat stability of bovine milk subjected to UHT and in-container sterilisation.
B. Chen*, F. Ren, A. Grandison, and M. Lewis, University of Reading, Reading, UK.

Investigating the influence of phospholipids on the viability of *Streptococcus thermophilus* and *Bifidobacterium lactis*.
B. Chinnasamy* and S. Clark, *Food Science and Human Nutrition*, Iowa State University, Ames.

Elucidating the role of αs2-casein in the superior functionality of acid gels prepared from high-pressure-treated milks compared with heat-treated milks.
H. Patel*, P. Salunke1, L. Creamer1, and H. Singh2, 1Fonterra Research Centre, Palmerston North, New Zealand, 2Ridgert Institute, Massey University, Palmerston North, New Zealand, 3South Dakota State University, Brookings, SD.

Coagulation properties of the casein micelle by combination of ultrafiltration and difiltration measured using rheology and diffusing wave spectroscopy.
J. G. Luo*, E. Kristo1, and M. Corredig1, 1Department of Food Science, University of Guelph, Guelph, ON, Canada, 2Gay Lea Foods Co-operative Ltd., Guelph, ON, Canada.

Extension Education II
Chair: Jeff Keown, University of Nebraska-Lincoln
128AB

Assessing a team-based educational program designed to build communication skills for practicing dairy veterinarians.
G. M. Schuenemann**, D. J. Klingborg1, D. A. Moore1, and J. D. Workman1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2School of Veterinary Medicine, University of California, Davis, 3Department of Veterinary Clinical Sciences, Washington State University, Pullman.

Assessing a team-based educational program on nutrition and reproductive management for small dairy producers.
G. M. Schuenemann**, W. P. Weiss2, and J. D. Workman3, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Department of Animal Sciences, The Ohio State University, Wooster.

I. Interactive index to identify and rank risk factors affecting reproductive performance of lactating dairy cows under field conditions.
S. Bas**, P. Federico2, and G. M. Schuenemann1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, 2Department of Mathematics, Computer Science, and Physics, Capital University, Columbus, OH.

Using real-time futures market simulation to teach dairy risk management.
M. E. Sowerby* and J. J. VanSickle, University of Florida, Gainesville.

A decision support tool for investment analysis of new dairy housing facility construction.
R. A. Black* and J. M. Bewley, University of Kentucky, Lexington.

Quantifying the effect of an extension programme (InCalf) on the reproduction performance of New Zealand dairy herds using a randomized controlled study.
T. S. Brownlie**, J. M. Morton1, C. Heuer2, and S. McDougall1, 1Cognosco, Anexa Animal Health, Morrinsville, New Zealand, 2Epicentre, Institute of Veterinary, Animal and Biomedical Sciences, Massey University, Palmerston North, New Zealand, 3Jemora Pty Ltd., Geelong, Victoria, Australia.

Stochastic simulation of the impact of commodity price variation on mastitis costs.
D. Liang**, M. M. Schutz1, and J. M. Bewley1, 1University of Kentucky, Lexington, 2Purdue University, West Lafayette, IN.

A model: The Alabama Coalition for Farm Animal Care and Well-Being–A unified approach to animal care and well-being.
R. Owen*, L. W. Greene, W. F. Owsley, and D. Wolfe, Auburn University, Auburn, AL.
Food Safety
Advances in Food Safety
Chair: Susan Duckett, Clemson University

223

10:30 AM 648 Antimicrobial use in preweaned calves: Effects on fecal E. coli resistance.

10:45 AM 649 Effect of pre-slaughter stressors on intestinal microbial populations of pigs.
M. H. Rostagno*, B. T. Richert1, and D. C. Lay2, 1USDA-ARS, Livestock Behavior Research Unit, West Lafayette, IN, 2Purdue University, Department of Animal Sciences, West Lafayette, IN.

11:00 AM 650 Screening of antimicrobials and salt substitutes for use in reduced sodium dairy products.
T. Taylor*, A. Lathrop, N. Farkye, and A. Lammert, California Polytechnic State University, San Luis Obispo.

11:15 AM 651 Control of native microbiota in skim milk by pulsed electric fields and tangential-flow microfiltration versus high-temperature short-time pasteurization.

Horse Species Symposium
Equine-Assisted Therapies: Incorporation into university programs
Chair: Carrie Hammer, North Dakota State University

121C

10:30 AM Introduction

10:35 AM 652 Partnering therapeutic riding and higher education.
C. Burke*, University of New Hampshire, Durham.

11:05 AM 653 Equine-assisted therapy and recovery from combat trauma.
J. M. Koub*, B. L. McDaniel1, E. A. Eason2, and K. G. Odde1, 1Kansas State University, Manhattan, 2Fort Riley, KS.

11:35 AM 654 Research in equine-assisted activities and therapies.
E. L. Berg*, North Dakota State University, Fargo.

12:05 PM Discussion

Meat Science and Muscle Biology Symposium
Pre-slaughter Stress, Postmortem Glycolysis, and Biophysical Mechanisms of Meat Quality
Chair: Min Du, Washington State University
Sponsor: EAAP

226ABC

10:30 AM 655 Preslaughter stress and pork meat quality.
L. Faucitano*, Agriculture & Agri-Food Canada, Sherbrooke, Canada.

11:05 AM 656 EAAP-ASAS Speaker Exchange Presentation: Muscle glycogen and postmortem glycolysis.
E. Poulanne*, Department of Food and Environmental Sciences, University of Helsinki, Helsinki, Finland.

11:40 AM 870 AMP-activated protein kinase as a controller of postmortem glycolysis?

12:15 PM 657 Biophysical approaches for improving our understanding of meat quality.
A. Karlsson* and D. Brüggemann, University of Copenhagen, Frederiksberg C, Denmark.
### Nonruminant Nutrition
#### Amino Acids and Energy
**Chair:** Brian Kerr, USDA-ARS  
**Sponsor:** Ajinomoto Heartland Inc.

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 AM</td>
<td>658</td>
</tr>
</tbody>
</table>
| **Influence of net energy content of the diet on productive performance and carcass merit of gilts, boars, and immunocastrated males fed barley-based diets and slaughtered at 119 kg of BW.**  
Departamento de Producción Animal, Universidad Politécnica de Madrid, Madrid, Spain.  
SAT Vallehermoso S.A, Ciudad Real, Spain.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 AM</td>
<td>659</td>
</tr>
</tbody>
</table>
| **Influence of increasing levels of lysine in the diet on growth performance and carcass quality of entire and immunocastrated females.**  
Departamento de Producción Animal, UPM, Ciudad Universitaria, Madrid, Spain.  
Piensos Jiménez S. L., Lorca, Murcia, Spain.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 AM</td>
<td>660</td>
</tr>
</tbody>
</table>
| **The standardized ileal digestible (SID) tryptophan to lysine ratio to optimize performance of 25 to 50 kg pigs fed low protein diets.**  
G. Zhang, S. Qiao, and J. K. Htoo.  
China Agricultural University, Beijing, China.  
Evonik Industries AG, Hanau, Germany.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:15 AM</td>
<td>661</td>
</tr>
</tbody>
</table>
| **Changes in amino acid accretion during immune activation of the chicken immune system by E. coli.**  
V. J. Iseri and K. C. Klasing, University of California, Davis.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30 AM</td>
<td>662</td>
</tr>
</tbody>
</table>
| **Restricting sulfur amino acid intake in immune system stimulated pigs decreases plasma protein and albumin synthesis.**  
N. Litvak and C. F. M. de Lange, University of Guelph, Guelph, ON, Canada.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:45 AM</td>
<td>663</td>
</tr>
</tbody>
</table>
| **Response to dietary L-glutamine supplementation in weaned piglets: A serum metabolomic comparison and hepatic metabolic regulation analysis.**  
Y. Xiao, A. Chen, T. Wu, L. Yang, and Q. Hong.  
College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 PM</td>
<td>664</td>
</tr>
</tbody>
</table>
| **Effects of dietary glutamine supplementation on nutrient absorption and activity of enzymes involved in glutamine metabolism and energy production in the jejunum of weaned piglets.**  
College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:15 PM</td>
<td>665</td>
</tr>
</tbody>
</table>
| **Effects of oral supplementation with glutamate or combination of glutamate and N-carbamylglutamate on intestinal mucosa morphology in weanling piglets.**  
Key Laboratory for Agro-ecological Processes in Subtropical Region, Institute of Subtropical Agriculture, Chinese Academy of Sciences, China.  
State Key Laboratory of Food Science and Technology and College of Life Science and Food Engineering, Nanchang University, China.  

### Physiology and Endocrinology I
#### Chair: Russ Hovey, University of California-Davis

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 AM</td>
<td>666</td>
</tr>
</tbody>
</table>
| **Gram-negative or gram-positive toxin-induced subclinical mastitis affects preovulatory follicle responses in cows.**  
Faculty of Agriculture, Food and Environment, the Hebrew University, Rehovot, Israel.  
The Veterinary Institute, Bet Dagan, Israel.  
Israel Cattle Breeders Association, Caesarea, Israel.  
State Key Laboratory of Animal Science, Agricultural Research Organization, Bet-Dagan, Israel.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 AM</td>
<td>667</td>
</tr>
</tbody>
</table>
| **Blood constituents in milk due to changed blood-milk barrier integrity during mastitis.**  
Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland.  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 AM</td>
<td>668</td>
</tr>
</tbody>
</table>
| **Characterizing the temporal and seasonal pattern of plasma lipopolysaccharide binding protein during the transition period.**  
Iowa State University, Ames.  
Uludag University, Turkey.  
Zinpro Corporation, Eden Prairie, MN.  

Effect of dry period length on rumen adaptation in dairy cows.
R. M. A. Goselink*, J. T. Schonewille, G. van Duinkerken, and A. T. M. van Knegsel. Wageningen UR Livestock Research, Lelystad, the Netherlands, Utrecht University, Utrecht, the Netherlands, Wageningen University, Wageningen, the Netherlands.

Sodium salicylate administration during the first 7 days of lactation has effects that extend through the entire lactation in dairy cattle.

Responses to a nutritional challenge in early and late lactation.

Supranutritional levels of antioxidants maintains feed intake and reduces heat stress in sheep.
S. Chauhan, P. Celi, B. Leury, and F. Dunshea. CSK, HP Agriculture University, Palampur, Kangra, India, The University of Melbourne, Parkville, Victoria, Australia, The University of Sydney, Sydney, Australia.

Feeding monensin or functional oils in high corn finishing diets for Nellore bulls.

Feeding monensin, functional oils and combination of feed additives in high by-products finishing diets for Nellore bulls.

Effect of Rumensin, Micotil, and Component TE-G with Tylan on health, growth performance, and carcass merit of stocker cattle grazing wheat pasture.
E. D. Sharman, P. A. Lancaster, B. D. Wallis, G. W. Horn, and G. D. Hufstedler. Oklahoma Agricultural Experiment Station, Stillwater, Elanco Animal Health, Guthrie, OK.

Effects of dietary Aspergillus oryzae extract containing α-amylase activity on feedlot performance and carcass characteristics of finishing beef cattle fed steam-flaked corn-based diets.

Accelerated step-up regimens for feedlot heifers following oral dosing with Lactipro (Megasphaera elsdenii).
K. A. Miller, C. L. Van Bibber-Krueger, and J. S. Drouillard. Kansas State University, Manhattan.

Oral dosing with Lactipro (Megasphaera elsdenii) decreases roughage required for feedlot finishing.
K. A. Miller, C. L. Van Bibber-Krueger, and J. S. Drouillard. Kansas State University, Manhattan.

Effect of Optaflexx level on growth performance and carcass characteristics of feedlot steers.

Effect of an injectable amino acid solution in calves fed barley-based rations with supplemental lysine and methionine during a 65-d preconditioning program.
### Small Ruminant Production and Reproduction
**Chair:** Govind Kannan, Fort Valley State University

**222C**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 AM</td>
<td><strong>Awassi sheep productivity in central Anatolia region of Turkey.</strong></td>
<td>H. Üstüner and M. Ogan, Uludag University, Faculty of Veterinary Medicine, Department of Animal Science, Bursa, Turkey.</td>
</tr>
<tr>
<td>11:00 AM</td>
<td><strong>Effect of lithium chloride for mid-term conditioned aversion to olive tree leaves in penned and grazing goats.</strong></td>
<td>C. L. Manuelian, E. Albanell, M. Rovai, A. A. K. Salama, and G. Caja, Grup de Recerca en Remugants (G2R), Universitat Autónoma de Barcelona, Bellaterra, Barcelona, Spain.</td>
</tr>
<tr>
<td>11:15 AM</td>
<td><strong>Milk production losses in early lactating dairy goats under heat stress.</strong></td>
<td>S. Hamzaoui, A. A. K. Salama, G. Caja, E. Albanell, C. Flores, and X. Such, Grup de Recerca en Remugants (G2R), Universitat Autónoma de Barcelona, Bellaterra, Barcelona, Spain.</td>
</tr>
<tr>
<td>11:30 AM</td>
<td><strong>Long-term effects of intrauterine rivalry on the reproductive performances of co-twin ewe-lambs.</strong></td>
<td>J. Casellas and G. Caja, Grup de Recerca en Remugants (G2R), Universitat Autónoma de Barcelona, Bellaterra, Barcelona, Spain.</td>
</tr>
<tr>
<td>11:45 AM</td>
<td><strong>Fixed-time laparoscopic AI with frozen-thawed goat semen in progesterone and PMSG supplemented Cosynch protocol.</strong></td>
<td>Z. Nur, B. Üstüner, Y. Nak, S. Alcay, Y. Yaman, and H. Sagirkaya, Department of Reproduction and Artificial Insemination, Uludag University, Faculty of Veterinary Medicine, Gorukle, Bursa, Turkey, Department of Obstetrics &amp; Gynecology, Uludag University, Faculty of Veterinary Medicine, Gorukle, Bursa, Turkey, Marmara Animal Breeding Research Institute, Bandırma, Balıkesir, Turkey.</td>
</tr>
<tr>
<td>12:00 PM</td>
<td><strong>Pregnancy diagnosis in sheep using fecal near infrared reflectance spectroscopy.</strong></td>
<td>M. A. D. Bomfim, S. Prince, J. Angerer, O. Faco, J. de L. Gonçalves, R. T. De Souza, F. E. P. Fernandes, A. M. F. Fernandes, and M. Ponciano, Embrapa Goats and Sheep, Sobral, Ceará, Brazil, Blackland Research Center/Texas A&amp;M University, Temple, State University of Acauar Valley, Sobral, Ceará, Brazil.</td>
</tr>
<tr>
<td>12:15 PM</td>
<td><strong>Ability to culture of cells from postmortem goat skin tissues stored at room temperature for different time intervals.</strong></td>
<td>M. Singh and X. Ma, Fort Valley State University, Fort Valley, GA.</td>
</tr>
</tbody>
</table>

### Swine Species Symposium
**Recent Advances in Swine Genomics**
**Chair:** Jeffrey Vallet, USMARC
**Sponsors:** Archer Daniels Midland and JBS United

**125AB**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:05 AM</td>
<td><strong>A review of swine genome-wide association studies at USMARC.</strong></td>
<td>J. F. Schneider, USDA. ARS, USMARC, Clay Center, NE.</td>
</tr>
<tr>
<td>11:40 AM</td>
<td><strong>Break</strong></td>
<td></td>
</tr>
<tr>
<td>11:55 AM</td>
<td><strong>The genetic basis of host response to experimental infection with the PRRS virus in pigs.</strong></td>
<td>J. Dekkers, N. Boddicker, E. Waide, J. K. Lunney, R. R. R. Rowland, D. J. Garrick, and J. Reecy, Iowa State University, USDA, ARS, BARC, Beltsville, MD, Kansas State University, Manhattan.</td>
</tr>
</tbody>
</table>
Teaching/Undergraduate and Graduate Education Symposium
Giving Employers What They Want—How ready is today’s animal science graduate?
Chair: Donald Mulvaney, Auburn University
Sponsor: Elanco Animal Health
227AB

10:30 AM  
Introduction

10:40 AM  
692 The animal sciences curriculum of 2025.  
M. A. Wattiaux*, University of Wisconsin-Madison, Madison.

11:00 AM  
693 Creating animal scientists from scratch—Meeting industry needs with today’s students.  
J. A. Sterle*, Iowa State University, Ames.

11:20 AM  
Break

11:35 AM  
694 Critical skills and characteristics expected by employers of animal science graduates and strategies for equipping them.  
S. Robinson*¹ and D. Mulvaney, ¹Oklahoma State University, Stillwater, ²Auburn University, Auburn, AL.

11:55 AM  
695 Custom tailoring class information to each student for their eventual use in the workplace.  
T. G. Rozell*, Kansas State University, Manhattan.

12:15 PM  
Panel Discussion

Contemporary and Emerging Issues
Chair: Mulumebet Worku, NC A&T State University
Sponsor: Elanco Animal Health
223

11:45 AM  
696 Web forums as a method for engagement on contentious issues in dairying: Should pain relief be provided during disbudding and dehorning of dairy calves?  

12:00 PM  
697 Preliminary assessment of graded Garcinia kola seed meal on the performance, hematology and serum enzymes of broilers.  

12:15 PM  
698 Water usage and discharge volumes on New Mexico dairy operations.  
T. M. Vander Dussen*, G. R. Hagevoort¹, J. Lazarus², E. Naumburg³, R. Ganta³, and K. D. Casey³, ¹Agricultural Science Center at Clovis, New Mexico State University, Clovis, ²Glorieta Geoscience Inc., Santa Fe, NM, ³Texas AgriLife Research, Texas A&M System, Amarillo.

Beef Species
Chair: Matt Hersom, University of Florida
222C

2:00 PM  
699 Evaluation of selecting half-sibling beef cows to increase calf crop uniformity.  

2:15 PM  
700 Performance, residual feed intake, and carcass quality of progeny from Red Angus sires divergent for maintenance energy EPD.  
C. M. Welch*, J. K. Ahola³, G. K. Murdoch¹, D. H. Crews³, J. I. Szasz², L. C. Davis¹, M. E. Doumit¹, W. J. Price², L. D. Keenan³, and R. A. Hill¹, ¹Department of Animal and Veterinary Sciences, University of Idaho, Moscow, ²Statistical Programs, University of Idaho, Moscow, ³Department of Animal Sciences, Colorado State University, Fort Collins, ⁴Red Angus Association of America, Denton, TX.
The effect of limiting feed intake on concentration of proteins associated with energy balance in the pregnant beef cow.
K. M. Wood*, 1, C. J. Fitzsimmons, 1, 2, S. P. Miller, 1, B. W. McBride, 1, and K. C. Swanson, 1, 3, 4, Dept. of Animal and Poultry Science, University of Guelph, Guelph, ON, Canada, 2, Agriculture and Agri-Food Canada, Edmonton, AB, Canada, 3, Dept. of Agriculture, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 4, Dept. of Animal Sciences, North Dakota State University, Fargo.

Heifers with low antral follicle counts have low birth weights and produce progeny with low birth weights.
A. F. Summers*, 1, R. A. Cushman, 2, and A. S. Cupp, 3, University of Nebraska- Lincoln, Lincoln, 2, USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE.

Prediction of HCW of individual steers from partial live weight collected with an in-pen weighing device.
R. Reuter* and C. Moffet, The Samuel Roberts Noble Foundation Inc., Agriculture Division.

Effect of various feeding regimens pre-shipment on shrink and subsequent weight recovery in feeder calves.
J. Starnes* and D. Rankins, Auburn University, Auburn, AL.

Comparison of different feed additives for backgrounding of weaned beef calves.
A. Imler, M. Hersom*, T. Thrift, J. Yelich, and J. Arthington, University of Florida, Department of Animal Sciences, Gainesville, 1, Range Cattle Research and Education Center, Ona, FL.

Comparison of different feeding levels of a recycled-product supplemented to weaned beef calves.
M. Hersom*, T. Thrift, and J. Yelich, University of Florida, Department of Animal Sciences, Gainesville.

Breeding and Genetics
Dairy Cattle Breeding III—Genetic evaluation
Chair: Christian Maltecca, North Carolina State University
225AB

Extension of Bayesian procedures to integrate and to blend multiple external information into genetic evaluations.
J. Vandenplas* 1, 2 and N. Gengler, 3, University of Liege - Gembloux Agro-Bio Tech, Gembloux, Belgium, 4, National Fund for Scientific Research, Brussels, Belgium.

Are in-line measurements of somatic cell counts equally or more useful for genetic evaluations as those from DHI?
L. P. Sørensen* and P. Lavendahl, Department of Molecular Biology and Genetics, Center for Quantitative Genetics and Genomics, Aarhus University, Tjele, Denmark.

Prediction of residual feed intake for first and second lactation dairy cows.
G. H. Manafiazar*, T. McFadden, E. Okine, L. Goonewardene, and Z. Wang, Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada.

Random forest approach for SNP effects of residual feed intake in dairy cattle.

Use of milk fatty acids to substitute for body condition score in breeding purposes.

Genetics of the mid-infrared prediction of lactoferrin content in milk for Holstein first-parity cows.

Genetic parameters for methane indicator traits based on milk fatty acids in cows.
P. B. Kandel*, A. Vanlierde, F. Dehareng, E. Froidmont, N. Gengler, and H. Soyeurt, Animal Science Unit, Gembloux Agro Biotech, University of Liège, Passage des Deportes, Gembloux, Belgium, 3, Valorisation of Agricultural Products Department, Walloon Agricultural Research Centre, Gembloux, Belgium, 4, National Fund for Scientific Research (FNRS), Brussels, Belgium.

H. D. Norman*, J. R. Wright, R. L. Powell, T. J. Lawlor, and C. W. Wolfe, Animal Improvement Programs Laboratory, USDA-ARS, Beltsville, MD, 2, Holstein Association USA Inc., Brattleboro, VT, 3, American Jersey Cattle Association, Reynoldsville, OH.
4:00 PM 715  
Genotype environment interaction of Holstein-Friesian dairy cattle in eastern Libya.  
S. A. M. Bozrayda*, R. S. Gargoum, and I. A. S. Al-Drussi, Department of Animal Production, University of Benghazi, Benghazi, Libya.

4:15 PM 716  
Casein and fatty acid content in milk of crossbred cows under grazing conditions.  

4:30 PM 717  
Effect of the milk recording time on the genetic parameters of milk production and mid-infrared milk components in Luxembourg dairy cattle.  

4:45 PM 718  
Integration of experimental designs and analytical approaches to co-ordinate efficiency of global efforts to optimize environmental and genetic effects on reproductive performance of dairy cattle.  
E. Block, B. Bradford, W. M. Chalupa, I. J. Lean, S. LeBlanc, M. C. Lucy, J. McNamara, J. Morton, A. R. Rabiee, J. E. P. Santos, W. W. Thatcher, M. Van Amburgh, and M. J. Vandhaar, 1 Kansas State University, Manhattan, 2 University of Pennsylvania, Kennett Square, 3 SBSchus, Camden, New South Wales, Australia, 4 Population Medicine Ontario Veterinary College University of Guelph, Guelph, ON Canada, 5 Division of Animal Sciences, University of Missouri, Columbia, 6 Department of Animal Sciences, Washington State University, Pullman, 7 Jemora Pty Ltd., Geelong Victoria, Australia, 8 Department of Animal Sciences, University of Florida, Gainesville, 9 Department of Animal Sciences, Cornell University, Ithaca, NY, 10 Department of Animal Sciences, Michigan State University, E. Lansing.

Breeding and Genetics
Small Ruminants, Poultry, and Nontraditional Species
Chair: Ron Lewis, Virginia Tech

2:00 PM 719  
Associations between candidate gene polymorphisms and milk production traits in Alpine goats farmed in Italy.  
P. Crepaldi*, E. Mianesi, B. Coizet, L. Nicoloso, P. Fresi, S. Murru, R. Steri, and N. P. Macciotta, 1 Università di Milano, Milano, Italy, 2 ASSONAPA, Rome, Italy, 3 Università di Sassari, Sassari, Italy.

2:15 PM 720  
Single nucleotide polymorphisms identified in polygenic traits through the use of the Ovine SNP50 BeadChip.  

2:30 PM 721  
Genetic parameter estimates for birth weight in three Yemeni indigenous sheep breeds.  
S. Al-Shorepy*, M. Al-Karmah, and Ab. Albial, 1 United Arab Emirates University, Al Ain, United Arab Emirates, 2 Sana’a University, Sana’a, Yemen, 3 Agricultural Research & Extension Authority, Sana’a, Yemen.

2:45 PM 722  
Increased lean growth rate does not extend days to harvest in crossbred lambs.  

3:00 PM 723  
Evaluation of environmental factors affecting the speed of racing camels in the United Arab Emirates.  
S. Al-Shorepy, S. Al Mansouri, and Z. Al Katheeri, United Arab Emirates University, Al Ain, United Arab Emirates.

3:15 PM 724  
Influence of genomic predictors on yearling sales price and total career earnings in Thoroughbred racehorses.  
C. R. Davis*, E. W. Hill, and A. G. Fahey, 1 School of Agriculture and Food Science, University College Dublin, Belfield, Dublin 4, Ireland, 2 Equinome Ltd., NovaUCD, Belfield Innovation Park, Belfield, Dublin 4, Ireland.

3:30 PM 725  
Genetic variation study in Pakistani buffalo breeds using microsatellite markers.  
Analysis of egg production using a random regression model with genomic relationships in layer chickens.
A. Wolc*, 1, J. Arango1, P. Settar3, J. E. Fulton3, N. P. O’Sullivan3, R. Preisinger5, D. Habier5, R. Fernando5, D. J. Garrick5, and J. C. M. Dekkers2, 1Poznan University of Life Sciences, Poznan, Poland, 2Iowa State University, Ames, 3Hy-Line International, Dallas Center, IA, 4Lohmann Tierzucht GmbH, Cuxhaven, Germany.

---

Dairy Foods Symposium
Advances in Yogurt Manufacture and Product Functionalities
Chair: Randy Brandsma, Schreiber Foods
122AB

2:00 PM
Introduction
R. Brandsma, Schreiber Foods, Green Bay, WI.

2:05 PM 727
The impact of biopolymers on yogurt gelation and properties.
J. A. Lucey*, University of Wisconsin-Madison, Madison.

2:35 PM 728
Advancements in yoghurt process design and unit operations.

3:25 PM Break

3:40 PM 729
Impact of total solids, protein content, and protein source on the functionality of nonfat yogurt.
L. E. Metzger* and K. N. Shah, Midwest Dairy Foods Research center, South Dakota State University, Brookings.

4:00 PM 730
Advancements in starter technology and functional benefits in yogurt.

4:40 PM 731
Fine tuning the structure of yogurt by changing the milk properties.
M. Corredig*, University of Guelph, Guelph, Ontario, Canada.

---

Extension Education Symposium
Does Extension Have a Future in Today’s Agriculture?
Chair: Jeff Keown, University of Nebraska-Lincoln
128AB

2:00 PM Industry’s view of extension.

2:40 PM USDA’s vision for extension.
S. I. Smith*, Animal Production Systems, NIFA.

3:20 PM 732 National Science Foundation outreach: A non-traditional model.
S. Ellis*, Clemson University, Clemson, SC.

4:00 PM Making sense of it all.
J. F. Keown*, University of Nebraska, Lincoln.
Graduate Student Symposium
From Hypothesis to Manuscript: How to conduct valuable and efficient research
Chair: Cassandra Jones, Iowa State University
Sponsors: ASAS Foundation and Monsanto Co.

227AB

2:00 PM  
Introduction and ASAS Graduate Student Events at JAM.
C. Jones and A. Mays.

2:15 PM    733  
Developing the research question, hypothesis, design, and protocol.
D. E. Bauman*1 and R. J. Collier2, 1Cornell University, Ithaca, NY; 2University of Arizona, Tucson.

2:50 PM    734  
Data collection and integrity.
G. Hartnell*, Monsanto Company, St. Louis.

3:25 PM  
Break

3:35 PM    735  
I’m an animal scientist, why do I need statistics?
D. K. Aaron*, University of Kentucky, Lexington.

4:10 PM    736  
It is not a scientific contribution until it is published: Tips from a journal editor.
S. A. Zinn*, University of Connecticut, Storrs.

4:45 PM  
Final Questions and ADSA Graduate Student Events at JAM.
K. Proudfoot and R. Campbell.

Growth and Development Symposium
Participation of Adult Tissue-Restricted Stem Cells in Livestock Growth and Development
Chair: Sally Johnson, University of Florida
Sponsors: Elanco Animal Health, Monsanto Co., and Pancosma

222AB

2:00 PM    737  
Regulation of skeletal muscle satellite cell chemotaxis.
R. E. Allen* and X. Liu, University of Arizona, Tucson.

2:35 PM    738  
Potentials of male germline stem cells to influence the efficiency of beef cattle production.
J. M. Oatley*, College of Veterinary Medicine, Washington State University, Pullman.

3:10 PM    739  
Tenocytic potential of equine umbilical cord derived stem cells.
S. A. Reed* and S. E. Johnson1, University of Connecticut, Storrs; 1University of Florida, Gainesville.

3:45 PM    740  
T. J. Caperna*, W. M. Garrett, and N. C. Talbot, USDA/ARS, Beltsville, MD.

4:20 PM    741  
Mammary stem cells: Novel markers and novel approaches to increase lactation efficiency.
A. V. Capuco*, R. K. Choudhary1,2, C. M. Evock-Clover*, and K. M. Daniels1, 1Bovine Functional Genomics Lab, USDA-ARS, Beltsville, MD; 1Department of Animal and Food Sciences, University of Kentucky, Lexington, 2Department of Animal Sciences, The Ohio State University, Wooster.
Lactation Biology Symposium
The Long-Term Impact of Epigenetics and Maternal Influence on the Neonate
Through Milk-Borne Factors and Nutrient Status
Chair: Michael Van Amburgh, Cornell University
Sponsor: EAAP
125AB

2:00 PM
Introductions.
M. Van Amburgh, Cornell University.

2:05 PM 742
EAAP-ASAS Speaker Exchange Presentation: Role of colostrum and colostrum components on glucose metabolism in neonatal calves.
H. M. Hammon*, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany.

2:40 PM 743
Nutrition of the dam affects mammary gland development and milk production in the offspring.

3:15 PM 744
Lactational programming of infant behavioral and somatic development.
K. Hinde*1,2, A. Foster1, and J. P. Capitanio2,3, 1Human Evolutionary Biology, Harvard University, Cambridge, MA, 2Brain, Mind, and Behavior Unit, California National Primate Research Center, University of California-Davis, 3Department of Psychology, University of California-Davis, Davis.

3:50 PM 745
Lactocrine signaling and postnatal developmental programming.
F. F. Bartol*, D. J. Miller1, A. A. Wiley1, J. C. Chen2, M. E. Camp3, K. M. Ferio4, and C. A. Bagnell5, 1Auburn University, Auburn, AL, 2Rutgers, The State University of New Jersey, New Brunswick, NJ.

4:25 PM 746
The effect of nutrient intake from milk or milk replacer of pre-weaned dairy calves on lactation milk yield as adults.
F. Soberon* and M. E. Van Amburgh, Cornell University, Ithaca, NY.

Meat Science and Muscle Biology
Chair: Brian Bowker, USDA-ARS
Sponsor: EAAP
223

2:00 PM 747
EAAP-ASAS Speaker Exchange Presentation: Impact of stunning and carcass chilling on pork quality and post-mortem proteolysis.
G. Petca and G. Bee*, Agroscope Liebefeld Posieux, Research Station ALP, Posieux, Switzerland.

2:15 PM 748
Effects of cannabinoid receptor 1 on muscle fiber types and muscle oxidative metabolism.
E. Xu*1,2, L. N. Zhu1, T. Wu1, Y. N. Huang1, and Y. Z. Wang3, 1Institute of Feed Science, Zhejiang University, The Key Laboratory of Molecular Animal Nutrition, Ministry of Education, Zhejiang Provincial Laboratory of Feed and Animal Nutrition, Hangzhou, Zhejiang, China, 2College of Animal Science, Guiyang, Guizhou, China.

2:30 PM 749
Fatty acid profile of meat from young bulls fed different levels of crude glycerin.

2:45 PM 750
Effect of vitamin E inclusion on trans-18:1 isomers in subcutaneous fat of steers fed a high-barley grain diet.
C. Mapiye*, M. E. R. Dugan1, M. Juárez2, J. A. Basarab3, V. S. Baron1, T. Turner1, X. Yang1, N. Aldai1, and J. L. Aalhus1, 1Agriculture and Agri-Food Canada, Lacombe Research Centre, Lacombe, Alberta, Canada, 2Alberta Agriculture and Rural Development, Lacombe Research Centre, Lacombe, Alberta, Canada, 3University of Basque Country, Vitoria-Gasteiz, Spain.

3:00 PM 751
Influence of gender on meat quality and skatole in the fat of lambs.
N. M. Schreurs*, Institute of Food, Nutrition and Human Health, Massey University, Palmerston North, New Zealand.

3:15 PM 752
Comparison of skinning versus scalding and singeing: Effect on temperature, pH and meat quality in goats.
A. B. Omolola*, E. S. Apata1, O. O. Olusola2, and A. B. Omotoso3, 1University of Ibadan, Ibadan, Oyo State, Nigeria, 2Olabisi Onabanjo University, Ago-Iwoye, Ogun, Nigeria.
201

WEDNESDAY

ORALS

3:30 PM 753

Organoleptic and shelf life of displayed Red Sokoto buck meat as influenced by post-slaughter processing methods.

A. B. Omojola*, E. S. Apata, O. O. Olusola, and A. B. Omotosho; University of Ibadan, Ibadan, Oyo State, Nigeria, 2Olabisi Onabanjo University, Ago-Iwoye, Ogun, Nigeria.

Nonruminant Nutrition

Feed Additives

Chair: Joshua Jendza, University of Minnesota

129AB

2:00 PM 754

Effect of different probiotics on diarrhea frequency and body weight of weaned piglets challenged with Salmonella typhimurium.


2:15 PM 755

Effect of mannan oligosaccharides on performance of weaning piglets.


2:30 PM 756

Multi-NSP enzymes improved growth performance and gut health in nursery pigs fed corn or rye and barley diets.

J. Zhao*, F. Yan, D. L. Lichtenstein, A. Lawhorn, and M. Vazquez-Anon, Novus International Inc., St Charles, MO.

2:45 PM 757

Effect of increasing concentrations of a novel β-glucanase to a constant β-mannanase in corn-soybean meal-corn distillers dried grains with solubles (DDGS) diets on grower pig performance.

Z. Rambo*, J. Ferrel*, D. Anderson, D. Kelly, and B. Richert; Purdue University, West Lafayette, IN, 2ChemGen, Gaithersburg, MD.

3:00 PM 758

Evaluating nutritive value of pepper Capsicum annuum and garlic Allium sativum on performance, egg trait and serum parameters of old layers.

F. A. Aderemi*, O. M. Alabi, and O. M. Ayoola, Bowen University, Iwo State, Nigeria.

3:15 PM Break

3:30 PM 759

Defatted algae biomass may replace one-third of soybean meal in diets for laying hens.

X. J. Leng, K. N. Hsu, R. E. Austic, and X. L. Lei*, Cornell University, Ithaca, NY.

3:45 PM 760

Effects of various replacements of corn and soy by defatted microalgal meal on growth performance and biochemical status of weanling pigs.


4:00 PM 761

Effects of a blend of essential oils on post-weaning growth performance of piglets.

A. Aufy*, T. Steiner, and Y. Jung; Biomin Holding GmbH, Herzogenburg, Austria, 2Jung P&C Institute, Yeongdo-Dong, Gijeong-Gu, Yongin-City, Gyeonggi-Do, Korea.

4:15 PM 762

Effects of a dietary antioxidant blend on growth and plasma markers of oxidative status in pigs fed an oxidative stress diet.


4:30 PM 763

Effects of eubiotics (VevoVitall, Crina Piglets, Cylactin ME10) supplementation on growth performance, nutrient digestibility, fecal noxious gas emission, and fecal microbial shedding in weanling pigs.

Z. F. Zhang*, S. M. Hong, A. V. Rolando, D. H. Yoo, and I. H. Kim; Department of Animal Resource & Science, Dankook University, Cheonan, Choongnam, South Korea, 2DSM Nutritional Products Philippines Inc., Bonifacio Global City, Taguig, Philippines, 3All The Best Ltd., Seoul, South Korea.
mRNA expression of a novel adipokine (pigment epithelium-derived factor, PEDF) in various tissues from dairy cows receiving supplements with or without conjugated linoleic acids (CLA).


Effects of long-term hyperketonemia on metabolism and performance in lactating dairy cows.

M. Zarrin*, L. De Matteis*, M. C. M. B. Vernay*, O. Wellnitz†, H. A. van Dorland†, and R. M. Bruckmaier*. 1Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland, 2Department of Animal Science, Yasouj University, Yasouj, Iran, 3Institute of Zootecnica, Università Cattolica S, Cuore, Piacenza, Italy.


J. M. Huzzey*, Ithaca, NY, 2Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY. 3ICREA, Barcelona, Spain.

Is calcitonin involved in hypocalcemia of periparturient cows?

E. M. Rodríguez*, A. Bach†, M. Devant‡, and A. Arls†. 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2ICREA, Barcelona, Spain.

Reproductive performance of Ossimi rams fed biologically treated rations.


The effect of yeast cell wall supplementation on the metabolic responses of crossbred heifers to endotoxin challenge.

N. C. Burdick*, T. R. Young†, J. A. Carroll†, J. R. Corley*, R. J. Rathmann‡, and B. J. Johnson‡. 1USDA-ARS, Livestock Issues Research Unit, Lubbock, TX, 2Texas Tech University, Department of Animal and Food Sciences, Lubbock, 3Lesaffre Feed Additives, Milwaukee, WI.

Effect of sward condition on metabolic endocrinology during the early postpartum period in primiparous grazing dairy cows and its association with productive and reproductive performance.

A. Meikle*, L. Adrien†, D. Mattiauda‡, and P. Chilibroste‡. 1Faculty of Veterinary, Montevideo, Uruguay, 2Faculty of Agronomy, Montevideo, Uruguay.

Association of biomarkers of stress, inflammation, and negative energy balance with milk yield and reproductive performance in Holstein dairy cows.

J. M. Huzzey*, D. V. Nydam†, R. J. Grant‡, and T. R. Overton†. 1Department of Animal Science, Cornell University, Ithaca, NY, 2Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY, 3W. H. Miner Agricultural Research Institute, Chazy, NY.

Serum amyloid A3 (SAA3) mRNA in liver and adipose tissue of dairy cows supplemented with or without conjugated linoleic acids (CLA): A whole lactation cycle study.


Responses of mammary gland metabolism to long-term manipulated plasma concentrations of insulin and glucose in lactating dairy cows.

J. J. Gross*, M. C. M. B. Vernay, L. Kreipe, O. Wellnitz, H. A. van Dorland, and R. M. Bruckmaier, Veterinary Physiology, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

Tumor necrosis factor-α (TNF-α) mRNA expression in early lactation in different tissues of dairy cows with a focus on different fat depots.

Production, Management and the Environment
Environmental Quality
Chairs: Jude Capper, Washington State University, and Shane Gadberry, University of Arkansas

201C

2:00 PM 775 ADSA/EAAP Award Presentation: Evaluation of a feeding strategy to reduce greenhouse gas emissions from milk production: The level of analysis matters.
C. E. Van Middelaar*, P. B. M. Berentsen², J. Dijkstra³, and I. J. M. De Boer¹, ¹Animal Production Systems Group, Wageningen University, Wageningen, the Netherlands, ²Business Economics Group, Wageningen University, Wageningen, the Netherlands, ³Animal Nutrition Group, Wageningen University, Wageningen, the Netherlands.

2:30 PM 776 Are high production, low GHG emission dairy farms in New Zealand possible?
R. E. Vibart*, T. White², D. Smeaton², S. Dennis², R. Dynes³, and M. Brown³, ¹AgResearch Limited, Grasslands Research Centre, Palmerston North, New Zealand, ²AgResearch Limited, Ruakura Research Centre, Hamilton, New Zealand, ³DairyNZ, Hamilton, New Zealand.

2:45 PM 777 Impact of animal density on predicted greenhouse gas emission from selected conventional, organic and grazing dairy farms in Wisconsin.
M. Dutreuil*, V. E. Cabrera¹, R. Gildersleeve¹, C. A. Hardie¹, and M. Wattiaux¹, ¹University of Wisconsin-Madison, Madison, Wisconsin, ¹University of Wisconsin Extension, Dodgeville.

3:00 PM 778 Life-cycle assessment of greenhouse gas emissions from dairy production in eastern Canada: A case study.

3:15 PM 779 Effects of saponin extracts, in the diet of Holstein steers or added directly to their manure, on gaseous emissions from that manure.
W. Li* and W. Powers, Michigan State University, East Lansing.

3:30 PM 780 Effect of manure source on ammonia emission on first day of application.
F. Sun*, J. H. Harrison¹, E. Whitefield¹, P. Ndegwa², and H. S. Joo², ¹Washington State University, Puyallup, ¹Washington State University, Pullman.

3:45 PM 781 Partitioning of solids, nitrogen, and phosphorus in solids and liquid fractions of anaerobically digested dairy effluent.
J. H. Harrison*, E. Whitefield¹, and A. Werkhoven¹, ¹Washington State University, Puyallup, ¹Werkhoven Dairy, Monroe, WA.

4:00 PM 782 Inoculant volume of a mixed culture of rumen microorganisms on rate and extent of methanogenesis from processed dairy excrement for biofuel production by anaerobic digestion.
C. L. Ross*, K. C. Das, and M. A. Froetschel, University of Georgia, Athens.

4:15 PM 783 Effects of inorganic versus organic copper on nitrous oxide reductase activity in peat soil.
Q. Wang*, M. Burger, A. Castillo, W. Horwath, and F. Mitloehner, University of California-Davis, Davis.

4:30 PM 784 Nutrient removal with harvest of soybean forage and soybean seed produced with and without irrigation of dilute swine manure lagoon effluent.

4:45 PM 785 Effect of fibrous diets and inclusion level on the chemical composition and odors from pig slurry.
C. T. Mpendulo* and M. Chimonya, Animal and Poultry Science, College of Agriculture, Engineering and Science, University of KwaZulu-Natal, Pietermaritzburg, South Africa.
2:00 PM 786 Performance by feedlot cattle fed varying proportions and amounts of lime treated crop residues and distillers grains as substitutes for corn grain. A. L. Shreck*1, C. J. Schneider2, B. L. Nuttelman1, D. B. Burken3, G. E. Erickson1, T. J. Klopfenstein1, and M. J. Cecava2, 1University of Nebraska-Lincoln, Lincoln; 2Archer Daniels Midland, Decatur, IL.


2:30 PM 788 Performance of cattle fed diets based on blended-by-product pellets in rumen available energy and protein content. M. G. Zenobi*, P. Yu1, D. A. Christensen1, P. G. Jefferson1,2, H. A. Lardner1,2, and J. J. McKinnon1, 1University of Saskatchewan, Saskatoon, SK, Canada; 2Western Beef Development Centre, Humboldt, SK, Canada.


3:00 PM 790 Flint corn grain processing and increasing levels of citrus pulp in finishing diets for Nellore bulls. V. N. Gouveia1, L. J. Chagas1, J. Souza1, F. Batistel1, C. Sitta1, P. R. B. Campanili1, D. B. Galvani1, and F. A. P. Santos*, 1University of São Paulo, Piracicaba, SP, Brazil; 2EMBRAPA Goats and Sheep, Sobral, CE, Brazil.

3:15 PM 791 Evaluation of rumen metabolism and digestibility when treated crop residues are fed in cattle finishing diets. A. L. Shreck*, J. L. Harding1, G. E. Erickson1, T. J. Klopfenstein1, and M. J. Cecava2, 1University of Nebraska-Lincoln, Lincoln; 2Archer Daniels Midland, Decatur, IL.


3:45 PM 793 Dry-rolled or whole shell corn with or without wet corn gluten feed in receiving diets. A. V. Siverson*, S. P. Montgomery1, B. E. Oleen1, and D. A. Blasi1, 1Kansas State University, Manhattan; 2Corn Belt Livestock Services, Cedar Rapids, IA.

4:00 PM 794 Effect of dried distillers grains with solubles on enteric methane emissions and nitrogen excretion from finishing beef cattle. M. Hünerberg*, T. A. McAllister2, K. A. Beauchemin1, S. M. McGinn1, O. M. Harstad3, and E. K. Okine1, 1University of Alberta, Edmonton, AB, Canada; 2Agriculture and Agri-Food Canada, Lethbridge, AB, Canada; 3Norwegian University of Life Sciences, Norway.


4:45 PM 797 Effects of increasing levels of distillers dried grains on intake and digestibility of moderate quality fescue hay. W. W. Miller*, J. D. Kohler, and M. D. Hudson, Missouri State University, Springfield.
### Sampling behavior of dairy cattle: Effects of spatial variation in feed quality on movements at the feed bunk.

### Effect of precision feeding on performance, nutrient excretion, and feeding behavior of early lactation dairy cows.
E. Maltz*1,2, L. F. Barbosa1, P. Bueno1, L. Scagion1, L. F. Greco1, K. Kaniyamattam1, A. de Vries1, and J. E. P. Santos3, 1University of Florida, Gainesville, 2The Volcani Center, Bet Dagan, Israel.

### Concentrate levels and supplemental fat for grazing mid lactating cows.
F. L. Macedo, S. F. Angolini, W. F. Angolini, C. T. dos Santos Dias, and F. A. P. Santos*, University of São Paulo, Piracicaba, SP, Brazil.

### Dry matter intake and behavior patterns of dairy cows fed diets combining pasture and total mixed ration.
A. Mendoza1,2, C. Cajarville*, R. Colla1, G. Gaudentti1, M. E. Martín1, and J. L. Repetto1, 1Facultad de Veterinaria, Departamento de Bovinos, Montevideo, Uruguay, 2Instituto Nacional de Investigación Agropecuaria, Colonia, Uruguay, 3Facultad de Veterinaria, Departamento de Nutrición Animal, Montevideo, Uruguay.

### Supplemental fat for dairy calves fed accelerated milk replacer during mild cold stress.
N. Litherland*, D. Lobao1, R. LaBerge1, W. Weich1, Z. Sawall1, J. Schefers1, and A. Kertz2, 1University of Minnesota, St Paul, 2ANDHILL LLC, St, Louis, MO.

### What do preweaned and weaned calves need in the diet: A high fiber content or a forage source?
M. Terré*, E. Pedrals1, and A. Bach2,1, 1Institut de Recerca i Tecnologia Agroalimentàries, Caldes de Montbui, Spain, 2Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain.

### Fat and fatty acid sources affect growth and health of milk-fed calves.
K. M. Esselburn1,2, K. M. Daniels1, T. M. Hill2, H. G. Bateman2, J. M. Aldrich2, and R. L. Schlotterbeck, 1Department of Animal Sciences, The Ohio State University, Ohio Agricultural Research and Development Center, Wooster, 2Nurture Research Center, Provmi North America, Brookville, OH.

### Fatty acid profile and global gene expression in liver of calves supplemented with linoleic acid.

### Use of tail skin temperature as a proxy for core body temperature in neonatal Holstein male calves.

### Body temperature of neonatal male Holstein calves is partially influenced by ambient temperature in the calf nursery.

### Jersey calf performance in response to high protein, high fat liquid feeds with varied fatty acid profiles.
W. S. Bowen, V. A. Swank*, K. M. O’Diam, M. L. Eastridge, and K. M. Daniels, Department of Animal Sciences, The Ohio State University, Columbus.

### Methods of reducing milk replacer to prepare dairy calves for weaning when large amounts of milk replacer have been fed.
WSASAS Symposium
Ruminant Stress: Implications on Health and Performance of Ruminants
Chair: Glenn Duff, Montana State University
Sponsor: Western Section ASAS
226ABC

2:00 PM Welcome and Introductions.
G. Duff, Montana State University, Bozeman.

2:05 PM 810 Effects of environment on fetal programming in ruminant livestock.

2:35 PM 811 An evaluation of cold stress on ruminant nutritional requirements.
B. Olson*, Montana State University, Bozeman.

3:05 PM 812 An evaluation of temperament on performance and health of ruminants.
R. F. Cooke*, Oregon State University, EOARC, Burns.

3:35 PM 813 Impact of weaning, transportation, and vaccination stress on beef cattle performance.
J. D. Arthington*, University of Florida, Range Cattle Research and Education Center, Ona.

4:05 PM 814 Impact of environmental stress on feedlot cattle.
T. L. Mader*, University of Nebraska, Concord.

4:35 PM Symposium Review and Discussion
R. Pritchard, South Dakota State University, Brookings.

Breeding and Genetics
Swine Breeding
Chair: John B. Cole, Animal Improvement Programs Laboratory, ARS, USDA
123

4:00 PM 815 Estimation of genetic parameters for birth weight, pre-weaning mortality and hot carcass weight in a crossbred population of pigs.
M. Dufrasne*1,2, I. Misztal1, S. Tsuruta3, J. Holl4, K. A. Gray4, and N. Gengler4, 1Animal Science Unit, Gembloux Agro-Bio Tech, University of Liege, Gembloux, Belgium, 2FRIA, Brussels, Belgium, 3Department of Animal and Dairy Science, University of Georgia, Athens, 4Smithfield Premium Genetics Group, Rose Hill, NC.

4:15 PM 816 Effect of within-year variation on growth performance and subsequent reproductive performance in gilts.
C. R. G. Lewis*1,2, K. L. Bunter3, and S. Hermesch1, 1Animal Genetics and Breeding Unit (AGBU), University of New England (UNE), Armidale, NSW, Australia, 2PIC North America, Hendersonville, TN.

4:30 PM 817 Towards robust sows: Heat tolerance expressed in fecundity traits.
S. Bloemhof*1,2, E. Knol1, E. van der Waaij3, and I. Misztal3, 1TOPIGS Research, Beuningen, the Netherlands, 2Animal Breeding and Genomics Centre, Wageningen, the Netherlands, 3Department of Animal and Dairy Science, University of Georgia, Athens, Georgia, United States of America.

4:45 PM 818 A comparison of methods for predicting litter size in commercial pig lines.
L. Tusell*, P. Perez2, S. Forni2, X. L. Wu2, and D. Gianola2, 1Department of Animal Sciences, University of Wisconsin, Madison, 2Genus Plc, Hendersonville, TN.
**Thursday, July 19**  

**Animal Behavior and Well-Being**  
**Pain and Discomfort in Farm Animals**  
**Chair: Marcia Endres, University of Minnesota**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>819</td>
<td>Pain and discomfort in farm animals.</td>
<td>S. T. Millman*&lt;sup&gt;1&lt;/sup&gt;, Iowa State University, Veterinary Diagnostic and Production Animal Medicine, Ames.</td>
<td></td>
</tr>
<tr>
<td>9:30 AM</td>
<td>821</td>
<td>Argon versus CO&lt;sub&gt;2&lt;/sub&gt; gas induction of unconsciousness in piglets.</td>
<td>L. J. Sadler*&lt;sup&gt;1&lt;/sup&gt;, T. M. Widowski&lt;sup&gt;1&lt;/sup&gt;, C. Wang&lt;sup&gt;1&lt;/sup&gt;, A. K. Johnson&lt;sup&gt;1&lt;/sup&gt;, and S. T. Millman&lt;sup&gt;1&lt;/sup&gt;, &lt;sup&gt;1&lt;/sup&gt;Iowa State University, Ames, &lt;sup&gt;2&lt;/sup&gt;University of Guelph, Guelph, Ontario, Canada.</td>
<td></td>
</tr>
<tr>
<td>9:45 AM</td>
<td>822</td>
<td>Return to sensibility: Use of yohimbine (alpha 2-antagonistic reversal agent) for anesthetized sows.</td>
<td>M. D. Pairis*&lt;sup&gt;1&lt;/sup&gt;, A. K. Johnson&lt;sup&gt;1&lt;/sup&gt;, S. T. Millman&lt;sup&gt;2&lt;/sup&gt;, K. J. Stalder&lt;sup&gt;2&lt;/sup&gt;, and L. A. Karriker&lt;sup&gt;2&lt;/sup&gt;, &lt;sup&gt;1&lt;/sup&gt;Iowa State University Department of Animal Science, Ames, &lt;sup&gt;2&lt;/sup&gt;Iowa State University Veterinary Department of Production Animal Medicine, Ames.</td>
<td></td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15 AM</td>
<td>823</td>
<td>Herd-level risk factors for hock injuries in US freestall herds.</td>
<td>A. K. Barrientos*&lt;sup&gt;1&lt;/sup&gt;, N. Chapinal&lt;sup&gt;1&lt;/sup&gt;, D. M. Weary&lt;sup&gt;1&lt;/sup&gt;, E. Galo&lt;sup&gt;1&lt;/sup&gt;, and M. A. G. von Keyserlingk&lt;sup&gt;1&lt;/sup&gt;, &lt;sup&gt;1&lt;/sup&gt;Animal Welfare Program, University of British Columbia, Vancouver, British Columbia, Canada, &lt;sup&gt;2&lt;/sup&gt;Novus International Inc., St. Louis, MO.</td>
<td></td>
</tr>
<tr>
<td>10:30 AM</td>
<td>824</td>
<td>Herd-level risk factors for lameness in US freestall herds.</td>
<td>N. Chapinal*&lt;sup&gt;1&lt;/sup&gt;, A. K. Barrientos&lt;sup&gt;1&lt;/sup&gt;, M. A. G. von Keyserlingk&lt;sup&gt;1&lt;/sup&gt;, E. Galo&lt;sup&gt;1&lt;/sup&gt;, and D. M. Weary&lt;sup&gt;1&lt;/sup&gt;, &lt;sup&gt;1&lt;/sup&gt;Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada, &lt;sup&gt;2&lt;/sup&gt;Novus International Inc., St Louis, MO.</td>
<td></td>
</tr>
<tr>
<td>10:45 AM</td>
<td>825</td>
<td>Differences in pain thresholds associated with active and healing digital dermatitis lesions in dairy cattle.</td>
<td>J. H. Higginson Cutler*&lt;sup&gt;1&lt;/sup&gt;, D. F. Kelton&lt;sup&gt;1&lt;/sup&gt;, G. Cramer&lt;sup&gt;2,1&lt;/sup&gt;, J. Walter&lt;sup&gt;1&lt;/sup&gt;, and S. T. Millman&lt;sup&gt;2&lt;/sup&gt;, &lt;sup&gt;1&lt;/sup&gt;University of Guelph, Guelph, ON, Canada, &lt;sup&gt;2&lt;/sup&gt;Cramer Mobile Bovine Veterinary Services, Stratford, ON, Canada, &lt;sup&gt;3&lt;/sup&gt;Iowa State University, Ames.</td>
<td></td>
</tr>
<tr>
<td>11:00 AM</td>
<td>826</td>
<td>Effects of anti-GnRF vaccine Bopriva and band castration on acute indicators of pain in feedlot beef cattle under North American management practices.</td>
<td>S. Marti*&lt;sup&gt;1&lt;/sup&gt;, M. Devant&lt;sup&gt;1&lt;/sup&gt;, S. Amatayakul-Chantler&lt;sup&gt;1&lt;/sup&gt;, L. A. Jackson&lt;sup&gt;1&lt;/sup&gt;, E. D. Janzen&lt;sup&gt;1&lt;/sup&gt;, and K. S. Schwartzkopf-Genswein&lt;sup&gt;1&lt;/sup&gt;, &lt;sup&gt;1&lt;/sup&gt;IRTA-Ruminant Production, Animal Nutrition, Management, and Welfare Research Group, Caldes de Montbui, Barcelona, Spain, &lt;sup&gt;2&lt;/sup&gt;Veterinary Medicine R&amp;D, Pfizer Animal Health, Parkville, Victoria, Australia, &lt;sup&gt;3&lt;/sup&gt;Veterinary Medicine R&amp;D, Pfizer Animal Health, Kalamazoo, MI, &lt;sup&gt;4&lt;/sup&gt;University of Calgary Veterinary Medicine, Calgary, AB, Canada, &lt;sup&gt;5&lt;/sup&gt;Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.</td>
<td></td>
</tr>
<tr>
<td>11:15 AM</td>
<td>827</td>
<td>Effect of road transport and lairage on body temperature of feedlot steers.</td>
<td>J. B. Gaughan*&lt;sup&gt;1&lt;/sup&gt;, S. L. Bonner&lt;sup&gt;2&lt;/sup&gt;, I. D. Loxton&lt;sup&gt;3&lt;/sup&gt;, and R. J. Lawrence&lt;sup&gt;4&lt;/sup&gt;, &lt;sup&gt;1&lt;/sup&gt;The University of Queensland, Gatton, Qld, Australia, &lt;sup&gt;2&lt;/sup&gt;FSA Consulting, Toowoomba, Qld, Australia, &lt;sup&gt;3&lt;/sup&gt;Beef Support Services, Yeppoon, Qld, Australia, &lt;sup&gt;4&lt;/sup&gt;Integrated Animal Production, Toowoomba, Qld, Australia.</td>
<td></td>
</tr>
</tbody>
</table>

**Forages and Pastures III**  
**Chair: Steve Washburn, North Carolina State University**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>828</td>
<td>An electronic rising plate meter improves ability to accurately determine cool-season annual forage availability: I. Calibration.</td>
<td>C. Moffet*&lt;sup&gt;1&lt;/sup&gt;, J. Rogers, and R. Reuter, The Samuel Roberts Noble Foundation Inc., Agriculture Division.</td>
<td></td>
</tr>
<tr>
<td>8:45 AM</td>
<td>829</td>
<td>An electronic rising plate meter improves ability to accurately determine cool-season annual forage availability: II. Application.</td>
<td>R. Reuter*&lt;sup&gt;1&lt;/sup&gt;, J. Rogers, and C. Moffet, The Samuel Roberts Noble Foundation Inc., Agriculture Division.</td>
<td></td>
</tr>
</tbody>
</table>
9:00 AM 830  Evaluation of forage quality predictors in early- and late-maturing cultivars of annual ryegrass (Lolium multiflorum Lam.).
W. B. Smith*, R. B. Muntifering1, E. van Santen1, S. L. Dillard1, E. A. Guertal1, and D. M. Ball2,3, 1Dept of Animal Sciences, Auburn University, Auburn, AL, 2Dept of Agronomy & Soils, Auburn University, Auburn, AL, 3Alabama Cooperative Extension System, Auburn.

9:15 AM 831  Response of postpartum dairy cows to different grazing strategies: Effect of herbage allowance on milk and solids production.
M. Sprunck1,2, D. A. Mattiauda1, G. Motta1, M. Fajardo1, and P. Chilibroste*, 1Facultad de Agronomía, Paysandú, Paysandú, Uruguay, 2Agencia Nacional de Investigación e Innovación, Montevideo, Montevideo, Uruguay.

9:30 AM 832  The effects of time of allocation of a ryegrass-based pasture on animal performance, nitrogen utilization and grazing behavior from late-lactation dairy cows.

9:45 AM 833  Effect of stocking rate and cow lactation stage on nitrogen balance of grazing dairy cows considering two periods of supplementation at pasture.
A. I. Roca-Fernandez*, D. Baez-Bernal, and A. Gonzalez-Rodriguez, Agrarian Research Centre of Mabegondo, La Coruna, Galicia, Spain.

10:00 AM 834  Milk performance of two dairy cow genotypes (Holstein-Friesian vs. Normande) at two levels of supplementation (low vs. high) in long residence time grazing paddocks.
A. I. Roca-Fernandez*, D. Lealaby1, S. Leurent1, M. E. Lopez-Mosquera2, and A. Gonzalez-Rodriguez1, 1Agrarian Research Centre of Mabegondo, La Coruna, Galicia, Spain, 2University of Santiago de Compostela, Lugo, Galicia, Spain, 3INRA Agro-Campus Ouest UMRPL, Saint Gilles-Rennes, Bretagne, France, 4INRA Experimental Farm Le Pin au Haras, Borce-Oexmes, Normandy, France.

10:15 AM 835  Effect of daily herbage allowance (low vs. high) and cow lactation stage (early vs. middle) on sward quality and milk performance of grazing dairy cows.
A. I. Roca-Fernandez*, A. Gonzalez-Rodriguez, and O. P. Vazquez-Yañez, Agrarian Research Centre of Mabegondo, La Coruna, Galicia, Spain.

10:45 AM 837  Milk urea concentration test as a quick response of the energy/protein balance in dairy cattle ration.
A. I. Roca-Fernandez*, A. Gonzalez-Rodriguez, and O. P. Vazquez-Yañez, Agrarian Research Centre of Mabegondo, La Coruna, Galicia, Spain.

11:00 AM 838  Effect of calving date (spring vs. autumn) and parity (primiparous vs. multiparous) on milk performance of Holstein-Friesian grazing dairy cows from Galician conditions.
A. I. Roca-Fernandez*, A. Gonzalez-Rodriguez, and O. P. Vazquez-Yañez, Agrarian Research Centre of Mabegondo, La Coruna, Galicia, Spain.

11:15 AM 839  Effect of oilseed concentrate source (cottonseed vs. linseed) on milk composition and fatty acids profile of dairy cows (grazing vs. silage + grazing) from NW Spain humid region.
A. I. Roca-Fernandez*, A. Gonzalez-Rodriguez, O. P. Vazquez-Yañez, and J. A. Fernández-Casado1, 1Agrarian Research Centre of Mabegondo, La Coruna, Galicia, Spain, 2Agrarian and Fitopathologic Laboratory of Galicia, La Coruna, Galicia, Spain.

Physiology and Endocrinology II
Chair: Jason Ross, Department of Animal Science, Iowa State University
Sponsor: ASAS Foundation
226ABC

8:30 AM 840  ASAS Early Career Achievement Award: The physiology of heat stress: A shift in metabolic priorities at the systemic and cellular levels.
R. P. Rhoads*1 and L. H. Baumgard2, 1Virginia Polytechnic Institute and State University, Blacksburg, 2Iowa State University, Ames.
9:00 AM 841  Single and double, fixed-time insemination of postpartum sows given intravaginal triptorelin gel.  
N. R. Augspurger*, M. E. Johnston1, M. E. Swanson1, and S. K. Webel1; 1JBS United Inc., Sheridan, IN; 2Pennatek LLC, Radnor, PA.

9:15 AM 842  Effects of glucuronic acid and N-acetylglucosamine supplementation on the in vitro maturation and fertilization of pig oocytes.  
A. Mello*, K. Dalton, and B. D. Whitaker, The University of Findlay, Findlay, OH.

9:30 AM 843  Litter characteristics and thermoregulatory behavior of first parity sows exposed to a controlled heat stress (HS) during gestation.  
M. C. Lucy*, T. J. Safranski1, J. N. Rhoades1, J. W. Ross1, N. K. Gabler2, R. P. Rhoads1, and L. H. Baumgard3; 1University of Missouri, Columbia, 2Iowa State University, Ames, 3Virginia Tech, Blacksburg.

9:45 AM 844  Comparison between conventional sex-sorted semen and a higher dose/ lower concentration sex-sorted semen on conception rates and calf gender ratio.  
J. A. Lucena*, A. G. Kenyon1, J. P. Reynolds2, J. D. Champagne1, T. L. Lehenbauer1, and S. S. Aly3; 1Veterinary Medicine Teaching & Research Center, School of Veterinary Medicine, University of California, Davis, 2Western University of Health Sciences, Pomona, CA.

10:00 AM 845  Effect of a post-weaning high-energy diet on age at puberty, testicular characteristics, and semen production in Holstein bulls.  
B. R. Harstine*, M. Maquivar1, L. A. Helser2, M. D. Utt1, C. Premanandan3, J. M. Delarnette1, and M. L. Day1; 1Department of Animal Sciences, The Ohio State University, Columbus, 2Select Sires Inc., Plain City, OH, 3Department of Veterinary Biosciences, The Ohio State University, Columbus.

10:15 AM 846  Oviductal protein and ovarian hormone concentrations during the first five days of the estrous cycle in first and third estrous ewe lambs and mature ewes.  
J. G. Berardinelli*, Montana State University, Bozeman.

10:30 AM 847  Effect of phytoestrogens on basal and GnRH-induced gonadotropin secretion from ovine pituitary cells in culture.  
S. A. Arispe*, B. M. Adams, and T. E. Adams, University of California, Davis.

10:45 AM 848  Effect of acidic pH on uterine response to interferon-τ.  
A. Ahmadzadeh*, T. Davis, K. Carnahan, and C. Autran, University of Idaho, Moscow.

Symposium: Reproductive Immune Interactions  
Chair: Craig Gifford, Oklahoma State University  
Sponsors: ASAS and Western Section ASAS  
222AB

8:30 AM  Welcome and Introduction.

8:35 AM 849  Maternal immunological adjustments to pregnancy in ruminants and possible implications for postpartum uterine health.  
P. J. Hansen*, University of Florida, Gainesville.

9:15 AM  Immune function in the CL.  
J. Pate*, Pennsylvania State University.

9:55 AM  ISG in the uterus and peripheral blood as well as work with BVDV.  

10:35 AM  Biological Role of Interferon Tau in Endometrial Function and Conceptus Elongation in Ruminants.  
Ruminant Nutrition

General Ruminant Nutrition

Chair: Rick Kohn, University of Maryland

125AB

8:30 AM  850  Effects of crude glycerol supplementation on in vitro ruminal fermentation and Merino ewes performance.
S. J. Meale*, S. Ding1, T. A. McAllister2, R. D. Bush1, D. Palmer1, and A. V. Chaves1, 1Faculty of Veterinary Science, University of Sydney, Sydney, NSW, Australia, 2Lethbridge Research Center, Agriculture and Agri-Food Canada, Lethbridge, Alberta, Canada.

8:45 AM  851  Process development and nutritional evaluation of a supplemental byproduct feed for cattle from expired grocery foods.
M. A. Froetschel*, C. L. Ross1, and L. E. Brewer2, 1The University of Georgia, Athens, 2Viridiun LLC, Cumming, GA.

9:00 AM  852  Biometrics of digestive tube of kids suckled up to 90 days fed different sources of goat milk replacers.

9:15 AM  853  Evaluation of a prototype galactooligosaccharide supplement in milk replacer for neonatal calves.
J. J. Castro*, C. R. Bromfield1, H. J. Mangian1, J. R. Loften1, and J. K. Drackley1, 1University of Illinois, Urbana, 2Milk Specialties Global, Carpentersville, IL.

9:30 AM  854  Remote monitoring of individual animal mineral supplement intake by range cattle.

9:45 AM  855  Effect of corn processing on growth performance and fecal nutrient composition in dairy bull calves fed whole or steam-flaked corn diets from pre-weaning to 8 weeks post-weaning.
J. D. Allen*, L. W. Hall1, C. D. Burrows1, and G. C. Duff1, 1University of Arizona, Tucson, 2Montana State University, Bozeman.

10:00 AM  856  Effects of short-term feed restriction on ruminal function.
S. Zhang*, D. R. Barreda1, J. R. Aschenbach3, and G. B. Penner2, 1University of Saskatchewan, Saskatoon, SK, Canada, 2University of Alberta, Edmonton, AB, Canada, 3Free University of Berlin, Berlin, Germany.

10:15 AM  857  Identifying improbable feed samples using a multivariate procedure.

10:30 AM  858  Application of meta-analysis to build new feed unit systems for ruminants based on absorbed nutrients and animal responses in France.
D. Sauvant*, J. L. Peyraud1, and P. Noziere1, 1AgroParisTech-INRA, Paris, France, 2INRA-AgroCampus, Rennes, France, 3INRA UMR Herbivores, Clermont-Ferrand, France.

10:45 AM  859  Sampling sites and inserting depth of oral stomach tube affects the fermentation parameters of ruminal fluid collected in dairy cows.

11:00 AM  860  Comparison of nutrient composition and in vitro digestion characteristics of spent mushroom soybean (Pleurotus spp.) substrate and soybean straw.
J. P. Gafigi1, M. Mutimura2, and S. Uwituze*, 1National University of Rwanda, Faculty of Agriculture, Department of Animal Productions, Butare, Rwanda, 2Rwanda Agriculture Board, Kigali, Rwanda.

Ruminant Nutrition Symposium

Update on Nutrient Requirements for Ruminants

Chair: Alex Bach, IRTA

Sponsor: West Central

131ABC

8:30 AM  861  Revising protein requirements of calves and heifers.
T. M. Hill*, H. G. Bateman1, J. M. Aldrich1, and A. J. Heinrichs2, 1Nurture Research Center, Provimi North America, Brookville, OH, 2Department of Animal Science, Penn State University, University Park.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 AM</td>
<td>863</td>
<td>Protein and amino acids for growth.</td>
<td>E. C. Titgemeyer*, Kansas State University, Manhattan.</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>864</td>
<td>Update on protein and amino acid requirements for lactating dairy cows.</td>
<td>H. Lapierre*¹, L. Doepel², and D. R. Ouellet¹,¹Dairy and Swine R&amp;D Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ²Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada.</td>
</tr>
</tbody>
</table>

**Teaching/Undergraduate and Graduate Education Symposium**

**Online Education for a Hands-On Career: The good, the bad and the ugly of online education in animal sciences**  
Chair: Olga Bolden-Tiller, Tuskegee University

222C  

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>865</td>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>8:45 AM</td>
<td>865</td>
<td>Making the world your stage through best practices in distance education.</td>
<td>E. Sewell², B. Parr*¹, and D. Mulvaney²,¹College of Education, Auburn University, Auburn, AL, ²Animal Sciences, Auburn University, Auburn, AL.</td>
</tr>
<tr>
<td>9:10 AM</td>
<td>866</td>
<td>Real and perceived barriers to distance education in animal sciences and other disciplines.</td>
<td>K. Boland*¹, B. Parr², and D. Mulvaney²,¹College of Education, Auburn University, Auburn, AL, ²Animal Sciences, Auburn University, Auburn, AL.</td>
</tr>
<tr>
<td>9:35 AM</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15 AM</td>
<td>868</td>
<td>Service learning: Hands-on opportunities for on-line courses.</td>
<td>O. U. Bolden-Tiller*²,²L. G. Martin¹, and I. Everett¹,¹Tuskegee University, Tuskegee Institute, AL, ²Auburn University, Auburn, AL.</td>
</tr>
<tr>
<td>10:40 AM</td>
<td>869</td>
<td>Student learning in undergraduate animal breeding courses is improved through play of an online genetic simulation game.</td>
<td>K. L. Kessler*³, R. M. Lewis², J. P. Cassady³, and K. M. Cammack¹,¹University of Wyoming, Laramie, ²Virginia Polytechnic Institute and State University, Blacksburg, ³North Carolina State University, Raleigh.</td>
</tr>
<tr>
<td>11:05 AM</td>
<td>Panel Discussion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Breaking into NSF**  
Sponsor: ASAS Foundation

127C  
8:30 – 11:30 AM
Author Index

Numbers following names refer to abstract numbers; a number alone indicates an oral presentation, an M prior to the number indicates a Monday poster, a T indicates a Tuesday poster, and a W indicates a Wednesday poster.

The author index is created directly and automatically from the submitted abstracts. If an author's name is typed differently on multiple abstracts, the entries in this index will reflect those discrepancies. Efforts have been made to make this index consistent; however, error from author entry contributes to inaccuracies.

A

Aad, P. Y., T184
Aalhus, J. L., M153, W285, 750
Aaron, D. K., 395, 735
Abad, R., 513
Abanikannda, O. T. F., T58, T59
Abaye, A. O., M78
Abbas, K., 329
Abdalla, A. L., M353, T330, T331, T379
Abdelhadi, L. O., W104
Abdelqader, M. M., W297
Abdelrahim, G., M381
Abdollahi, M. R., W181
Abe, M., W373
Abed El-Aziz, F. R., 768
Aboin, A., W205
Abo-Ismail, M. K., 469
Abreu, D. C., M371, T341, T344, W332
Abreu, F. A., W215
Abreu, F. M., M121, W218, W219, W395, W396, 12, 262
Abreu, J. G., M364, W292, W293
Abreu, U. G. P., M43
Acetoze, G., W39, 166
Aceves, J. G., M191
Acharya, J. P., M103
Acharya, S., W119
Acker, E. R., 103
Adams, A. A., 367
Adams, A. E., 253
Adams, A. L., T1, 590, 591
Adams, B. M., 847
Adams, K. K., M34
Adams, M., 71, 82
Adams, T. E., 847
Addah, W., W109
Adebiyi, O., 51
Adebiyi, O. A., 697
Adejumo, D. O., W209
Adekunbi, O. I., T59
Adeola, O., 507
Ageron, D. K., 395, 735
Ab famine, O. T. F., T58, T59
Abaye, A. O., M78
Abbas, K., 329
Abdalla, A. L., M353, T330, T331, T379
Abdelhadi, L. O., W104
Abdelqader, M. M., W297
Abdelrahim, G., M381
Abdollahi, M. R., W181
Abe, M., W373
Abed El-Aziz, F. R., 768
Aboin, A., W205
Abo-Ismail, M. K., 469
Abreu, D. C., M371, T341, T344, W332
Abreu, F. A., W215
Abreu, F. M., M121, W218, W219, W395, W396, 12, 262
Abreu, J. G., M364, W292, W293
Abreu, U. G. P., M43
Acetoze, G., W39, 166
Aceves, J. G., M191
Acharya, J. P., M103
Acharya, S., W119
Acker, E. R., 103
Adams, A. A., 367
Adams, A. E., 253
Adams, A. L., T1, 590, 591
Adams, B. M., 847
Adams, K. K., M34
Adams, M., 71, 82
Adams, T. E., 847
Addah, W., W109
Adebiyi, O., 51
Adebiyi, O. A., 697
Adejumo, D. O., W209
Adekunbi, O. I., T59
Adeola, O., 507
Aderemi, F. A., 758
Aderiye, J. A., W291
Adesehinwa, A. O. K., 583
Adesogan, A. T., W96, W101, 52, 351, 488
Adewumi, M. K., W291
Adolphe, J. L., 444
Adrien, L., 770
Adrien, M. L., T269
Afanador-Tellez, G., M157
Afonso, E. R., 754
Agarwal, U., 101
Agiang, E. A., T153
Agostini, P. S., T210, T211, T212
Aguerre, M., M329, T356, T359, 163
Aguerre, M. J., M240
Aguilar, A. D., W96, 140, 141, 352
Aguilar, A., 448
Aguilar, I., 453, 462
Aguilar, M., 568
Aguilar-Hernandez, A., W172
Aguilera, J. L., M189, M200, M210
Ahmad, H. A., 573
Ahmad, Z., 329
Ahnazadeh, A., M196, M204, T185, 848
Aholo, J. K., M252, M253, 24, 25, 26, 34, 264, 345, 403, 406, 700
Aiello, P. A. B., M170
Aiken, G., 79
Aiken, G. E., M84, M85
Aikman, P. C., W298
Al Katheeri, Z., T174
Al Mansouri, S., 723
Alabhi, O. M., W209, 758
Alamouti, H. M., 489
Alarcón, A. D. R., M147
Alarcón-Rojo, A. D., M142, M143
Alarcón-Zúñiga, B., M76
Alavarez-Valenzuela, F. D., T75
Alazr, A. Y., W362
Albanell, E., 428, 683, 684
Al-Barakeh, F. S., M184
Albarrán, B., M393
Albarran Portillo, B., T177, T382, W340
Albicia, A., 721
Albino, R. L., M91, T341, T344
Albornoz, R. I., 538
Albrecht, E., 110
Albrecht, J. J., 167
Albuquerque, L., T56
Albuquerque, L. G., T55
Alcay, S., 686
Alcázar, E., 658
Aldados, N., 750
Al-Dobaib, S. N., T320
Aldrich, G., 61
Aldrich, J. M., 804, 806, 807, 809, 861
Aldridge, B. E., 362
Al-Dussi, I. A. S., T41, 715
Alebrante, L., M160
Alegrans, L., M245
Alelu, A. W., W242
Alencar, M. M., M256
Alessio, D. R. M., M281, T282
Alexander, B. M., T216
Alexander, L. J., T128
Alexander, T. W., T89
Alexandre, P. W., W68
Al-Haidary, A., T179
Ali, A., 325, 329, 725
Ali Naserian, A., W276
Aliyari, D., T375
Aljummah, R., 525
Al-Karmah, M., 721
Allataif, F. A., W358, W359
Allee, G., 181
Berrett, C. J., 25
Berrocoso, J. D., M155, 381, 513
Berry, D. P., 474, 711
Berthiaume, R., W107, 96, 405
Bertics, S., T181, T288, W216
Berto, D. A., M175
Bertol, T. M., T146, W178
Berton, C., W354
Bertoni, G., T298, 154, 370
Bertrand, J. K., M33
Besser, T. E., 648
Betancourt, A., 367
Bethard, G., 192, 317
Bettero, V. P., T300
Bettis, S. E., T268
Betzold, N., T181, T288, W216
Beukes, P. C., M74
Beverly, M., T398, T399, 342, 343
Bewley, J. M., M110, M229, W233, 169, 181, 183, 197, 534, 644, 646
Bezdicek, J., M30, T39, T355
Bhatti, S. A., 283, 573
Bidarimath, M., M186
Biehl, M. V., M120, M121, M378, T206, T207, W218, W219, W395, W396, 262
Bezik, H., 324
Binversie, E., W349, W352
Bionaz, M., T263
Biourge, V., 621
Bird, S., 261
Birkedal, E., M67
Birrenkott, G. P., M199
Bischoff, K. M., M127, M243, M244, T111, 31, 36, 351, 396
Bisino, R. S., M11, M212, M277, W220
Bissell, W. T., 180
Bissonnette, N., M136, T35, T36
Biskup, J., M285, M290, M298, T314
Bixley, M. J., 35, 720
Bjelland, D. W., 322
Bjorklund, E. A., M222, 232, 526
Black, P. L., 37
Black, R. A., W233, 181, 644
Black, T. E., M243, M244, 351
Blair, H., 743
Blair, H. T., M122
Blanchard, T. L., 368
Blanton, J. R., 356
Blaszi, J. A., 793
Blesh, F., 479
Blevins, S. R., M77
Blickenstaff, J. D., W37
Block, E., 160, 179, 718
Block, H. C., 542
Block, S., 32
Bloehmof, S., 817
Blummel, M., 427
Boaventura Neto, O., M377, M389
Bobe, G., W19, W36
Boel, J., 363
Bocquier, F., M187
Boddy, R., W210
Boddy, R. L., W191, W211, W401, 668
Boedeker, R. L., W191, W211, W401, 668
Boden, K. D., W345
Boggs, M., T76
Bohnert, D. W., W47, 259, 298, 397, 398, 426
Boisclair, Y. R., 369
Bok, J. D., W154
Bolado, J. L., W172
Boer, M., M116
Boeren, S., T141
Bogess, M., T76
Bogus, J., M17, T21
Boling, J. A., M86
Bomfim, M. A. D., 429, 687
Bompadre, T. F. V., M377
Bond, G. B., M220, W5, 207
Bonelli, P., T374
Bonilha, S. F. M., M247
Bonin, M. N., M148, M266
Bonisa, E., M322
Bonner, S. L., 827
Booker, C. W., M264, 680
Borba, H., T336
Borba, A., W173
Borda, E., W162
Borges, J. L. C., M260
Borges, J. M., M322
Borhy, M. R., M60
Borges da Costa, D. P., M144
Borges da Costa, Q. P., M144
Borgui, T., T329
Borhami, B. E., M320, 278
Borowicz, P. P., M126, W201, W351
Borsato, M., M193
Børøing, M. W., 66
Bos, D., 471
Botero, L. M., W3
Bott, N. I., W356
Bott, R. C., W176, 14
Bottje, W. G., 475
Botts, R. L., 679
Boucher, S. E., M310, M316
Bouck, A., 397, 398
Bouma, J. G., 30
Boutinaud, M., T138
Boutrut, C., 115
Bouzouagh, E., 135
Bowen, W. S., M301, 808
Bowles, V., 50
Bowman, J. G. P., 28, 40
Boyd, R. D., M162, M177
Boyle, L., 213
Boyles, S., 592
Bozrayda, S. A. M., T41, 238, 715
Braccini Neto, J., T221
Bradford, B., 718
Brady, A., 393
Bradner, L., 254
Braga, J., T8
Braghieri, A., T63
Braman, W., T297
Brambillasca, S., 386, 622
Bramley, E., 289
Branco, R. B. F., W95
Brancu, R. H., M247
Brandão, V. L. N., M91
Brandão, E., T330, T331
Brandebourg, T. D., T121, T122
Brandt Filho, H. V., M268
Branen, J., M196, T185
Branine, M., 107
Branine, M. E., W253, W256
Bratcher, C. L., T121, T122, 344
Brauner, C. C., 176, 177, 524
Bravo, D., M163, T19, T37, T265, T277, W161, 49, 108
Bravo, R. D., W92
Bray, D. R., 533
Breen, S., M401
Breiner, R. M., T196
Brennan, K. M., T391, T392, W254, 676
Brewer, J. E., 851
Briceno-Poot, E., M338
Brich, A. C. L., T155
Brick, T. A., 440
Brigham, B. W., 237, 463, 466
Brink, G. E., W326
Eckhardt, O. H. O., 755
Eclache, D., T168, W177
Edling, T. M., 477
Edrington, T. S., 306
Edwards, M. S., 478
Edwards-Calloway, L., 273
Egger-Danner, C., 439
Eichen, P. A., M20, 78
Eicher, S. D., T90
Einstein, M., W399
Eisemann, J. H., M249, M254
Ekeocha, A. H., M370, T301, T316, 45, 358, 359, 423, 492
Ekeocha, P. C., 45
El Faro, L., M36, T46, T314
Eler, J. P., T53, T54, W65, 455
Elghandour, M. M. Y., T305, W376
El-Haroun, E. R., W195
Elizondo-Salazar, J. A., M380, W27
Ellersieck, M. R., 265
Elliott, A., 348
Ellis, J. L., 150
Ellis, S., M138, 372, 732
Ellis, S. E., T125, T129
Ellison, M. J., T328, T337, T347
Elmore, J. B., 344
Elmore, M. R. P., 181
Elrod, C., W365
Eltzschig, T. H., M6, M10, W21, 370
Ely, D. G., 395
Ely, L. O., 220
Elzo, M. A., T40, T52, T137, T405, W63, W64, W400
Emami, A., M390, T127, T149, T377
Endecott, R. L., T128, 18, 40, 605
Endo, V., T369
Endres, M. I., M109, T222, T223, W12, 210
Engle, T., 585
Engle, T. E., M132, M362, T338, 19, 26, 111, 211, 403, 676
Engstrom, M., M313
Enns, R. M., M37, 34, 237, 460, 463, 464, 466, 593
Enriquez, I., T24
Enriquez, O., M365
Ensley, D. T., 312
Erdene, K., T323
Erdman, R. A., M63
Erf, G. F., 312
Erickson, G. E., T239, 148, 486, 540, 786, 787, 789, 791, 795
Erickson, Galen, 541
Erickson, P., 107
Erjavec, K., T245, T246
Ernst, C. W., W76
Escalante, R. C., M209
Escareno-Sanchez, L. M., T77
Escober, F. J., M189, M210, M236
Escober, J., M114, 508
Escobero-Morales, L. E., M213, T183, W197
Eshpari, H., T73
Espasandin, A. C., T224
Espino, M. A., T24, T343, T345, T354, W284
Espinosa, G., T397
Espinosa, I., T115
Esposito, G., T63
Esselburn, K. M., 373, 804
Estell, R., 17
Estevam, D. D., 165
Estienne, M. J., 762, 784
Estrada-Angulo, A., M396, M397, T387, W172
Estrada-F, J. G., W340, W341
Estrella-Quintero, H., M241, W230
Etherton, T., 17
Esteban, C. W., 370, 741
Eysink, D., M378, M394
Ezequiel, J. M. B., M360, M386, M387, T240, W290, W294
Eubanks, V. J., 220
Eun, J.-S., M111, W310, W336, 23, 95, 199, 577
Evans, H. L., T145
Evans, O., W165, W166
Evans, R. D., W44
Eveno, A., 127
Everett, I., 868
Evert, R. E., M3, T263, T284
Evock-Clover, C. M., 370, 741
Eysink, D., M378, M394
Ezequiel, J. M. B., M360, M386, M387, T240, W290, W294
F
Faber, A., W2
Faber, T. A., T169, T170
Fabin, R. A., 205
Fachin, A. L., W95
Fachin, M. P. S., W292
Faciola, A. P., 293
Facio, O., 687
Fagan, C. J., W50
Fagundes, D. G., M144
Fain, J. L., M199, 189
Fajardo, M., T275, T325, 564, 831
Fajersson, P., T210, T211, T212, W44, 724
Fahy, N., 67, 70, 650
Falkenberg, S. M., 314
Falck, S., J. J., W47
Falco, N., T303
Falkenberg, S. M., 314
Fan, J., W34
Fan, L., 333
Fanego, N., M66
Fang, X., 222, 223, 332
Fang, X., W151
Fang, L., 333
Fang, X., W368
Fang, Z. M., W74, W75
Fani, J., T151, T374
Ferguson, C. E., M183, T193
Fernandez, A. M. F., 687
Fernandes, F., T370
Fernandes, F. E. P., 687
Fernandes, H. J., M259, T130, T131, T349, 149
Fernandes, M. H. M. R., M377, T107, T373
Fernandes, S. A. de A., W4
Fernandez, H. H., M74
Fernandez, J. M., 123
Fernández-Casado, J. A., 839
Fernandez-Figares, I., W124, W125, S14
Fernando, R., T72
Fernando, R. L., M35
Fernando, S. C., T239
Ferraretto, L. F., M102, M283, M306, T47, W301
Ferraz, I., T332
Ferraz, J. B. S., M148, M262, M266, T51, T52, T53, T54, W41, W65, W68, 401, 455
Ferraz Junior, M. V. C., M120, M121, T207, W395, W396
Ferreira, A. C., M349, 566
Ferreira, C. S., W131
Ferreira, E. M., M120, M121, M378, M394, T207, T240, T385, W395, W396
Ferreira, L. G., M46
Ferreira, V. C., M42
Ferreira de Jesus, E., T271
Ferrel, J., 757
Ferret, A., T397, W1, W46
Fetrow, J., T222
Fick, W. H., 349
Field, M. E., M132, 111
Fierros, R. C., M191
Fifield, B., W10
Figueiredo, A. S., M148
Figueiredo, L. G., M148
Figueroa, J., M178, W15, W162, 214
Fike, K., W53
Filho, C. C., M399
Filho, G. L. R., M369
Filho, K. C. M., W165, W166
Filho, N. L., M144
Filho, S. de C. V., M332, M350, M358
Filley, S. J., M69
Finlay, B. B., T37
Finot, L., W148, 127, 131
Fioravante Filho, R. S., W293
Fiorentini, G., M146, M268, M337, M366, T241, T248
Fiorotto, M. L., 115
Firkins, J. L., T261, W324, 412, 415
Fiske, D. A., M78
Fitzsimmons, C., M131
Fitzsimmons, C. J., W45, 701
Fix, J., W399
Flaten, D., W246
Fleming, H., T215
Fletcher, E. S., M291, M311, T266, W107
Flohr, J. R., 133
Flörcke, C., 111, 211
Flores, A., M65
Flores, C., 684
Flores, E., T133
Flores, L. R., M355, T24, T343, W284
Flores, R., W54
Flowers, W. L., T393, 10
Flynn, B., 156
Flythe, M. D., W139, W144, 502
Foegeding, E. A., T64
For, F. N., 572
Fonseca, A. B., W300
Fonseca, D. M., M91
Fonseca, G. A., 267
Fonseca, L. M., M47, M59, M60
Fonseca, L. S., T336
Fonseca, M. A., M332, M358, M361, T349, W237, 149
Fonseca, T. T., W4
Fontenele, R. M., T364
Fontes, P. L. P., 165
Foote, A. P., M84, M85, M251, M267, W350, 408
Foradori, C. D., T121, T122
Fort, M., T173
Forbes, T. D. A., 276
Forlano, P. M., 472
Forni, S., 818
Forsberg, N. E., 220, 313, 315
Fortes, M. R. S., 57
Fortune, J. E., 11
Foster, A., 744
Foster, H. A., 24
Foulque, D., M187
Fourcassie, P., 730
Fowler, A. L., W141, W144, 502
Fox, J., T9
Fox, J. T., 26
Fox, L. K., T30
Fraley, S. E., W306, 553
França, P. M., T252
France, J., T357, W364, 150
Francis, N., W126
Francisco, C. L., T237, 397, 398
Franco, R. A., T83, T236, W147
Franco, R. B., W112
Frankowski, K., M98
Frankshun, A-L., 745
Franzói, M. C. S., 146, 165
Franzoni, A. P. S., W131
Fraser, M. D., T215
Frasier, W. M., 34
Fredeen, A., M227, M228, T346
Freel, B., 342, 343
Freetly, H., 539
Freetly, H. C., 410, 468, 520
Fregonesi, J. A., 798
Freitas, C. A. S., M91
Freitas, G. A., M371
Freitas, J. E., T258, T271, T299, T300, W260, W366
Freitas Junior, J. E., M334, M363, W367
Fremaux, N., 730
Frenkiel, J., T26, 34, 264
Fresi, P. M., 719
Fricke, P. M., M113, M194, M195, M240, T81
Friedauer, K., M207
Friend, T. H., T1, 590, 591
Friggens, N. C., 671
Gadberry, M. S., 580, 581, 843
Gadberry, S., T102, T227, 598
Gado, H., M309, M320, T305, W376, 278
Gado, H. M., M184, 768
Gafgi, J. P., 860
Gal, M. C., M290, M298
Galloway, D. L., W192
Galo, E., M107, 823, 824
Galvan, D. B., M373, 790
Galvão, K. A., 529
Galvão, K. N., M11, W220, 251, 446, 528
Galvão, M. L., M257, T291, W253, W282, W365
Gama, M. A. S., M281, M315, T282
Ganda, E. K., M277
Gandra, S. R., M334, T258, T271, T299, T300, W260, W360
Ganjkhanlou, M., M201, M390, T127, T149, T150, T178, T245, T246, T259, T377, W343
Ganner, A., W338, W363
Ganter, R., 698
Gao, M., T232
Gao, X., W151, W152
Gao, X. H., 425, 625
Gao, X.-H., W152
Garcia, A., T262, W307, W308
Garcia, M., M277, M299, M300, 805
García, M., W354
Garcia-Barrios, C., M200
Grant, J. K., 261
Grant, R. J., W314, W320, W325, W333, W771
Grassi, P., W402
Graugnard, D. E., M134, T392, W254
Graves, T. K., 618
Gray, K. A., 689, 815
Gray, L., T363, W384
Grazul-Bilska, A. T., M126, W201
Greathouse, A., M183
Greco, D., 240
Greco, L. F., M11, M212, M277, W220, 799, 805
Green, H. B., 554
Green, J. T., M79, M80, M81
Green, P. G., W112
Greene, L. W., 647
Greene, W., T195
Greene, W. A., M224
Greenwood, P. L., 114, 379
Grégoire, J., T5
Gregorini, P., M74, 161
Greiner, L. L., 133
Grenier, B., T34, 48
Gressley, T. F., T286
Greter, A. M., M287
Griffin, W. A., 540
Griffiths, M., 84
Griffiths, M. W., 74, 651
Griggs, T. C., T226
Grilli, E., M312
Griswold, K., 535
Grove, A. V., 25
Grove, K. L., 376
Grubbs, J. K., 473
Grunsch, M., W26
Grygorczyk, A., 88
Guala, G., T325
Gualdrón Duarte, J. L., W76
Guamis, B., M54, W90
Guarnizo, K. F., M289, 547
Guaraldo, C. F. M., M259
Guardielo, M. M., T209, W203, W217
Gussich, I., W9
Guatam, K. K., T291
Güemez, H. R., T160, W174
Guerra, C., 673, 674
Guerra, M. H., T108
Guerrero Cervantes, M., W93
Guertal, E. A., 830
Guyeac, A., M381
Guidon, N. E., W107
Guillen, J. M., M211
Guillen-Muñoz, J. M., T381, T383, T384, W393, W394
Guimarães, T. P., T321, T334

H

Habier, D., 726
Hackbart, K. S., T181, T288, W216
Hadsell, D. L., M133
Hafla, A. N., 276
Hagevoort, G. R., 306, 593, 698
Hai, P. H., 287
Haines, D. M., T376
Hairgrove, T. B., 222, 223, 332
Halalshen, R. A., W187, W202
Hale, E. A., 581
Hale, J. M., W8
Hales, K., 539
Hales, K. E., 410
Haley, D. B., 207, 309
Halkenson, S., 524
Hall, A., M324
Hall, H., 431
Hall, L. W., M104, M206, W189, 556, 855
Hall, M. B., W232, 414, 553
Hall, S. R., 480
Ham, J., W244
Hamie, J. C., 52
Hamilton, S. A., M209
Hammer, C. J., W140, 360, 500
Hammon, H. M., M205, T136, T186, T191, W132, 742
Hamzaoui, S., 130, 684
Han, G., W117
Han, H., M132, 19, 111
Han, R.W., T85, T86
Han, S. W., W158
Hanada, M., W373
Hancock, J. D., T158
Hanigan, M., 161
Hanigan, M. D., M114, T322, 568
Hansen, A. V., 383
Hansen, L. B., 232
Hansen, P. J., T197, 327, 391, 849
Hansen, S. L., 144, 145, 151, 402, 404
Hansen, T. R., 14
Hanson, A. E., W140, 500
Hanson, D. L., M21, M24, T12, T15, T17, T18, T296, T353, 221, 310, 311, 443
Hanzlcek, G. A., 252
Hao, Y. Q., T87
Harbac, M. M., 22, 275
Hardie, C. A., M119, M239, 777
Harding, J. L., T239, 164, 486, 791, 795
Haresign, W., 722
Haring, J., W201
Harmon, D. L., M85, M251, M267, M271, W350, 370, 408
Harner, J. P., M104
Harper, A. F., 762, 784
Harrell, R., M181, 585
Harris, A., 473
Harris, B., W356
Harrison, G. A., W337
Harrison, J. H., 780, 781
Harstad, O. M., W289, 794
Harstine, B. R., 845
Hart, S., T376
Hart, S. P., W380, W383
Härter, C. J., M389
Hartnell, G., 734
Harvatine, K. J., M135, T261, T299, T300, W153, 228, 288, 369, 417
Harvey, R., W258
Harvey, R. B., 306
Hassan, A. E., 768
Hassan, A. N., T66
Hassanat, F., M346, T339, W277
Hassen, A. T., W50
Hatamoto-Zervoudakis, L. K., M31, M32, M44, M258, M261, T310, T333
Hatch, S., W226
Hatemi, A., T150, T178
Hatfield, P. G., 28, 40
Hathaway, M. R., W134, 361
Hauptman, B. S., 32
Hausler, S., M207
Havenga, L. J., T229
Hawkins, D. E., M190, T231, W221
Hawkins, L. L., M4
Hawkins, S. A., W135
Hay, E., 457
Hay, E. H., W59
Hayek, S. A., T68
Hayen, M. J., T140
Hayes, B. J., 607
Hayes, D. J., T217
Hayes, J., M375
Hayes, J. F., 231
Hayes, S., W143, 367
Hayes, S. H., W141, W144, 502
Hayman, R., M227, M228
He, G., M166, M167
He, M. L., W281, W285, W289, W362
He, Y., 333
He, Y. D., W163
Headley, A. C., W302
Heaton, K., 261
Hegedusova, Z., M30
Heguy, J. M., M218, M305
Heinemann, R., W380
Heinrichs, A. J., M294, T103, W27, W121, 861
Heins, B. J., M222, 232, 233, 526
Hemling, T., W115
Hendrick, S., M244
Hendrick, S. D., T111
Henry, B. A., 8
Henry, D., M244
Hernandez, L. L., T139, 91, 125
Hernández-Briano, P., M213, T183, W197
Hernandez-Calva, L. M., T253, T254
Hernández-Martínez, C. A., W169
Hernández-Mellández, J., W389
Hernández-Mendoza, O., T92, T93, T293
Hernandez-Rivera, J. A., M190, M225
Herrera, R., T118
Herrick, J., 242
Herrick, K. J., 93
Herring, A. D., M34, 222, 223, 332
Herring, W., 606
Hersom, M., 705, 706
Hersom, M. J., 140, 141
Hess, B. W., 142
Hess, T., 44
Hestad, D. A., M82, M83
Hetrick, L., 174
Hettinga, K., T141
Heuer, C., 645
Heuze, V., T308
Hewson-Hughes, A. K., 480
Hewson-Hughes, V. L., 480
Heyler, K., T265, T277, 106, 108, 535
Heyler, K. S., 205
Hickling, D., T304, 293
Hickman, A. L., M78
Higginbotham, G. E., M305
Higginson Cutler, J. H., 825
Higgs, R., T315
Hile, M., 535
Hill, E. W., 724
Hill, G. M., W186, 507, 587, 820
Hill, G. W., 218, 219
Hill, R., W392
Hill, R. A., 700
Hill, S. L., T196
Hill, T. M., 373, 804, 806, 807, 809, 861
Hillman, P. E., 270, 271
Hinde, K., 744
Hindrichsen, I. K., M325
Hines, S., M217
Hippen, A. R., W297, 93, 167
Hirose, J., M27
Hisasue, S., W373
Hoagland, T. A., 105
Hodgen, J. M., M149
Hoek, P., M177
Hoekstra, T. C., 486
Hoffman, A., W20
Hoffman, M. L., M130, 103, 105, 113
Hoffman, R., 102
Hogberg, M. G., 434
Hojabri, A., M390, T127, T149, T377
Hojabri, A., M390, T127, T149, T377
Holasek, R., M30
Holcomb, K. E., 212
Holder, V. B., W257
Holen, D., 491
Holl, J., 815
Holl, J. W., 689
Holland, B. P., T250, W353, 601
Holllis, L. C., 92
Hollmann, M., M275, 413, 416
Holmquist, B., M38
Holshouser, D. L., 784
Holt, J., W392
Holt, J. M., T310, 95
Holub, G. A., T1, 180, 590, 591
Homem Junior, A. C., M360, T240, W294
Homm, J. W., 679
Hong, Q., 663, 664
Hong, S. K., T361
Hong, S. M., M159, T28, W170, 763
Honig, H., W224, W390
Hooda, S., M46, 620
Hookey, C. G., 385
Hopkins, A. C., T169, T170
Hopkins, B. A., 201
Horadagoda, A., W342
Horn, G. W., 599, 675
Horohov, D. W., 367
Horst, J. A., M245
Horst, R. L., 442
Horstman, L. A., 263
Horta, F. C., 755
Horwath, W., 783
Hostetler, C. E., W397, 579
Hou, L., T167
Houck, J. A., 376
Houser, T., 273
Hovey, R. C., 89
Howard, I., T371
Howard, J., M196, T185
Howell, S., T236
Hristova, R. A., W324
Hsu, K. N., 759
Htoo, J. K., M360, T240, W294
Hu, G., T405, W64
Hu, H., T272, T273, T274, W155
Hu, Q., 101
Hu, T., T274
Hu, W., 380, 807
Hu, Z., W128
Hua, D. H., T26
Huang, J., 582
Huang, J.-G., T45, 537
Huang, M., 53, 139
Huang, M. Q., W30
Huang, Y., 109
Huang, Y. L., 354
Huang, Y. N., 748
Hubbell, D., 598
Hubbert, M. E., W253, W256, 112
Huber, L., 384
Hubert, M. B., T233, 41
Hudson, M. D., 430, 797
Huepa, L. M., M398
Huerta-Bravo, M., W316
Huff, E. M., 466
Huff-Lonergan, E., 473
Hufstedler, G. D., 675
Huhtanen, P., T261, W324, 284, 489
Hulbert, L. E., M15, M17, M18, M221, T31, W223
Hume, D. E., 77
Hünenerberg, M., S47, 794
Hunsaker, B. D., W253, W256
Hunt, K. M., T30, W37, W303
Hunter, J., M69
Huntington, G. B., M249, M254
Huppert, S., 730
Hurley, D. J., M199, 220
Hurley, E., 198
Miller, K. A., T235, 677, 678
Miller, M. C., T126, 116, 117
Miller, M. F., M149
Miller, N., W53, 38, 273
Miller, P. P., T225
Miller, P. S., 507
Miller, R., T65
Miller, R., T65
Miller, S., M131, T357
Miller, S. P., M38, T342, W45, 469, 701
Miller-Cushon, E. K., M286, M288
Milligan, B., 543
Millora, N. L., M325
Min, B. R., M391, T371, 23, 575, 577
Min, K.-S., T278
Mingoti, R. D., M334, T258, T271, W260
Minten, M. A., 39
Minton, J. E., 92, 670
Minton, N. O., M4
Mir, P. S., M153
Miracle, R. E., T64
Miranda, A., M291
Miranda, L. D. F., 165
Miranda-Romero, L., W100
Miron, J., W224
Mishra, B. R., M391, T371, 23, 575, 577
Mitsuhara, C., M325
Mitchell, M., M3
Mitchell, S. E., 454
Mitchell, S. E., 454
Mitloehner, F. M., M15, M17, M18, M221, T31, W112, W223, 536, 783
Miyada, V. S., M179, W180
Mizubuti, I. Y., M374
Mjoun, K., T262, W307, W308
Mlanesi, E., 719
Moallem, U., W224, W390
Mocket, J. H., W402
Moeller, S. J., 681
Moffet, C., 703, 828, 829
Moggy, M., M186
Mohammad, A., W313
Mohammadi, Z., W388
Mohammadi Arekhlo, H., T375, W313, W388
Mohammed, R., W326, W329
Mohan, S., W126
Moioli, B., W73
Moisa, S., M139
Molee, W., M164
Molina, P. C., W251
Moll, W. D., T34, 48
Molle, J. D. C., T249
Moncada, M., W84, W87
Monção, V. D., W73
Moncau, C. T., T54
Moncoulon, R., W372
Monika, T., T172, 427
Monneret, J. P. S., W252, W261
Montanholi, Y., T342, T357
Montanho, M. F., W283, W355
Monteiro, A. P. A., M32
Monteiro, H. C. F., M88
Monteiro, P. L. J., M193, T209, W203
Montenegro, B., T115
Montgomery, M., T227
Montgomery, S. P., M793
Montoro, C., M288, M295, T362
Moore, D. A., M5, M7, T21, W20, 640, 648
Moore, S., M50, 469, 608
Moraes, C., W113
Moraes, E. G., T321
Moraes, J. G. N., M109, T222, T223, W225, 225, 251
Morais, J. A. S., M302
Morais Júnior, N. N., M225, 225, 251
Moreira, F. R., 197
Moreira, H. L., M36
Moreira, I., M398, M399, M400
Moreira, J. A., M388
Moreira, K. K. G., T321, T334
Moreira, V. R., W355
Mortensen, G., W322
Morton, J., 718
Morton, J. M., 645
Morris, C. L., 619
Morris, K. J., T357
Morris, P. H., 197
Morrison, J., 304
Morrison, M., 552
Morsy, A., M353
Mortensen, G., W322
Mortensen, G., W322
Morton, J. M., 645
Morton, M., W136
Mosali, J., 356, 357
Moschini, M., T162, W347
Mosely, D., M208
Mota, D. A., M366
Motameni, R., M307, M308
Motta, G., T325, 564, 831
Mottin, A., 127
Moulton, K., T83, T236, W147
Moura, L. S., M91
Mousel, M. R., 681
Moya, D., T2
Moyes, L. V., 67
Mpendulo, C. T., T785
Mueller, C. J., W52
Muenzenberger, C. J., T43
Mughal, M. A. I., 283
Muhammed, W., 51
Muir, W., 453
Mullarky, L., 184
Mullarky, I. K., 315
Mullen, K. A. E., 441
Mulligan, F. J., 156
Mullins, J. T., T201, T231, 18, 605
Mullis, N. A., M327, T285
Munavey, D., 694, 865, 866
Munavi, D. P., M36
Muniz, E. N., T119, 52
Muñoz, G., T115
Muns, R., W17
Munson, R. J., T79, W228, W229
Muntifering, R. B., W247, 830
Murdock, G. K., 700
Murillo, C., M237
Murray, C., 309
Murray, L. W., 21
Murr, S., 719
Murugesan, G. P., T176
Musgrave, J. A., 494, 495
Musij, L., T71
Mussard, M. L., W219
Mustafa, A. F., W331, 231
Muthukumarappan, K., M100
Mutimura, M., 860
Mutsangwa, T., W360, 96
Mutuberría, E., 294
Mutz-Darwell, S., 72
Mwangi, W., 223
Mwadi, W., 223
Myer, R. O., 351

N
Nadeem, A., 325, 329, 725
Nader, G. A., W334
Nahashon, S., W77
Nak, Y., 686
Nakagawa, G., M109, T222, T223, 225
Nakahashi, Y., 465
Nalini Kumari, N., 427
Nam, D. S., M168, T163
Namdarpor, H., T375
Nam, D. S., M168, T163
Namdarpor, H., T375
Nannoni, E., T9
Napoles, G. G. O., M285, M290
Powers, W. J., 413
Pozdisek, J., T355
Pozza, P. C., M398
Pozzebon, A., 291
Prado, E. M., M191
Prado, N., M146
Prata, A. B., T209
Prates, E. R., T221
Pratt, S. L., T125, T126, W123
Preedy, G. W., 21, 349
Preisinger, R., 726
Premanandan, C., 845
Preseault, C. L., T289, W99, 204
Pretz, J. P., 558
Preynat, A., 134
Prezotto, L. D., M129
Price, D. M., 518
Price, M. H., T233, 41
Price, N. P., T169, T170
Price, P. L., M218
Price, W. J., 700
Prince, S., 687
Prinyawiwatkul, W., 627
Priolo, A., 431
Pritchard, R. H., W353
Privatsky, S. L., 361
Proudfoot, K. L., W13, 97
Pruden, A., M235, 198
Pruitt, S. K., 494, 495
Pryce, J., 439
Pryce, J. E., 607
Pszczola, M., W58
Puch, H. C., W127, W129, W327, W328
Puchala, R., W381
Pulina, G., T151, W43, W55
Pulley, S. L., M188, T196
Puntenney, S. B., 313
Putnam, D. E., 435
Putnam, D. H., W112
Pyatt, N. A., 679

Q

Qiao, S., 660
Qu, X. Y., T85, T86
Queiroz, A. C., M247
Queiroz, M. F. S., M302
Queiroz, O. C., M259
Quezada-Casasola, A., T194
Quigley, J., 307
Quigley, J. D., W35
Quinn, K. E., 27, 516
Quintana-Quintana, S. A., M213, T183
Quintero-Ramos, A., M142
Quinton, M., 549
Qvist, K. B., 66

R

Rabaglino, M. B., 805
Rabee, A. R., 289, 559, 718
Radcliffe, J. S., 362
Radunz, A. E., W279
Rae, D. O., W63, W64
Raeth-Knight, M., M293, M303
Raffrenato, E., 286, 496
Ragen, D. L., 28, 40
Raghavendra, B. S., M192
Rahman, M. M., 772
Rajapaksha, E., M104
Ramachandra Rao, H. G., 631
Ramana-Reddy, Y., T172, 427
Ramberg, C. F., T79, W228, W229
Rambo, Z., 757
Ramchandran, L., 633, 634
Ramírez-Bribiesca, J. E., T293
Ramírez-Díaz, J., T52, T57
Ramírez-Godínez, A., M64, M65
Ramírez-Godínez, J. A., T194
Ramírez-Mella, M., T293
Ramírez-O, A., W340
Ramirez-Bribiesca, J. E., T293
Ramírez-Díaz, J., T52, T57
Ramírez-Godínez, A., M64, M65
Ramírez-Godínez, J. A., T194
Ramírez-Mella, M., T293
Ramírez-O, A., W340
Ramirez-Fernandez, E., T340
Ramirez-Mella, M., T293
Ramirez-O, A., W340
Ramirez-Ramirez, H. A., W296
Ramirez-Valverde, R., T42, T50
Rams, E. M., M145, 749
Ramos, M. H., T192, T312, W251
Ramsay, T., W125
Ramsay, W. S., 590, 591
Ramos, E., W36
Ranathunga, S. D., T264, W297, W305
Randall, R., T124
Randel, R. D., M34, T187, T188, 216, 518, 604
Randall, R. D., M34, T187, T188, 216, 518, 604
Randall, R. D., M34, T187, T188, 216, 518, 604
Ranney, A. E., 362
Rangel, J. H. A., T119
Ranilla, M. J., W120, W369
Rankins, D., 704
Rassu, S. P. G., T374, W43
Rebelo, L. R., M364, W293
Rebelo, R. A., M247
Rebelo, R. A., M247
Reed, S. A., 739
Reeds, S., M204
Reeves, J. J., 614
Regadas Filho, J. G. L., M279, M280, M354, T364
Regassa, A., 152, 162
Rehfeldt, C., 521
Reinhardt, C. E., 412
Reis, M. M., 259
Reis, R., W377
Reis, R. A., M255, T107, T252, T255, T329, W105, W239, W248
Reis, R. B., W131
Reisinger, N., W206
Reiter, T. A., 197
Rekaya, R., W59, 457
Rempel, L. A., 468
Rensburg, D. W., T79, W228, W229
Ren, F., 635
Ren, W. K., W32
Ren, Y., 582
Rendahl, A., 499
Renno, F. P., M334, M363, T258, T271, T299, T300, W260, W366, W367
Repenseng, P. E., 26, 264
Repetto, J. L., M329, T356, T359, 163, 294, 570, 801
Resende, K. T., M377, T107, T336, T373
Restuccia, P., T356
Reuter, R., 699, 703, 828, 829
Reverter, A., 56, 57
Rey, F. S. B., T107
Rey, M. R., 304
Reyaz, A., T200, 523
Reyes-Gomez, A., M189, M210
Reynolds, C. K., W298
Reynolds, J. L., W6
Reynolds, J. P., 844
Reynolds, L. P., M126, T204, W201
Reza Shahdad, A., W271
Rezamand, P., W37
Rezamand, P., W37
Rezayazdi, K., T94, T95, T96, T97, T98, T287, T290, W344, 562
Rezende, F. D., T237
Rezende, F. M., M148, T53, T54, W65, 455
Rezende, M. A., M259
Rhein, R., T101, T102
Rhoades, J. N., W211, W212, W401, S81, 843
Y

Yalingasinghe, W. N. P., M153
Yaman, Y., 686
Yan, F., 756
Yan, H., T132, W152
Yan, L., M168, T154, W157, W170
Yan, S., T105
Yañez-Ruiz, D., W369
Yang, C., M180, 664
Yang, G., W278, 537
Yang, H., T147
Yang, H. S., W133
Yang, J. H., M55, M56, M57, M203, T104, W91
Yang, K. D., W158
Yang, L., M180, W287, W304, W312, W346, 418, 663
Yang, M. Y., 11
Yang, Q., M166, M167, 109
Yang, S., M61
Yang, T., M238
Yang, W., 456
Yang, W. Z., M270, M404, T307, W264, W286, 399
Yang, X., 750
Yang, Y. M., 444
Yang, Y. X., M55, M56, M57, M203, W91
Yang, Z., W234, W235
Yao, C., 710
Yao, F., T200, 523
Yari, M., W287, W346
Yart, L., W148, 127, 131
Yasui, T., 550, 561
Ye, A., M93, 86
Ye, J. A., 571
Ye, S. S., W163
Yelich, J., 705, 706
Yelich, J. V., M128
Yildiz, M. E., 72
Yildiz Gulay, O., W29, 46
Yin, Y., T147, T174, W34
Yin, Y. L., M158, M402, T175, W30, W31, W32, W74, W75, W133, W160
Ying, Y., 288, 417
Yitbarek, A., 304
Yoder, P. S., 857
Yodklaew, P., T40
Yoo, D. H., M171, 763
Yoon, I., W36, 560, 571
Younes, R. B., M230
Young, A., T101, T102
Young, A. J., W310, 95, 199
Young, C., 75
Young, T. R., T358, 215, 217, 280, 769
Youngblood, R. C., T135
Youssef, M. M., 428
Yu, Y., M39, W67, W79, 333
Yu, Z., 551, 552
Yu, Z. N., T85
Yuan, K., W194
Zackut, M., W224
Zaffino, J. C., 207
Zail, A., T150, T178
Zajac, A. M., W147
Zaleski, H. M., 321
Zali, A., M390, T127, T149, T245, T246, T377
Zambito, J. L., 102
Zanella, A. J., 209
Zanetti, L. H., M364, W293
Zanetti, L. E., W357, W361
Zanini, A., M87
Zanetti, L., M55, M56, M57, M203, T104, W91
Young, T., M238
Zarate, M. A., W101, 52, 488
Zarestopazani, A. R., T259
Zarrin, M., 765
Zoota, C., W9, W339
Zerby, H. N., 681
Zeringue, L. K., W315
Zervoudakis, L. K. H., M339, T257
Zhang, B., W34
Zhang, C., T174, 472
Zhang, C. G., T45, W278, 537
Zhang, D. Y., M172, M173, M174, T167
Zhang, G., 660
Zhang, H., M382, M383, T323
Zhang, H. W., 55
Zhang, J., T120
Zhang, J. X., M55, M56, M57
Zhang, L., 374
Zhang, L. F., 614
Zhang, N., M141, W151, W152, 374
Zhang, N. F., 625
Zhang, Q., W190
Zhang, S., M168, M238, T23, W171, 856
Zhang, W. M., 47
Zhang, X., W287
Zhang, X. F., M383, T323
Zhang, Y., M238, T147
Zhang, Y. D., M304, T113, T274
Zhang, Y. G., M118
Zhang, Z. F., M171, T156, 763
Zhangzhi, P., 665
Zhao, F., 374
Zhao, F.-Q., 104
Zhao, J., M181, W152, 585, 756, 762
Zhao, L. H., 425, 625
Zhao, L.-H., 277
Zhao, P. Y., M159, T27, W158
Zhao, S., T88
Zhao, W. S., M134
Zhao, X., T134, W62, W150
Zhao, X. W., M328, M330, M331, M343, M345, M347
Zhao, Y., T393, 536
Zhao, Y. G., 425
Zhao, Y.-G., 363
Zhen, Y. P., T85, T86
Zhang, Z. F., W118
Zhang, Z. G., W190
Zhang, Z. H., M382, T23, W171, 856
<table>
<thead>
<tr>
<th>Name</th>
<th>Page References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zhou, Y.</td>
<td>277</td>
</tr>
<tr>
<td>Zhu, L. N.</td>
<td>582, 748</td>
</tr>
<tr>
<td>Zhu, M.-J.</td>
<td>109</td>
</tr>
<tr>
<td>Zhu, S.</td>
<td>M39</td>
</tr>
<tr>
<td>Zhu, T. F.</td>
<td>53</td>
</tr>
<tr>
<td>Zhu, W.</td>
<td>295</td>
</tr>
<tr>
<td>Ziada, M. S.</td>
<td>768</td>
</tr>
<tr>
<td>Zidi, A.</td>
<td>130</td>
</tr>
<tr>
<td>Ziegler, B.</td>
<td>M293</td>
</tr>
<tr>
<td>Ziegler, D.</td>
<td>M293, M303</td>
</tr>
<tr>
<td>Zijlstra, R. T.</td>
<td>336</td>
</tr>
<tr>
<td>Zimmerman, P.</td>
<td>W241</td>
</tr>
<tr>
<td>Zimmerman, S.</td>
<td>W241</td>
</tr>
<tr>
<td>Zinn, S. A.</td>
<td>M130, 103, 105, 113, 736</td>
</tr>
<tr>
<td>Zobel, G.</td>
<td>208</td>
</tr>
<tr>
<td>Zobell, D. R.</td>
<td>M111, W336, 23</td>
</tr>
<tr>
<td>Zotti, C. A.</td>
<td>M368, T238, W357, W361</td>
</tr>
<tr>
<td>Zou, Y.</td>
<td>M348</td>
</tr>
<tr>
<td>Zyskowski, J. A.</td>
<td>M275</td>
</tr>
<tr>
<td>Zyskowski, J. S.</td>
<td>416</td>
</tr>
</tbody>
</table>