2018 ADSA® ANNUAL MEETING
Integrating Dairy Science Globally

June 24–27
Knoxville, Tennessee

Conference Information and Scientific Program
adsa.org/2018
ADSA 2018 Mobile App
An Easier Way to Plan Your Schedule

The ADSA 2018 mobile app gives attendees convenient access to the conference schedule and abstracts via most mobile devices. With the new native mobile app, you can

- View content offline
- Search abstracts by presenter or topic
- Create a personal schedule
- Access and share abstracts
- Make notes on presentations
- Read invited speaker bios
- Find exhibitors
- Contact fellow attendees ... and more.

Download and install the EventPilot app now and search for ADSA2018
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 about the disturbance, please politely decline and direct them to the convention’s media room, where spokespersons will be available.

Thank you for your cooperation.
Welcome to ADSA 2018!

On behalf of the American Dairy Science Association, we welcome you to Knoxville and the 2018 ADSA Annual Meeting: Integrating Dairy Science Globally. These next few days are filled with dairy science, networking, and connecting with old and new friends. Similar to last year, we have several great pre-meeting workshops on Sunday focused on a variety of topics: a half-day teaching workshop on active learning activities in the classroom, a full-day workshop devoted to management of dairy records, a half-day workshop on spore management practices, and a full-day workshop on nutrition models. Additionally, we have a mini-symposium on fiber research priorities, which is a follow-up to one of our DiscoverSM Conferences. If you are interested in a free event, we will have the late-breaking abstract session on Sunday afternoon, which is a great opportunity to hear the latest research and network with other dairy scientists. Our graduate student division (GSD) will be offering a manuscript-writing symposium as well. Please be sure to join us at the revamped opening session to hear my remarks on the state of our association.

On Monday, we will have some platform sessions — where we have one or two speakers presenting on a topic, followed by related scientific presentations. We have some exciting half-day symposium sessions as well. Both our graduate students and undergraduate students will be busy competing, so please make sure to stop by and see them in action. Another important stop is the exhibit hall (open 8 am to 5 pm on Monday and 8 am to 4 pm on Tuesday), where you can see and learn about some of the latest technologies, services, and products for dairy science. However you enjoy your day, please plan to attend Monday evening’s Awards Program and Ceremony, followed by the ice cream social. Both are great opportunities to network and make new connections.

On Tuesday, it is back to posters, symposia, and scientific sessions. I am sure that there will be something for everyone and probably so many good options that it will be hard to choose! We also have our division meetings and I encourage you to join in and participate at the division level. A new event, the Graduate Student Division Poster Session Mixer for students, industry, and academia, is scheduled for Tuesday evening, and I encourage you to attend this session, which is designed to promote engagement between graduate students and other academia and industry folks. Finally, on Wednesday morning, we have the ADSA business meeting and open forum followed by symposia and scientific sessions.

Also new this year are the Undergraduate Small Group Mentoring Sessions. This ADSA Mentor Program connects professional members with undergraduate students for small group mentoring sessions during the annual meeting. The plan is to have professional members and ADSA Past Presidents meet with small groups of students to attend scientific presentations by interest area. Please be sure to add both the mentoring sessions and GSD poster session mixer to your calendar — both events will show you the future of our industry and provide some unique networking opportunities.

To reach this point of the meeting, we have had the help of some amazing volunteers and staff! My sincere thanks to Cathy Williams (overall program chair) and her committee: Mike VandeHaar, Tom McFadden, Trish Dawson, Paul Kindstedt, Zey Ustunol, and Mike Miller. Also, sincere thanks to the FASS staff and our executive director, Peter Studney, for their organizational skills and efforts in bringing many diverse ideas together to create this meeting. I would like to recognize our sponsors and volunteers for delivering an outstanding meeting. And, of course, special thanks to our speakers, presenters, and exhibitors—we would not have this fantastic meeting without you.

Finally, thank you for coming and joining the sessions, events, and discussions that provide vitality to our global dairy science meeting. We value your contributions and look forward to what will come next! Have great meetings!

Karen Schmidt
ADSA President
General Meeting Information

Location

The 2018 ADSA Annual Meeting will be held at the Knoxville Convention Center and surrounding hotels in Knoxville, Tennessee.

Schedule of Events

Pre-conference symposia and workshops are scheduled for Sunday, June 24, and the opening session will be held on Sunday evening; scientific sessions will begin Monday morning, June 25, and run through noon on Wednesday, June 27; please check the scientific program starting on page 35.

Opening Session

Please join us at the opening session for an address on the current status of our association by ADSA President Karen Schmidt. After the session, join us for a live Tennessee Bluegrass band, a photo booth for snapping photos, and food and drink at the opening reception.

Program Format for 2018

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Time</th>
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<tbody>
<tr>
<td>Poster sessions (exhibit hall;</td>
<td>7:30 am – 9:30 am</td>
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<td>Monday and Tuesday)</td>
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<tr>
<td>Morning scientific sessions</td>
<td>9:30 am – 12:30 pm</td>
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<td>Lunch break</td>
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<td>Afternoon scientific sessions</td>
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<td>Afternoon ice cream break (</td>
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<td>exhibit hall; Monday and Tuesday)</td>
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Meeting rooms will be equipped for electronic presentations and preloaded sessions. Free Wi-Fi is available in all public areas except the exhibit hall.

Registration Hours

Registration will be located in the Park Concourse near Exhibit Hall A in the Convention Center. Registration hours are as follows:

<table>
<thead>
<tr>
<th>Day</th>
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<tbody>
<tr>
<td>Saturday, June 23</td>
<td>3:00 pm – 5:00 pm</td>
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<tr>
<td>Sunday, June 24</td>
<td>7:00 am – 7:00 pm</td>
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<td>Monday, June 25</td>
<td>6:30 am – 5:30 pm</td>
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<td>Tuesday, June 26</td>
<td>7:00 am – 5:30 pm</td>
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<tr>
<td>Wednesday, June 27</td>
<td>7:00 am – 12:00 pm</td>
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Important Phone Numbers

- Holiday Inn Knoxville Downtown Hotel: (865) 522-2800
- Hilton Knoxville: (865) 523-2300
- Crowne Plaza Knoxville: (865) 522-2600
- Four Points By Sheraton Knoxville: (865) 971-4663
- Hyatt Place Knoxville: (865) 544-9977
**Media Room**

A media room (Henley Meeting Room) will be available throughout the meeting (noon to 5 pm on Sunday; 8 am to 5 pm on Monday and Tuesday; and 8 am to noon on Wednesday) to provide a space for media representatives to work. Meeting press releases will be available there. Complimentary registration is available for members of the media. For more information, please contact adsa@adsa.org.

**Media Check-In**

Please check in at the Registration Desk in the Park Concourse of the Knoxville Convention Center.

**Business Center**

There is a Fedex Office near the convention center at 2010 Cumberland Ave #4, Knoxville, TN 37916. The Convention Center also offers a credit card–operated self-service kiosk with a copier/printer and computers. It is located adjacent to the Henley Meeting Room. Use of these services is at your own expense.

**Job Resource Center**

The Job Resource Center is located in Exhibit Hall A and will be open from 8 am to 5 pm on Monday and 8 am to 4 pm on Tuesday. Job announcements and CVs will be organized into the following categories for posting: Animal Behavior and Well-Being; Animal Health; Animal Breeding; Extension; Food Safety; Food Science; Forages and Pastures; Genetics; Growth and Development; International Animal Agriculture; Lactation; Pharmacology and Toxicology; Physiology and Endocrinology; Production and Management; Ruminant Nutrition; and Teaching.

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

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

**ARPAS Continuing Education Units**

The 2018 ADSA Annual Meeting has been approved for up to 21 continuing education units (CEUs) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. Check the schedule of events for times and location of the ARPAS exams.

**Social Media**

Follow the ADSA Annual Meeting on Twitter (@ADSAMtg) using the official conference hashtag #ADSA2018. Tweet about interesting posters and presentations, social events, or fun things to do and see while in Knoxville.
Presentation Information

Oral and Invited Speakers: Onsite Upload Information

Oral sessions will begin at 9:30 am on Monday, Tuesday, and Wednesday.

**Onsite upload:** Onsite presentation upload will be available; files can be delivered to the Preload area (near the Registration Desk in the Park Concourse) at the convention center (Saturday: 3:00 to 5:00 pm; Sunday to Tuesday: 7:00 am to 5:00 pm; Wednesday: 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 email. No presentations will be loaded while the session is in progress or between presentations.**

Poster Presentations

We have dedicated a two-hour block on Monday and Tuesday to poster presentations. The “open poster” sessions will be from 7:30 to 9:30 am in Exhibit Hall A. Coffee and pastries will be served in the hall from 8:00 to 9:00 am on both days, and ice cream will be served from 3:30 to 4:00 pm on both afternoons.

Each poster will be available for public viewing for the entire day, with the presenting authors in attendance 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 (**poster sessions begin at 7:30 am so posters must be mounted on boards by 7:00 am**) and must list the abstract number and corresponding day. The exhibit hall will open at 6:30 am on Monday and Tuesday. **Posters must be removed after 5:00 pm on Monday and after 4:00 pm on Tuesday.** Any posters remaining after those times 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 determined 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” and for Tuesday posters a “T” precedes the board number. Refer to Program at a Glance for layout of posters by session and abstract number.

**Digital Poster Upload and Viewing**

In addition to the traditional poster sessions and display, poster presenters are encouraged to upload a digital version of their poster (PDF) in advance of the meeting or onsite, that can be viewed at any time during the meeting at specially designated kiosks located in Exhibit Hall A.

**ADSA 2018 Mobile App—An Easier Way to Plan Your Schedule**

ADSA members asked for a native mobile meeting app and ADSA has provided one! Using the ADSA 2018 mobile app, (for Android and iOS devices), you can browse sessions, read abstracts, build a personal schedule, view content offline, connect with other meeting attendees, share photos, and start discussions — all from within the app. To download the app, please visit the app store (Google or Apple), download and launch the “Event Pilot conference app,” and then search for “ADSA2018.” If you previously used this app for a different conference, click “... More” from the home screen, choose “Find Event” and then enter “ADSA2018.”

You can also scan the QR codes on the inside front cover of this book to download the app to your device. Stop by the registration desk or the Preload area if you have questions on how to use the app.
Knoxville Information

Transportation in Knoxville

Knoxville is easy and convenient to get to by car or plane. Located at the intersection of I-75 and I-40, Knoxville is within a day’s drive of nearly half the US population.

McGhee Tyson Airport-Knoxville (TYS) is 12 miles and a quick 15-minute taxi ride from downtown Knoxville. McGhee Tyson Airport is one of the most convenient and accessible regional airports in the nation and boasts 120 daily non-stop flights from more than 20 destinations. Taxi service to downtown hotels and the convention center is readily available outside the airport terminal. Share a cab with a fellow meeting attendee to jump start your networking—just print out the sign available at https://www.adsa.org/2018/hotel.

Looking for a novel way to get around town during your stay? The Knoxville Trolley is one of the most popular symbols of the city, and it’s completely free for all passengers. Three trolley routes serve downtown Knoxville and the University of Tennessee (UT) area. Trolley maps are available at several locations throughout downtown, including Knoxville Station Transit Center.

Knoxville Sightseeing Options

Knoxville is exactly what people declare it to be … a hidden gem. The pure walkability of downtown allows people to explore the city and discover vibrant murals, local music, historic sites, art museums, and more. Just three miles from downtown lies Knoxville’s Urban Wilderness, featuring over 50 miles of trails, a nature center, the Tennessee River, and quarry lakes for hiking, biking, paddling, birding, and trail running. Some of the city’s favorite attractions include Zoo Knoxville, the Knoxville Museum of Art—home to one of the world’s largest figurative glass and steel installations—and the Sunsphere at World’s Fair Park. Take a free ride up to the 4th floor observation deck for a spectacular 360-degree view of the city.

With so much right outside your door, it’s easy to see why people love exploring this city. Just save room for dinner. Knoxville is emerging as one of the best culinary and craft beer towns in the Southeast, and it’s home to a few stops on the Tennessee Whiskey Trail.

The Knoxville Convention Center (KCC), the cornerstone of Knoxville’s meeting facilities, is located alongside World’s Fair Park in the heart of downtown, and it is within walking distance of the city’s finest hotels, restaurants, and attractions.

With its sophisticated mix of culture and cuisine, served up with genuine hospitality, Knoxville will surprise you—start exploring now at www.visitknoxville.com.

Check the Knoxville area map on page 19 for attractions close to the convention center and meeting hotels.
Special Events

Coffee and pastries will be served from 8:00 to 9:00 am, and ice cream will be served from 3:30 to 4:00 pm in the exhibit hall on Monday and Tuesday. Please make time to talk with our exhibitors while you are enjoying complimentary coffee, pastries, and ice cream!

SAD Undergraduate Student Hospitality Room Saturday, June 23 4:00 – 6:30 pm Hilton Knoxville, Ocoee Room

The SAD Hospitality Room will be available on Saturday afternoon for members to stop by, grab a snack, and meet others as you arrive. Information about the SAD schedule will be available, and officers will walk clubs to the conference center to pick up registration materials.

SAD Undergraduate Student Informal Mixer: SAD Dine Around Saturday, June 23 6:30 pm Meet in SAD Hospitality Room (Ocoee Room), Hilton Knoxville

SAD officers will host a “dine-around” event on Saturday for schools arriving early. Stop by the SAD hospitality room Saturday afternoon if your club would like to participate. Students from participating schools are encouraged to join different dinner groups for a fun evening of networking and good food. Participants are responsible for the cost of their meal.

SAD Undergraduate Student Midday Mixer and Lunch Sunday, June 24 11:00 am – 12:00 pm Tickets: $5 Convention Center, Ballroom A

Join your fellow dairy clubs for a fun hour of getting reacquainted and making new friends, and get to know your 2018–2019 Student Affiliate Division (SAD) Officers candidates. Ticket price includes lunch. Note: Registration is limited to ADSA undergraduate student members and advisors.

Writing in the Dairy Sciences: A Graduate Student’s Guide to Publishing in Journals and Beyond Sunday, June 24 2:00 – 4:00 pm Convention Center, Room 200 DE

All graduate students are encouraged to attend this valuable writing enhancement symposium. Highly published authors and guest speakers will share insight, tips, and suggestions for getting research published and recognized, even beyond scientific audiences! Topics will include the manuscript review process, how to write an effective response to revisions, ways to get your manuscript recognized after it is published, and ways to improve your writing.

Graduate Student Division Business Meeting and Open Forum Sunday, June 24 4:15 – 5:00 pm Convention Center, Room 301 A

In addition to greeting the incoming GSD officer team, attend this meeting to voice your ideas and opinions about ADSA graduate student activities. While at the meeting, sign up for a GSD committee to become involved and help shape the future of our organization.

Dairy Quiz Bowl Final Round Sunday, June 24 4:15 – 4:45 pm Convention Center, Room 200 C

University teams from across North America will compete in the ADSA-SAD Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division (SAD) invites you to join them for the excitement of the final round of competition as the top two schools go head to head for the title of 2018 Dairy Quiz Bowl Winning Team.

Opening Session and Reception Sunday, June 24 6:00 – 8:15 pm Convention Center, Ballroom D–G and Cumberland Concourse

Join us at the Opening Session to hear from ADSA President Karen Schmidt with updates on the state of the association and celebrate the awardees of the ADSA Award of Honor and ADSA Distinguished Service Award, and the new ADSA Fellows. Reception to follow with a live Tennessee bluegrass band.

Graduate Student Division Mixer Sunday, June 24 7:00 – 10:00 pm Scruffy City, 32 Market Square, Knoxville

Kick off the week with a fun night of entertainment and networking with your fellow dairy science graduate students at Scruffy City, located just a short walk from the Convention Center. Join us and enjoy trivia night, free drinks, and one of the best rooftop views of downtown Knoxville! Use this opportunity to meet other graduate students you can network with throughout the week at the Annual Meeting.

SAD Undergraduate Student Poster and Paper Competitions Monday, June 25 Convention Center

Support the future of ADSA—plan time in your schedule to visit the undergraduate posters on Monday morning and the oral presentations on Monday afternoon. See scientific program for complete details.

Companion Event 1: Knoxville Guided History Tour Monday, June 25 9:00 am – 1:00 pm Tickets: $52 Meet in Clinch Ave Concourse

Join us for a step-by-step guided walking tour of downtown Knoxville, where you’ll experience historic Gay Street and our downtown gem, Market Square. On this tour you will experience exciting places such as the East Tennessee History Center, which offers an inside look at the history of the people of our region, the Observation Deck of the Sunsphere (the signature structure of the World’s Fair held here in 1982), the Historic Tennessee Theatre (subject to availability), which is one of the last surviving movie palaces in the nation, as well as enjoying a boxed lunch during the world-famous WDVX Blue Plate Special Live Radio Show held at the Visit Knoxville Visitors Center. We look forward to hosting you on this journey! Preregistration for this event is required.

Graduate Student Division Career Insights Lunch Monday, June 25 12:30 – 2:00 pm Tickets: $10 Holiday Inn, Medallion

Graduate students—plan to join us for lunch and interact with a diverse panel of academia and industry professionals! Be prepared to question panel members about their experience moving from graduate school to the professional world. This lunch is intended to
give students an informal environment in which to inquire about each professional's personal journey and the challenges they encountered along the way. A $10 registration fee is required and a boxed lunch is included.

**SAD Undergraduate Student Career Roundtable Lunch**  
**Monday, June 25**  
12:30 – 2:00 pm  
**Tickets: $10**  
**Holiday Inn, Carriage**  

Back by popular demand, the Career Roundtable Lunch gives students the opportunity to dine and network with professional members representing a wide array of careers in the dairy industry. The program is conveniently scheduled during Monday's lunch break. Participants 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 résumés. Students should also plan time to visit industry reps in the exhibit hall for information about internships and job opportunities.

**ADSA Awards Program**  
**Monday, June 25**  
7:00 – 8:00 pm  
**Convention Center, Ballroom AB**  

All meeting participants, families, and friends are welcome to attend the 2018 ADSA awards program. Please join us at this special event to recognize and congratulate the 2018 award winners.

**Ice Cream Social**  
**Monday, June 25**  
8:15 – 9:30 pm  
**Convention Center, Cumberland Concourse**  

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

**SAD Undergraduate Student Tennessee River Cruise**  
**Monday, June 25**  
9:00 – 11:00 pm  
**Meet Volunteer Princess Cruises Dock**  

Take a break from the hectic pace of the annual meeting for an evening cruise on the Tennessee River aboard the Volunteer Princess, a 96-foot luxury yacht. Enjoy food, drinks, and friends while taking in the sights and sounds of the ever-changing Knoxville waterfront. Ticket price includes dinner and DJ. Cash bar will be available.

**Fun Run, sponsored by Feed Components**  
**Tuesday, June 26**  
6:30 am  
**World’s Fair Park**  

Please join your friends at Feed Components for a 5K Fun Run in World’s Fair Park in the beautiful city of Knoxville.

**Companion Event 2: Knoxville Food Tour**  
**Tuesday, June 26**  
9:00 am – 1:00 pm  
**Tickets: $72**  
**Meet in Clinch Ave Concourse**  

For those interested in beginning their culinary journey of Knoxville on a guided experience, join us for the private Knoxville Food Tour, where you’ll visit restaurant after restaurant, hearing from owners, chefs, and culinary staff alike as they describe the flavor creations you get to enjoy! Knoxville Food Tours always promises to keep it local and keep it delicious. This bus tour will stop at several different Knoxville favorites, and you will sample foods and hear the history at each stop. With Knoxville Food Tours, you can let your taste buds do the walking! Preregistration for this event is required.

**SAD Undergraduate Student Educational Workshop: Dairy Safety and the Dangers of Working with Cattle**  
**Tuesday, June 26**  
10:45 – 11:45 am  
**Convention Center, Room 200 B**  

Working with cows is a dangerous business, not just because of the size of the animal but also the tools used while working with cattle. Join this hands-on dairy safety workshop to learn about safe animal handling, machine safety, and more. Learn how to work safely with cattle by developing your knowledge of flight zones, behavior, and on-farm techniques. This training will benefit both you and the cow by preparing you for any hazards you may face on the farm.

**SAD Undergraduate Student Awards Luncheon**  
**Tuesday, June 26**  
12:00 – 2:00 pm  
**Tickets: $50 (professionals), $35 (students)**  
**Holiday Inn, Medallion**  

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

**Graduate Student Division Three-Minute Thesis Challenge**  
**Tuesday, June 26**  
2:30 – 3:30 pm  
**Convention Center, 301 D**  

ADSA graduate students are encouraged to participate in the return of the Three-Minute Thesis Challenge. This event will test the competitors' ability to convey their research in a way that is understandable to all, in three minutes or less! Emphasis will be placed on the ability to explain research to a lay audience. Entry details will be released prior to the annual meeting, and competition will be limited to ten students selected by a panel of judges based upon strength of CV and a 100-word interpretive summary. All ADSA members are invited to attend the challenge and watch students compete for cash prizes and present their research in a fun and exciting way!

**Graduate Student Division Poster Session Mixer: An Event for Students, Industry, and Academia**  
**Tuesday, June 26**  
6:00 – 8:00 pm  
**Convention Center, Ballroom E**  

Sign up to attend the first-ever Graduate Student Division Poster Session Mixer, where graduate students can mingle with industry professionals and faculty members looking for employees. Graduate students will be given an opportunity to present their posters electronically while networking with industry and academia professionals in a more relaxed setting. Students are encouraged to bring paper copies of their poster and CV, as well as business cards. The presentations are limited to the first 100 students to register, but all graduate students are welcome to attend. Professional ADSA members looking to hire graduate students or discuss research are encouraged to attend the mixer as a way to interact with graduate students outside of the typical poster session atmosphere. Light refreshments will be provided by Daisy Brand.
1.9

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Exhibit Schedule

Sunday, June 24
Set up exhibits .................................................... 10:00 am – 6:00 pm

Monday, June 25
Exhibits open ..................................................... 8:00 am – 5:00 pm

Tuesday, June 26
Exhibits open ..................................................... 8:00 am – 4:00 pm
Dismantle exhibits ............................................. 4:00 pm – 6:00 pm

Coffee, milk, and pastries will be served from 8:00 to 9:00 am, and ice cream will be served from 3:30 to 4:00 pm on Monday and Tuesday in Exhibit Hall A.

Thank you to Dean Foods, represented by Mayfield Dairy Farms, for providing the milk and ice cream.

Exhibit Hall A

Lounge and electronic poster-viewing kiosks

Escalators up to Registration and Preload (Park Concourse)
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A special thank you to our 2018 ADSA Annual Meeting Exhibitors!
Adifo NV
Industrielaan 11b
9990 Maldegem
Belgium
http://www.adifo.com
Booth(s): 315

World market leader Adifo Software develops and services a unique range of feed industry-specific software tools for least-cost feed formulation, precise feeding, quality data management, ration calculation, cloud services, and ERP. Six hundred customers in over 60 countries apply Adifo’s software to optimize their resources, achieve optimal animal performance, service their clients, and be more efficient and profitable. More than 90 dedicated employees, continuous input from users, over 40 years of experience, and state-of-the-art technology guarantee innovative products that make a difference. Stay on top of the latest developments, trends and legislation in feed production. Check out www.feedformulation.com.

Adisseo
4400 N Point Pkwy Ste 275
One Point Royal
Alpharetta, GA 30022-2429
http://www.adisseo.com
Booth(s): 215, 314

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.

Afimilk
5520 Nobel Dr., Ste 175
Madison, WI 53711
www.afimilk.com
Booth(s): 303

Afimilk provides dairy technology, software, and data management for dairy farms.

Ag Processing Inc.
12700 West Dodge Road
Omaha, NE 68154
http://www.amino-plus.com
Booth(s): 417

Ag Processing Inc. is the largest cooperative soybean processor in the world and producer of AminoPlus, the number one volume bypass soybean meal supplement in United States. The 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.

Agri-King Inc.
PO Box 208
Fulton, IL 61252-0208
http://www.agriking.com
Booth(s): 413

We believe that capturing the nutritional value in feeds is the key to profit. We offer a fully integrated nutrition program, including forage and grain treatment (SiloKing), bioavailable trace minerals, feed enzymes, and a direct-fed microbial (Tri-Lution). Feed testing and custom ration formulation bring it all together.

Ajinomoto Animal Nutrition North America Inc.
8430 W. Bryn Mawr Ave., Ste 650
Chicago, IL 60631-3421
www.AjiPro-L.com
Booth(s): 300

Ajinomoto Animal Nutrition North America Inc., formerly Ajinomoto Heartland Inc., manufactures and distributes AjiPro-L. A cost-effective, feed-grade, rumen protected lysine, AjiPro-L is used to balance amino acid levels in ruminant rations. Ajinomoto Animal Nutrition North America, a frontrunner in amino acid nutritional research and technical expertise, is one of five companies affiliated with the Ajinomoto Animal Nutrition Group.

Amano Enzyme USA
1415 Madeline Lane
Elgin, IL 60124
www.amano-enzyme.co.jp
Booth(s): 316

Amano Enzyme USA manufactures microbial source, non-GMO enzymes for a number of dairy applications including proteases for milk protein hydrolysis, lipases and proteases for enzyme modified cheese and other dairy flavor production. Kosher- and Halal-certified material is available.

American Dairy Science Association (ADSA)
1800 S Oak St., Ste 100
Champaign, IL 61820-6974
https://www.adsa.org
Booth(s): 602

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
https://www.arpas.org
Booth(s): 402

All successful certification and licensing programs are targeted to serve and protect the public’s interest. More government regulations and controls require that practicing professionals establish accountability by means of registry and certification programs. In today’s business climate, producer and industry clients want assurance that they are getting advice from certified professionals who stay on the cutting edge. By completing the requirements for registration, maintaining your continuing education units, and adhering to the code of ethics, ARPAS registration provides you with a new level of recognition to help you distinguish yourself to your clients as a Professional Animal Scientist.
Analytic Jena is a leading provider of liquid handling/lab automation systems, Life Science workflow solutions and analytical measuring technology. With 25 years of experience, the liquid handling systems enjoy the highest reputation for precision, reliability, robustness and ease of use. Life Science workflow solutions provides researchers with standard and real time PCR technology, bioimaging systems for gel documentation and western blot analysis, automated DNA extraction, technology and kits/reagents for DNA/RNA extraction/isolation. Analytical instrumentation technology offer competences for optical spectroscopy, sum parameters and elemental analysis with high performance optics with long-term warranties and support.

ANKOM Technology
2052 O’Neil Rd
Macedon, NY 14502-8953
http://www.ankom.com
Booth(s): 115

ANKOM Technology produces analytical instrumentation for food and feed testing. We are best known for introducing Filter Bag Technology (FBT), which allows high volume, accurate analytical testing. Our systems are used in more than 93 countries worldwide. Ask about our products: ANKOM A2000 Fiber Analyzer, ANKOM Daisy II Incubator, ANKOM RF Gas Production Analyzer, ANKOM TDF Dietary Fiber Analyzer and ANKOM XT15 Fat Extractor.

Armenta Ltd.
Derech Hasron 5
Kfar Saba, 4427120
Israel
www.Armentavet.com
Booth(s): 400

Armenta Ltd. developed innovative therapies designed to transform the standard of care of dairy cattle diseases with the focus on non-antibiotic mastitis therapy. Mastitis results in the most significant economic burden on the dairy farm (> $2b annual loss in the U.S.). Armenta developed a proprietary Acoustic Pulse Therapy (APT) based devices that successfully treat clinical and subclinical mastitis and was found superior to the standard of care, such as antibiotics. We believe that the introduction of our products and non-antibiotic treatment into dairy farms will benefit both dairy companies and consumers as well as dairy farm equipment providers and farmers.

Balchem
PO Box 600
52 Sunrise Park
New Hampton, NY 10958-0600
http://www.balchem.com
Booth(s): 509, 608

Balchem provides state-of-the-art solutions and the finest quality products for a range of industries worldwide, including human nutrition, animal nutrition, and industrial applications. We apply proven science and industry-leading technologies backed by years of success in the feed industry. You will not find a more experienced and committed team of scientists and researchers strategically aligned to identify and develop high-quality, innovative, proprietary products designed to meet your animal nutrition, productivity and wellness needs. But in the end, it all comes down to results — real results you can count on, results that help you meet your goals.

BIOMIN America Inc.
1846 Lockhill Selma Rd Ste 101
San Antonio, TX 78213-1551
http://www.biomin.net
Booth(s): 512

At BIOMIN, the power of science is harnessed to support animal health and performance. State-of-the-art proprietary technologies are applied to deliver natural, sustainable, and profitable solutions to our customers in the livestock industry. Pioneered, innovative solutions for mycotoxin risk management and gut health performance have been a core emphasis at BIOMIN for the past 30 years.

Bioprocess Control AB
Scheelevagen 22
223 63 Lund
Sweden
http://www.bioprocesscontrol.com
Booth(s): 513

Bioprocess Control is a market leader in the area of low gas flow analytical instruments for biotechnology related applications. We invest in innovation and development of smart instruments that allow for more efficient, reliable, and higher quality research and analysis, leading to significant reductions in time and labor. We ensure the highest product quality throughout our portfolio, and focus on being service minded and always meeting the needs of our customers.

C-Lock Inc.
2525 W Main St Ste 211
Rapid City, SD 57702-2439
http://www.c-lockinc.com
Booth(s): 301

Precision feeding, metabolic gas analysis, and micro supplement control, combined with great analysis tools, make C-Lock Inc. a great choice.

Central Life Sciences
1501 E Woodfield Rd., Suite 200 West
Schaumburg, IL 60173-6052
http://www.centrallifesciences.com
Booth(s): 204

Central Life Sciences, whose founders pioneered biorational pest control more than 40 years ago, offers unique and effective pest management solutions to make life better for people, plants, and animals. By affecting the insects’ own chemistry, Central Life Sciences’ products inhibit the life cycle of numerous pest species to reduce destructive populations. The Altosid, ClariFly, and Starbar lines of products decrease nuisance and disease-spreading flies from livestock and poultry operations, which helps increase animal performance and producer profitability.

Chr. Hansen
99015 W Maple St
Milwaukee, WI 53214
http://chr-hansen.com
Booth(s): 501

Rooted in science, grounded in agriculture since 1874. It all started in a rural Danish farming community in 1874. Today, thanks to our
team of scientific specialists, Chr. Hansen has the largest collection of microbial strains for probiotics and silage inoculants in the world. So we can help you boost profitability, while meeting all regulatory requirements for safety, stability and efficacy. Chr. Hansen manufactures Probios, SiloSolve, BioPlus, and GalliPro.

Cumberland Valley Analytical Services
14515 Industry Dr
Hagerstown, MD 21742-2410
http://www.foragelab.com
Booth(s): 203, 302
Cumberland Valley Analytical Services is a full-service forage and feed testing laboratory serving the US, Canada, and the world. We specialize in providing contract support for the establishment and operation of NIR feed labs. We are focused on serving the analytical needs of the research community.

Custom Dairy Performance
KTG North America (a subsidiary of King Technia)
PO Box 570
Versailles, KY 40383
http://www.kingtechnia.com
Booth(s): 116
KTG North America is a provider of innovative specialty feed products for livestock and aquaculture producers worldwide. The company utilizes patented Intelligent Microcapsule coating technology for species-specific, targeted release of key nutrients in dairy cattle, poultry, swine and fish. For dairy cows, the result is a proven bypass protein source with excellent stability and consistently high bioavailability of essential amino acids for higher milk production and components. Dairy nutritionists are assured of maximum safety and purity thanks to rigorous, independent testing and continual analysis at North America’s leading feed laboratories.

Dairy Nutrition Plus
406 First Street
PO Box 68
Ralston, IA 51459
http://www.dairynutritionplus.com
Booth(s): 212
Dairy Nutrition Plus is a family of quality products by Landus Cooperative. Its branded dairy feed ingredients include SoyPlus and SoyChlor. SoyPlus is a high-quality, consistent, high rumen bypass, expeller-process soybean meal. Using this 100% natural protein source to balance protein and amino acids in dairy diets can improve efficiency of protein utilization, optimize dietary RUP:RDP ratios, reduce dietary protein levels, and reduce nitrogen in animal wastes. SoyChlor is a high quality, consistent chloride supplement for close-up dry dairy cows. Feeding SoyChlor as part of a negative-DCAD diet will help decrease the incidence of clinical milk fever and subclinical hypocalcemia.

Dairy One Forage Lab
730 Warren Rd
Ithaca, NY 14850-1242
http://www.dairyone.com
Booth(s): 113
The Dairy One Forage Lab excels in providing you with high-quality analyses and customer service. Our goal is to provide you with analytical services designed to meet the expanding demands of modern agriculture.

Dairy Records Management Systems
313 Chapanoke Rd Ste 100
Raleigh, NC 27603-3435
http://www.drms.org
Booth(s): 403, 405
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 Heifer Genomics Guide, Transition Cow Management, and MUN Profile. Leading-edge software and web tools include PCDART, PocketDairy Android, Herd Detective, DairyMetrics, WebReports, and Reports On-Demand.

DASCOR Inc.
PO Box 462885
Escondido, CA 92046-2885
http://www.dascor.com
Booth(s): 110
A world leader, DASCOR provides data loggers for ruminal research with over 500 units already in the field, which measure temperature, ORP/REDOX, pH, and battery voltage. Support software allows calibration and set-up for tests, and downloads the data into an Excel-compatible file. DASCOR has improved the performance and long-term reliability of both loggers and sensors. pH sensors now have significantly extended life as well as reliability and repeatability demonstrated over multiple field trials.

Diamond V
2525 60th Ave SW
Cedar Rapids, IA 52404
http://www.diamondv.com
Booth(s): 217
Diamond V is a leading global nutrition and health company that conducts research in dairy cattle and other species and manufactures natural, precision fermentation products to support animal health, animal performance, and food safety worldwide. Global headquarters and all manufacturing is located in Cedar Rapids, Iowa. Diamond V also has offices in five other countries and markets products in more than 60 countries. More than 70 years of science, innovation, technology, and quality have earned Diamond V the reputation of The Trusted Experts in Nutrition and Health.

E.I. Medical Imaging
110 12th Street SW, Unit 102
Loveland, CO 80537
http://www.eimedical.com
Booth(s): 502
E.I. Medical Imaging (EIMI) is a world leader and the only US manufacturer of portable ultrasound solutions specifically engineered for veterinary use. For the past 34 years, the company’s core values have remained intact: putting the customer first and delivering solid, effective ultrasound solutions. EIMI provides the Ibex portable ultrasound systems.
Elsevier
Radarweg 29
1043 NX Amsterdam
Netherlands
http://www.elsevier.com
Booth(s): 201

Elsevier is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, deliver better care, and sometimes make groundbreaking discoveries that advance the boundaries of knowledge and human progress. 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.

Enzyme Development Corporation
505 Eighth Avenue, 15th Floor
New York, NY 10018-6505
http://www.enzymedevelopment.com/
Booth(s): 516

Enzyme Development Corp. is a US company focusing on specialty enzymes for dairy, feed, baking, nutrition and industrial areas. Within feed and ruminants, we have over 60 years of experience with enzymes in direct fed, silage, and specialty applications for ruminants, poultry, swine and other species. At EDC, enzymes are our business.

FASS Inc.
1800 S Oak St., Ste 100
Champaign, IL 61820-6974
https://www.fass.org
Booth(s): 606

Since 1998, FASS has provided shared management services to not-for-profit animal science and related organizations. FASS services include accounting, conference planning and event management, membership and administration, publication services, and information technology services. FASS is a 501(c)(3) support organization. Our tax-exempt status allows us to serve our clients at very reasonable rates. Currently, we provide services to more than 10,000 professionals in animal agriculture and other sciences. FASS has the staff resources, talent, and experience your organization needs to let your leadership focus on driving your organization forward.

Feed Components
1988 Energy Dr
East Troy, WI 53120
http://www.feedcomponents.com
Booth(s): 401, 500

Feed Components was established in 2008 with the vision to bring innovative and well-researched products to market. By investing in research, technology, and support, we lead the market in innovation with a state-of-the-art dairy research and development center associated with a world-class commercial dairy farm. We are a progressive company comprising dairy producers, nutritionists, salespeople, researchers, and veterinarians who offer support and technical service in all areas of your business. Over the past several years, we have grown our business, our company, and our relationships to bring advancements in technologies that directly affect our customers’ bottom line.

Hoard’s Dairyman
28 West Milwaukee Avenue
Fort Atkinson, WI 53538
http://www.hoards.com
Booth(s): 114

Hoard’s Dairyman is the most read and trusted dairy industry magazine. Since 1885, Hoard’s Dairyman has provided dairy producers
of every size and type, as well as veterinarians, nutritionists, and other decision makers insights with expertise on feeding, breeding, animal health, and milk quality. Online, hoards.com is the dairy producer's top resource for headline news, industry updates, market trends, and more to help them be more efficient and profitable.

Innovative Additives Inc.
33 Eagle Drive
Rehoboth Beach, DE 19971
http://www.innovad-global.be
Booth(s): 108

Innovative Additives Inc. is a group and a brand that combines long-term experience in the field of animal feed additives, an innovative approach and dedication to animal well-being, and a healthy environment. With corporate headquarters and licensed state-of-the-art production facilities close to Antwerp in Belgium, Innovad is in a position to serve the global feed and animal industry. Fine products are produced with strict adherence to EU directives and regulations, and GMP+ certified.

MS Biotec
1300 Kaw Valley Road
Wamego, KS
www.msbiotec.com
Booth(s): 616

MS Biotec is proud to be the world’s only provider of Megasphaera elsdenii, a highly prolific, lactic acid-utilizing bacteria commercially marketed as Lactipro Advance. MS Biotec provides high performance products and innovative solutions for the feedlot and dairy markets. The company has strong synergies with feedlots, dairies, animal health entities, nutritionists and veterinarians. Since late 2010, Lactipro advance has provided a unique management tool to dairy and beef producers for improving the bottom line.

National Animal Nutrition Program (NANP)
University of Kentucky
609 W.P. Garrigus Building
Lexington, KY 40546
http://www.animalnutrition.org/
Booth(s): 317

The National Animal Nutrition Program (NANP) serves as a forum to identify high-priority animal nutrition issues and provides an integrated and systemic approach to sharing, collecting, assembling, synthesizing, and disseminating science-based information, educational tools, and enabling technologies on animal nutrition that facilitate high-priority research among agricultural species. The NANP is a National Research Support Project supported, in part, by the Experiment Station Committee on Organization and Policy, the State Agricultural Experiment stations, and Hatch funds provided and administered by the USDA’s National Institute of Food and Agriculture.

NovaMeal by Novita Nutrition LLC
2301 Research Park Way
Brookings, SD 57006
www.NovaMeal.com
Booth(s): 414

Novita Nutrition delivers a new bypass protein NovaMeal, a multi-faceted ingredient that is high in digestible protein and fiber. It delivers more nutrients in one package, effectively reducing ration costs and saving the dairy producer money. NovaMeal is made through an innovated, patented process. A consistent nutrient supply of digestible protein and fiber is now available without the negative effects of unsaturated fat. Backed by research published in the Journal of Dairy Science, feeding NovaMeal results in improved milk components and feed efficiency. Improved performance, coupled with reduced feed costs, results in increased income over feed costs.

Novus International
20 Research Park Drive
St. Charles, MO 63304
http://www.novusint.com
Booth(s): 416

Novus International, headquartered in St. Charles, Missouri, creates feed additive solutions for livestock and poultry production systems. Novus believes in their vision to help feed the world affordable, wholesome food and achieve a higher quality of life for all of our direct and indirect customers. Novus operations include corporate offices, research and development laboratories and manufacturing facilities in more than 35 countries, as well as smaller offices with field staff in an additional 60 countries.

Origination Inc.
1300 McKnight Road North
Maplewood, MN 55119
http://www.OriginationO2D.com
Booth(s): 504

Feed Products North Inc., d/b/a Origination Inc. (O2D), is a premier distributor of animal feed ingredients, fertilizers, industrial products and ice melt to the upper Mississippi region of the United States. Over the company’s seven-decade-long history, it has been an innovative provider of quality products and value-added services to the agriculture market. O2D has been providing feed formulators research-proven ingredient solutions for over sixty years.

Pontificia Universidad Católica de Chile
Av. Vícuta Mackenna 4860, Macul
Santiago, Región Metropolitana
Chile
http://www.ifan.cl
Booth(s): 515

The Chilean Program of Functional and Natural Food Ingredients and Additives (IFAN) is a joint-venture alliance among local food companies and universities aimed to develop novel ingredients and additives obtained from a diversity of local raw materials. It is expected Chile will diversify its offer of sophisticated food products.

PortaCheck Inc.
1 Whittendale Dr, Ste E
Moorestown, NJ 08057
https://www.portacheck.com
Booth(s): 112

PortaCheck Inc. was founded in 2004 to focus on the marketing and sale of portable testing devices for the dairy industry. Our on-farm tests that screen for scours, IgG, mastitis, SCC, and ketosis are now sold in over 65 countries.
The leading technical resources and advocate for the poultry rendering industry, serving its members through research, education and promotional services.

Protekta Inc.
457 Campbell St, Box 190
Lucknow, ON N0G 2H0
Canada
http://www.protekta.com
Booth(s): 105

Protekta Inc. is a innovate distributor of non-medicinal feed additives for the animal production industry. Our product X-Zelit has the largest focus at this year’s ADSA annual meeting, as we continue to expand the adaption of the new way of feeding transition cows.

Quality Technology International Inc. (QTI)
1707 N Randall Rd, Ste 300
Elgin, IL 60123-9412
http://www.qtitechnology.com
Booth(s): 503

QTI provides natural animal health products to improve performance, health and food safety for commercial and organic livestock producers. QTI tests and develops proprietary products for use by North American livestock producers. Products include the DFM Calsporin and Calsporin Organic, which can be used in water or pelleted feeds.

R&D LifeSciences LLC
902 Stokke Parkway
Menomonie, WI 54751
http://www.rd lifesciences.com
Booth(s): 102

R&D LifeSciences produces highly specific proprietary feed additives, provides custom additive development and contract manufacturing services. R&D LifeSciences is a research and development company that emphasizes using biology based science to work with living organisms and their organization, life processes and relationships to each other in their environment to develop new and exciting products for the livestock industry. We develop innovative biotech solutions for helping our customers achieve their goals.

SoyBest
PO Box 157
West Point, NE 68788-0157
http://www.soybest.com
Booth(s): 103, 202

SoyBest is a high-bypass soybean meal manufactured using a mechanical screwpress.

Stuhr Enterprises LLC
2210 Hwy 34
Waco, NE 68460
http://www.stuhrenterprises.com
Booth(s): 216

Stuhr Enterprises LLC is a global company based in Marshall, Minnesota, with manufacturing plants in Iowa and Missouri. The company is research- and technology-based with innovative manufacturing process applications. It makes and markets two transition cow feed additives: Anion Booster and Glucose Booster. Anion Booster is the most palatable anion additive available in the market and is commonly the best value compared with other anion sources. Glucose Booster is the most effective glucose precursor available on the market, with recent research proving its efficacy at the University of California–Davis School of Veterinary Medicine and Research Center (Tulare, CA) proving its efficacy.

Topcon Agriculture (formerly Digi-Star LLC)
W5527 Hwy 106
Fort Atkinson, WI 53538
http://www.digi-star.com
Booth(s): 106

Topcon Agriculture is a global supplier of electronic equipment, precision sensors, optical yield and feed management sensors, displays, position verification, and software used by farmers and other equipment operators to precisely measure and analyze valuable data from critical farming processes. Topcon has a unique balance of expertise in the livestock and grain equipment markets.

Vetagro Inc.
230 S Clark St # 320
Chicago, IL 60604-1406
http://www.vetagro.com
Booth(s): 214

Vetagro specializes in the microencapsulation of feed additives and nutrients tailored to match the digestive capacity and intestinal transit time of poultry, swine, and ruminants. We are present globally, with international patents evidencing our novelty and innovation. Our dairy products include Timet, rumen-protected methionine to improve milk yield and quality; Mecovit, a synergistic combination of rumen-protected methionine, choline, betaine, and B vitamins, targeting the metabolism of the transition dairy cow; and AviPremium, rumen-protected tributyrin, the most concentrated source of butyric acid currently available. To find out more about Vetagro products, please visit us at our booth.
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Smart science brings us more than data and devices. It delivers the industry’s most effective immune support product — NutriTek®.

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For more information, visit www.diamondv.com/nutritek
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2. Crowne Plaza
3. Hilton Knoxville
4. Four Points by Sheraton
5. Hyatt Place

CC: Knoxville Convention Center
Knoxville Convention Center
First Floor (Lower Level)
Knoxville Convention Center
Second Floor (Main Level)
Please come by booth 216 for the latest information!

For More Information Contact:
- John Azzone 860-428-9286
- Mike Maloney 707-484-5811
- Alan Tessneer 806-346-2362
Thank you to the 2018 ADSA Annual Meeting Sponsors!

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- GrowSafe Systems Ltd.
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- Zoetis
Schedule of Events

Scheduling and locations are subject to change without notice. All events take place at the Knoxville Convention Center unless otherwise noted. Please refer to the onsite newsletter for late schedule and room changes.

Saturday, June 23
7:30 am – 5:00 pm  
ADSA Strategic Planning Session ............................... Holiday Inn, Cumberland/LeConte

3:00 pm – 5:00 pm  
Registration open ................................................ Park Concourse

3:00 pm – 5:00 pm  
Preload open .................................................. Park Concourse

4:00 pm – 6:30 pm  
SAD Hospitality Room ........................................... Hilton Knoxville, Ocoee

6:30 pm  
SAD Undergraduate Informal Mixer: SAD Dine Around ........ Meet in Hilton Knoxville, Ocoee Room

Sunday, June 24
7:00 am – 5:00 pm  
Preload open .................................................. Park Concourse

7:00 am – 7:00 pm  
Registration open ................................................ Park Concourse

7:30 am – 10:00 am  
ADSA New Board Orientation ................................. Holiday Inn, Parlor 2

8:00 am – 5:00 pm  
ARAPSA Governing Council Meeting ...................... Holiday Inn, Summit

9:00 am – 10:00 am  
SAD Undergraduate Student Officers and Advisors Meeting ... Board Room

9:00 am – 5:00 pm  
Workshop: NAPN Nutrition Models ........................ 300 CD

10:00 am – 11:00 am  
SAD Undergraduate Student Quiz Bowl Officials Meeting ... Board Room

10:00 am – 3:30 pm  
Workshop: Spore Sources and Transmission ............... 301 D

10:00 am – 6:00 pm  
Exhibit setup (exhibitors and student dairy clubs) ........ Exhibit Hall A

10:30 am – 11:30 am  
FASS Board of Directors Meeting .......................... Holiday Inn, Parlor 2

10:30 am – 11:30 am  
SAD Undergraduate Student Quiz Bowl Seating Test ...... Ballroom A

11:00 am – 12:00 pm  
SAD Undergraduate Student Midday Mixer and Lunch ...... Ballroom A

12:00 pm – 1:00 pm  
2019 Program Committee Meeting .......................... 301 A

12:00 pm – 4:00 pm  
SAD Undergraduate Student Quiz Bowl  
Seating/Preliminary Rounds ..................................... 200 A and 200 C

12:00 pm – 5:00 pm  
Media room open ................................................ Henley Meeting Room

12:00 pm – 5:00 pm  
JDS Editors and JMC Lunch and Meeting ................. Holiday Inn, Cumberland/LeConte

1:00 pm – 4:30 pm  
Workshop: Dairy Records Analysis ......................... 301 C

1:00 pm – 4:30 pm  
Workshop: Teaching: Implementing Active Learning .... 301 B

2:00 pm – 3:00 pm  
Production Division Council Meeting ........................ Board Room

2:00 pm – 3:00 pm  
Mini-Symposium: Priorities for Fiber Research (DC33 Follow-Up) ... 301 A

2:00 pm – 3:30 pm  
ADSA Foundation Board of Trustees Meeting ............ Holiday Inn, Parlor 4

2:00 pm – 4:00 pm  
Graduate Student Division Symposium: Manuscript Writing  
for Graduate Students ............................................ 200 DE

3:00 pm – 4:00 pm  
Production Division Nominating Committee ............... Board Room

3:00 pm – 5:00 pm  
Late-Breaking Original Research Session (open to all attendees) ... Ballroom C

4:15 pm – 4:45 pm  
Dairy Quiz Bowl Final Round.................................. 200 C

4:15 pm – 5:00 pm  
Graduate Student Division Business Meeting and Open Forum ... 301 A

5:00 pm – 6:00 pm  
Dairy Foods Division Council Meeting .................... Board Room

6:00 pm – 6:45 pm  
Opening Session ............................................... Ballroom D–G

6:45 pm – 8:15 pm  
Opening Reception .............................................. Cumberland Concourse

7:00 pm – 10:00 pm  
Graduate Student Division Mixer ........................... Scruffy City

Monday, June 25
6:30 am – 7:00 am  
SAD Undergraduate Student poster setup .............. Exhibit Hall A

6:30 am – 8:00 am  
Production Division Extension Breakfast ................ Holiday Inn, Crystal

6:30 am – 5:30 pm  
Registration open ............................................... Park Concourse

7:00 am – 5:00 pm  
Preload open .................................................. Park Concourse

7:15 am – 8:30 am  
Turn in Yearbooks, Scrapbooks, and Annual Reports ........ Exhibit Hall A, SAD Booth

7:30 am – 9:30 am  
SAD Undergraduate Student Poster Presentation Competition ... Exhibit Hall A
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>7:30 am – 9:30 am</td>
<td>Poster presentations (coffee, milk, and pastries, 8:00–9:00 am).</td>
<td>Exhibit Hall A</td>
</tr>
<tr>
<td>8:00 am – 9:00 am</td>
<td>Introduction to S-PAC</td>
<td>Exhibit Hall A, ADSA Booth</td>
</tr>
<tr>
<td>8:00 am – 9:15 am</td>
<td>SAD Small Group Mentoring Session 1: Poster Presentations</td>
<td>Meet in Rotunda Room</td>
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<tr>
<td>8:00 am – 5:00 pm</td>
<td>Media room open</td>
<td>Henley Meeting Room</td>
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<tr>
<td>8:00 am – 5:00 pm</td>
<td>Commercial exhibits open</td>
<td>Exhibit Hall A</td>
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<tr>
<td>8:00 am – 5:00 pm</td>
<td>Job Resource Center open</td>
<td>Exhibit Hall A</td>
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<tr>
<td>8:30 am – 9:30 am</td>
<td>SAD Judging of Yearbooks, Scrapbooks, Annual Reports</td>
<td>Exhibit Hall A, SAD Booth</td>
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<tr>
<td>8:30 am – 9:30 am</td>
<td>SAD Interviews for Outstanding Student and Advisor Awards</td>
<td>Board Room</td>
</tr>
<tr>
<td>9:00 am – 1:00 pm</td>
<td>Companion Tour 1: Knoxville Guided History Tour</td>
<td>Meet in Clinch Ave</td>
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<tr>
<td>9:30 am – 12:00 pm</td>
<td>ARPAS Symposium</td>
<td>301 E</td>
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<tr>
<td>9:30 am – 5:30 pm</td>
<td>Scientific sessions</td>
<td>Convention Center</td>
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<tr>
<td>10:00 am – 10:45 am</td>
<td>SAD Undergraduate Student Business Meeting</td>
<td>200 A</td>
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<tr>
<td>10:30 am – 12:30 pm</td>
<td>ARPAS exam</td>
<td>200 C</td>
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<tr>
<td>11:00 am – 12:00 pm</td>
<td>SAD Undergraduate Dairy Foods Oral Competition</td>
<td>200 A</td>
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<tr>
<td>12:30 pm – 2:00 pm</td>
<td>Graduate Student Division Career Insights Lunch</td>
<td>Holiday Inn, Medallion</td>
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<tr>
<td>12:30 pm – 2:00 pm</td>
<td>SAD Undergraduate Student Career Roundtable Lunch</td>
<td>Holiday Inn, Carriage</td>
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<td>12:30 pm – 2:00 pm</td>
<td>ADSA Past Presidents' Lunch</td>
<td>Holiday Inn, Crystal</td>
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<td>12:30 pm – 2:00 pm</td>
<td>ARPAS Business Meeting</td>
<td>301 E</td>
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<td>2:00 pm – 4:00 pm</td>
<td>ARPAS exam</td>
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<td>2:00 pm – 4:45 pm</td>
<td>SAD Undergraduate Original Research Oral Competition</td>
<td>200 B</td>
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<td>2:00 pm – 4:45 pm</td>
<td>SAD Undergraduate Production Oral Competition</td>
<td>200 A</td>
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<tr>
<td>2:30 pm – 3:45 pm</td>
<td>SAD Small Group Mentoring Session 2: Oral Presentations</td>
<td>Meet in Rotunda Room</td>
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<tr>
<td>3:30 pm – 4:00 pm</td>
<td>Ice cream break, sponsored by Dean Foods.</td>
<td>Exhibit Hall A</td>
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<tr>
<td>5:00 pm – 6:30 pm</td>
<td>Award Donor Dinner</td>
<td>301 DE</td>
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<tr>
<td>7:00 pm – 8:00 pm</td>
<td>Awards Program and Ceremony</td>
<td>Ballroom AB</td>
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<td>8:15 pm – 9:30 pm</td>
<td>Ice cream social</td>
<td>Cumberland Concourse</td>
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<tr>
<td>9:00 pm – 11:00 pm</td>
<td>SAD Undergraduate Student Mixer: Tennessee River Cruise</td>
<td>Meet at Volunteer Princess Cruises Dock</td>
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**Tuesday, June 26**

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>6:30 am</td>
<td>Fun run, sponsored by Feed Components</td>
<td>World's Fair Park</td>
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<tr>
<td>6:30 am – 8:00 am</td>
<td>JDS Editorial Board Breakfast/Meeting</td>
<td>Holiday Inn, Cumberland</td>
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<tr>
<td>6:30 am – 8:00 am</td>
<td>Dairy Foods Division Board Breakfast/Meeting</td>
<td>Holiday Inn, Parlor 2</td>
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<td>7:00 am – 5:00 pm</td>
<td>Preload open</td>
<td>Park Concourse</td>
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<td>7:00 am – 5:30 pm</td>
<td>Registration open</td>
<td>Park Concourse</td>
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<td>Poster presentations (coffee, milk, and pastries, 8:00–9:00 am)</td>
<td>Exhibit Hall A</td>
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<td>8:00 am – 9:00 am</td>
<td>ADSA Spokesperson Q&amp;A</td>
<td>Exhibit Hall A, ADSA Booth</td>
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<tr>
<td>8:00 am – 9:15 am</td>
<td>SAD Small Group Mentoring Session 3: Poster Presentations</td>
<td>Meet in Rotunda Room</td>
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<tr>
<td>8:00 am – 4:00 pm</td>
<td>Commercial exhibits open</td>
<td>Exhibit Hall A</td>
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<tr>
<td>8:00 am – 4:00 pm</td>
<td>Job Resource Center open</td>
<td>Exhibit Hall A</td>
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<tr>
<td>8:00 am – 5:00 pm</td>
<td>Media room open</td>
<td>Henley Meeting Room</td>
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<tr>
<td>9:00 am – 1:00 pm</td>
<td>Companion Tour 2: Knoxville Food Tour</td>
<td>Meet in Clinch Ave</td>
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<tr>
<td>9:30 am – 10:30 am</td>
<td>SAD Undergraduate Student Business Meeting – Election of Officers</td>
<td>200 A</td>
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<tr>
<td>9:30 am – 5:00 pm</td>
<td>Scientific sessions</td>
<td>Convention Center</td>
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<td>10:00 am – 11:00 am</td>
<td>Discover Conference Steering Committee Meeting</td>
<td>Board Room</td>
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<tr>
<td>10:30 am – 12:30 pm</td>
<td>ARPAS exam</td>
<td>200 C</td>
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<tr>
<td>10:45 am – 11:45 am</td>
<td>SAD Undergraduate Student Educational Workshop: Dairy Safety</td>
<td>200 B</td>
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<tr>
<td>11:30 am – 12:30 pm</td>
<td>Dairy Foods Division Business Meeting</td>
<td>200 A</td>
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<tr>
<td>12:00 pm – 2:00 pm</td>
<td>SAD Undergraduate Student Awards Luncheon</td>
<td>Holiday Inn, Medallion</td>
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<td>12:30 pm – 2:00 pm</td>
<td>Dairy Foods Division Program Planning Luncheon</td>
<td>Board Room</td>
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<tr>
<td>12:30 pm – 2:00 pm</td>
<td>Production Division Business Meeting (boxed lunch for purchase)</td>
<td>200 B</td>
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<tr>
<td>12:30 pm – 2:00 pm</td>
<td>ACAS Business Meeting</td>
<td>301 C</td>
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<tr>
<td>2:00 pm – 4:00 pm</td>
<td>ARPAS exam</td>
<td>200 C</td>
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<tr>
<td>2:00 pm – 4:00 pm</td>
<td>SAD Undergraduate Student Exhibits – Pick up yearbooks and scrapbooks</td>
<td>Exhibit Hall A, SAD Booth</td>
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</tbody>
</table>
2:00 pm – 5:30 pm  Southern Branch ADSA Symposium and Business Meeting
   (reception follows; 5:45 to 6:45 pm) ........................................ Ballroom B
2:30 pm – 3:30 pm  SAD Committee Meeting – Old and New Officers and Advisors .......... Holiday Inn, Medallion
2:30 pm – 3:30 pm  Graduate Student Division Three-Minute Thesis Challenge .......... 301 D
2:30 pm – 3:45 pm  SAD Small Group Mentoring Session 4: Oral Presentations .......... Meet in Rotunda Room
3:30 pm – 4:00 pm  Ice cream break, sponsored by Dean Foods ................................ Exhibit Hall A
4:00 pm – 6:00 pm  Dismantle commercial exhibits .................................................... Exhibit Hall A
5:30 pm – 7:30 pm  Informal Calf Gathering ............................................................... Holiday Inn, Carriage
5:30 pm – 7:30 pm  Informal Milk Quality Session ..................................................... Holiday Inn, Crystal
6:00 pm – 8:00 pm  Graduate Student Division Poster Session Mixer: An Event for Students, Industry, and Academia ........................................ Ballroom E
7:00 pm – 9:00 pm  Iowa State Alumni and Friends Reception ........................................ Holiday Inn, Summit
7:00 pm – 10:00 pm Canadian Society of Animal Science (CSAS) Wine and Cheese Social . Downtown 211, rooftop

Wednesday, June 27
7:00 am – 12:00 pm  Registration open ................................................................. Park Concourse
7:00 am – 12:00 pm  Preload open .......................................................................... Park Concourse
8:00 am – 12:00 pm  Media room open ................................................................. Henley Meeting Room
8:30 am – 9:30 am  ADSA Business Meeting and Open Forum ...................................... 301 B
9:30 am – 12:30 pm  Scientific sessions ................................................................. Convention Center
12:30 pm – 2:30 pm  ADSA Board of Directors Meeting ........................................ Holiday Inn, Cumberland

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**SAD Undergraduate Student Affiliate Division (SAD) Special Events**

**Saturday, June 23**

**SAD Undergraduate Student Hospitality Room**
4:00 – 6:30 pm  
Hilton Knoxville, Ocoee Room

The SAD Hospitality Room will be available on Saturday afternoon for members to stop by, grab a snack, and meet others as you arrive. Information about the SAD schedule will be available, and officers will walk clubs to the conference center to pick up registration materials.

**SAD Undergraduate Student Informal Mixer: SAD Dine Around**
6:30 pm  
Meet in SAD Hospitality Room, Hilton Knoxville

SAD officers will host a "dine around" event on Saturday for schools arriving early. Stop by the SAD hospitality room Saturday afternoon if your club would like to participate. Students from participating schools are encouraged to join different dinner groups for a fun evening of networking and good food. Participants are responsible for the cost of their meal.

**Sunday, June 24**

**SAD Undergraduate Student Midday Mixer and Lunch**
11:00 am – 12:00 pm  
Convention Center, Ballroom A

Join your fellow dairy clubs for a fun hour of getting reacquainted and making new friends, and get to know your 2018–2019 Student Affiliate Division (SAD) Officer candidates. Ticket price includes lunch. Note: Registration is limited to ADSA undergraduate student members and advisors.

**Dairy Quiz Bowl Final Round**
4:15 – 4:45 pm  
Convention Center, Room 200 C

University teams from across North America will compete in the ADSA-SAD Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division (SAD) invites you to join them for the excitement of the final round of competition as the top two schools go head to head for the title of 2018 Dairy Quiz Bowl Winning Team.

**Opening Session and Reception**
6:00 – 8:15 pm  
Ballroom D–G and Cumberland Concourse

Join us at the Opening Session to hear from ADSA President Karen Schmidt with updates on the state of the association and celebrate the awardees of the ADSA Award of Honor and ADSA Distinguished Service Award, and new ADSA Fellows. Reception to follow with a live Tennessee bluegrass band.

**Monday, June 25**

**SAD Undergraduate Student Poster and Paper Competitions**
Convention Center

Support the future of ADSA—plan time in your schedule to visit the undergraduate posters on Monday morning and the oral presentations on Monday afternoon. See scientific program on page 35 for complete details.

**Tuesday, June 26**

**SAD Undergraduate Student Educational Workshop:**  
**Dairy Safety and the Dangers of Working with Cattle**
10:45 – 11:45 am  
Convention Center, Room 200 B

Join this hands-on dairy safety workshop to learn about safe animal handling, machine safety, and more. Learn how to work safely with cattle by developing your knowledge of flight zones, behavior, and on-farm techniques. This training will benefit both you and the cow by preparing you for any hazards you may face on farm.

**SAD Undergraduate Student Awards Luncheon**
12:00 – 2:00 pm
Tickets: $50 (professionals), $35 (students)  
Holiday Inn, Medallion

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

Rooms listed below are in the Knoxville Convention Center unless otherwise noted. Consult the meeting website (https://www.adsa.org/sad) for the latest program information. Please refer to the onsite newsletter for late schedule and room changes.

### Saturday, June 23
- **3:00 pm – 5:00 pm** Registration open .................................................... Park Concourse
- **4:00 pm – 6:30 pm** SAD hospitality room ............................................... Hilton Knoxville
- **6:30 pm** SAD Undergraduate Informal Mixer: SAD Dine Around ........ Meet in Hilton Knoxville, Ocoee Room

### Sunday, June 24
- **7:00 am – 7:00 pm** Registration open .................................................... Park Concourse
- **9:00 am – 10:00 am** SAD Officers and Advisors Meeting ....................... Board Room
- **10:00 am – 11:00 am** Dairy Quiz Bowl Officials Meeting ......................... Board Room
- **10:30 am – 11:00 am** Dairy Quiz Bowl Seating Test ............................... Ballroom A
- **11:00 am – 12:00 pm** SAD Midday Mixer and Lunch .................................. Ballroom A
- **12:00 pm – 4:00 pm** Dairy Quiz Bowl Preliminary Rounds ....................... 200 A and 200 C
- **4:15 pm – 4:45 pm** Dairy Quiz Bowl Final Round .................................. 200 C
- **6:00 pm – 6:45 pm** Opening Session ....................................................... Ballroom D–G
- **6:45 pm – 8:15 pm** Opening Reception .................................................... Cumberland Concourse

### Monday, June 25
- **6:30 am – 5:30 pm** Registration open .................................................... Park Concourse
- **6:30 am – 7:00 am** Hanging of SAD posters .......................................... Exhibit Hall A
- **7:15 am – 8:30 am** Turn in Yearbooks, Scrapbooks, and Annual Reports .......... Exhibit Hall A, SAD booth
- **7:30 am – 9:30 am** Poster presentations .............................................. Exhibit Hall A
- **7:30 am – 9:30 am** Undergraduate Poster Presentation Competition ............ Exhibit Hall A
- **7:30 am – 5:00 pm** Posters available for viewing .................................. Exhibit Hall A
- **8:00 am – 9:00 am** Coffee, milk, and pastries ..................................... Exhibit Hall A
- **8:00 am – 9:15 am** Small Group Mentoring Session 1: Poster Presentations .......... Meet in Rotunda Room
- **8:00 am – 5:00 pm** Commercial exhibits open .................................... Exhibit Hall A
- **8:00 am – 5:00 pm** Job Resource Center open .................................... Exhibit Hall A
- **8:30 am – 9:30 am** Judging of Yearbooks, Scrapbooks, and Annual Reports .......... Exhibit Hall A, SAD booth
- **8:30 am – 9:30 am** Interviews for Outstanding Student and Advisor Awards .......... Board Room
- **9:30 am – 5:30 pm** Scientific sessions .................................................. Convention Center
- **10:00 am – 10:45 am** SAD Business Meeting ......................................... 200 A
- **10:30 am – 12:30 pm** ARPAS exam ....................................................... 200 C
- **11:00 am – 12:00 pm** SAD Undergraduate Dairy Foods Oral Competition ........ 200 A
- **12:30 pm – 2:00 pm** SAD Undergraduate Student Career Roundtable Luncheon .......... Holiday Inn, Carriage
- **2:00 pm – 4:00 pm** ARPAS exam ....................................................... 200 C
- **2:00 pm – 4:45 pm** SAD Undergraduate Original Research Oral Competition .......... 200 B
- **2:00 pm – 4:45 pm** SAD Undergraduate Production Oral Competition ............... 200 A
- **2:30 pm – 3:45 pm** Small Group Mentoring Session 2: Oral Presentations ............. Meet in Rotunda Room
- **3:30 pm – 4:00 pm** Ice cream break, sponsored by Dean Foods ..................... Exhibit Hall A
- **5:00 pm – 5:30 pm** Removal of posters ............................................... Exhibit Hall A
- **7:00 pm – 8:00 pm** ADSA Awards Program ........................................... Ballroom AB
- **8:15 pm – 9:30 pm** Ice Cream Social ....................................................... Cumberland Concourse
- **9:00 pm – 11:00 pm** SAD Mixer: Tennessee River Cruise ............................... Meet at Volunteer Princess Cruises Dock

### Tuesday, June 26
- **6:30 am** Fun Run, sponsored by Feed Components .................................. World’s Fair Park
- **7:00 am – 5:30 pm** Registration open .................................................... Park Concourse
- **7:30 am – 9:30 am** Poster presentations .............................................. Exhibit Hall A
- **7:30 am – 4:00 pm** Posters available for viewing .................................. Exhibit Hall A
8:00 am – 9:00 am: Coffee, milk, and pastries
8:00 am – 9:15 am: Small Group Mentoring Session 3: Poster Presentations
8:00 am – 4:00 pm: Commercial exhibits open
9:30 am – 10:30 am: SAD Business Meeting/Election of Officers
9:30 am – 5:00 pm: Scientific Sessions
10:30 am – 12:30 pm: ARPAS exam
10:45 am – 11:45 am: SAD Educational Workshop: Dairy Safety
12:00 pm – 2:00 pm: SAD Awards Luncheon
2:00 pm – 4:00 pm: ARPAS exam
2:00 pm – 4:00 pm: Pick up Yearbooks and Scrapbooks
9:30 am – 10:30 am: SAD Business Meeting/Election of Officers
2:30 pm – 3:30 pm: SAD Old and New Officers and Advisors Meeting
3:30 pm – 4:00 pm: Ice cream break, sponsored by Dean Foods

*An ADSA Annual Meeting Exclusive: The American Registry of Professional Animal Scientists (ARPAS) exam will be offered to students with a dairy focus interested in taking the ARPAS Dairy Cattle exam. Better yet, ARPAS will waive the exam fee for seniors, new graduates, and graduate students who take it during the annual meeting! ARPAS provides certification of animal scientists through examination, continuing education and commitment to a code of ethics, and disseminates applied scientific information through publication of a peer-reviewed journal, The Professional Animal Scientist (https://www.professionalanimalscientist.org/). Take advantage of this tremendous opportunity to become ARPAS certified.

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Cathleen Williams  
Trish Dawson  
Mike VandeHaar  
Zey Ustunol  
Tom McFadden  
Paul Kindstedt  
Mike Miller

**Animal Behavior and Well-Being**
Trevor DeVries  
Peter Krawczel  
Emily Miller-Cushon

**Animal Health**
Kasey Moyes  
Barry Bradford  
Andres Contreras

**Breeding and Genetics**
Christian Maltecca  
Filippo Miglior  
Christine Baes

**Dairy Foods**
Zey Ustunol  
Mike Miller  
Rohit Kapoor  
Sanjeev Anand  
Dave Everett  
Sam Alcaine

**Extension Education**
Jeffrey Bewley  
Mike Schutz  
Lindsay Ferlito

**Forages and Pastures**
Gonzalo Ferreira  
Andre Brito  
Daryl Kleinschmit

**Growth and Development**
Michael Steele  
Kristy Daniels  
Gustavo Cruz

**Lactation Biology**
Rafael Jimenez-Flores  
Theresa Casey  
Jimena LaPorta  
Sha Tao

**Milk Protein and Enzymes**
Dave Everett  
Don McMahon

**Physiology and Endocrinology**
Juan Loor  
Rob Rhoads  
Ronaldo Cerri

**Production, Management, and the Environment**
Phil Cardoso  
Victor Cabrera  
Todd Callaway

**Reproduction**
Peter Hansen  
Stephen Butler  
Alan Ealy

**Ruminant Nutrition**
Guillermo Schroeder  
Stephanie Ward  
Hugo Ramirez Ramirez

**Small Ruminant**
Maristela Rovai  
Ahmed Salama  
Guido Invernizzi

**Teaching/Undergraduate and Graduate Education**
Michel Wattiaux  
Cathleen Williams  
Elizabeth Karcher

**ADSA-ASN Symposium**
Don Beitz

**ADSA Multidisciplinary and International Keynote (MILK) Symposium**
Rafael Jimenez-Flores

**ADSA Southern Section Symposium**
Stephanie Ward

**ADSA Graduate Student Symposium**
Matthew Borchers  
Samantha Koon

**ADSA-Interbull Session**
Marj Faust

**Animal Health Symposium—Bovine Tuberculosis**
Ken Olson
Graduate Student Competition: ADSA Dairy Foods
Oral
Rani Govindasamy-Lucey
Luis Alberto Ibarra Sanchez
Mike Miller

Graduate Student Competition: ADSA Dairy Foods
Poster
Hari Meletharayil
Joe Yun
Ashraf Hassan

Graduate Student Competition: ADSA Production
Oral (MS/PhD)
Heather Dann
Masahito Oba
Maris McCarthy
Peter Krawczel
Dan Cooke
Luis Moraes

Graduate Student Competition: ADSA Production
Poster (MS/PhD)
Julie Huzzey
Massimo Bionaz
Keena Mullen
Agustin Rius
Benjamin Wenner
Kees Plaizier

ADSA SAD Undergraduate Oral and Poster Competition
Leanne Berning
Molly Kelley

Workshops:
Teaching: How to Implement and Evaluate Active Learning
Activities in your Classroom
Michel Wattiaux

Dairy Records Analysis
Kas Ingawa

NANP Nutrition Models
Tim Hackmann

Spore Sources and Transmission from Farm to Fork
Trish Dawson

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### Workshop and Symposia

**Workshop: National Animal Nutrition Program (NANP) Models**

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

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

9:00 AM 1 Introduction and model construction: Part I (lecture).

9:30 AM 2 Introduction and model construction: Part II (exercises).

10:45 AM Break

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

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

12:45 PM Lunch

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

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

3:30 PM Break/transition to reception

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

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

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

10:15 AM 8 Introduction to dairy-relevant sporeformers and detection methodologies.
Martin Wiedmann*, Cornell University, College of Food Science, Ithaca, NY.
11:15 AM Break

11:30 AM 9 On-farm sources and control strategies.
N. Martin*, Cornell University, Ithaca, NY.

12:15 PM Lunch

1:15 PM 10 Introduction to dairy-relevant sporeformers and detection methodologies.
T. Erickson*, Ecolab, St. Paul, MN.

2:00 PM Breakout groups, discussion.
Martin Wiedmann.

2:30 PM Break

2:45 PM Panel Q&A
Sam Alcaine (moderator).

3:15 PM Closing remarks.
Martin Wiedmann.

2018 Mini Symposium: Priorities for Fiber Research (DC33 Follow-Up)
Room 301 A

2:00 PM Introductory comments.
Jim Tully, Pine Creek Nutrition Service.

2:05 PM ADSA DISCOVER Overview.
Larry Miller, ADSA DISCOVER Conferences.

2:15 PM Priorities for future research to improve fiber utilization by animals.
D. R. Mertens*, Mertens Innovation & Research LLC, Belleville, WI.

ADSA Graduate Student Symposium: Manuscript Writing for Graduate Students
Chair: Matthew Borchers, University of Kentucky
Room 200 DE

2:00 PM Tips and tricks for turning your ideas into peer-reviewed publications.
Marina A. G. von Keyserlingk* and Daniel M. Weary, University of British Columbia, Vancouver, BC, Canada.

2:30 PM Collaborating with co-authors: Writing, presenting, and publishing.
D. M. Barbano*, Cornell University, Ithaca, NY.

3:00 PM Manuscript preparation, navigating journal submission, and the peer-review process.
L. E. Armentano*, University of Wisconsin, Madison, WI.

3:30 PM Will your research impact dairy farmers?
Corey Geiger*, Hoard’s Dairyman, Fort Atkinson, WI.
OTHER EVENTS

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

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

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

POSTER PRESENTATIONS

ADSA Dairy Foods Graduate Student Poster Competition

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

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

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

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

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

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

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

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

ADSA Graduate Student (MS) Production Poster Competition

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

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

M11 Feeding a low-starch fresh cow diet may increase NDF digestibility.
Caroline E. Knoblock*, Weina Shi, Ilkyu Yoon², and Masahito Oba³, ³Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Diamond V, Cedar Rapids, IA.

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

M13 Evaluating forage and feed cost per hundredweight of milk sold on 4 dairy farms double cropping winter annuals with corn silage in northern and western Pennsylvania.
Eric J. Ranck* and Lisa L. Holden, Pennsylvania State University, State College, PA.
M14 **Effects of different organic pastures on dairy heifer growth.**
Jacob A. Hadfield*, Marcus Rossé, Rusty Stott, Blair L. Waldron, Allen Young, Stephen C. Isom, Kerry A. Rood, and Kara J. Thornton, Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT; USDA–Agricultural Research Service, Logan, UT.

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

M16 **Effects of pasture quality on feed efficiency and production of organic dairy cows in the southeastern United States.**
Hannah R. Bailey*, David M. Butler, Gary M. Bates, Gina M. Pighetti, Peter D. Krawczel, S. Ray Smith, Kelly Mercier, David W. McIntosh, and Agustin G. Rius, Department of Animal Science, University of Tennessee, Knoxville, TN; College of Agriculture, Food and Environment, University of Kentucky, Lexington, KY.

**ADSA Graduate Student (PhD) Production Poster Competition**

M17 **Effect of extended colostrum feeding on plasma glucagon-like peptide 1 concentration in newborn calves.**
Yudai Inabu*, Jade Pyo, Sarah Petts, Michael Steele, and Yoshisa Sugino, The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan; Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

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

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

M20 **Epigenetic regulation of nuclear factor erythroid 2 like 2 (NFE2L2) signaling pathway through methionine supply during the parturient period in liver of dairy cows.**
Fernanda Batistel*, Sadaf Moeez, Liqiang Han, Claudia Parys, and Juan J. Loor, University of Illinois, Urbana, IL; Evonik Nutrition Care GmbH, Hanau-Wolfgang, Germany.

M21 **Milking intervals of cows with contrasting production.**
Fernando Masia*, Nicolás Lyons, Mónica Piccardi, Mónica Balzarini, Russell Hovey, and Sergio Garcia, Cátedra de Estadística y Biometría de la Facultad de Ciencias Agropecuarias de la Universidad Nacional de Córdoba, Córdoba, Argentina; Intensive Livestock Industries, NSW Department of Primary Industries, Elizabeth Macarthur Agricultural Institute, Menangle, NSW, Australia; Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Córdoba, Argentina; Department of Animal Science, University of California, Davis, CA; School of Life and Environmental Sciences and Sydney Institute of Agriculture, The University of Sydney, Camden, NSW, Australia.

M22 **Evaluating the effects of fibrolytic enzymes derived from Trichoderma reesei fungal extraction on rumen fermentation, omasal nutrient flow and production performance in dairy cows during early lactation.**
Basim Refat*, David Christensen, John McKinnon, Aaron Beattie, Tim McAllister, Wenzhu Yang, Ousama AlZahal, and Peiqiang Yu, Department of Animal and Poultry Science, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada; Crop Development Centre, Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada; Lethbridge Research and Development Centre, Lethbridge, AB, Canada; AB Vista, Marlborough, United Kingdom.

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

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

**M26**
The effect of ruminal administration of 5-hydroxytryptophan on circulating serotonin in the dairy cow.
Meghan K. Connelly*1, Aaron M. Marshall2, and Laura L. Hernandez1, *University of Wisconsin-Madison, Madison, WI, 2Amelgo LLC, Covington, KY.

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

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

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

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**ADSA-SAD Undergraduate Original Research Poster Competition**

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

**M31**
Modification of rumen microbiome by supplementing the dairy cow diet with a blend of probiotics and evaluation of changes in energy balance and milk quality.
Hayley L. Mulchay*1, Blayne Jensen1, Zayne Evangelo1, Richard Silacci2, Christopher Kitts2, and Chi Kong Yeung1, 1Department of Animal and Avian Sciences, University of Maryland, College Park, MD, 2Animal Biosciences and Biotechnology Laboratory, USDA-Agricultural Research Service, Beltsville, MD.

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

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

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

**M35**
Does considering immunoglobulin G concentration alone constitute a physiology-based colostrum management program?
Olivia M. Reiff*, Kasey M. Schalich, Lisa Furman, and Vimal Selvaraj, *Cornell University, Ithaca, NY.*

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

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

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

Effect of rumen-protected methionine supplementation on milk production in dairy cows.
H. R. Bailey1, E. M. Belanger*1, J. D. Kaufman2, B. Barton2, C. Zimmerman2, K. Estes2, and A. G. Rius1, University of Tennessee, Knoxville, TN; 2Balchem Corp., New Hampton, NY.

The effects of comfortable or stressful housing environments on short-term behavior, milk quality, and milk production following group transition for Holstein dairy cattle.
Anna Bradtmueller*1, Matthew Borchers2, and Jeffrey Bewley3, University of Kentucky, Lexington, KY; 3CowFocused Housing, Bardstown, KY.

Animal Behavior and Well-Being I

Preference of flavored concentrate premixes by young ruminants.
K. Nedelkov1, M. T. Harper*1, M. Belair1, K. Chen1, S. Rajasär1, C. M. M. R. Martins4, E. H. Wall5, and A. N. Hristov2, 1Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria, 2Department of Animal Science, The Pennsylvania State University, University Park, PA, 3College of Pastoral Agriculture Science and Technology, Lanzhou University, Gansu, China, 4School of Veterinary Medicine and Animal Science, University of Sao Paulo, Pirassununga, Brazil, 5Pancosma, Geneva, Switzerland.

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

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

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

Effects of feeding corn stover pelleted with soybean meal or distillers grains on chewing activity and ruminal pH of dairy cows.
Aaron J. DuMez1, Brooke C. Dooley*1, Emily H. Branstad1, Carrie S. McCarthy1, Gaston M. Bonetto1, Russ Zeeck1, Abigail G. Carpenter1, Jhone O. Sarturi5, and Hugo A. Ramirez-Ramirez2, 1Iowa State University, Ames, IA; 2Balchem Corp., New Hampton, NY; 3Pellet Technology USA, Gretna, NE; 4Instituto Nacional de Tecnología Agropecuaria, Manfredi, Córdoba, Argentina, 5University of Guelph, Ridgetown, ON, Canada; 6Texas Tech University, Lubbock, TX.

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

Individual differences in responses to weaning in dairy calves.

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

Acquired immunity and performance of single versus pair housed Holstein dairy calves.
Clay B. Kesterson*, Liesel G. Schneider1, Marc Caldwell1, Peter D. Krawczel1, and Gina M. Pighetti1, The University of Tennessee, Knoxville, TN; 2College of Veterinary Medicine, The University of Tennessee, Knoxville, TN.

Using behavior as an early predictor of calf’s health disorder.
M. A. Belaid*1, M. Rodriguez-Prado1, D. V. Rodriguez-Prado1, E. Chevaux1, and S. Calsamiglia1, 1Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Spain, 2Universitat Pompeu Fabra, Barcelona, Spain, 1Lallemand Animal Nutrition, Blagnac, France.

Influences of disbudding on feeding behavior and brush use in group-housed dairy calves.
Catherine L. Hixson* and Emily K. Miller-Cushon, University of Florida, Gainesville, FL.
Round-day behavior of ewe-lambs at grazing.
Eliel González-García*1, Moutaz Alhamada1, Ana Clara Canto Souza2, Zuzana Holubová1, and Greg Bishop-Hurley4, 1SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), INRA, Montpellier SupAgro, CIRAD, Univ Montpellier, Montpellier, France, 2Universidade Estadual de Londrina (UEL), Londrina, Brazil, 3Czech University, Prague, Czech Republic, 4CSIRO, Queensland, Australia.

Water intake behavior of lactating heifers during the transition period.
Sheila C. B. Stivani1, Elissa F. Vizzotto1, Vivian Fischer*2, Fernanda S. Machado1, Mariana M. Campo1, Thierry R. Tomich1, and Luiz G. R. Pereira1, 1Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil, 2Empresa Brasileira de Pesquisa Agropecuaria, Juiz de Fora, MG, Brazil.

Validating a novel precision dairy monitoring technology recording activity, rumination, and feeding behaviors in dairy cattle.
Siobhán Gavigan*1, Matthew Borchers1, and Jeffrey Bewley1, 1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

Effect of body condition score on activity of dairy cows in estrus.
Hawar M. H. Zebari*1, Gemma L. Charlton2, Mark S. Rutter1, and Emma C. L. Bleach1, 1College of Agriculture, University of Duhok, Duhok, Kurdistan Region, Iraq, 2Department of Animal Production, Welfare and Veterinary Sciences, Harper Adams University, Newport, Shropshire, United Kingdom.

Animal Health I

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

BoHV-1 neutralizing antibody response of calves vaccinated with licensed infectious bovine rhinotracheitis (IBR) modified live virus vaccines in field.
O. Boix-Mas, M. Baratelli, M. Blanch-Freixa, V. Robles, and JP Campillo-Benéitez*, HIPRA, Amer, Girona, Spain.

The effect of pegbovigrastim on circulating neutrophil count in dairy cattle.
Sabrina J. Van Schyndel*1, Jérôme Carrier2, Osvaldo Bogado Pascottini3, and Stephen J. LeBlanc3, 1University of Guelph, Guelph, ON, Canada, 2Elanco Canada Ltd, Guelph, ON, Canada.

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

Central administration of an acute phase protein, α1-acid-glycoprotein, increases rectal temperature in sheep.
B. A. Gregg*1, P. A. Parker4, M. K. Waller4, M. Garcia1, B. J. Bradford4, J. A. Daniel4, and B. K. Whitlock1, 1College of Veterinary Medicine, University of Tennessee, Knoxville, TN, 2Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS, 3Department of Animal Science, Berry College, Mount Berry, GA.

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

Estrogen receptor alpha and progesterone receptor expression in uninfected and Staphylococcus aureus-infected quarters.
Benjamin D. Enger*1, Hannah L. M. Tucker1, Catherine L. M. Parsons1, Stephen C. Nickerson1, and R. Michael Akers1, 1Virginia Polytechnic Institute and State University, Blacksburg, VA, 2University of Georgia, Athens, GA.

Development of antibody-conjugated chitosan microparticles selectively targeting Shiga toxin producing Escherichia coli in the gastrointestinal tract.
Zhengxin Ma*12, Minyoung Kang1,2, Shanyu Meng1, Zhaoching Tong1, Adegbola Adesogan1, and Kwangcheol Jeong1,2, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Emerging Pathogens Institute, University of Florida, Gainesville, FL, 3Department of Agricultural and Biological Engineering, University of Florida, Gainesville, FL.
**Staphylococcus aureus** surface proteins extraction method with immunoproteomics and electron microscopic study.
Reta D. Abdi*1, John R. Dunlap2, Desta B. Ensermu1, Barbara E. Gillespie1, Raul A. Almeida1, Stephen P. Oliver1, and Oudessa Kerro Dego1, 1Department of Animal Science, The University of Tennessee, Knoxville, Knoxville, TN, 2JIAM Microscopy Center and Advanced Microscopy and Imaging Center, The University of Tennessee, Knoxville, TN.

**Effect of yeast-based supplements for Salmonella prevention in dairy cows: A field study.**
Arnaud Delafosse1, Baptiste Poupée1, and Christine Julien2, 1GDS, Alençon, France, 2Phileo Lesaffre Animal Care, Marcq-en-Baroeul, France.

**Feed restriction as a model to induce systemic inflammation in dairy cows before calving.**
O. B. Pascottini*1, M. R. Carvalho1, E. Ticiani1, J. F. W. Spricigo1, E. S. Ribeiro1, and S. J. LeBlanc1, 1Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, 2Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

**Impact of colostrum pasteurization on serum concentration of selected cytokines.**
Marta Terré*1, Anna Bassols2, Maria Vidal1, Jordi Galian3, and Alex Bach4, 1Institut de Recerca i Tecnologia Agroalimentàries, Caldes de Montbui, Spain, 2Universitat Autònoma de Barcelona, Bellaterra, Spain, 4Granja Murucuc, Gurb, Spain, 3Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain.

**Genetic diversity and associated enterotoxin production patterns of Staphylococcus aureus isolates from cases of bovine mastitis.**
Jacqueline M. Vaughn1, Reta D. Abdi, Barbara E. Gillespie, Caitlin E. Merrill, and Oudessa K. Dego, The University of Tennessee, Knoxville, TN.

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

**Protective effects of staphylococcal surface proteins as vaccine antigens to control mastitis in dairy cows.**
Caitlin E. Merrill1*, Desta B. Ensermu1, Reta D. Abdi1, Barbara E. Gillespie1, Jacqueline Vaughn1, Susan I. Headrick1, Kody Hash2, Tate B. Walker2, Raul A. Almeida1, S. P. Oliver1, and Oudessa Kerro Dego1, 1The University of Tennessee, Department of Animal Science, Knoxville, TN, 2The University of Tennessee, East Tennessee Research and Education Center-Little River Animal and Environmental Unit, Walland, TN.

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**Animal Health II**

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

**Genome-wide variation for visceral fat deposition in Holstein dairy cows.**
Pedro Melendez*1, Scott Poock1, Pablo Pinedo2, Diego Manriquez2, Stephen Moore3, Matt Lucy4, Patrick Pithua1, Jessica Neal1, and Jeremy Taylor1, 1College of Veterinary Medicine, University of Missouri, Columbia, MO, 2Department of Animal Sciences, Colorado State University, Fort Collins, CO, 3Division of Animal Sciences, University of Missouri, Columbia, MO.

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

**Enhanced hepatic mitochondrial functional in dairy cows with mild fatty liver.**
Zhen Shi, Xiaobing Li, Guowen Liu, and Xinwei Li*, College of Veterinary Medicine, Jilin University, Changchun, Jilin, China.

**Yeast culture alters volatile fatty acids production in a ruminal in vitro fermentation system.**

**Time of rumen fluid collection relative to feeding alters in vitro fermentation outcomes.**
Shelby A. Armstrong*, Larissa A. Pless2, Ashlyn N. Brewster2, and Derek J. McLean2, 1Phibro Animal Health Corp., Teaneck, NJ, 2Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR.

**Factors affecting prevalence of subclinical hypocalcemia in a 1,724-cow survey.**
Effects of fully acidified close-up diets and dietary calcium content on blood metabolites and mineral concentrations of transition dairy cows.
Kristen M. Glosson*, 1, Xiangfei Zhang1, Scott S. Bascom1, Angie D. Rowson1, and James K. Drackley1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Institute of Animal Nutrition, Sichuan Agricultural University, Chengdu, Sichuan, China, 3Phibro Animal Health Corp., Teaneck, NJ.

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

Comparison of β-hydroxybutyric acid concentration determined via an electronic meter and a laboratory method to diagnose ketosis in dairy cows in a commercial herd in Northern Mexico.
Gabriela Perez-Hernández*, 1, Agustín Ruiz-Flores1, José G. García-Muñiz1, Carrie S. McCarthy2, Lance H. Baumgard3, Leo L. Timms2, and Hugo A. Ramírez-Ramírez2, 1Universidad Autónoma Chapingo, Chapingo, Mexico, 2Iowa State University, Ames, IA.

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

Association of subclinical hypocalcemia and teat canal diameter after milking in dairy cattle.
A. A. Barragan*, 1, L. da Costa1, S. Bas2, A. Della Libera1, E. Hovingh1, S. Rassler1, M. A. Ostach2, and F. da Costa4, 1Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, 2Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, 3Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo, São Paulo, Brazil, 4Olentangy Liberty High School, Powell, OH.

Reference blood parameter for Holstein dairy cows diagnosed with different health events.
A. A. Barragan*, 1, S. Bas2, K. Heckman3, and A. Ludwikowski1, 1Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, 2Department of Veterinary Preventive Medicine, Columbus, OH.

Mineral profile of grazing dairy cows in the northwestern of Argentina.
Gabriela Marcela Martínez*, 1, Juan Francisco Micheloud1, Víctor Humberto Suarez2, Guillermo Matioli2, and Diana Rosa2, 1Instituto Nacional de Tecnología Agropecuaria, Salta, Argentina, 2Universidad Nacional de La Plata, La Plata, Buenos Aires, Argentina.

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

Effect of ketosis on lying time in transition dairy cows.
J. M. Piñeiro*, 1, B. T. Menichetti1, A. A. Barragan1, A. Relling2, W. P. Weiss2, S. Bas1, and G. M. Schuenemann1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, 2Department of Animal Sciences, The Ohio State University, Wooster, OH.

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

Epidemiology of subclinical hypocalcemia in early-lactation Holstein cows.
Rafael Neves2, Brittany Leno1, Kathryn Bach1, and Jessica McArt*, 1Cornell University, Ithaca, NY, 2Texas Tech University, Lubbock, TX.

Using milk fatty acid profile to identify early ketosis in dairy cows.
Jessica K. Poncheki1, Priscila M. Souza2, Rosangela Locatelli-Dittrich1, Geraldo T. Santos1, Dante P. D. Lanna1, and Rodrigo de Almeida1, 1Universidade Federal do Paraná, Curitiba, PR, Brazil, 2Universidade Estadual de Maringá, Maringá, PR, Brazil, 3Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, SP, Brazil.

Detection of health problems by changes in milk estimated blood nonesterified fatty acids (NEFA) and milk fat, protein, and fatty acids.
Alex Pape*, 1, Heather M. Dann1, David M. Barbano2, and Richard J. Grant1, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2Department of Food Science, Northeast Dairy Food Research Center, Cornell University, Ithaca, NY.

The effects of fatty acid supplementation and provision of a dry teat on disease in veal calves.
Larissa L. Deikun1, 2, Greg Habing1, James D. Quigley2, and Kathryn L. Proudfoot1, 1The Ohio State University, Columbus, OH, 2Provimi, Brookville, OH.
Breeding and Genetics I

M94 Genetic analysis of daily milk yield variability. Victoria S. Moncur*, Lydia C. Hardie, and Chad D. Dechow, Penn State University, University Park, PA.

M95 A resolution to breed identification of Pakistani Sahiwal cattle. Muhammad Moaen-ud Din*, Ghulam Bilal, Raja Danish Muner, and Nauman Wahid, Laboratories of Animal Breeding and Genetics, Faculty of Veterinary and Animal Sciences, PMAS Arid Agriculture University, Rawalpindi, Rawalpindi, Punjab, Pakistan.


M97 Genetic analysis of subclinical mastitis resistance in early lactation. Saranya G. Narayana1,2, Filippo Miglior2,3, Seyed A. Naqvi1, Francesca Malchiodi2, Pauline Martin2, and Herman W. Barkema1, 1Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 2CGIL, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 3Canadian Dairy Network, Guelph, ON, Canada.

M98 Genetics of functional traits related to resistance of diseases and milk yield in Friesian × Bunaji crosses. Yetunde Adedibu1, Alex Mshelia1, Adetunji Iyiola-Tunji2, Peter Barje1, Clarence Lakpini1, and Tolulope O. Ososanya*, 1Ahmadu Bello University, Zaria, Kaduna State, Nigeria, 2National Agricultural Extension and Rural Liaison Services, Zaria, Kaduna State, Nigeria, 3National Animal Production Research Institute, Shika, Kaduna State, Nigeria, 4University of Ibadan, Ibadan, Oyo State, Nigeria.

M99 Development and application of the GENEX Jersey Ideal Commercial Cow Index (ICC$). Heather Adams*, Gamal Abdel-Azim1, Leah James2, Judd Hanson2, Nick Hemauer2, Scott Carson2, and Robert Fourdraine1, 1CRI International Center for Biotechnology, Mount Horeb, WI, 2GENEX Cooperative Inc, Shawano, WI.

M100 Allele frequency of β-casein gene in local dairy animals of Pakistan. Ghulam Bilal* and Muhammad Moaen-ud-Din, Laboratories of Animal Breeding and Genetics, Faculty of Veterinary and Animal Sciences, PMAS Arid Agriculture University, Rawalpindi, Rawalpindi, Punjab, Pakistan.

M101 Comparative transcriptomic and iTRAQ proteomic analyses of bovine mammary glands in response to Streptococcus agalactiae-induced mastitis. Huimin Zhang*, Hongrui Jiang, Zhi Chen, Yongjiang Mao, and ZhangPing Yang, College of Animal Science and Technology, Yangzhou University, Yangzhou, China.

M102 Genome-wide association study (GWAS) for bovine respiratory disease in pre-weaned Holstein calves. Allison E. Quick*, Theresa L. Ollivett, Brian W. Kirkpatrick, and Kent A. Weigel, University of Wisconsin, Madison, WI.

Dairy Foods I: Cheese

M104 Effect of feed selenium supplementation on dairy cattle Se transformation and cheese antioxidant activity. Zhixuan Liu1, Yingping Xiao2, Cong Wang3,1, Jianxin Liu1, and Daxi Ren*, 1Institute of Dairy Science, College of Animal Science, Zhejiang University, Hangzhou, Zhejiang, China, 2Institute of Quality and Standard for Agro-products, Zhejiang Academy of Agricultural Sciences, Hangzhou, Zhejiang, China, 3College of Animal Science and Technology, Zhejiang A&F University, Hangzhou, Zhejiang, China.

M105 Impact of inulin on the quality parameters of low-fat Cheddar cheese. Mian S. Murtaza*, Aysha Sameen1, Mian A. Murtaza2, and Umar Farooq1, 1Department of Food Science and Technology, Muhammad Nawaz Sharif University of Agriculture, Multan, Punjab, Pakistan, 2National Institute of Food Science and Technology, University of Agriculture, Faisalabad, Punjab, Pakistan, 3Institute of Food Science and Nutrition, University of Sargodha, Sargodha, Punjab, Pakistan.

M106 Development of a rapid method using near-infrared spectroscopy to quantify starch in shredded mozzarella cheese. Leilany Vázquez-Portalatín* and Tonya C. Schoenfuss, University of Minnesota, Saint Paul, MN.

M107 β-Lactam antibiotics in goat’s milk affecting the characteristics of mature cheeses. Paloma Quintanilla1, María C. Beltrán1, Ana Molina2, Isabel Escriche1, and Maria P. Molina*, 1Universitat Politècnica de València, Valencia, Spain, 2Universidad de Castilla-La Mancha, Albacete, Spain.
Influence of increasing milk protein concentration from 4 to 9% using ultrafiltration on Cheddar cheese pH and moisture.
Mahmoud M. Motawee*2 and Donald J. McMahon1, 1Western Dairy Center, Utah State University, Logan, UT, 2Department of Nutritional Evaluation and Food Sciences, National Organization for Drug Control and Research, Giza, Egypt.

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

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

Dairy Foods II: Microbiology

Selective growth using MRS broth for raw milk microbiome of naturalized Brazilian breeds Curraleiro Pé-Duro and Panta-neiro.
Nayana R. Soares1, Marília C. Sola2, Clarice Gebara*1, Giovana V. Barancelli3, Ozana F. Zaccaroni4, Maria Clorinda S. Fioravanti5, Edmar S. Nicolau6, and Cintia S. Minafra-Rezende1, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2Unified Higher Education Institute, Objetivo Faculty, Goiânia, Goiás, Brazil, 3Department of Agro-Industry, Food and Nutrition, “Luiz de Queiroz” College of Agriculture, University of São Paulo, Piracicaba, São Paulo, Brazil, 4School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

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

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

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

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

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

Effect of freezing and hardening on injured versus intact cells of Listeria in ice cream mix.
Neha Neha*1, Sanjeev Anand2, Brian Kraus1, and Suresh Sutariya2, 1South Dakota State University, Brookings, SD, 2Wells Enterprises Inc., Le Mars, IA.

Enhanced efficacy of nisin loaded zein microcapsules against Listeria monocytogenes in Queso Fresco.
Luis Alberto Ibarra-Sanchez*, Yiming Feng, Youngsoo Lee, and Michael J. Miller, University of Illinois at Urbana-Champaign, Champaign, IL.

High-voltage atmospheric cold plasma on inactivation of Listeria innocua on Queso Fresco cheese.
Zifan Wan*, S. K. Pankaj, Guo Li, and Kevin Keener, Iowa State University, Ames, IA.

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

Addition of Lactobacillus paracasei and Lactobacillus rhamnosus bacteria to yogurts for inhibition of yeast growth and improvement of their quality.
Chul-Hong Kim1, Myoung Soo Nam2, and Young W. Park*1, 1Binggrae Company, Kyuunki-Do, South Korea, 2Chungnam National University, Deajeon, South Korea, 3Fort Valley State University, Fort Valley, GA.
Growth of lactic acid bacteria in milk phospholipids enhances lipolysis and increases the possible absorption in Caco-2 cell line. 
Diana Rocha-Mendoza*, Israel García-Cano, Joana Ortega-Anaya, and Rafael Jiménez-Flores, The Ohio State University, Columbus, OH.

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

Flax seed enhances acid tolerance of Streptococcus thermophilus ST-M5. 
Ian Moppert* and Kayanush Aryana1,2, 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University Agricultural Center, Baton Rouge, LA.

Dairy Foods III

Isolation of protein fractions of serum of milk by preparative disc-electrophoresis. 
V. Yukalo*, O. Tsisaryk, and K. Datsiyshyn, Ternopil Ivan Puľ’uj National Technical University, Ternopil, Ukraine, Lviv National University of Veterinary Medicine and Biotechnology, Lviv, Ukraine.

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

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

Inclusion of ground coffee to dairy cattle rations and its impact on the milk proteome. 
Mallory C. Honan*, Sarah L. Zeger1, David B. Ebenstein1, Ying-Wai Lam2, Jana Kraft1, Richard A. Scuderi1, and Sabrina L. Greenwood1, 1Department of Animal and Veterinary Sciences, The University of Vermont, Burlington, VT, 2Vermont Genetics Network Proteomics Facility, The University of Vermont, Burlington, VT.

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

Effect of different phosphate mixtures and homogenization pressure on the particle size distribution of whole milk. 
Igor Lima de Paula1, Erica Felipe Maurício1, Italo Tuler Perrone1,2, Antonio Fernandes de Carvalho*1, Luiz Fernando Cappa de Oliveira1, and Rodrigo Stephani1, 1Universidade Federal de Vicosa, Vicsa, MG Brazil, 2Universidade Federal de Juiz de Fora, Juiz de Fora, MG Brazil.

Efficacy of local vitamin D-fortified dairy products versus oral vitamin D supplementation in Saudi adolescents. 
Nasser Al-Daghri*, Mohammed Ghouse Ahmed Ansari1, Shaun Sabico1, Yousef Al-Saleh1, Naji Aljohani1, Hanan Alfawaz1, Mohammed Alharbi3, Abdulaziz Al-Othman4, Majed Alokaif1, and Sunil Wimalawansa3, 1King Saud University, Riyadh, Saudi Arabia, 2King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia, 3King Saud University, Riyadh, Saudi Arabia, 4University of New Mexico, Albuquerque, NM.

Influence of milk pH on the manufacture of Licor de Oro, a beverage produced in Chiloé island, Chile. 
Rodrigo A. Ibáñez*1, María F. Muñoz2, Natalia Brossard1, Stefanie Wyhmeister1, Fernando Osorio2, and Einar Vargas-Bello-Pérez2, 1Pontificia Universidad Católica de Chile, Santiago, Chile, 2Universidad de Santiago de Chile, Santiago, Chile, 3School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

Use of the simplex-centroid mixture design to development of whey fermented beverages with buttermilk and Brazilian Cerrado fruit. 
Renata T. Pfrimer*1, Lohanne Damasceno2, Claudio F. Cardoso2, Fernanda A. Freitas2, Eli Regina B. de Souza2, Emmanuel Arnhold2, Edmar S. Nicolau2, and Clarice Gebara1, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil, 3School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.
M134 Effects of polymerized whey protein on goaty flavor and texture properties of goat milk yogurt in comparison with β-cyclodextrin.
Ce Wang1, Cuina Wang1, Feng Gao1, Yanyang Xu1, and Mingruo Guo1,2, 1Jilin University, Changchun, Jilin, China, 2University of Vermont, Burlington, VT, 3Northeast Agriculture University, Harbin, Heilongjiang, China.

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

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

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

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

M140 Effect of storage temperature and protein content on the flowability and morphological characteristics of milk protein concentrate powders.
Karthik Sajith Babu*, Kaliramesh Silveru1, Jayendra K. Amamcharla1, Praveen V. Vadi11, and Kingsly Ambrose1, 1Kansas State University, Manhattan, KS, 2Purdue University, West Lafayette, IN.

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

M142 Management tools for monitoring milk quality in dairy industries.
V. M. Araújo1, A. H. N. Rangel1*, S. B. P. Barbosa1, A. M. V. Batista1, and J. G. B. Galvão Jr.1, 1Universidade Federal Rural de Pernambuco, Recife, PE, Brazil, 2Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, 3Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil.

M143 Refrigerated raw milk quality among dairy processors in northeastern Brazil.
V. M. Araújo1, A. H. N. Rangel1*, S. B. P. Barbosa1, J. G. B. Galvão Jr.1, and A. M. V. Batista1, 1Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, 2Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, 3Universidade Federal Rural do Pernambuco, Recife, PE, Brazil.

M144 Transcriptome analysis revealed that aflatoxin M₁ causes cell cycle arrest in differentiated Caco-2 cells.
X. Y. Bao1, Y. N. Gao1, Jiaqi Wang1*, and Nan Zheng1, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2College of Animal Science and Technology, Huazhong Agricultural University, Wuhan, China.

M145 Combined intestine toxicity effects of aflatoxin (AF)B₁ and AFM₁, in mice.
Muchen Zhang1,2, Nan Zheng1,2, and Jiaqi Wang1*, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

M146 Prevalence, antimicrobial susceptibility, and molecular characterization of Staphylococcus aureus isolated from different raw milks in China.
Huimin Liu1,2, Lu Meng1,2, Lei Dong1,2, Nan Zheng1,2, and Jiaqi Wang1*, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

M147 The effect of furosine on gut microflora in ICR mice model.
Nan Zhao1,2, Huijing Li1,2, Nan Zheng1,2, Jiaqi Wang1*,2, and Jianbo Cheng1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.
Intestinal cells exposed to different thermo treated bovine milk exhibited diverse gene expressive pattern.
Huaigu Yang1,2, Nan Zheng1,2, and Jiaqi Wang1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 3Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 4Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 5State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 6Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Extension Education I

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

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

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

Semillas program: Engaging dairy farm workers’ youth to the dairy industry.
Maristela Rovai*, Donna Bittiker, and Alvaro García, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 24-H Program, South Dakota State University, Brookings, SD.

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

Silage safety: Preventing serious injury and fatality accidents involving machinery.
K. K. Bolsen*1 and R. R. Bolsen2, 1Kansas State University, Manhattan, KS, 2Keith Bolsen Silage Safety Foundation, Austin, TX.

Employee training and updated chemical sanitation may be insufficient for resolution of post-pasteurization contamination in HTST fluid milk plants.
Samuel J. Reichler*1, Sarah I. Murphy1, Tony Erickson2, Nicole H. Martin2, Kathryn J. Boor1, and Martin Wiedmann2, 1Cornell University, Ithaca, NY, 2Ecolab Inc., Eagan, MN.

Survey of top-producing Jersey herds in the United States.
Sarah Y. Morrison*, Kristen M. Glosson1, James. H. Baltz1, Michael F. Hutjens1, and Cari W. Wolfe2, 1University of Illinois, Urbana, IL, 2American Jersey Cattle Association, Reynoldsburg, OH.

Forages and Pastures I

Effects of floury and brown midrib corn varieties treated with foliar fungicide on whole-plant corn silage quality fed to lactating Holstein cows.
Laura J. Wente*1, Maegan E. Weatherly1, Russell T. Pate1, Matt S. Akins2, and Felipe C. Cardoso1, 1University of Illinois, Urbana, IL, 2University of Wisconsin-Madison, Marshfield, WI.

Foliar fungicide application effects on fiber composition of whole plant BMR and floury corn varieties and corn silage ensiled for 0, 30, 90, or 150 days.
Maegan E. Weatherly*, Russell T. Pate1, Laura Hedges1, Santiago Mideros1, Gary M. Fellows1, Matt Akins4, Michael R. Murphy1, and Felipe C. Cardoso1, 1University of Illinois, Department of Animal Sciences, Urbana,IL, 2University of Illinois, Department of Crop Sciences, Urbana,IL, 3B.A.S.E. Corp., Research Triangle Park, NC, 4University of Wisconsin-Madison, Marshfield, WI.
Yield and quality of brown midrib and non-brown midrib corn silage hybrids grown in northern New York over a three-year period.
Michael D. Miller*, Eric O. Young, Kurt W. Cotanch, Catherine S. Ballard, and Rick J. Grant, William H. Miner Agricultural Research Institute, Chazy, NY.

Dry matter yield, nutritive value, and ensilability of triticale harvested at 3 maturity stages and 2 cutting times in Los Altos de Jalisco, Mexico.
Carlos H. Blanco Castellanos*, José J. Olmos Colmenero1, Francisco E. Contreras-Govea2, and Michel A. Wattiaux1,1Departamento de Ciencias Pecuarias y Agrícolas, Centro Universitario de Los Altos de la Universidad de Guadalajara, Tepatitlán, Jalisco, México, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

Effects of growth stage on quality characteristics of triticale forages.
Wayne K. Cobleitz*, Matthew S. Akins1, Kenneth F. Kalscheur1, Geoffrey E. Brink1, and Jason S. Cavadini1,1US Dairy Forage Research Center, Marshfield, WI, 2University of Wisconsin-Madison, Madison, WI, 3US Dairy Forage Research Center, Madison, WI.

Yield and nutritional value of forage sorghum varieties for dairy cattle.

Nutrient composition and fermentation characteristics of sorghum preserved as silage in California.
Jennifer M. Heguy*, Joao Paulo Martins1, Nicholas E. Clark1, and Deanne Meyer1,1University of California Agriculture & Natural Resources, Modesto, CA, 2University of California, Davis, Davis, CA, 3University of California Agriculture & Natural Resources, Tidare, CA.

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

Comparing leaf:stem ratio and stem characteristics between reduced lignin and conventional alfalfas over a growth cycle.
Derek M. Donnelly*, João R. R. Dórea1, Caleb W. Karls2, Daniel M. Schaefer2, Daniel J. Undersander3, and David K. Combs1,1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Animal Science, University of Wisconsin-Madison, Madison, WI, 3Department of Agronomy, University of Wisconsin-Madison, Madison, WI.

Evaluation of a microbial inoculant isolated from ruminal contents on corn silage fermentation parameters.
Ezequias Castillo-Lopez*, Siera Rohde1, Samodha C. Fernando2, and Paul J. Kononoff1,1Universidad Nacional Autonoma de Mexico, Cuautitlan, Mexico, Mexico, 2University of Nebraska-Lincoln, Lincoln, NE.

Nutritional value of the tropical legumes cowpea, lablab, and canavalia.

Growth rate and biomass accumulation of mucuna (Mucuna pruriens), centrosema (Centrosema pubescens), gliciridia (Gliciridia sepium), and leucaena (Leucaena leucocephala).

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

Effect of treating alfalfa fibrous residue silages with corn flour or apple pomace on fermentation quality, nutritive value, and proteolysis.
Yan L. Xue*, Yun Jiang1, Diwakar Vyas1, Lin Sun1, Guo M. Yin1, Yuan Y. Zhang1, Si. B. Liu1, Zhu Yu1, Qi Z. Sun1, and Adegbola T. Adesogan1,1Inner Mongolia Academy of Agriculture and Animal Husbandry Science, Hohhot, Inner Mongolia, China, 2Department of Animal Sciences, University of Florida, Gainesville, FL, 3Department of Animal Science, China Agricultural University, Beijing, China, 4Institute of Grassland Research, Chinese Academy of Agricultural Sciences, Hohhot, Inner Mongolia, China.
Lactation Biology I

M172

SES N2 negatively regulates cell proliferation and casein synthesis by inhibition the amino acid-mediated mTORC1 pathway in cow mammary epithelial cells.

Chaochao Luo1,2,* Shengguo Zhao1,2, Muchen Zhang1,2, Yanan Gao1,2, Qiao Wang1,2, Mark D. Hanigan1,2, Nan Zheng1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 3Department of Dairy Science, Virginia Tech, Blacksburg, VA.

M173

CRISPR/Cas9-mediated stearoyl-CoA desaturase 1 (SCD1) deficiency by NHEJ pathway affects fatty acid metabolism in goat mammary epithelial cells.

Huiben Tian* and Jun Luo, College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, China.

M174

Tea polyphenols protect bovine mammary epithelial cells from hydrogen peroxide-induced oxidative damage by activating the NFE2L2/HMOX-1 pathway.

Yanfen Ma1, Lei Zhao1, Min Gao1, and Juan J. Loor*, 1Institute of Animal Nutrition and Feed, Inner Mongolia Academy of Agriculture and Animal Husbandry Sciences, Hohhot, Inner Mongolia, China, 2Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.

M175

Effect of temporary cessation of milking for 3 days on innate immune components in goat milk.

Naoki Isobe*, Jo Ueda, and Yukinori Yoshimura, Hiroshima University, Hiroshima, Japan.

M176

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

T. F. Fabris*1, A. Skibiel1, J. Laporta1, D. J. McLean2, J. D. Chapman2, and G. E. Dahl1, 1University of Florida, Gainesville, FL, 2Phibro Animal Health Corp., Teaneck, NJ.

M179

In-depth discovery of milk proteomes and detection of biomarkers using SWATH mass spectrometry.

Lorenzo E. Hernández-Castellano*1,2, and Empke Bendixen*, 1Department of Animal Science, Aarhus University–Foulum, Tjele, Denmark, 2Department of Molecular Biology and Genetics, Faculty of Science and Technology, Aarhus University, Aarhus, Denmark.

M180

Palmitic acid increased the gene expression of lipogenic genes from the de novo milk fat synthesis pathway in cultured mammary explants from lactating dairy ewes.

Priscila C. Carraro, Evelyn D. Da Silva, Maurício Camêra, and Dimas E. Oliveira*, Santa Catarina State University, Lages, Santa Catarina, Brazil.

M181

Impact of different methods at dry-off on cure rate and new intramammary infections in the dry period.

A. I. de Prado-Taranilla*, K. Krogh1, A. Pearnt, and A. Antonat, 1Ceva Sante Animale, Libourne, France, 2Dairy Data Warehouse, Assen, the Netherlands.

M182

Distribution of prevalence of cows leaking milk after dry-off in different countries.

A. I. de Prado-Taranilla*, M. Holstege, A. Bach1,4, Y. H. Schukken1, and A. Velthuis2, 1Ceva Sante Animale, Libourne, France, 2GD Animal Health, Deventer, the Netherlands, 3ICREA, Barcelona, Spain, 4Department of Ruminant Production, IRTA, Barcelona, Spain.

Physiology and Endocrinology I

M183

Adaptive responses of Mérinos d’Arles adult ewes submitted to nutritional and β-adrenergic challenges.

Eliel González-Garcia*1, Moutaz Alhamada1, Nathalie Debuss1, Jean-Baptiste Menassol2, Jéssica Gonçalves Vero3, Bruna Barboz1,3, and François Bocquier2, 1SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), INRA, Montpellier SupAgro, CIRAD, Univ Montpellier, Montpellier, France, 2SELMET, Montpellier SupAgro, CIRAD, INRA, Univ Montpellier, Montpellier, France, 3Universidade Estadual de Londrina (UEL), Centro de Ciências Agrárias, Londrina, Paraná, Brazil.

M184

Physiologic responses to feeding rumen-protected glucose to lactating dairy cows.

Julie A. Sauls1,2, Sebasstian Banuelos1,2, Branko Atanasov1,2, Lance H. Baumgard1, Barry J. Bradford1, and Jeffrey S. Stevenson1, 1Kansas State University, Manhattan, KS, 2Ss. Cyril and Methodius University, Skopje, Republic of Macedonia, 3Iowa State University, Ames, IA.

M185

Dose-frequency of prostaglandin F2α treatment of dairy cows exposed to presynchronization and either 5- or 7-d Ovsynch program durations: Ovulatory, luteolytic, and pregnancy risks.

Jeffrey S. Stevenson*, Julie A. Sauls, Luís G. D. Mendonça, and Benjamin E. Voelz, Kansas State University, Manhattan, KS.
Relationship between air and vaginal temperatures in wild type and slick-haired Puerto Rican Holstein cows. Héctor L. Sánchez-Rodríguez* and Katherine Domenech-Pérez, University of Puerto Rico, Mayaguez Campus, Mayaguez, Puerto Rico.

Sodium propionate and sodium butyrate effects on histone deacetylase (HDAC) activity, histone H3 acetylation, and inflammatory gene expression in bovine mammary epithelial cells. Lorrany Galoro da Silva*, Bradley Ferguson2, André Sanches Avila3, and Antonio Faciola1, 1University of Florida, Gainesville, FL, 2University of Nevada, Reno, NV, 3Universidade Estadual do Oeste do Parana, Marechal Candido Rondon, PR, Brazil.

Contribution of hormone-sensitive lipase to adipose tissue lipolysis and its regulation by insulin in periparturient dairy cows. Jenne De Koster1, Rahul Nelli1, Clarissa Strieder-Barboza1, Jonas de Souza2, Adam L. Lock2, and G. Andres Contreras*, Department of Large Animal Clinical Sciences, Michigan State University, East Lansing, MI, Department of Animal Science, Michigan State University, East Lansing, MI.

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

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

The adipocyte marker FABP4 is most prominently induced by combined supplementation of ascorbic acid and bovine serum lipids in cultured bovine adipocytes. Sandra Jurek*, Mansur A. Sandhu*, Martin Kolisek1, Gerhard Sponder2, and Joerg R. Aschenbach1, Institute of Veterinary Physiology, Berlin, Germany, PMAS-Arid Agriculture University, Rawalpindi, Pakistan, Comenius University Bratislava, Bratislava, Slovakia.

Effects of fully acidified close-up diets and dietary calcium content on in vitro innate immune function in transition dairy cows. Xiangfei Zhang1, Kristen M. Glosson*, Scott S. Bascom3, Angie D. Rowson1, and James K. Drackley2, Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chengdu, Sichuan, China, University of Illinois, Department of Animal Sciences, Urbana, IL, Phibro Animal Health Corp., Teaneck, NJ.

Effects of fully acidified close-up diets and dietary Ca content on urinary mineral excretion in transition dairy cows. Kristen M. Glosson*, Xiangfei Zhang2, Scott S. Bascom3, Angie D. Rowson1, and James K. Drackley2, University of Illinois, Department of Animal Sciences, Urbana, IL, Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chengdu, Sichuan, China, Phibro Animal Health Corp., Teaneck, NJ.

Impacts of reducing urine pH prepartum by altering dietary cation-anion difference on physiological and productive responses of Holstein × Gir dairy cows. Rodrigo O. Rodrigues1, Reinaldo F. Cooke2, Silvia M. B. Rodrigues1, Larissa N. Bastos3, Vitória F. S. Camargo1, Kaio S. Gomes1, and José L. M. Vasconcelos**, São Paulo State University (UNESP), School of Veterinary Medicine and Animal Science, Botucatu SP, Brazil, Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture, & Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chengdu, Sichuan, China, Phibro Animal Health Corp., Teaneck, NJ.

Calcemia and risk factors for subclinical hypocalcemia in cows at dry off. Kaspar Krogh*, Nathalie Menudier, Laurianne Meppiel, Jean-François Collin, Camille Mansanet, Gaelle Pagny, Bastian Cuminal, Ana de Prado-Taranilla, Carla Azevedo, and Naomi Isaka, Ceva Sante Animale, Libourne, France.

Hepatic gluconeogenesis is differentially altered by choline and methionine in bovine primary hepatocytes. Tawny L. Chandler*, Sandra J. Bertics1, Barbara A. Barton2, and Heather M. White1, University of Wisconsin-Madison, Madison, WI, Balchem Corp., New Hampton, NY.

M203 **Effect of the forest biomass as bedding material on bacterial counts in compost bedded pack for dairy cows.**

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

M205 **Development of an equation to estimate the enteric methane emissions from Canadian Holstein dairy cows.**
Jose Velarde-Guillén*, Doris Pellerin¹, Chauuki Benchaar², Michel A. Wattiaux¹, and Édith Charbonneau³, *Université Laval, Quebec, QC, Canada, ¹Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, ³University of Wisconsin-Madison, Madison, WI.

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

M207 **Comparison of Holstein and Jersey milk production with a new stochastic animal model.**
M. Li*, V. E. Cabrera¹, and K. F. Reed³, ¹Department of Dairy Sciences, University of Wisconsin, Madison, WI, ³USDA-ARS Dairy Forage Research Center, Madison, WI.

M208 **An assessment of different modelling strategies to predict milk fatty acid content using Fourier-transform infrared spectroscopy.**

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

M210 **Modeling the effects of heat stress in different zones of Spain and the technical and economic impact of cooling systems.**
Oscar R. Espinoza* and Sergio Calsamiglia, *Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.
M211  Using milk somatic cell score to predict of milk yield losses of organic dairy farms in the northeast United States.
J. G. B. Galvão Jr.*, A. H. N. Rangel*, A. F. Brito1, J. B. A. Silva2, A. F. Benson3, A. N. Hafla4, H. M. Darby5, K. J. Soder6, R. Kersbergen7, and V. Brossillon8, 1Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, 2Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, 3University of New Hampshire, Durham, NH, 4Universidade Federal Rural do Semiárido, Mossoró, RN, Brazil, 5Cornell University Cooperative Extension, Cortland, NY, 6USDA-ARS, University Park, PA, 7University of Vermont, St. Albans, VT, 8University of Maine, Orono, ME, 9Ecole Supérieure d’Agricultures, Angers, France.

M212  Characterization of dairy farm management practices for mastitis control by use of multiple correspondence analysis.
Karmella A. Dolecheck*,1, Michael W. Overton1, Tyler B. Mark1, and Jeffrey M. Bewley1, 1University of Kentucky, Lexington, KY, 2Elanco Animal Health, Greenfield, IN, 3CowFocused Housing, Bardstown, KY.

M213  Use of a stochastic simulation model to estimate digital dermatitis, sole ulcer, and white line disease cost per case by severity, incidence timing, and parity group in dairy cattle.
Karmella A. Dolecheck*,1,2, Michael W. Overton1, Tyler B. Mark1, and Jeffrey M. Bewley1, 1University of Kentucky, Lexington, KY, 2Elanco Animal Health, Greenfield, IN, 3CowFocused Housing, Bardstown, KY.

M214  A survey of United States dairy farms dairy hoof care professionals on costs associated with treatment of hoof diseases.
Karmella A. Dolecheck*,1, Roberta M. Dwyer1, Michael W. Overton2, Tyler B. Mark1, and Jeffrey M. Bewley1, 1University of Kentucky, Lexington, KY, 2Elanco Animal Health, Greenfield, IN, 3CowFocused Housing, Bardstown, KY.

M215  A case study on the effect of barn type on milk yield and income over feed cost in commercial dairy farms in Argentina.
F. Bargo*,1, J. L. Monge1, E. Giugge2, and C. Chiavassa2, 1Universidad de Buenos Aires, Buenos Aires, Argentina, 2Grupo Chiva-vassa, Carlos Pellegrini, Argentina, 3Universidad Nacional de Villa María, Villa María, Argentina.

Reproduction I

M216  Impact of estrous expression on progesterone concentrations and its association with fertility.
A. M. L. Madureira*,1, T. A. Burnett1, J. L. M. Vasconcelos1,2, and R. F. A. Cerri1, 1University of British Columbia, Vancouver, BC, Canada, 2University of Sao Paulo State University, Botucatu, Sao Paulo, Brazil.

M217  Fertility response to commercially available GnRH products in lactating cows synchronized with the Double-Ovsynch protocol.
Max Luchterhand1, C. A. Gamarra1,2, Rodrigo S. Gennari1,2, Jerry N. Guenther1,2, Paulo D. Carvalho*1, Alexandre H. Souza1,2, and Rafael V. Barletta1,2,1Elusive Hill dairy, Madison, WI, 2Independent Dairy Consultant, Madison, WI, 3Animal Reproduction Department, VRA-USP University, Sao Paulo, SP, Brazil.

M218  Reproductive performance of lactating dairy cows managed with the Short-Resynch or the Day25-Resynch protocol.
Robert Wijma*,1, Martin M. Pérez, Emily M. Sitko, Matteo Scarbolo, Froyona Sosa Hernandez, and Julio O. Giordano, Cornell University, Ithaca, NY.

M219  Effects of intrauterine infusion of seminal plasma at artificial insemination on fertility of lactating Holstein cows.
William G. Ortiz*,1, Jason A. Rizo1, Luciano R. Carvalheira1, Eliab C. Estrada1, Bo R. Harstine1, John J. Bromfield1, and Peter J. Hansen1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Clinica e Cirurgia Veterinárias, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil, 3Select Sires Inc., Plain City, OH.

M220  Association among calving season, milk yield, and body condition score during the dry period and pregnancy at first artificial insemination in Argentinian dairy herds.
Pedro Melendez*,1, Fernando Bargo1,2, Gonzalo Tuñon1,2, and Juan Grigera4, 1College of Veterinary Medicine, University of Missouri, Columbia, MO, 2Universidad de Buenos Aires, Buenos Aires, Argentina, 3INIA, Uruguay, 4Private consultant, Argentina.

M221  Maximizing inseminations at detected estrus for second and greater services in lactating dairy cows.
Magdalena Masello*,1, Bob Ceglowski2, Mark J. Thomas1, and Julio O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Dairy Health and Management Services, Lowville, NY.

M222  Association between hoof lesions and fertility of dairy cows.
Bobwealth O. Omontese*,1, Roger Bellet-Elias1, Almudena Molinero1, Giovana D. Catandi1, Renan Casagrande1, Zelmar Rodriguez2, Rafael S. Bisinotto2, and Gerard Cramer1, 1Department of Veterinary Population Medicine, University of Minnesota, St. Paul, MN, 2Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL.
Prevalence of purulent vaginal discharge in dairy herds depends on timing but not method of diagnosis—A meta-analysis.

Alessandro Ricci1, Cristian Reed2, and Osvaldo Pascottini3, 1DPT Scienze Veterinarie, University of Torino, Turin, Italy, 2USDA-Agricultural Research Service, US Dairy Forage Research Center, Madison, WI, 3Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

Bellowing and vaginal discharge as secondary symptoms of estrus detection for successful insemination of dairy cattle in tiestall barns in a tropical environment.

Siribhorn Kanwichai1, Sasithorn Panasophonkul2, P. L. A. M. Vos1, and Wittaya Suriyasathaporn1, 1Department of Food Animal Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand, 2Departments of Companion Animal and Wildlife Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand, 3Departments of Farm Animal Health, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands.

Ruminant Nutrition I

Feeding regime does not affect estimation of daily urine output but it affects estimation of total purine derivatives excretion in spot urinary sampling.

Kristina Kljak1, Felipe Pino2, and Arlyn J. Heinrichs3, 1Department of Animal Nutrition, Faculty of Agriculture, University of Zagreb, Zagreb, Croatia, 2Department of Animal Science, The Pennsylvania State University, University Park, PA.

Rumen-protected lysine prototype supplementation increased milk production in lactating dairy cows.

Hannah R. Bailey1, Jeffrey D. Kaufman1, Barbara Barton2, Clay Zimmerman2, Kari Estes2, and Agustin G. Rius1, 1University of Tennessee, Knoxville, TN, 2Balchem Corp., New Hampton, NY.

Ingestive behavior of Holstein dairy cows grazing temperate pasture versus TMR fed in confinement: daily pattern.

J. P. Soutto1, P. Giles2, A. L. Astessiano3, M. Carriquiry4, P. Chilibroste1, and A. I. Trujillo5, 1Facultad de Agronomía, UDELAR, Montevideo, Uruguay, 2Facultad de Agronomía, UNCPBA, Azul, Argentina.

Ingestive behavior of Holstein dairy cows grazing temperate pasture vs. TMR fed in confinement: First daily eating event.

A. I. Trujillo1, J. P. Soutto2, P. Giles2, A. L. Astessiano3, M. Carriquiry4, and P. Chilibroste1, 1Facultad de Agronomía, UDELAR, Montevideo, Uruguay, 2Facultad de Agronomía, UNCPBA, Azul, Argentina.

Effects of pulse-dose intraruminal butyrate infusion on glucagon-like peptide 2 in dairy calves.

Bayissa Hatew1,2, Yudai Inabu1, Toshihisa Sugino1, and Michael Steele1, 1University of Alberta, Edmonton, AB, Canada, 2Hiroshima University, Graduate School of Biosphere Science, The Research Center for Animal Sciences, Higashi-Hiroshima, Hiroshima, Japan.

Effect of corn silage with highly digestible starch on dry matter intake, daily gain, milk production and blood component of lactating cows.

Naruhisa Nishizawa1, Kei Obata1, Hiroshi Kubozono1, Akito Saegusa2, and Yusuke Murai2, 1ZEN-RAKU-REN, Nishi-shirakawa, Fukushima, Japan, 2Kaneko Seeds Co. Ltd. Kunisada Breeding Station, Isesaki-City, Gunma, Japan.

Effects of feeding purple corn silage (Zea mays L.) on productivity and antioxidant function of lactating cows.

Takashi Matsuba1, Hiroshi Kubozono2, Akito Saegusa2, Kei Obata2, Kazumi Gotoh3, Kazuyoshi Miki4, and Takanori Akiyama5, 1ZEN-RAKU-REN, Nishi-shirakawa, Fukushima, Japan, 2Nagano Animal Industry Experiment Station, Nagano, Japan, 3Takii & Co. Ltd, Kyoto, Japan.

Change in feeding strategy affects intake, rumination behavior, and ruminal pH pattern in dairy cows.

Damiano Cavallini1, Ludovica Mammi1, Alberto Palmonari1, Mattia Fustini1, Jud Heinrichs2, and Andrea Formigoni3, 1University of Bologna, Ozzano Emilia, BO, Italy, 2Pennsylvania State University, University Park, PA.

Effect of age and physical form of oats within calf starter on hepatic enzyme expression in pre-weaned dairy calves.

Ghazanfar Ali Chishti1, Issac Salfer1, Javier Suarez-Mena2, and Arlyn Jud Heinrichs1, 1The Pennsylvania State University, University Park, PA, 2ProVimi North America, Brookville, OH.

The factors affecting the milk urea nitrogen concentration in Chinese Holstein cows.

Hongrui Jiang, Mingxun Li, Zhi Chen, Zhanglei Yang, and Huimin Zhang, College of Animal Science and Technology, Yangzhou University, Yangzhou, Jiangsu, China.

Assessing three levels of a rumen-protected methionine prototype on dairy cow performance.

Amanda M. Barnard1,2, MacKenzie Conklin1, Kari Estes2, Barbara A. Barton2, Clay Zimmerman2, and Tanya F. Gressley1, 1Department of Animal and Food Sciences, College of Agriculture and Natural Resources, University of Delaware, Newark, DE, 2Balchem Corp., New Hampton, NY.
Validating and optimizing spot sampling of urine to estimate urine output using creatinine in dairy cows.
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Effect of protein supplementation on performance of crossbred dairy cows grazing tropical pasture.
Jose Antonio Freitas*; Ciro Amiral Bittencourt1, Alexandre Michelon Herzog1, and Veridiana Lourenco Daley2, 1Federal University of Parana, Palotina, Brazil, 2University of Kentucky, Lexington, KY.

The effect of fructose infusion on dry matter intake in dairy cattle.
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Stability of different rumen-protected lysine products in total mixed rations.
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Use of indirect calorimetry to study energy utilization in lactating Jersey dairy cattle consuming distillers dried grains with solubles or canola meal.
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Palatability of total mixed rations containing 3-nitrooxypropanol for lactating dairy cows.
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Exogenous enzymes on performance and rumen function of mid-lactation dairy cows.
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Effects of microalgae on intake and milk yield, composition and fatty acids profile of dairy cows.
Julia Avansi Marques1, Tiago Antônio Del Valle1, Lucas Ghedin Ghizzi1, Mauro Sergio Silva Dias1, Alanne Tenório Nunes1, Nathalia Trevisan Scognamiglio Grigoletto1, Larissa Schneider Gheller1, Tássia Barrera de Paula and Silva1, Elissandra Maiara de Castro Zilio1, Guilherme Gomes da Silva1, Leandro Kuritza2, and Francisco Palma Rennó*1, 1Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil, 2Alltech do Brasil, Aracáuria, Paraná, Brazil.

Intake, digestibility and milk production in mid-lactation dairy cows fed exogenous enzymes.
Elissandra Maiara de Castro Zilio1, Tiago Antônio Del Valle1, Lucas Ghedin Ghizzi1, Mauro Sergio Silva Dias1, Alanne Tenório Nunes1, Nathalia Trevisan Scognamiglio Grigoletto1, Guilherme Gomes da Silva1, Larissa Schneider Gueller1, and Francisco Palma Rennó*1, 1Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil, 2Alltech Inc., Nicholasville, KY.

Supplementing aluminosilicate clay on the reduction of aflatoxin M1 in milk and biomarkers of liver function in dairy cows.
Emily H. Branstad*, Carrie S. McCarthy1, Brooke C. Dooley1, Sydney M. Rous1, Carlos Domenech1, Julia Pie1, George E. Rottmann1, Erin Bowers1, Lance H. Baumgard1, and Hugo A. Ramirez-Ramirez2, 1Iowa State University, Ames, IA, 2Biovet S.A, Tarragona, Spain, 3University of Missouri, Columbia, MO.

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

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

The effect of dietary supplementation of yeast culture on the lactation performance of crossbred dairy cattle.
Ellisa M. Jimenez*, Lea A. Kinman1, William B. Smith1, Shelby A. Armstrong1, and Barbara W. Jones1, 1Department of Animal Science and Veterinary Technology, Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX, 3Phibro Animal Health, Teaneck, NJ.
Effect of betaine supplementation on total-tract digestibility and production performance in mid-lactating Holstein dairy cows.
Hao-Che Hung*, Chia-Yu Tsai, Gwinyai Chibisa, Mireille Chahine, Mark McGuire, and Pedram Rezamand. 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID; 2Twin Falls Research and Extension Center, Twin Falls, ID.

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

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

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

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

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

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

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

Linear relationships between abomasal infusions of histidine and plasma histidine and histidine metabolites.

Influence of rumen-protected amino acids supplementation pre- and postpartum on lactation performance by dairy cows.

Methionine and choline supply alter transmethylation, transulfuration, and CDP-choline pathways to different extents in primary dairy cow hepatocytes.
Zheng Zhou*, Yuanfei Zhou, and Juan J. Loo, 1University of Illinois, Urbana-Champaign, Urbana, IL; 2Clemson University, Clemson, SC; 3Huazhong Agricultural University, Wuhan, Hubei, China.

In vivo evaluation of a new rumen-protected methionine supplement.
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Predicting weekly calf starter intake by measuring calf starter intake once, twice, or three times a week.
Yu Liang*, Emily Davis, Tyler Batchelder, and Michael Ballou, Texas Tech University, Lubbock, TX.

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

In sacco evaluation of the effect of a source of slow release urea on dry matter, nitrogen and NDF digestibility.
Colm Moran, Jason Keegan, Sini Salomaa, Anne Koontz*, and Juha Apajalahti. 1Alltech SARL, Vire, France; 2Allmetrics Ltd, Espoo, Finland; 3Alltech Inc., Nicholasville, KY.
Effect of microalgae on rumen microbiota and feed digestibility using an in vitro fermentation model.
Juha Apajalaiti1, Osmo Siikkanen1, Anne Koontz*2, Jason Keegan3, and Colm Moran3, 1Alimetrics, Espoo, Finland, 2Alltech Inc., Nicholasville, KY, 3Alltech S&RL, Vire, France.

Effect of Aurantiochytrium sp. microalgae on rumen fermentation, microbial population and milk fatty acid profile.
Colm Moran3, Teemu Rintillä4, Jason Keegan4, Anne Koontz*5, and Juha Apajalahti6, 1Alltech S&RL, Vire, France, 2Alimetrics, Espoo, Finland, 3Alltech Inc., Nicholasville, KY.

Effect of physical form and nutrient content of calf starter on growth and development.
David Vagnoni*1, Christine Soussa1, Jacqueline Aenile1, and Mike Messman1, 1California Polytechnic State University, San Luis Obispo, CA, 2Cargill Animal Nutrition, Elk River, MN.

Towards the compositional prediction of the ruminal microbial community using temporal modeling in healthy and milk depressed states.
Cameron Martino*1, Grant Gogel1, James Gaffney1, Alfonso Lago2, and Mallory Embree1, 1Ascus Biosciences, San Diego, CA, 2DairyExperts Inc., Tulare, CA.

Influence of supplemental copper and selenium source on reproductive parameters, milk yield and composition in Normando dairy cattle.
Pedro Rodríguez-Hernández*, Hernan Laviano-Medina, Jairo Pardo-Guzman, Clemencia Fandino De Rubio, and Roman Castaneda-Serrano, Universidad del Tolima, Ibagué, Tolima, Colombia.

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

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

Associations between ruminal and reticular pH during induction and recovery from subacute ruminal acidosis in dairy cows.
Eveline Sandri1, Yvon Couture2, Rachel Gervais1, Liliana Fadul-Pacheco3, Janie Levesque1, and Daniel Rico*, 1CRSAD, Deschambault, QC, Canada, 2Université de Montréal, Saint-Hyacinthe, QC, Canada, 3Université Laval, Quebec, QC, Canada, 4Valacta, Ste-Anne-de-Bellevue, QC, Canada, 5Université McGill, Ste-Anne-de-Bellevue, QC, Canada.

Effect of rumen-bypass flaxseed supplementation for 8 weeks on milk production and milk fatty acid composition in Jersey cows.
Katherine Swanson1, Sarah Akers*2, Randi Wilson3, Mark Keller1, Lisbeth Goddik1, Gita Cherian1, Russell Day2, and Gerd Bobe3, 1Oregon State University, Corvallis, OR, 2N, Tualatin, OR.

The relationship between circulating ceramides, plasma fatty acids, and adipose tissue measures of inflammation and lipolysis.
William A. Myers*1, J. Eduardo Rico1, Daniel E. Rico2, Qi Zeng3, Jonas de Souza4, Adam L. Lock4, P. Yvan Chouinard2, G. Andres Contreras1, Rachel Gervais1, and Joseph W. McFadden1, 1Cornell University, Ithaca, NY, 2Université Laval, Quebec, QC, Canada, 3West Virginia University, Morgantown, WV, 4Michigan State University, East Lansing, MI.

A lipidomic analysis of bovine liver during metabolic disease.
Sina Saed Samii1, Yu Zhang2, William A. Myers*1,2, Ester Grilli1, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV, 3University of Bologna, Bologna, Italy.

Metabolic profile of Holstein heifers fed carinata meal compared with canola meal and a control diet.
Karla Rodriguez-Hernandez*1,2, Jill L. Anderson1, Jeffrey A. Clapper1, and George A. Perry3, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Matamoros, Coahuila, México, 3Animal Science Department, South Dakota State University, Brookings, SD.
M278 Effects of replacing dietary starch with digestible NDF at two agitation speeds on fiber digestibility and fermentation parameters in continuous culture fermentors.
Haley E. Johnson*, Yan Sun, Gladys E. Margaria, Paola Piantoni, Antoon A. A. Jacobs, Neva A. Nachtrieb, Glogerley T. Sales, and Guillermo F. Schroeder, Cargill Animal Nutrition Innovation Campus, Elk River, MN.

M279 Inhibition of serine palmitoyltransferase prevents palmitic acid-induced ceramide synthesis in bovine primary hepatocytes.
Joseph W. McFadden*, 2,1, J. Eduardo Rico1, Sophia J. Erb2, and Heather M. White3, 3Cornell University, Ithaca, NY, 2University of Wisconsin, Madison, WI.

M280 The effect of feeding zeolite A during the prepartum period on serum mineral concentrations in multiparous Holstein cows.
Allison L. Kerwin*, 2,1, Charlene M. Ryan1, Brittany M. Leno1, Morten Jakobsen1, Per Theilgaard1, and Thomas R. Overton1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Protekta Inc., Lucknow, ON, Canada, 3Vitfoss, Graasten, Denmark.

M281 The effect of feeding zeolite A during the prepartum period on peripartum performance in multiparous Holstein cows.
Allison L. Kerwin*, 2,1, Charlene M. Ryan1, Brittany M. Leno1, Morten Jakobsen1, Per Theilgaard1, and Thomas R. Overton1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Protekta Inc., Lucknow, ON, Canada, 3Vitfoss, Graasten, Denmark.

M282 Impact of a direct-fed microbial blend on performance of early lactation dairy cows.
Devan M. Paulus Compart* and Theodore P. Karnezos, PMI Nutritional Additives, Shoreview, MN.

M283 Mycotoxin mitigation on commercial farms when feeding Equalize Dairy.
Kayla M. Hultquist* and David P. Casper, Furst-McNess Company, Freeport, IL.

M284 Milk enterolactone concentration in response to sucrose and flaxseed oil supplementation to dairy cows fed flaxseed meal.
Caren Paludo Ghedini, Andre Fonseca de Brito*, Kathleen Krieger, and Gianna Tempera, Department of Biological Sciences, University of New Hampshire, Durham, NH.

M285 Meta-analysis of the use of canola meal in diets for dairy cows.

M286 Effect of prepartal maternal diets supplemented with essential fatty acids and their preweaned calves on performance of the newborn calf.
Alireza Jolazadeh1, Tahereh Mohammadabadi1, Mehdi Dehghan-Banadaky2*, Morteza Chaji2, and Miriam Garcia1, 1Department of Animal Science, Khuzestan Ramin Agricultural and Natural Resources University, Mollasani, Ahvaz, Iran, 2Department of Animal Science, Campus of Agriculture and Natural Resources, University of Tehran, Karaj, Iran, 3Department of Animal Science and Industry, Kansas State University, Manhattan, KS.

M287 Effect of camelina meal and camelina expeller on rumen microbial fermentation and nutrient flow in a continuous culture system.
Hector Salas*, Lorena Castillejos, Montserrat Lopez-Suarez, and Alfred Ferret, Animal Nutrition and Welfare Service (SNIBA), Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.

M288 Repeated inoculation of young calves failed to modulate rumen microbiota consistently but lowered diarrhea.
Lingling Wang1, Lu Ma2*, Xin Zhang1, Jianchu Xu2,3, Zhongtang Yu1, and Dengpan Bu4*, 1Department of Animal Sciences, The Ohio State University, Columbus, OH, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 3CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 4Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China.

M289 Effects of selenium source on, performance and antioxidant status in lactating dairy cows during oxidative stress-inducing conditions.
Lingling Sun1, Shengtai Gao1, Kun Wang1, M. V. Sanz Fernandez4, L. H. Baumgard5, and Dengpan Bu2*, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 3Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China, 4Comparative Physiology Group, SGIT-INIA, Madrid, Spain, 2Department of Animal Science, Iowa State University, Ames, IA.

M290 Effects of rumen-protected methionine supplementation on dairy cows during early postpartum.
Tainara C. Michelotti1, Hendyel A. Pacheco1, Fernanda Lopes2, and Rodrigo de Almeida*, 1Universidade Federal do Paraná, Curitiba, PR, Brazil, 2Adisseo South America, São Paulo, SP, Brazil.
M291 Characterization of sphingomyelin in bovine lipoproteins during the peripartum.
Amanda N. Davis1,2, J. Eduardo Rico1,2, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

M292 Application of fast protein liquid chromatography to characterize bovine lipoproteins during the periparturient period.
Amanda N. Davis1,2, J. Eduardo Rico1,2, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

M293 Effect of washing method, grinding size, and the determination of an undegraded fraction on in situ effective ruminal disappearance and disappearance rate of starch in mature corn grain.
T. Fernandes1,2, C. L. S. Ávila1, M. N. Pereira1, and L. F. Ferraretto*, 1University of Florida, Gainesville, FL.

L. M. Krentz1, L. F. Ferraretto*,2, and R. D. Shaver1, 1Vita Plus Corp., Madison, WI, 2University of Florida, Gainesville, FL, 3University of Wisconsin, Madison, WI.

M295 Evaluating the impact of Bovamine on performance, nutrient digestibility, and digestive function in lactating dairy cows.
MacKenzie Conklin*,1, Stephanie Polukis1, Amanda Barnard1, Karl Nestor2, Limin Kung3, and Tanya Gressley4, 1University of Delaware, Newark, DE, 2Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark.

M296 The effects of rumen degradable starch and fiber on differential gene expression of the rumen epithelium.
Linda Beckett*, Andrea Bedford, Claire Gleason, Doug Liebe, Taylor T. Yohe, Kristy M. Daniels, and Robin R. White, Virginia Tech, Blacksburg, VA.

M297 Effect of palmitic acid-enriched supplements with different levels of fatty acid peroxidation on short-term feed intake and production responses of lactating dairy cows.
Arnulfo Pineda* and Adam L. Lock, Michigan State University, East Lansing, MI.

M298 Effects of dietary undigested and physically effective neutral detergent fiber on ruminal pH, volatile fatty acids, and ruminal digesta characteristics of lactating dairy cows.
Wyatt A. Smith*,1, Kyoei Ishida2, Jeffrey W. Darrah1, Heather M. Dann1, Catherine S. Ballard1, Michael D. Miller3, and Rick J. Grant1, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2ZEN-NOH National Federation of Agricultural Cooperative Associations, Japan.

M299 Immunoactivation is related to low plasma arginine and branched-chain amino acid concentrations in lactating dairy cows.

M300 Effects of two endomicrobial supplement combinations on Holstein heifers milk composition and yield.
Jordan Embree*,1, Justin Wong1, Miranda Striluk1, James Gaffney1, Grant Gogel1, Cameron Martino1, Terry TerHune2, and Mal-lory Embree1, 1Ascus Biosciences, San Diego, CA, 2HMS Veterinary Development, Tulare, CA.

M301 Supplementation of Red Propolis for dairy calves: effects on performance, health and metabolism.
Giovana S. Slanzon, Ariany F. Toledo, Ana P. Silva, Marcos D. Silva, Marina G. Coelho, and Carla Maris M. Bittar*, Depart. Of Animal Sciences, College of Agriculture Luiz de Queiroz (ESALQ), University of Sao Paulo, Piracicaba, SP, Brazil.

M302 Investigating a novel source of nutritional selenium for ruminant animals.
K. Nedelkov1, C. M. M. R. Martins2, X. Chen1, A. Melgar4, M. T. Harper*,2, S. Räisänen4, J. Oh4, E. H. Wall6, and A. N. Hristov4, 1Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria, 2School of Veterinary Medicine and Animal Science, University of Sao Paulo, Pirassununga, Brazil, 3College of Pastoral Agriculture Science and Technology, Lanzhou University, Gansu, China, 4Department of Animal Science, The Pennsylvania State University, University Park, PA, 5Pancosma, Geneva, Switzerland.

M303 Effects of exogenous amylase on in vitro ruminal digestion kinetics of whole-crop corn silages harvested in late maturity stage.
Abias S. Silva1, Thierry R. Tomich2, Márcio S. Pedreira1, Fernanda S. Machado1, Mariana M. Campos2, Cristina S. Cortinhas*,1, Tiago S. Acedo1, João P. P. Rodrigues4, and Luiz G. R. Pereira1, 1State University of Southwestern Bahia, Itapetinga, BA, Brazil, 2Embrapa Dairy Cattle, Juiz e Fora, MG, Brazil, 3DSM Produtos Nutricionais Brasil SA, São Paulo, SP, Brazil, 4Federal University of São João Del Rey, São João Del Rey, MG, Brazil.
M304 Effects of exogenous amylase and essential oils in cross-breed dairy cows diets: Energy use, methane production, and blood parameters.
Leile D. R. Freire1, Thierry R. Tomich2, Alexandre L. Ferreira2, Fernanda S. Machado2, Mariana M. Campos2, Cristina S. Cortinhas3, Tiago S. Acedo2, Luis F. M. Tamassia3, Márcio S. Pedreira3, and Luiz G. R. Pereira2, 1State University of Southwestern Bahia, Itapetinga, BA, Brazil, 2Embrapa Dairy Cattle, Juiz de Fora, MG, Brazil, 3DSM Produtos Nutricionais Brasil SA, São Paulo, SP, Brazil.

M305 Validating intrinsic markers and optimizing spot sampling frequency to estimate fecal outputs.
Dennis L. Morris*, Lucas R. Rebelo, Phyllis A. Dieter, and Chanhee Lee, Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH.

M306 Frequency of diet delivery to dairy cows: Effect on methane emissions from stored manure.
Fadi Hassanat*, Chirine Cherif, and Chaouki Benchaar, Sherbrooke Research and Development Center, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.

M307 Frequency of diet delivery to dairy cows: Effect on enteric methane emissions.
Chirine Cherif*, Fadi Hassanat*, Rachel Gervais2, and Chaouki Benchaar2, 1Sherbrooke Research and Development Center-Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 2Département des Sciences Animales, Université Laval, Québec, QC, Canada.

M308 A field study on prevention of subclinical hypocalcaemia in dairy cows supplemented synthetic aluminum silicate or anionic salts in late pregnancy.
Theilgaard Per* and Jakobsen Morten1, 1Vitfoss, Graaisten, Denmark, 2Proteka Inc., Ontario, Canada.

M309 In vitro fermentation parameters and gas production in high producing dairy cows diets with yeast and lactic acid bacteria as probiotics.
Hugo F. Monteiro*, Andressa Faccenda1,2, Ana L. J. Lelis1, Andre S. Avila2,3, Virginilia L. N. Brandao2, Xiaoxia Dai2, Lorryn G. Silva1, and Antonio P. Faciola1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Animal Sciences, State University of Maringa, Maringa, PR, Brazil, 3Department of Animal Sciences, State University of Western Parana, Marechal Candido Rondon, PR, Brazil.

M310 Pre- and post weaning performance and health of dairy calves fed milk replacers formulated with 5 or 10% levels of spray-dried bovine plasma.
David M. Ziegler*, Hugh Chester-Jones1, Ronelle M. Blome1, and David R. Wood1, 1University of Minnesota, Waseca, MN, 2Animix LLC, Juneau, WI.

M311 Effects of feeding wood kraft pulp on preventing subacute ruminal acidosis in cattle.
Shigeru Sato*, Yo-han Kim1, Shiro Kushibiki2, and Kei-ichiro Kizaki3, 1Cooperative Department of Veterinary Medicine, Iwate University, Morioka, Iwate, Japan, 2National Institute of Livestock and Grassland Science, Tsukuba, Ibaraki, Japan.

M312 Evidence of intraflock variability in the feed efficiency of lactating Lacaune dairy ewes.
Eliel González-Garcia*, João Paulo Dos Santos1, and Philippe Hassoun1, 1INRA SELMET (Systèmes d’Élevage Méditerranéens et Tropicaux), Montpellier, France, 2Faculty of Veterinary, Universidade Federal do Pará (UFPA), Castanhal, PA, Brazil.

M313 Weaning age affects rumen fermentation and bacterial communities of Hu lambs.
Huiling Mao*, Yingli Xu1, Chong Wang2, and Zhongtang Yu1, 1College of Animal Science and Technology, Zhejiang A and F University, Lin’an, China, 2Department of Animal Sciences, The Ohio State University, Columbus, OH.

M314 Feed processing temperature affects lactational performance.
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M315 Non-linear relationship study between altered carbohydrate traits in hull-less barley (Hordeum vulgare L.) and predicted truly absorbed nutrient supply to dairy cattle.
Baoli Sun, Basim Refat, Manji Sun, and Peiqiang Yu*, Department of Animal and Poultry Science, College of Agricultural and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada.

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

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

Small Ruminant I

Biohydrogenation patterns in digestive contents of lambs fed babassu or buriti oils.
Nítao André Farias Machado¹, Michelle de Oliveira Maia Parente¹, Rui José Branquinho Bessa², Henrique Nunes Parente¹, Susana Paula Alves², Grazielle Silva Oliveira**, Anderson de Moura Zaníne¹, Daniele Ferreira de Jesus¹, Leilson Rocha Bezerra³, Danielle de Oliveira Maia³, and Luana França Anjos³, ¹Universidade Federal do Maranhão, Chapadinha, Maranhão, Brazil, ²Universidade de Lisboa, Lisboa, Portugal, ³Universidade Federal de Campina Grande, Patos, Paraíba, Brazil.

Assessment of nutrient digestibility in goats fed diets with increasing levels of babassu mesocarp flour.

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

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

Effect of a blend of artificial sweetener and capsicum on productive performance and blood profile in lambs.
Xianjiang Chen¹, Krum Nedelkov², Jooppyo Oh***, Michael Harper¹, Emma Wall⁴, and Alexander Hristov³, ¹Lanzhou University, Lanzhou, Gansu, China, ²Trakia University, Stara Zagora, Bulgaria, ³The Pennsylvania State University, University Park, PA, ⁴Pancosma, Geneva, Switzerland.

Effect of algae supplementation on milk fatty acid profile in lactating dairy goats.
Ping Wang*, Yan Xue², Anne Koontz², Xueying Zhang¹, and Jun Luo¹, ¹Alltech-NWAFU Animal Science Research Alliance, College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, China, ²Alltech China, Chaoyang District, Beijing, China.

Teaching/Undergraduate and Graduate Education

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

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

ADSA Graduate Student Dairy Foods Oral Competition
Chair: Rani Govindasamy-Lucey, Center for Dairy Research, University of Wisconsin-Madison
Room 200 DE

9:30 AM 16 Efficiency of ceramic microfiltration removal of whey protein from sweet whey.
Brandon Carter*1, David Barbano2, and MaryAnne Drake1, 1North Carolina State University, Raleigh, NC, 2Cornell University, Ithaca, NY.

9:45 AM 17 Concentration of acid whey from Greek-style yogurt using a combination of reverse osmosis and forward osmosis.
Pedro Menchik* and Carmen Moraru, Cornell University, Ithaca, NY.

10:00 AM 18 Feasibility of front-face fluorescence spectroscopy as a tool to understand protein leak during dairy ultrafiltration.
Yizhou B. Ma* and Jayendra K. Amamcharla, Food Science Institute, Animal Sciences and Industry, Kansas State University, Manhattan, KS.

10:15 AM 19 Transcriptomics characterization of genes involved in exopolysaccharide production in Streptococcus thermophilus ASCC1275 under the influence of various sugars.
Aparna Padmanabhan*, Qinglong Wu, and Nagendra P. Shah, The University of Hong Kong, Hong Kong.

10:30 AM 20 Maintaining a high level of intact casein in Cheddar cheese during aging.
Brittney M. Riebel*1, Selvarani Govindasamy-Lucey2, John J. Jaeggi2, Mark E. Johnson2, and John A. Lucey1,2, 1University of Wisconsin-Madison, Madison, WI, 2Center for Dairy Research, Madison, WI.

10:45 AM Break

11:00 AM 21 Preparation of a non-surface-active solution from fluid milk for interfacial experiments of milk fat globule membrane polar lipids.
Luis M. Real Hernandez* and Rafael Jimenez Flores, The Ohio State University, Columbus, OH.

11:15 AM 22 Tracking Listeria survival at different stages of ice cream manufacture.
Neha Neha* and Sanjeev Anand, South Dakota State University, Brookings, SD.

11:30 AM 23 Subcritical hydrolysis of ice cream wastewater: Modeling and hydrolyzates properties.
Maryam Enteshari* and Sergio Martinez-Monteagudo, South Dakota State University, Brookings, SD.

11:45 AM 24 Predicting quality attributes of yogurt-ice cream through fluorescence spectroscopy.
Niaz Muhammad*1, Amna Sahar2,2, Nuzhat Huma1, Ayesha Sameen1, and Ubaid Rahman1, 1National Institute of Food Science and Technology (NIFSAT), Faculty of Food, Nutrition and Home Sciences (FFNHS), University of Agriculture Faisalabad (UAF), Faisalabad, Pakistan, 2Department of Food Engineering, Faculty of Agricultural Engineering, UAF, Faisalabad, Pakistan.

12:00 PM 25 Predicting butter adulteration with Fourier transform infrared spectroscopy and multi-variant analysis.
Amna Sahar*1,2, Muhammad Usman Akram1, Ubaid Rahman1, Muhammad Azam Khan2, Muhammad Issa Khan1, and Imran Pasha1, 1National Institute of Food Science and Technology (NIFSAT), Faculty of Food, Nutrition and Home Sciences (FFNHS), University of Agriculture Faisalabad (UAF), Faisalabad, Pakistan, 2Department of Food Engineering, Faculty of Agricultural Engineering, UAF, Faisalabad, Pakistan.
9:30 AM 26 Intramammary infection in growing, nonlactating mammary glands. Benjamin D. Enger*1, Carly E. Crutchfield1, Taylor T. Yohe1, Kellie E. Enger1, Stephen C. Nickerson2, Catherine L. M. Parsons1, and R. Michael Akers3, 1Virginia Polytechnic Institute and State University, Blacksburg, VA, 2University of Georgia, Athens, GA.

9:45 AM 27 Genetic analysis of subclinical mastitis resistance in early lactation in first-parity cows. Saranya G. Narayana*1,2, Filippo Miglior2,3, Syed A. Naqvi1, Francesca Malchiodi2, Pauline Martin2, and Herman W. Barkema1, 1Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 2CGIL, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 3Canadian Dairy Network, Guelph, ON, Canada.

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


10:30 AM 30 Metabolic profile of Holstein heifers fed carinata meal compared with canola meal and a control diet. Karla Rodríguez-Hernandez*1,2, Jill L. Anderson1, Jeffrey A. Clapper3, and George A. Perry3, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Matamoros, Coahuila, México, 3Animal Science Department, South Dakota State University, Brookings, SD.

10:45 AM 31 Low-density lipoprotein ceramide accrual develops with steatosis, hyperlipidemia, and insulin antagonism during the transition from gestation to lactation. Amanda N. Davis*1,2, J. Eduardo Rico1,2, William A. Myers1,2, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

11:00 AM 32 Aluminosilicate clay reduces the deleterious effects of an aflatoxin challenge on inflammation markers in lactating Holstein cows. Russell T. Pate*1, Devan M. Paulus Compart2, and Felipe C. Cardoso1, 1University of Illinois, Department of Animal Sciences, Urbana, IL, 2PMI Nutritional Additives, Shoreview, MN.

11:15 AM 33 Effects of feeding a Saccharomyces cerevisiae fermentation product during the periparturient period on performance of dairy cows fed postpartum diets differing in starch content. Weina Shi*1, Caroline E. Knoblock1, Ilkyu Yoon1, and Masahito Oba1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Diamond V, Cedar Rapids, IA.

11:30 AM 34 Dietary supplementation of Scutellaria baicalensis extract (SBE) during early lactation decreases milk somatic cells and increases whole lactation milk yield in dairy cattle. Katie E. Olagaray*, Micheal J. Brouk2, Laman K. Mamedova1, Fabrice Robert2, Emilien Dupuis1, Maya Zachut3, and Barry J. Bradford1, 1Kansas State University, Manhattan, KS, 2CCPA Group, Janze, France, 3Agriculture Research Organization, Volcani Center, Rishon Lezion, Israel.

11:45 AM 35 Bioavailability of rumen-protected histidine, lysine and methionine assessed by fecal amino acid excretion. Susanna E. Räisänen*, Cristian M. M. R. Martins5, Krum Nedelkov1, Joonpyo Oh1, Michael T. Harper1, Xianjiang Chen4, Claudia Parys4, Robert A. Patton4, Makoto Miura1, and Alexander N. Hristov1, 1The Pennsylvania State University, University Park, PA, 2University of São Paulo, Pirassununga, Brazil, 3Ishikawa University, Stara Zagora, Bulgaria, 4Lanzhou University, Lanzhou, Gansu, China, 5Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany, 6Nittany Dairy Nutrition Inc., Mifflinburg, PA, 7Animal Nutrition Group, Research Institute for Bioscience Products & Fine Chemicals, Ajinomoto Co. Inc., Kawasaki, Japan.
Animal Behavior and Well-Being Platform Session:
Assessment of Affective States of Dairy Cattle
Chair: Trevor J. DeVries, University of Guelph
Sponsor: Dean Foods
Room 300 AB

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

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

10:15 AM  
Dairy calves anticipate the opportunity to access an alternative environment.
Heather W. Neave*, James Webster, and Gosia Zobel, University of British Columbia, Vancouver, BC, Canada.

10:30 AM  
Effects of local anesthetic and/or systemic analgesia on pain associated with cautery disbudding in calves: A systematic review and meta-analyses.
C. B. Winder*, C. L. Miltonburg, J. M. Sargeant, S. J. LeBlanc, D. B. Haley, K. D. Lissemare, M. A. Godkin, and T. F. Duffield, Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

10:45 AM  
Break

11:00 AM  
Development of a newborn calf vigor scoring system.
Christine Murray-Kerr*, Ken Leslie, Sandra Godden, Sheila McGuirk, and Whitney Knauer, Trouw Nutrition, Guelph, ON, Canada.

11:15 AM  
Effect of implementing a novel calf vitality scoring system and early intervention program on pain management in newborn dairy calves.
Sandra Godden, Whitney Knauer, Ken Leslie, Christine Murray-Kerr, Sheila McGuirk, Hans Coetzee, Debbie Haines, Craig Gapinski, Keith Yorek, and Rochelle Bullinsky, University of Minnesota, St. Paul, MN.

11:30 AM  
Can calving assistance influence dairy cows’ lying times?
Marianne Villettaz Robichaud, David L. Pearl, Jeffrey Rushen, Sandra M. Godden, Stephen J. Le Blanc, Anne Marie de Passillé, and Derek B. Haley, Université Laval, Québec, QC, Canada.

11:45 AM  
Pain mitigation in cattle following soft tissue surgery.
Amber D. Futrell, J. Marc Caldwell, Peter D. Krawczel, Brian K. Whitlock, and David E. Anderson, University of Tennessee College of Veterinary Medicine, Knoxville, TN.

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

9:30 AM  
Comparison between conventional culture, MALDI-TOF, and 16S rRNA for test agreement in diagnosis of bacteria in individual cow milk samples.
David J. Wilson*, John Middleton, Pamela Adkins, and Gregory M. Goodell, Utah State University, Logan, UT.

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

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

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

Moved to Animal Health III (pages 115–116)

Feeding NutriTek reduces linear scores and clinical mastitis cases.
James D. Ferguson, Matt A. Sattler, Devin L. Hanson*, Tom S. Edrington, and Ilkyu Yoon, 1University of Pennsylvania, School of Veterinary Medicine, Kennett Square, PA, 2Diamond V, Cedar Rapids, IA.

Frequency of antimicrobial usage on treatment for bacterial diseases occurring in cows on large dairy farms.
Juliana Leite de Campos, Andrew Steinberger, Tony Goldberg, Nasia Safdar, John Shutske, Ajay Sethi, Garret Suen, and Pamela Ruegg, 1Michigan State University, East Lansing, MI, 2University of Wisconsin-Madison, Madison, WI.

Residual effects of maternal consumption of metal amino acid complexes in offspring inflammatory and oxidative status during the weaning period.
Rodrigo C. B. Grazziotin*, Carolina B. Jacometo, Mike Socha, Erminio Trevisi, Juan J. Loor, and Johan S. Osorio, 1South Dakota State University, Brookings, SD, 2Universidad de la Salle, Bogota, DC, Colombia, 3Zinpro Corp., Eden Prairie, MN, 4Università Cattolica del Sacro Cuore, Piacenza, Italy, 5University of Illinois, Urbana Champaign, IL.

Experimental Staphylococcus aureus mastitis teat-dip infection model for evaluation of efficacy of vaccine against Staphylococcus aureus intramammary infection.
Oudessa Kerro Dego*, Reta Abdi, and Raul Almeida, The University of Tennessee, Knoxville, TN.

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

Opening comments.
Andy Cole, USDA-ARS.

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

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

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

9:30 AM  56  Genetic and environmental analysis of diseases with major economic impact in Israeli Holsteins.
Joel I. Weller*,1, Ephraim Ezra2, and Michael van Straten1,3, 1ARO, The Volcani Center, Rishon LeZion, Israel, 2Israel Cattle Breeders Association, Caesarea Industrial Park, Israel, 3Hachalkl, Mutual Society for Veterinary Services, Caesarea Industrial Park, Israel.

9:45 AM  57  Gene mapping and gene-set analysis for milk fever in Holstein dairy cattle.
Hendyel A. Pacheco1,2, Anil Sigdel1, Chun K. Mak1, Klibs N. Galvão1, Laila T. Dias2, and Francisco Peñagaricano*1, 1University of Florida, Gainesville, FL, 2Federal University of Paraná, Curitiba, PR, Brazil.

10:00 AM  58  Identification of genomic regions associated with resistance to clinical mastitis in US Holstein cattle.
John B. Cole*,1, Kristen L. P. Gaddis2, Colin Willard2, Daniel J. Null3, Christian Maltecca1, and John S. Clay4, 1Animal Genomics and Improvement Laboratory, ARS, USDA, Beltsville, MD, 2Council on Dairy Cattle Breeding, Bowie, MD, 3Department of Animal Science, College of Agriculture and Life Sciences, North Carolina State University, Raleigh, NC, 4Dairy Records Management Systems, Raleigh, NC.

Francesca Malchiodi*,1, Luiz F. Brito1, Anne-Marie Christen1, Allison Fleming1, David F. Kelton3, Flavio S. Schenkel1, and Filippo Miglior1,4, 1Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Valacta, Sainte-Anne-de-Bellevue, QC, Canada, 3Department of Population Medicine, OVC, University of Guelph, Guelph, ON, Canada, 4Canadian Dairy Network, Guelph, ON, Canada.

10:30 AM  60  Additive genetic effect of cow on pathogen-specific single-quarter udder infection and differential somatic cell count.
Emmanuel A. Lozada-Soto*,1, Kevin Anderson2, Christian Maltecca1, and Francesco Tiezzi1, 1Department of Animal Science, North Carolina State University, Raleigh, NC, 2Department of Population Health and Pathobiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC.

10:45 AM  Break

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

11:15 AM  63  Relationships between daughter phenotypes and sire PTA for production and fertility traits in US organic Holstein cows.
Lydia C. Hardie*,1, Isaac W. Haagen1, Longfei Han1, Brad J. Heins2, Dorthea D. Fitzsimmons1, and Chad D. Dechow1, 1Pennsylvania State University, University Park, PA, 2University of Minnesota, Minneapolis, MN, 3Alfred State University, Alfred, NY.

11:30 AM  64  Genetic analysis of heat tolerance for conception rate in US Holstein cows.
Anil Sigdel*,1, Julio A. Vaca1, Ignacio Aguilar2, Rostam Abdollahi-Arpanahi1,3, and Francisco Peñagaricano1, 1University of Florida, Gainesville, FL, 2Instituto Nacional de Investigacion Agropecuaria, Las Brujas, Canelones, Uruguay, 3University of Tehran, Tehran, Pakdasht, Iran.

11:45 AM  65  Genetic dissection of sire conception rate in US Jersey cattle.
Fernanda M. Rezende*, Grace O. Dietsch, and Francisco Peñagaricano, University of Florida, Gainesville, FL.
Dairy Foods: Joint ADSA-American Society of Nutrition Symposium:
New Views on Milk and Human Health
Chair: Don Beitz, Iowa State University
Ballroom F

9:30 AM
Introductory comments.
Don Beitz, Iowa State University.

9:30 AM
Milk glycobiome and impact on human health.
J. Bruce German*1,2, 1University of California-Davis, Davis, CA, 2Foods for Health Institute, University of California-Davis, Davis, CA.

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

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

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

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

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

9:30 AM
Effects of supplementing a xylanase enzyme on production performance of high-producing Holstein cows consuming diets containing corn or sorghum silage as the forage source.
Yang Yang*1, Gonzalo Ferreira1, and Brian T. Campbell2, 1Department of Dairy Science, Virginia Tech, Blacksburg, VA, 2DSM Nutritional Products, Parsippany, NJ.

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

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

10:15 AM
Fermentation quality, and in vitro digestibility of alfalfa and red clover silages treated with pre-fermented juice.
Yun Jiang*1, Yan L. Xue2, Diwakar Vyas3, Lin Sun2, Guo M. Yin2, Yuan Y. Zhang2, Si. B. Liu2, Zhu Yu2, Qi. Z. Sun2, and Adegbola T. Adesogan4, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Inner Mongolia Academy of Agricultural and Animal Husbandry Science, Hohhot, Inner Mongolia, China, 3Department of Animal Sciences, China Agricultural University, Beijing, China, 4Institute of Grassland Research, Chinese Academy of Agricultural Sciences, Hohhot, Inner Mongolia, China.

10:30 AM
Temporal trends in financial performance of spring-calving pasture-based dairy farms segregated by profit or feed use category.
George Ramsbottom*1, Brendan Horan2, Karina M. Pierce3, Donagh P. Berry4, and John R. Roche5,6, 1Teagasc, Oak Park, Carlow, Ireland, 2Teagasc, Animal and Pastureland Research and Innovation Centre, Moorepark, Fermoy, Cork, Ireland, 3School of Agriculture and Food Science, UCD, Belfield, Dublin, Ireland, 4Dairy NZ, Hamilton, New Zealand, 5School of Biological Sciences, University of Auckland, Auckland, New Zealand.
Physiology and Endocrinology I

Chair: Johan Osorio, South Dakota State University

Ballroom B

9:30 AM  78

Post-ruminal choline ion supplementation during a feed restriction-induced negative energy balance alters milk production and liver triacylglycerol concentration in Holstein cows.
Danielle N. Coleman*1, Mario Vailati-Riboni1, Ahmed A. Elolimy1, Felipe C. Cardoso1, Makoto Miura2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Ajinomoto Co. Inc., Tokyo, Japan.

9:45 AM  79

Methionine supply during the periparturient period alters plasma amino acid profiles and liver metabolism in dairy cows.
Fernanda Batistel*1, Rainie R. C. Yambao1, Yuan-Xiang Pan1, Claudia Parys2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

10:00 AM  80

Insulin sensitivity and glucose utilization in response to methionine supply during the periparturient period in dairy cows.
Fernanda Batistel1, Cesar C. I. Garces1, Claudia Parys2, and Juan J. Loor1, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

10:15 AM  81

Francisco A. Leal Yepes*1,2, Sabine Mann2, Thomas R. Overton1, Joseph J. Wakshlag1, and Daryl V. Nydam2, 1College of Agriculture and Life Sciences, Ithaca, NY, 2College of Veterinary Medicine, Ithaca, NY.

10:30 AM  82

Reducing milking frequency from three to twice a day during the first month of lactation improves energy balance and metabolic status of cows with minor effects on yields.
Uzi Moallem*1, Hadar Kamer1,2, Ayelet Hod1,2, Lilya Livshits1, Shamay Jacoby1, Yuri Portnick1, and Maya Zachut1, 1Department of Ruminants Science, Volcani Center, Rishon LeZion, Israel, 2Department of Animal Science, the Hebrew University of Jerusalem, Rehovot, Israel.

10:45 AM  83

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

11:00 AM  84

Expression and activity of the branched-chain α-keto acid dehydrogenase (BCKDH) in different tissues of early-lactating dairy cows.
Laura A. Webb*1, Helga Sauerwein1, Dirk von Soosten2, Sven Dänicke1, and Hassan Sadri1, 1Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, North Rhine-Westphalia, Germany, 2Institute of Animal Nutrition, Friedrich-Loeffler Institut, Federal Research Institute for Animal Health, Brunswick, Lower Saxony, Germany, 3Department of Clinical Science, Faculty of Veterinary Medicine, University of Tabriz, Tabriz, Iran.

11:15 AM  85

Characterizing changes in the proteome of high-density lipoprotein over the transition period in dairy cows.
Erica Behling-Kelly*1, Sean Davidson2, Daryl Nydam1, Franco Leal-Yepes1, and Sabine Mann1, 1Cornell University, Ithaca, NY, 2University of Cincinnati, Cincinnati, OH.

11:30 AM  86

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

11:45 AM  87

PBMC mitochondrial enzyme activity in high- and low-producing Holstein cows during early lactation.
Ashley Niesen*1, Heidi Rossoo1, and Olivia Genther-Schroeder1, UC Davis, Davis, CA, 2Purina Animal Nutrition Center, Gray Summit, MO.
Effects of level of DCAD and duration of feeding on responses to glucose tolerance test and insulin challenge in prepartum dairy cows.
Achilles Vieira-Neto1, Camilo Lopera2, Roney Zimpel1, Francisco R. Lopes Jr., Paula Molinari2, Bolívar Faria1, Maria L. Gambarini1, Elliot Block2, William W. Thatcher1, Corwin Nelson1, and Jose E. P. Santos1, 1University of Florida, Gainesville, FL, 2Church and Dwight Animal Nutrition, Ewing, NJ.

Association of residual feed intake with abundance of ruminal bacteria and biopolymer hydrolyzing enzyme activities during the peripartal period and early lactation in Holstein dairy cows.
Ahmed Elolimy1, José Arroyo1,2, Fernanda Batistel1, Michael Iakiviak1, and Juan Loor1,3, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Departamento de Nutrición Animal, Instituto de Producción Animal, Facultad de Veterinaria, Universidad de la República, San José, Uruguay, 3Division of Nutritional Sciences, Illinois Informatics Institute, University of Illinois, Urbana, IL.

Production, Management, and Environment I Chair: Phil Cardoso, University of Illinois at Urbana-Champaign Ballroom C

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

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

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

Differential gene expression in the rumen epithelium of heat stressed Holstein heifers.
Andrea Bedford1, Linda Beckett1, Taylor T. Yohe1, Laura Harthan1, Chong Wang1, Ning Jiang1, Hollie Schramm2, Mark Hanigan1, Kristy M. Daniels1, and Robin R. White1, 1Virginia Tech, Blacksburg, VA.

Relationship between the accumulative effects of heat stress and Holstein dairy cows’ milk performances in eastern Canada.
Véronique Ouellet*, Victor E. Cabrera2, Liliana Fadul-Pacheco3,4, Patrick Grenier3, and Édith Charbonneau4, 1Département des sciences animales, Université Laval, Québec, QC, Canada, 2Department of dairy science, University of Wisconsin, Madison, WI, 3Valacta, Saint-Anne-de-Bellevue, QC, Canada, 4Department of Animal Science, McGill University, Saint-Anne-de-Bellevue, QC, Canada, 5Consortium Ouranos, Montréal, QC, Canada.

Effects of fully acidified close-up diets and dietary calcium content on production and milk composition of transition dairy cows.
Kristen M. Glosson*, Xiangfei Zhang2, Scott S. Bascom3, Angie D. Rowson3, and James K. Drackley1, 1University of Illinois, Department of Animal Sciences, Urbana, IL, 2Institute of Animal Nutrition, Key Laboratory of Low Carbon Culture and Safety Production in Cattle in Sichuan, Sichuan Agricultural University, Chengdu, Sichuan, China, 3Phi-bro Animal Health Corp., Teaneck, NJ.

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

Estrus detection with an activity and rumination monitoring system in an organic grazing and in a low-input conventional herd.
Glenda M. Pereira*, Bradley J. Heins, Marcia Endres, and Kota Minegishi, University of Minnesota, St. Paul, MN.
Evaluation of G7G-Ovsynch protocol with or without heat detection and milk pregnancy-associated glycoproteins as non-invasive pregnancy diagnosis method.
Abid Hussain Shahzad*1, Ali Abbas2, Raafia Safdar Baloch2, lahtasham Khan1, and Shaista Abbas1, 1University of Veterinary and Animal Sciences, Lahore, Lahore, Punjab, Pakistan, 2Livestock and Dairy Development, Punjab, Lahore, Punjab, Pakistan.

Factors associated with low colostrum yield in Jersey cattle.
Kevin Gavin1, Holly Neibergs1, Alea Hoffman1, Jennifer Kiser1, Macy Cornmesser1, Sara Amirpour Haredasht3, Beatriz Martinez-Lopez1, John Wenz1, and Dale Moore*1, 1Washington State University, Pullman, WA, 2Sunrise Veterinary Service, Dalhart, TX, 3University of California, Davis, CA.

Improving nutritional accuracy and economics through multiple ration-grouping strategy.
Jorge A. Barrientos Blanco*, Victor Cabrera, and Randy D. Shaver, University of Wisconsin Madison, Madison, WI.

Reproduction: Joint ADSA-SSR Symposium:
The Immune–Reproduction Nexus: The Good, the Bad, and the Ugly
Chair: Peter J. Hansen, University of Florida
Ballroom E

Ruminant Nutrition I: Fat
Chair: Jonas de Souza, Michigan State University
Ballroom G
Effect of dietary supplementation of acetate on milk fat synthesis in lactating dairy cows.
Natalie L. Urrutia*, Rebecca Bomberger1, and Kevin J. Harvatine1, 1The Pennsylvania State University, University Park, PA, 1Instituto de Investigaciones Agropecuarias, Osorno, Region de Los Lagos, Chile.

Ceramide inhibits insulin sensitivity in primary bovine adipocytes.
J. Eduardo Rico*, 12, William A. Myers1,2, David J. Laub2, Amanda N. Davis1,2, Qi Zeng2, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

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

Impact of abomasal infusion of oleic acid on fatty acid digestibility and milk production of dairy cows.
Crystal M. Prom*, John Newbold1, and Adam L. Lock1, Michigan State University, East Lansing, MI.

Long-term effects of olive oil and hydrogenated vegetable oil supplementation on the expression of genes related to fatty acid metabolism in adipose tissue of dairy cows.
Einar Vargas-Bello-Pérez*, Nathaly Cancino-Padilla1, Pietro Sciarresi-Arechabala2, María del Sol Morales2, Jaime Romero2, Massimo Bionaz4, and Juan J. Loor3, 1Pontificia Universidad Católica de Chile, Santiago, Chile, 2Universidad de Chile, Santiago, Chile, 3Instituto de Nutrición y Tecnología de los Alimentos, Santiago, Chile, 4Oregon State University, Corvallis, OR, 5University of Illinois, Urbana, IL.

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

Changes in the omasal flow of long-chain fatty acids alters the yield of de novo and preformed milk fatty acids.
Jonas de Souza*, Heidi Leskine1, Kevin J. Shingfield2, Adam L. Lock1, and Pekka Huhtanen1, 1Department of Animal Science, Michigan State University, East Lansing, MI, 2Animal Genomics, Green Technology, Natural Resources Institute Finland (Luke), Jokioinen, Finland, 3Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden, 4Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, United Kingdom.

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

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

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

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

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

Incorporating technologies in nutrition and transition management.
E. A. Eckelkamp*1 and J. M. Bewley2, 1University of Tennessee Institute of Agriculture, Knoxville, TN, 2CowFocused Housing, Bardstown, KY.
Opportunities and limitations in farm data integration and analytics for strategic decision-making.
Michael J. Jerred*, Guillermo F. Schroeder, Ricardo A. Daura, and Chantal Van Der Meijde, Cargill Animal Nutrition, Minnetonka, MN.

Technology, automation, and dairy industry: How far can we go?
A. D. Aguiar* and N. Charlton, DeLaval, Bannockburn, IL.

Small Ruminant Platform Session:
Addressing Management Challenges and Improving Performance in Small Ruminants
Chair: Maristela Rovai, South Dakota State University
Room 301 A

9:30 AM Introduction.
Maristela Rovai, South Dakota State University.

9:30 AM Review of old and new approaches to evaluate milking impact and milking ability in goats.
Pierre-Guy Marnet*, Alen Dzidic, Leila Le Caro, and Alice Hubert, Agrocampus Ouest, Department of Animal Sciences, Agri-food and Human Nutrition, Rennes, France.

10:30 AM Comparison of milk fat, protein, somatic cell count, and urea nitrogen concentrations between mid-infrared spectroscopy calibrated with cow milk and reference methods of dairy goat milk samples.
Mélissa Duplessis, Dany Cinq-Mars, Caroline Brunelle, Rachid Kouaouci, and Daniel M. Lefebvre, Agriculture & AgriFood Canada, Sherbrooke, QC, Canada.

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

11:00 AM The fatty acid profile of goat milk with supplementation of fish oil in the diet.
Maryuri Nuñez de González*, Rahmat Attaie, Adela Mora-Gutierrez, Selamawit Woldesenbet, Yoonsung Jung, Jennifer Kirven, and Deland Myers, Prairie View A&M University, Prairie View, TX.

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

11:30 AM On-farm welfare assessment update and its relation to productivity in dairy small ruminants.
Gerardo Caja*, Raúl González-González, and Maristela Rovai, Universitat Automa de Barcelona, Bellaterra, Barcelona, Spain.

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

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

11:15 AM Comparison between non-dairy milk-like beverages and cow’s milk.
Carrie P. Cecil*, Gustavo Mazon, and Joao H. C. Costa, University of Kentucky, Lexington, KY.
Spore-forming bacteria reduce milk quality.
Zane P. Itle* and Dale R. Olver, The Pennsylvania State University, University Park, PA.

An udder option: A2 milk.
Brittney Davidson*, Bethany Dado-Senn, and Jimena Laporta, University of Florida, Gainesville, FL.

ADSA Graduate Student (MS) Production Oral Competition
Chair: Heather Dann, William H. Miner Agricultural Research Institute
Room 301 D

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

Effects of differing planes of pre- and post-weaning phase nutrition on intake, growth and puberty in Holstein heifer calves.
Justin P. Rosadiuk*, Farid Moslemipur1,2, Tony C. Bruinjé3, Divakar J. Ambrose4,5, and Michael A. Steele1,1, Department of Agricultural, Food, and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2 Gonbad Kavous University, Golestan, Iran, 3 Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada.

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2:45 PM 142 Effect of a mechanical calf brush on the behavior and performance of recently weaned heifer calves. Ana Velasquez*, Diego Manriquez1, Sushil Paudyal1, Gilberto Solano1, Hyungchul Han1, Robert Callan2, Juan Velez3, and Pablo Pinedo1, 1Department of Animal Sciences, College of Agricultural Sciences, Colorado State University, Fort Collins, CO, 2Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO, 3Aurora Organic Dairy, Boulder, CO.

3:00 PM 143 Short-term overstocking, heat stress, or combination on the welfare of lactating dairy cows. Amanda R. Lee*, Gina M. Pighetti1, Rick J. Grant2, Janice L. Edwards1, and Peter D. Krawczel1, 1University of Tennessee Knoxville, Knoxville, TN, 2William H. Miner Agricultural Research Institute, Chazy, NY.

3:15 PM 144 A novel approach to estimate intake of lactating dairy cows through multiple on-cow accelerometer sensors. Nathaly A. Carpinelli*, Fernanda Rosa, Rodrigo C. B. Grazziotin, and Johan S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 145 Validation of an ear-tag accelerometer to identify feeding and activity behaviors of tie-stall housed dairy cattle. A. Zambelis, T. Wolfe, and E. Vasseur*, Department of Animal Science, McGill University.

4:15 PM 146 The effect of two different indoor AMS loose-housing options and pasture-access on dairy cow step activity and time budget. Elise Shepley*, Hélène Leruste2, Joop Lensink2, and Elsa Vasseur1, 1McGill University, Ste-Anne-de-Bellevue, QC, Canada, 2Yncréa Hauts de France, ISA Lille, Lille Cedex, France.

Animal Health II
Chair: Sabine Mann, Cornell University
Room 300 CD

2:00 PM 147 An observational longitudinal cross-over study of the impact of an ammonium-lactate commercial product for the prevention of subclinical ketosis in postpartum lactating dairy cows. G. Poppy*, D. Barkey1, and J. Pinter2, 1Fermented Nutrition Corp., Luxemburg, WI, 2Perdue AgriBusiness, Salisbury, MD.

2:15 PM 148 Validation of an infrared test measuring β-hydroxybutyrate on test-day milk samples to detect hyperketonemia. David L. Renaud*, David F. Kelton, and Todd F. Duffield, Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

2:30 PM 149 Perilipin5 promotes hepatic steatosis in dairy cows via increasing lipid synthesis and inhibiting VLDL assembly. Xudong Sun, Guowen Liu, Xiaobing Li, and Xinwei Li*, College of Veterinary Medicine, Jilin University, Changchun, Jilin, China.

2:45 PM 150 The effect of feeding synthetic zeolite A prepartum on indices of mineral and metabolic status, milk production and reproduction in grazing dairy cows. John R. Roche1, Axel Heiser2, Mallory A. Crookenden1, Christopher R. Burke1, Sally-Anne Turner1, Barbara Kuhn-Sherlock1, and Claire V. C. Phyn*, 1DairyNZ Ltd, Hamilton, New Zealand, 2AgResearch Ltd, Palmerston North, New Zealand, 3DairyNZ Ltd, Auckland, New Zealand.

3:00 PM 151 First study into the temporal relationship between metabolic disorders and lameness events over the course of a lactation. Axelle Mineur*, Christa Egger-Danner2, Johann Sölkner3, Sylvie Vanderick1, Hedi Hammami1, and Nicolas Gengler1, 1ULiege-GxABT, Gembloux, Belgium, 2Zuchtdaten, Vienna, Austria, 3BOKU, Vienna, Austria.

3:15 PM 152 An evaluation of the relationship between hyperketonemia and pre- and post-calving hoof lesions in dairy cattle. Erin M. Wynands* and Gerard Cramer, College of Veterinary Medicine, University of Minnesota, St. Paul, MN.

3:30 PM Ice cream break in Exhibit Hall
Using once per day milking as an adjunct treatment of hyperketonemia.
Maggie E. Williamson*, Todd F. Duffield, Stephen LeBlanc, Trevor DeVries, and Brian W. McBride, University of Guelph, Guelph, ON, Canada.

Calves born from cows fed with alfalfa enriched with selenium have higher Se in blood and higher phagocytosis.
Matteo Mezzetti*1, Shana Jaaf2, Sebastiano Busato1, Michele Prem2,1, Erminio Trevisi2, Gerd Bohe3, and Massimo Bionaz1, 1Oregon State University, Corvallis, OR, 2Università Cattolica del Sacro Cuore, Piacenza, Italy.

Establishing blood gas ranges in healthy bovine neonates differentiated by age, sex, and breed type.
Patrick Dillane*, Lea Krump1, Aideen Kennedy2, Riona Sayers2, and Gearoid Sayers1, 1Department of Biological and Pharmaceutical Sciences, Institute of Technology Tralee, Tralee, Ireland, 2Animal & Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Ireland.

Animal Health: Joint ADSA-National Mastitis Council Platform Session:
Milk Quality and the Dairy Industry Today
Chair: Kasey Moyes, University of Maryland
Lecture Hall

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

Precision dairy technology-generated health alert accuracy and disease prediction.
Elizabeth A. Eckelkamp*1 and Jeffrey M. Bewley2, 1University of Tennessee Institute of Agriculture, Knoxville, TN, 2CowFocused Housing, Bardstown, KY.

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

Selective versus blanket dry cow therapy.
A. Lago*, DairyExperts Inc., Tulare, CA.

Selective dry cow therapy to control mastitis and reduce antimicrobial use.
Sinead McParland*1, Jim Flynn2, Niamh Ryan2, and Pat Dillon1, 1Animal and Grassland Research and Innovation Centre, Teagasc, Fermoy, Co. Cork, Ireland, 2Department of Agriculture, Food and the Marine, Dublin, Ireland.

Assessment of acoustic pulse therapy (APT), a non-antibiotic treatment for mastitis in dairy cows.
Gabriel Leitner*1, David Zilberman2, Eduard Papirov3, and Sela Shefy3, 1National Mastitis Reference Center, Kimron Veterinary Institute, Bet Dagan, Israel, 2Department of Agricultural and Resource Economics, University of California, Berkeley, California, 3HI-Impacts, Petach Tikva, Israel.

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

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

Antimicrobial resistance patterns of bacterial isolates from cases of mastitis in dairy cows.
Reta D. Abdi*, Barbara E. Gillespie, Susan Headrick, Gina M. Pighetti, Raul. A. Almeida, Stephen P. Oliver, and Oudessa Kerro Deg, Department of Animal Science, The University of Tennessee, Knoxville, TN.
Breeding and Genetics II:
Methodologies, Inbreeding and Breeding Strategies
Chair: Christine Baes
Room 301 B

2:00 PM 165 Managing population diversity through genomic optimal contribution selection.
Christian Maltecca*, Gebreyohans Gebregziaberg*, Jeremy T. Howard†, Christine F. Baes‡, and Francesco Tiezzi†,
1North Carolina State University, Raleigh, NC, 2University of Guelph, Guelph, ON, Canada, 3Norwegian University of Life Sciences, Ås, Norway, *University of Nebraska-Lincoln, Lincoln, NE.

2:15 PM 166 Characterizing runs of homozygosity in Ayrshire, Brown Swiss, and Guernsey populations using varying sample sizes.
Calista Vogelzang*, Filippo Migliori†, Nina Melzer‡, Mehdi Sargolzaei**-, Christian Maltecca*, Gabriele Marras†, Bayode Makanjuola‡, Allison Fleming§, Flavio Schenkel†, and Christine F. Baes‡, *CGIL, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, ‡Canadian Dairy Network, Guelph, ON, Canada, §Leibniz Institute for Farm Animal Biology, Institute of Genetics and Biometry, Dummerstorf, MVP, Germany, *The Semex Alliance, Guelph, ON, Canada, ‡Department of Animal Sciences, North Carolina State University, Raleigh, NC.

2:30 PM 167 Indirect predictions based on SNP effects from single-step GBLUP in large genotyped populations.
Daniela Lourenco*, Andres Legarra‡, Shogo Tsuruta§, Daniel J. Null†, Paul M. VanRaden‡, Stephen Miller†, and Ignacy Misztal‡, †Department of Animal and Dairy Science, University of Georgia, Athens, GA, ‡Institut National de la Recherche Agronomique, UMR, Castanet Tolosan, France, §Angus Genetics Inc, St. Joseph, MO.

2:45 PM 168 Potential benefits from using a new reference map in genomic prediction.
Daniel J. Null*, Paul M. VanRaden†, Derek M. Bickhart†, John B. Cole†, Jeff R. O’Connell‡, and Benjamin D. Rosen†, †USDA Animal Genomics and Improvement Laboratory, Beltsville, MD, ‡USDA Dairy Forage Research Center, Madison, WI, †University of Maryland-Baltimore, Baltimore, MD.

3:00 PM 169 Implications of limited dimensionality of genomic information on persistency of genomic predictions and GWAS.
Ignacy Misztal*, Ivan Pocrnic, and Daniela Lourenco, University of Georgia, Athens GA.

3:15 PM 170 Modelling uncertain paternity to address differential pedigree accuracy.
Heather L. Bradford*, Yutaka Masuda†, John B. Cole‡, Ignacy Misztal†, and Paul M. VanRaden‡, †University of Georgia, Athens, GA, ‡Animal Genetics and Improvement Laboratory, USDA-ARS, Beltsville, MD.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 171 Genomic predictability of single-step GBLUP for production traits in US Holstein.
Yutaka Masuda*, Ignacy Misztal†, Paul VanRaden‡, and Tom Lawlor‡, †University of Georgia, Athens, GA, ‡USDA AGIL, Beltsville, MD, †Holstein Association USA Inc., Brattleboro, VT.

4:15 PM 172 Implementing SNP-level multiple-trait across country genomic evaluation without genotype sharing.
Breno Fragomeni*, Daniela Lourenco, Yutaka Masuda, and Ignacy Misztal, The University of Georgia, Athens, GA.

4:30 PM 173 Lifetime Net Merit versus annualized net present value as measures of profitability of selection.
Michael R. Schmitt*, Paul M. VanRaden†, and Albert De Vries‡, †Department of Animal Sciences, University of Florida, Gainesville, FL, ‡USDA-ARS-AGIL, Beltsville, MD.

4:45 PM 174 Integrating genomic information and large-scale FTIR-based phenotyping for the genetic improvement of cheesemaking traits in Brown Swiss cattle.
Francesco Tiezzi*, Christian Maltecca†, Hugo Toledo Alvarado‡, Attilio Rossoni§, Enrico Santus‡, Giovanni Bittante§, and Alessio Cecchinato†, †Department of Animal Science, North Carolina State University, Raleigh, NC, §Italian Brown Swiss Breeders’ Association, Bussolengo, Italy, ‡Department of Agronomy, Food, Natural resources, Animals and Environment, Legnaro, Padova, Italy.
### Dairy Foods I: Cheese
**Chair:** Donald McMahon, Utah State University  
**Room 200 DE**

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<th>Time</th>
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<tr>
<td>2:00 PM</td>
<td>175</td>
<td>Fusion of casein-based gel particles by means of extrusion.</td>
<td>Christian Kern* and Jörg Hinrichs, University of Hohenheim, Stuttgart, Germany.</td>
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<tr>
<td>2:15 PM</td>
<td>176</td>
<td>Influence of pH on whey expulsion from curd made from recombined concentrated milk.</td>
<td>Kanak Bulbul* and Donald J. McMahon, Western Dairy Center, Utah State University, Logan, UT.</td>
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<tr>
<td>2:30 PM</td>
<td>177</td>
<td>Effects of microfiltered milk with different casein:true protein ratios on the quality of Cheddar cheese.</td>
<td>Elizabeth M. Reale*, John A. Lucey¹, Rani Govindasamy-Lucey¹, Mark E. Johnson¹, John Jaeggi¹, Yanjie Lu¹, and Mike M. Molitor¹, ¹University of Wisconsin-Madison, Madison, WI, ¹Center for Dairy Research, Madison, WI.</td>
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<tr>
<td>3:00 PM</td>
<td>179</td>
<td>Identification and classification of crystals in cheese by powder X-ray diffractometry.</td>
<td>P. J. Polowsky, P. S. Kindstedt*, and J. M. Hughes, University of Vermont, Burlington, VT.</td>
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<td>3:30 PM</td>
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<td>Ice cream break in Exhibit Hall</td>
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<tr>
<td>4:00 PM</td>
<td>181</td>
<td>Impact of high pressure and different storage temperatures on the properties of Gouda cheese.</td>
<td>Luis A. Jiménez-Maroto*, Selvarani Govindasamy-Lucey¹, John J. Jaeggi¹, Mark E. Johnson¹, and John A. Lucey¹², ¹University of Wisconsin-Madison, Madison, WI, ²Wisconsin Center for Dairy Research, Madison, WI.</td>
</tr>
<tr>
<td>4:15 PM</td>
<td>182</td>
<td>Characterization of semi-hard and hard artisanal cheeses from small-scale producers in the Western Cape Province of South Africa.</td>
<td>Faith Nyamakwere*, Giulia Esposito¹, Nina Muller¹, Erika Moelich¹, Pieter Gouws¹, Felicia Masucci¹, and Emiliano Raffrenato¹, ¹Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa, ²Department of Food Science, Stellenbosch, South Africa, ³Department of Agricultural Science, Università degli Studi di Napoli Federico II, Naples, Italy.</td>
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### Extension Education I
**Chair:** Michael Schutz, Purdue University  
**Room 301 E**

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<th>Time</th>
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<tr>
<td>2:00 PM</td>
<td>183</td>
<td>Determining the prevalence of failure of passive transfer in heifer and bull calves on Michigan dairy farms.</td>
<td>Faith Cullens* and Miriam Weber Nielsen, Michigan State University, East Lansing, MI.</td>
</tr>
<tr>
<td>2:15 PM</td>
<td>184</td>
<td>Using whole-farm analysis based on Holos to reduce net greenhouse gas emissions: Examples from dairy systems.</td>
<td>Shannan M. Littles*, Chaouki Benchara², H. Henry Janzen³, Roland Kröbel⁴, Emma J. McGeough⁵, Aaron McPherson⁵, and Karen A. Beauchemin¹, ¹Agriculture and Agri-Food Canada, Lethbridge Research and Development Centre, Lethbridge, AB, Canada, ²Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, ³Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada.</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>185</td>
<td>Producer perceptions of the National Dairy Farmers Assuring Responsible Management (FARM) Animal Care Program.</td>
<td>Kayla A. Rink*, Phillip J. Turk¹, Shannon L. Archibeque-Engle¹, Jason K. Ahola¹, Joleen C. Hadrich⁴, and Ivette N. Román-Muñiz¹, ¹Department of Animal Sciences, Colorado State University, Fort Collins, CO, ²Department of Statistics, Colorado State University, Fort Collins, CO, ³Colorado State University, Fort Collins, CO, ⁴Department of Applied Economics, University of Minnesota, St. Paul, MN.</td>
</tr>
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Forages and Pastures Symposium:
Fiber Digestibility—From Cell Wall Composition to Forage Utilization
Chair: Gonzalo Ferreira, Virginia Tech
Sponsor: AB Vista
Ballroom A

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

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

3:30 PM
Ice cream break in Exhibit Hall

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

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

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

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

2:00 PM 190 Intravital imaging of the lactating mammary gland in live mice reveals novel aspects of milk-lipid secretion.
Ian H. Mather*1,2, Andrius Masedunskas2,3, Yun Chen2, and Roberto Weigert2,3, 1University of Maryland, College Park, MD, 2National Cancer Institute, NIH, Bethesda, MD, 3National Institute of Craniofacial and Dental Research, NIH, Bethesda, MD.

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

3:30 PM
Ice cream break in Exhibit Hall

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

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

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

5:30 PM
Closing remarks.
Rafael Jimenez-Flores, The Ohio State University.
2:00 PM 195 **Nutritional and greenhouse gas contributions of dairy cattle to United States agriculture.** Robin R. White*1 and Mary Beth Hall2, 1Department of Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA, 2United States Dairy Forage Research Center, Madison, WI.

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

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

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

3:00 PM 199 **Effects of hormonal growth promotants on meat quality.** Ian J. Lean1,2, Helen M. Golder*, Natasha M. Lees3, Peter McGilchrist1, and Jose E. P. Santos1, 1Scibus, Camden, NSW, Australia, 2Dairy Science Group, School of Life and Environmental Sciences, Faculty of Science, The University of Sydney, Camden, NSW, Australia, 3School of Environmental and Rural Science, University of New England, Armidale, NSW, Australia, 4Department of Animal Sciences, University of Florida, Gainesville, FL.

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

3:30 PM Ice cream break in Exhibit Hall

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

4:15 PM 202 **Influence of a lactic acid bacteria and yeast-based postbiotic product (Probisan) on the performance of pre-weaned newborn calves.** Maristela Rovai*1, Leyby Guifarro1, Goyo Sanzo2, Jesus V. Diaz3, Jill L. Anderson2, and Ahmed Salama1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Pentabiol S.L, Esquiroz, Navarra, Spain, 3Incyte Corp., Wilmington, DE.

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

4:45 PM 204 **Altering the ruminal microbiota in dairy calves using rumen contents dosing.** Madison S. Cox*, Paul J. Weimer1,2, Andrew J. Steinberger1, Joseph H. Skarlupka2, and Garret Suen1, 1Department of Bacteriology, University of Wisconsin-Madison, Madison, WI, 2US Dairy Forage Research Center, USDA Agricultural Research Service, Madison, WI.

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

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

5:30 PM 207 **Monitoring daily liveweight in grazing sheep using an automated walk-over-weighing system.** Eliel González-Garcia*, SELMET (Systèmes d’Elevage Méditerranéens et Tropicaux), INRA, Montpellier SupAgro, CIRAD, Univ Montpellier, Montpellier, France.
Ruminant Nutrition II: Methane
Chair: Matias Aguerre, Clemson University
Ballroom G

2:00 PM 208 Dynamics of volatile fatty acids, hydrogen, and methane in dairy cattle: A model of rumen metabolic pathways. Henk J. van Lingen1,2, James G. Fadel1, Luis E. Moraes1, Ermias Kebrab1, André Bannink2, and Jan Dijkstra2, 1TI Food and Nutrition, Wageningen, the Netherlands, 2Wageningen University & Research, Wageningen, the Netherlands, 3University of California, Davis, Davis, CA, 4Ohio State University, Columbus, OH.

2:15 PM 209 Effects of 3-nitrooxypropanol on rumen fermentation, lactational performance, and onset of ovarian activity in dairy cows. A. Melgar1, M. T. Harper1, J. Oh1, F. Giallongo1, M. E. Fetter1, T. L. Ott1, S. Duval2, and A. N. Hristov1, 1The Pennsylvania State University, University Park, PA, 2Research Centre for Animal Nutrition and Health, DSM Nutritional Products, France.

2:30 PM 210 Dose-response effect of 3-nitrooxypropanol on enteric methane emission in dairy cows. A. Melgar1, K. C. Welter1, K. Nedelkov1, C. M. M. R. Martins1, M. T. Harper1, J. Oh1, S. E. Räisänen1, X. Chen1, S. F. Cueva1, S. Duval1, and A. N. Hristov1, 1The Pennsylvania State University, University Park, PA, 2University of Sao Paulo, Pirassununga, Brazil, 3Faculty of Veterinary Medicine, Trakia University, Stara Zagora, Bulgaria, 4College of Pastoral Agriculture Science and Technology, Lanzhou University, China, 5Panamerican Agricultural University, Zamorano, Francisco Morazán, Honduras, 6Research Centre for Animal Nutrition and Health, DSM Nutritional Products, France.

2:45 PM 211 Effect of limit-feeding diets with different forage to concentrate ratios on the fecal bacterial and archaeal community composition in Holstein heifers. Jun Zhang1, Haitao Shi1, Yajing Wang1, Zhijun Cao1, and Shengli Li1, State Key Laboratory of Animal Nutrition, Beijing Engineering Technology Research Center of Raw Milk Quality and Safety Control, College of Animal Science and Technology, China Agricultural University, Beijing, China.

3:00 PM 212 Effect of essential oil extracted from tropical and/or sub-tropical plants on in vitro dry matter digestibility, ruminal fermentation, and methane production. D. H. Kim1,2, I. M. Ogunade1, K. G. Arriola1, D. Vyas1, and A. T. Adesogan1, 1Department of Animal Sciences, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL, 2Division of Applied Life Science (BK, Jinju, South Korea.

3:15 PM Ice cream break in Exhibit Hall

3:45 PM 214 Methane inhibition following fermentation and microbiota community response by different dose of chitosan in vitro. Jinjin Tong1, Hua Zhang1, Linshu Jiang1, and Benhai Xiong1, 1Beijing Key Laboratory for Dairy Cow Nutrition, Beijing University of Agriculture, Beijing, China, 2State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China.

4:00 PM 215 Relationship between residual feed intake and CH4 production in dairy heifers. Holly Flay1,2, Barbara Kuhn-Sherlock1, Kevin Macdonald1, Mark Camara1, Danny Donaghy1, Nicolas Lopez-Villalobos2, and J. R. Roche3, 1DairyNZ, Hamilton, New Zealand, 2Massey University, Palmerston North, New Zealand, 3University of Auckland, Symonds St, Auckland, New Zealand.

4:15 PM 216 Variation in animal performance explained by the rumen microbiome or by diet composition. Claire B. Gleason* and Robin R. White, Virginia Tech, Blacksburg, VA.

4:30 PM 217 Relationships between mean rumen pH and time spent under pH 5.8. Douglas M. Liebe*1,2, Jeffery L. Firkins2, and Robin R. White1, 1Virginia Tech, Blacksburg, VA, 2The Ohio State University, Columbus, OH.

4:45 PM 218 Preparing and characterizing magnetic nanoparticles coated with cellulose for effective enrichment of cellulolytic microorganisms from rumen. L. Xing1,2, S. G. Zhao1,2, N. Zheng1,1, and J. Q. Wang1, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<tr>
<td>2:00 PM</td>
<td>219</td>
<td>Effects of prepartum dietary cation-anion difference intake on dairy cows: A meta-analysis.</td>
<td>Ian J. Lean*, Jose E. P. Santos, Elliot Block, and Helen M. Golder, Scibus, Camden, NSW, Australia, Dairy Science Group, School of Life and Environmental Sciences, Faculty of Science, The University of Sydney, Camden, NSW, Australia, Department of Animal Sciences, University of Florida, Gainesville, FL, Arm &amp; Hammer Animal Nutrition, Princeton, NJ.</td>
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<td>2:15 PM</td>
<td>220</td>
<td>Blood metabolites as indicators of susceptibility to subacute ruminal acidosis in mid-lactation Holstein cows.</td>
<td>S. M. Nasrollahi, A. Zali, G. R. Ghorbani, and W. Z. Yang, University of Tehran, Tehran, Iran, Isfahan University of Technology, Isfahan, Iran, Lethbridge, AB, Canada, Canada.</td>
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<td>2:45 PM</td>
<td>222</td>
<td>Uptake of a fluorescent analogue of glucose (2-NBDG) by mixed rumen bacteria and identification of glucose utilizing species.</td>
<td>Junyi Tao, Courtney McCourt, Halima Sultana, John P. Driver, Corwin D. Nelson, and Timothy J. Hackmann, Department of Animal Sciences, University of Florida, Gainesville, FL.</td>
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<tr>
<td>3:00 PM</td>
<td>223</td>
<td>Effects of lipopolysaccharide dosing on ruminal fermentation in a dual-flow continuous culture system.</td>
<td>X. Dai, E. M. Paula, A. L. J. Lelis, L. G. Silva, V. L. N. Brandao, H. F. Monteiro, and A. P. Faciola, Department of Animal Sciences, University of Florida, Gainesville, FL.</td>
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<td>3:15 PM</td>
<td>224</td>
<td>Effect of <em>Saccharomyces cerevisiae</em> fermentation product and clay sequestering agents on rumen fermentation and bacterial community of lactating dairy cows challenged with dietary aflatoxin B&lt;sub&gt;1&lt;/sub&gt;.</td>
<td>Yun Jiang, Ibuiku M. Ogundade, Andres A. Pech-Cervantes, Peixin Fan, Xujiad Li, Dong H. Kim, Kathy G. Arriola, Michael B. Pindexter, Mariana C. M. Goncalves, Kwang C. Jeong, Diwakar Vyas, and Adegbola T. Adesogan, Department of Animal Sciences, University of Florida, Gainesville, FL, Division of Food and Animal Science, Kentucky State University, Frankfort, KY, Department of Animal Sciences, China Agricultural University, Beijing, China.</td>
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<td>3:30 PM</td>
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<td>Ice cream break in Exhibit Hall</td>
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<td>4:00 PM</td>
<td>225</td>
<td>Effect of <em>Saccharomyces cerevisiae</em> fermentation products on performance, diarrhea outbreaks, and plasma glucose and NEFA concentration in bottle-fed calves.</td>
<td>Lucia Pisoni, Kathryn V. Whinnery, and Alejandro E. Relling, The Ohio State University, Department of Animal Sciences, Wooster, OH.</td>
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<tr>
<td>4:15 PM</td>
<td>226</td>
<td>Effect of subacute ruminal acidosis (SARA) and <em>Saccharomyces cerevisiae</em> fermentation products on endotoxins and interleukin-6 in blood plasma.</td>
<td>Lei Xu, Junfei Guo, Hamid Khalouei, Ilkyu Yoon, Ehsan Khaefpour, and Jan C. Plaizier*, University of Manitoba, Winnipeg, MB, Canada, Diamond V, Cedar Rapids, IA.</td>
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<td>4:45 PM</td>
<td>228</td>
<td>ADSA®-EAAP Speaker Exchange Presentation: The importance of the ruminal epithelial barrier for a healthy and productive cow.</td>
<td>Jörg R. Aschenbach, Gabriele Greco, Gregory B. Penner, Qendrim Zebeli, and Salah Amasheh, Institute of Veterinary Physiology, Freie Universität Berlin, Berlin, Germany, Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, Institute of Animal Nutrition and Functional Plant Compounds, University of Veterinary Medicine Vienna, Vienna, Austria.</td>
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ADSA-SAD Undergraduate Original Research Oral Competition
Chair: Stephanie H. Ward, North Carolina State University
Room 200 B

2:00 PM 229 Plasma response of histidine and histidine metabolites to incremental amounts of abomasal infusion of histidine in lactating dairy cows.
Bailey L. Basiel*, Yu Zhang1, Andre F. Brito1, Nancy L. Whitehouse1, and Makoto Miura2, 1University of New Hampshire, Durham, NH, 2Ajinomoto Co. Inc., Kawasaki-shi, Japan.

2:15 PM 230 Total-tract fatty acid digestibility responses to altering the dietary ratio of palmitic and oleic acids in dairy cows.
Ariana N. Negreiro*, Jonas de Souza, and Adam L. Lock, Michigan State University, East Lansing, MI.

2:30 PM 231 Effect of plane of nutrition in pre- and post-weaning phases on feed sorting behavior of dairy calves.
Lauren E. Engelking*, Justin P. Rosadiuk1, Tony C. Bruinje1, Trevor J. DeVries1, and Michael A. Steele1, 1University of Alberta, Edmonton, AB, Canada, 2University of Guelph, Guelph, ON, Canada.

2:45 PM 232 Use of tail movement to predict calving time in dairy cattle: Validation of a calving detection technology in dairy cattle.
Sarah E. Mac*, Carissa M. Truman, and Joao H. C. Costa, University of Kentucky, Lexington, KY.

3:00 PM 233 Balancing diets for intestinal protein digestibility in lactating dairy cattle.
Courtney K. Hoff*, Paul A. LaPierre, Debbie A. Ross, and Michael E. Van Amburgh, Cornell University, Ithaca, NY.

3:15 PM 234 Rumen gene expression in dairy calves fed one of two diets differing in form.
Nicole R. Hardy*, Taylor T. Yohe, and Kristy M. Daniels, Virginia Tech, Blacksburg, VA.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 235 Effects of housing on Holstein calf well-being during hot weather.
Heather A. Young*, Amber L. Adams Progar, and Adriana Lopez Ayala, Washington State University, Pullman, WA.

4:15 PM 236 Development of a scoring system to estimate fly counts on organic cows.
Charlotte Auman*, Lydia Hardie1, Isaac Haagen1, Longfei Han1, Brad Heins2, and Chad Dechow1, 1Pennsylvania State University, University Park, PA, 2University of Minnesota, Minneapolis, MN.

4:30 PM 237 Effect of nightly mixing versus separation of dams and calves on behavior, production, and calf growth.
Ashley D. Campeaux*, Amanda R. Lee1, Melissa C. Cantor1, Joao H. C. Costa2, Liesel G. Schneider1, and Peter D. Krawczel1, 1Department of Animal Science, University of Tennessee Knoxville, Knoxville, TN, 2Dairy Science Program, Department of Animal and Food Sciences, University of Kentucky, Lexington, KY.

ADSA-SAD Undergraduate Dairy Production Oral Competition
Chair: Leanne M. Berning, California Polytechnic State University
Room 200 A

2:00 PM 238 Supplementing early lactation dairy cows with branched-chain amino acids.
Conor John McCabe*, Francisco Leal-Yepes1, and Daryl Van Nydam2, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Cornell University College of Veterinary Medicine, Ithaca, NY.

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

2:30 PM 240 Automated temperature reading systems to detect fever in dairy cattle.
Megan M. Woodrum*, Gustavo Mazon, and Joao H. C. Costa, University of Kentucky, Lexington, KY.

2:45 PM 241 Using technologies to enhance respiratory disease detection in calves.
Courtney L. Henderson*, Christina S. Petersson-Wolfe, David R. Winston, and Kristy M. Daniels, Virginia Tech, Blacksburg, VA.
3:00 PM 242 Sustaining the dairy industry.

3:15 PM 243 Strategies for reducing methane emission by dairy cattle.
Nicholas P. Uzee* and Catleen C. Williams, Louisiana State University, Baton Rouge, LA.

3:30 PM 244 Ice cream break in Exhibit Hall

4:00 PM 244 Environmental enrichment in dairy cows and calves.
Jaime E. Uren* and Maurice L. Eastridge, The Ohio State University, Columbus, OH.

4:15 PM 245 Factors that affect lying times of dairy cattle and the effect of increased lying time on milk production.
Jessica Rose Sexton* and Peter Erickson, University of New Hampshire, Durham, NH.

4:30 PM 246 Controlling potassium from the field to the diet.
Dylan M. Dietz* and Dale R. Olver, The Pennsylvania State University, University Park, PA.

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

2:00 PM 247 Udder morphology, milk production, and composition in pasture-based dairy ewes during lactation.
Vinko Batinić1, Dragica Salamon2, Stanko Ivankovic1, Neven Antunac1, and Alen Dzidic1,2, 1Faculty of Agriculture and Food Technology, University of Mostar, Mostar, Bosnia and Herzegovina, 2Faculty of Agriculture, University of Zagreb, Zagreb, Croatia.

2:15 PM 248 Performance and metabolic effects of heat stress in Lacaune dairy ewes in late lactation.
Nabil Mehaba*1, Wellington N. Coloma1, Ahmed A. K. Salama2,3, Xavier Such1, and Gerardo Caja1, 1Universitat Autonoma de Barcelona, Bellaterra; Barcelona, Spain, 2South Dakota State University, Brookings, SD.

2:30 PM 249 Genotype effects on energy and protein requirements for gain in goats.
Izabelle A. M. A. Teixeira*1, Amélia K. Almeida1, Ermias Kebreab2, and Kleber T. Resende1, 1Unesp, Jaboticabal, SP, Brazil, 2University of California, Davis, CA.

2:45 PM 250 Rumen fatty acid profile of dairy ewes fed contrasting sources of energy supplementation.
F. E. Miccoli*1,2, D. Colombatto3,4, and R. A. Palladino1,2, 1School of Agriculture Science, National University of Lomas de Zamora, Buenos Aires, Argentina, 2Department of Animal Production, University of Buenos Aires, Buenos Aires, Argentina, 3Consejo Nacional de Investigaciones Cientificas (CONICET), Buenos Aires, Argentina.

3:00 PM 251 Changes in blood key metabolites and insulin in late-pregnant prolific Afec-Assaf ewes drenched with propylene glycol or glycerol.
Uzi Moallem*1, Alon Tamir1,2, Alexander Rosov1, Lilya Lifshitz1, Hay Dvir1, and Gootwine Elisha2, 1Department of Ruminant Science, ARO, Volcani Center, Rishon LeZion, Israel, 2Department of Animal Science, University of Jerusalem, Rehovot, Israel.

Wellington N. Coloma*1, Nabil Mehaba1, Ahmed A. K. Salama2,3, Xavier Such1, and Gerardo Caja1, 1Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain, 2South Dakota State University, Brookings, SD.

3:30 PM 253 Ice cream break in Exhibit Hall

4:00 PM 253 Effect of 2,4-thiazolidinedione treatment on milk fat synthesis in lactating dairy goats in optimal nutritional status.
Shana Jaff*1, Fernanda Rosa1, Misagh Moridi1,2, Johan Osorio1, Jayant Lohakare1,3, Erminio Trevisi4, Shelby Filley1, Charles Estill1, Gita Cherian1, and Massimo Bionaz4, 1Oregon State University, Corvallis, OR, 2Guilan University, Rasht, Guilan, Iran, 3Kangwon National University, Chuncheon, South Korea, 4Università Cattolica del Sacro Cuore, Piacenza, Italy.
Influence of vitamin B$_2$, ascorbic acid, and melatonin on reproductive performance of ewes during the summer season.
M. M. Waheed$^{1,2}$, K. H. El-Shahat$^2$, A. A. Sallam$^3$, B. E. El-Saidy$^4$, and T. A. A. Khalifa$^4$, $^1$King Faisal University, Alhufuf, Alahsa, Saudi Arabia, $^2$Cairo University, Giza, Egypt, $^3$Animal Production Research Institute, Sakha, Kafr Alskeikh, Egypt, $^4$Veterinary Research Institute, Ionia, Thessaloniki, Greece.

Teaching, Undergraduate and Graduate Education Symposium:
Active Learning—From Theory to Practice

Chairs: Michel Wattiaux, University of Wisconsin, and Elizabeth Karcher, Purdue University
Room 301 C

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

Promoting active learning in teaching and assessment.
Wendy J. Warner*, North Carolina State University, Raleigh, NC.

How active learning can develop intercultural competencies.
Mark Russell*, Purdue University, West Lafayette, IN.

Ice cream break in Exhibit Hall

Integrating active learning strategies in study abroad programming.
Elizabeth L. Karcher*, Purdue University, West Lafayette, IN.

College classrooms as active learning environments.
Michel A. Wattiaux*, University of Wisconsin-Madison, Madison, WI.

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

POSTER PRESENTATIONS

Animal Behavior and Well-Being II

T1
Sample size estimates for assessing lameness, leg injuries, and body condition.
Jennifer M. C. Van Os*, Daniel M. Weary, Joao H. C. Costa, Maria J. Hötzel, and Marina A. G. von Keyserlingk, 1Animal Welfare Program, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 2Laboratório de Etnologia Aplicada e Bem-Estar Animal (LETA), Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil.

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

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

T4
Effect of management system on the lying behavior of organic dairy cows.
Victoria L. Couture*, Peter D. Krawczel, S. Ray Smith, Liesel G. Schneider, Agustin G. Ríus, and Gina M. Pighetti, 1University of Tennessee, Knoxville, TN, 2University of Kentucky, Lexington, KY.

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

T6
Impact of freestall neck-rail position on stall and cow hygiene.
Ivelisse Robles, David F. Kelton, Herman W. Barkema, Greg P. Keefe, Jean-Philippe Roy, Marina A. G. von Keyserlingk, and Trevor I. DeVries*, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 3Facility of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 4Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI, Canada, 5Faculté de Médecine Vétérinaire, Université de Montréal, Montréal, QC, Canada, 6Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada.

T7
Improving welfare as a strategy to increase productivity and profitability in tiestall farms.
Marianne Villettaz Robichaud, Jeffrey Rushen, Anne Marie de Passillé, Elsa Vasseur, Derek Haley, and Doris Pellerin, 1Université Laval, Québec, QC, Canada, 2University of British Columbia, Vancouver, BC, Canada, 3McGill University, Ste-Anne-de-Bellevue, QC, Canada, 4University of Guelph, Guelph, ON, Canada.

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

T9
Assessing comfort of lactating dairy cows housed in tiestalls with recycled manure solids bedding.
Salma Oueslati*, Marianne Villettaz Robichaud, Stéphane Godbout, Sébastien Fournel, Pierre Ruel, Elsa Vasseur, and Doris Pellerin, 1Université Laval, Québec, QC, Canada, 2Institut de Recherche et de Développement en Agroenvironnement, Québec, QC, Canada, 3Centre de Recherche en Sciences Animales de Deschambault, Deschambault, QC, Canada, 4McGill University, Ste-Anne-de-Bellevue, QC, Canada.

T10
Would cows benefit from “king-size” beds?
Véronique Boyer, Erika Edwards, Maria Francesca Guiso, Steve Adam, Peter Krawczel, Anne-Marie de Passillé, and Elsa Vasseur, 1McGill University, Animal Science, Montréal, QC, Canada, 2University of Tennessee, Animal Science, Knoxville, TN, 3Università degli Studi di Sassari, Sassari, Sardinia, Italy, 4Valacta, Ste-Anne-de-Bellevue, QC, Canada, 5University of British Columbia, Dairy Research and Education Centre, Agassiz, BC, Canada.

T11
Effect of prepartum lying time on stillbirth in transition dairy heifers and cows.
B. T. Menichetti, J. M. Piñeiro, A. A. Barragan, A. Relling, A. Garcia-Guerra, and G. M. Schuenemann, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, 2Department of Animal Sciences, The Ohio State University, Wooster, OH.
T12 Effect of parity, season, and group size on dairy cows and heifers’ preferences for calving location.
Erika M. Edwards*, Katy L. Proudfoot, Heather M. Dann, Liesel G. Schneider, and Peter D. Krawczel, The University of Tennessee, Knoxville, TN, The Ohio State University, Columbus, OH, The William H. Miner Agricultural Research Institute, Chazy, NY.

T13 Lying behavior as an indicator of diarrhea and navel inflammation in veal calves.
Meghan J. Studds, Larissa L. Deikun, Dana E. Sorter, and Kathryn L. Proudfoot, The Ohio State University, Columbus, OH, Provimi, Brookville, OH.

T14 Impacts of wild birds on pathogen dissemination and behavioral interactions in dairy cattle.
Tyler P. Caskin*, John M. Gay, Karen M. M. Steensma, Joseph H. Harrison, Brian Garries, Aurora Sarchet, and Amber L. M. K. Waller*, B. A. Gregg, M. Garcia, B. J. Bradford, and J. A. Daniel, The Ohio State University, Columbus, OH.

T15 Assessing human-conditioned sorting behavior in dairy cows in farm research trials.

Animal Health III

T17 Effects of 2,4-thiazolidinedione on milk fatty acid profile and vitamins in dairy goats with subclinical mastitis.
Chia-Yu Tsai*, Fernanda Rosa, Massimo Bionaz, and Pedram Rezamand, University of Idaho, Moscow, ID, Oregon State University, Corvallis, OR.

T18 Pre-calving body condition score affects leukocytes count following pegbovigrastim treatment in Simmental cows around calving.
V. Lopreialo*, D. Britti, and V. M. Morittu, Interdepartmental Services Centre of Veterinary for Human and Animal Health, Department of Health Science, Magna Graecia University, Catanzaro, Italy.

T19 Effect of central administration of an acute phase protein, α-1-acid-glycoprotein, on feed intake in sheep.
M. K. Waller*, B. A. Gregg, P. A. Parker, M. Garcia, B. J. Bradford, J. A. Daniel, and B. K. Whitlock, College of Veterinary Medicine, University of Tennessee, Knoxville, TN, Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS.

T20 The effects of central administration of a leptin receptor antagonist on endotoxin-induced hypophagia and fever in sheep.
B. K. Whitlock*, B. A. Gregg, P. A. Parker, M. K. Waller, M. Garcia, B. J. Bradford, and J. A. Daniel, College of Veterinary Medicine, University of Tennessee, Knoxville, TN, Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS.

T21 Impact of fumonis B, on rumen environment: An in vitro study.
Christian Stolber*, Ursula Hofstetter*, Johannes Faas, Barbara Doupovec, and Dian Schatzmayr, Biomin Holding, Getzersdorf, Austria, Biomin Research Center, Tulln, Austria.

T22 In vitro effect of cowpea polyphenols on bovine rumen microbiome.
Sarah Adjei-Fremah*, Kingsley Ekwemalor, Emmanuel Asiamah, Bertha Osei, Eboghoie Eluka-Okoludoh, Keith Schimmel, and Mulumebet Worku, North Carolina Agricultural and Technical State University, Greensboro, NC.

T23 Relationship between in vitro ceftiofur minimum inhibitory concentration and quarter somatic cell count response after the occurrence of clinical mastitis caused by Klebsiella spp.
Maria J. Fuenzalida* and Pamela L. Ruegg*, University of Wisconsin, Madison, Wisconsin, Michigan State University, East Lansing, MI.

T24 Effects of postpartum oral calcium supplementation on productive and reproductive outcomes in Jersey cows.
A. Valdecarbes* and N. Silva-del-Rio, Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.

T25 Establishment of an in vitro rumen model with primary rumen epithelial cells.
Nicole Reisinger*, Damian Baranski, Dominik Wendner, Veronika Nagl, and Elisabeth Mayer, Biomin Research Center, Tulln, Austria.
T27 Effects of pegbovigrastim administration on periparturient diseases, milk production, and reproductive performance of Holstein cows.

T28 Impacts of various milk replacer supplements on the health and performance of high-risk calves.
Emily M. Davis*, Yu Liang, Tyler A. Batchelder, and Michael A. Ballou, Texas Tech University, Lubbock, TX.

T29 Carvacrol residues in milk after prophylactic intrauterine infusion of a natural oregano essential oils product in postpartum dairy cows.
Diego Manriquez*, Emar Freitas, Ana Velasquez*, Juan Velez*, and Pablo J. Pinedo*, 1Department of Animal Sciences, Colorado State University, Fort Collins, CO, 2Aurora Organic Dairy, Plateville, CO, 3Van Beek Natural Science, Orange City, IA.

T30 A mathematical modelling approach to dynamic networks: Potassium homeostasis and glucose-insulin in dairy cows.

T31 Effect of metritis on endometrium tissue transcriptome during puerperium in Holstein lactating cows.
Sandra Genís*1,2, Anna Arís1, Manveen Kaur2, and Ronaldo L. A. Cerri2, 1Department of Ruminant Production, IRTA, Caldes de Montbui, Spain, 2Applied Animal Biology, UBC, Vancouver, BC, Canada.

T32 Stabilized rice bran addition in milk of non-weaned organic Holstein calves.
Ana Velasquez1*, Diego Manriquez2, Sushil Paudyal1, Han Hyungchul1, Robert Callan1, Elizabeth Ryan1, and Pablo Pinedo1, 1Department of Animal Sciences, College of Agricultural Sciences, Colorado State University, Fort Collins, CO, 2Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO, 3Department of Environmental and Radiological Health Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO.

T33 Evaluation of the incidence of health events compatible with recumbency at dry-off in Denmark.
Heidi L. Hyttel1, Kaspar Krogh1,2, and Ana de Prado-Taranilla2, 1Danish Cattle Association, SEGES, Skejby, Denmark, 2Ceva Sante Animale, Libourne, France.

T34 Udder health, milk production, and longevity parameters across three OmniGen-AF feeding trials.
Stephen C. Nickerson1, Felicia M. Kautz1, Lane O. Ely1, Angela D. Rowson*, and Derek J. McLean1, and James D. Chapman2, 1University of Georgia, Athens, GA, 2Phibro Animal Health Corp., Teaneck, NJ.

T35 Induction of leaky gut through feed restriction or abomasal infusion of resistant starch in healthy post-peak lactating cows.
Paola Piantoni*, Megan A. Abeyta1, Guillermo F. Schroeder1, Hugo A. Ramírez-Ramírez2, Heather A. Tucker3, and Lance H. Baumgard1, 1Cargill Animal Nutrition Innovation Campus, Elk River, MN, 2Iowa State University, Ames, IA, 3Novus International, St. Charles, MO.

T36 Associations between the general condition and the selling price of culled dairy cows sold at 3 Ontario auction markets in a defined time period.
Allison Moorman*1,2, Todd F. Duffield1,2, M. Ann Godkin1, Jeffery Rau1, and Derek B. Haley1,2, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Campbell Centre for the Study of Animal Welfare, University of Guelph, Guelph, ON, Canada, 3Ontario Ministry of Agriculture, Food and Rural Affairs, Elora, ON, Canada, 4Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

T37 Milk yield relative to supplement intake and ruminating time differences by health status for fresh cows milked with automated systems.
Meagan T. M. King*, Kaitlin J. Sparkman1, Stephen J. LeBlanc2, and Trevor J. DeVries1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Ruminating Population, University of Guelph, Guelph, ON, Canada.

T38 Young calves that will suffer at least one episode of diarrhea in the first 30 days of life have a different fecal microbiome than those that will not incur diarrhea.
Flor Correa1, Francesc Fàbregas2, Virginia Aragón1, and Àlex Bach*1,2, 1IRTA, Centre de Recerca en Sanitat Animal (CreSA, IRTA-UAB), Barcelona, Spain, 2Department of Ruminant Production, IRTA, Barcelona, Spain, 3ICREA, Barcelona, Spain.

T39 On-farm selection of adult fecal microbiome for transplantation into neonatal dairy calves as an enhancer for growth and development.
Fernanda Rosa*, Erminio Trevisi1, and Johan S. Osorio1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, US, 2Department of Animal Sciences, Food and Nutrition, Università Cattolica del Sacro Cuore, Piacenza, Italy.

T40 Evaluation of the potential enrichment of RNA from immune cells during isolation of fecal RNA from neonatal dairy calves.
Fernanda Rosa* and Johan S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.
Pre- and post-weaning performance and health of dairy calves fed milk replacers supplemented with egg antibodies, direct-fed microbials, neomycin sulfate and oxytetracycline.

David M. Ziegler*, Hugh Chester-Jones, Bruce E. Ziegler, Angie K. Manthey, and Julian L. Olson, 1University of Minnesota, Waseca, MN, 2Hubbard Feeds Inc., Mankato, MN, 3Milk Products, Chilton, WI.

Pre- and post-weaning performance and health of dairy calves fed milk replacers supplemented with an organic direct-fed microbial or neomycin sulfate and oxytetracycline.

David M. Ziegler*, Hugh Chester-Jones, Bruce E. Ziegler, Angie K. Manthey, and Julian L. Olson, 1University of Minnesota, Waseca, MN, 2Calpis America Inc., Peachtree City, GA.

Pre- and post-weaning performance and health of dairy calves fed milk replacer supplemented with direct-fed microbials or neomycin sulfate and oxytetracycline.

David M. Ziegler*, Hugh Chester-Jones, Bruce E. Ziegler, Angie K. Manthey, and Julian L. Olson, 1University of Minnesota, Waseca, MN, 2Hubbard Feed, Inc., Mankato, MN, 3Milk Products, Chilton, WI.


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

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


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

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

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

Impact of Saccharomyces cerevisiae fermentation product (SCFP) on oxidative status and immune response of transition dairy cattle. Sarah E. Sivinski*, Katie E. Olagaray, Laman K. Mamedova, Joseph M. McIntosh, Ben A. Saylor, James E. Shaffer, Julie A. Sauls, Ilkyu Yoon, and Barry J. Bradford, 1Kansas State University, Manhattan, KS, 2Diamond V, Cedar Rapids, IA.

Effects of metritis on incidence of postpartum disorders and days in the hospital in Holstein dairy cows. Fabio S. Lima*, A. Vieira-Neto, and Jose E. Santos, 1Department of Veterinary Clinical Medicine, University of Illinois, Urbana, IL, 2Department of Animal Sciences, Gainesville, FL.

Comfort or stress in the housing environment: Effects on milk quality, milk production, and immune function of dairy cattle. Matthew Borchers*, Anna Bradtmueller, and Jeffrey Bewley, 1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.
Breeding and Genetics II

Allison Fleming1,2, Filippo Miglior1,2, and Christine Baes3, 1CGIL, University of Guelph, Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada.

T56 Preliminary exploration of the relationship between automated rumen sensor data and feed intake in lactating dairy cows...
Cori J. Sikorski1, Mathew R. O’Neil, James E. Koltes, and Hugo A. Ramirez-Ramirez, Iowa State University, Ames, IA.

T58 Inbreeding depression in a Hereford beef cattle population using the pedigree and genomic information.
Pattarapol Sumreddee1, Sajjad Toghanii1, El Hamidi Hay1, Samuel E. Aggrey1, and Romdhane Rekaya1, 1University of Georgia, Athens, GA, 2USDA/ARS/LARRL, Miles City, MT.

T59 Diet digestibility measured from fecal samples and associations with phenotypic and genetic merit for milk yield and composition.
Emilee K. Panunzi1,2, Kevin J. Harvatine1, Y. Ying1, and Chad D. Dechow1, 1Pennsylvania State University, University Park, PA, 2University of Pennsylvania, Philadelphia, PA.

T60 Development of AFLP breed identification markers for Pakistani Cholistani cattle.
Muhammad Moaen-ud-Din1 and Ghulam Bilal, Laboratories of Animal Breeding and Genetics, Faculty of Veterinary and Animal Sciences, PMAS Arid Agriculture University, Rawalpindi, Rawalpindi, Punjab, Pakistan.

T61 Body weight and body condition score variations in Romane ewes: intraflock variability in their dynamics and magnitude over multiple production cycles.
Tiphaine Macé1, Dominique Hazard2, Fabien Carrière2, Sébastien Douls1, Christèle Robert-Granié1, and Eliel González-García1, 1GENPHYSE UMR1388, Castanet-Tolosan, France, 2INRA La Fage UE321, Roquefort-sur-Soulzon, France, 3INRA SELMET (Systèmes d’Élévation Méditerranéens et Tropicaux), Montpellier, France.

T304 Genome-wide association study on health and reproductive traits in US Holstein cattle.
Fernando Brito1, Guilherme Rosa1, Pablo Pinedo2, Jose Santos1, Gustavo Schuenemann4, Rodrigo Bicalho1, Kiibs Galvao1, Robert Gilbert2,9, Sandra Rodriguez-Zas5, Christopher Seabury7, John Fetrow8, and William Thatcher1, 1University of Wisconsin, Madison, WI, 2Colorado State University, Fort Collins, CO, 3University of Florida, Gainesville, FL, 4The Ohio State University, Columbus, OH, 5Cornell University, Ithaca, NY, 6University of Illinois, Urbana-Champaign, IL, 7Texas A&M University, College Station, TX, 8University of Minnesota, Saint Paul, MN, 9Ross University, Bassetterre, St. Kitts and Nevis, West Indies.

T305 Genetic and functional relationships among reproductive traits in US Holstein cows.
Fernando Brito1, Guilherme Rosa1, Pablo Pinedo2, Jose Santos1, Gustavo Schuenemann4, Rodrigo Bicalho1, Kiibs Galvao1, Robert Gilbert2,9, Sandra Rodriguez-Zas5, Christopher Seabury7, John Fetrow8, and William Thatcher1, 1University of Wisconsin, Madison, WI, 2Colorado State University, Fort Collins, CO, 3University of Florida, Gainesville, FL, 4The Ohio State University, Columbus, OH, 5Cornell University, Ithaca, NY, 6University of Illinois, Urbana-Champaign, IL, 7Texas A&M University, College Station, TX, 8University of Minnesota, Saint Paul, MN, 9Ross University, Bassetterre, St. Kitts and Nevis, West Indies.

Dairy Foods IV: Cheese

T62 Rheological and wear behaviors of full-fat cheese.
Fariba Zad Bagher Seighalani1* and Helen Jayner, School of Food Science, University of Idaho, Moscow, ID.

T63 Effects of composition, processing, and recovery of buffalo milk solids on the yield of mozzarella cheese.
D. C. Sales1, A. H. N. Rangel1, L. H. F. Borba2, S. A. Urbano2, A. F. Brito3, J. G. B. Galvão Jr.3, H. Tonhati5, E. G. Silva1, A. R. Freitas4, and D. M. Lima Jr.4, 1Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, 2Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, 3Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil, 4University of New Hampshire, Durham, NH, 5Empresa Brasileira de Pesquisa Agropecuária, São Carlos, SP, Brazil, 6Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, SP, Brazil, 7Universidade Federal de Alagoas, Arapiraca, AL, Brazil.
T64  Sensory acceptance of Coalho cheese from Zebu cow milk.
I. L. S. Oliveira¹, A. H. N. Rangel*¹, R. C. Madruga¹, M. F. Bezerra¹, Y. M. O. Silva¹, R. D. S. Gomes¹, J. S. Bezerra¹, E. O. Moura¹, L. F. C. Trindade¹, and J. G. B. Galvão Jr.², ¹Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, ²Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil.

T65  Sensorial acceptance of pasteurized fluid milk and Coalho cheese from milk with two levels of somatic cell counts.
J. S. Bezerra¹, A. H. N. Rangel*¹, L. Murmann³, J. G. B. Galvão Jr.², E. P. E. Silva¹, Y. M. O. Silva¹, C. S. Macedo¹, A. L. Vasconcelos¹, R. D. S. Gomes¹, and L. H. F. Borba¹, ¹Universidade Federal do Rio Grande do Norte, Macaíba, RN, Brazil, ²Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil.

T66  Sodium analysis equivalency of dry ashing and microwave assisted digestion of mozzarella cheese.
Dustin Grossbier*¹ and Tonya Schoenfuss, University of Minnesota, Minneapolis, MN.

T67  Influence of using different proportions of cow and goat milk on the properties of Chanco cheese.
Rodrigo A. Ibáñez*¹, Stefanie Wyhmeister², Carolina Geldsetzer-Mendoza³, Marcela Medel-Marabolí³, María A. Fellenberg¹, and Einar Vargas-Bello-Pérez³, ¹Pontificia Universidad Católica de Chile, Santiago, Chile, ²University of Chile, Santiago, Chile, ³University of Copenhagen, Copenhagen, Denmark.

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

T69  Volume of whey expelled and whey composition as influence by salting, wet and dry season.
Olusegun D. Oshibania*¹, K. L. Kazeem, and David Ojo Akintola, University of Ibadan, Ibadan, Oyo Nigeria.

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

Dairy Foods V: Microbiology

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

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

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

T74  Isolation of a Lactobacillus wasatchensis-like isolate from an aged European Cheddar cheese showing late gas defects.
Isaac Martineau*¹, Michele Cuumber³, Craig Oberg², and Donald McMahon¹, ¹Utah State University, Logan, UT, ²Weber State University, Ogden, UT.

T75  Suppressing growth of Lactobacillus wasatchensis WDC04 using organic acids.
Ireland Green*¹, Craig Oberg², Matthew Domek³, and Donald McMahon¹, ¹Utah State University, Logan, UT, ²Weber State University, Ogden, UT.

T76  Inhibition of Lactobacillus wasatchensis by bio-protective lactic acid bacteria.
Sophie Overbeck*¹, Craig Oberg²,³, Michele Cuumber³, and Donald McMahon¹, ¹Utah State University, Ogden, UT, ²Weber State University, Ogden, UT.

T77  Potential protective effect of bifidobacteria isolated from Egyptian yogurt against carbapenem-resistant Acinetobacter baumannii.
Mahmoud Motawee*¹, Sherin M. A. Sharaf², and Neveen M. Saleh², ¹Nutritional Evaluation and Food Science Department, National Organization for Drug Control and Research, Giza, Egypt, ²Microbiology Department, National Organization for Drug Control and Research, Giza, Egypt.

T78  A selective medium for the enumeration and differentiation of Lactobacillus delbrueckii ssp. bulgaricus.
Nwadiuto Nwamaioha*¹, Rabin Gywali, Tahl Zimmerman, and Salam A. Ibrahim, North Carolina A&T State University, Greensboro, NC.
Dairy Foods VI

Sensory evaluation of whey fermented beverages with buttermilk and Brazilian Cerrado fruit.
Renata T. Pfimer1, Lohanne Damasceno1, Cláudio F. Cardoso2, Thamara V. de Almeida1, Juan C. R. S. More1, Emmanuel Arnhold1, Edmar S. Nicolau1, and Clarice Gebara2,*
1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

Development and characterization of whey fermented beverages with buttermilk and Cagaita pulp (*Eugenia dysenterica*).
Lohanne Damasceno1,* Renata T. Pfimer2, Claudio F. Cardoso2, Ruthele M. do Carmo1, Cíntia S. Minafra-Rezende1, Emmanuel Arnhold1, Cristiano S. Prado1, Edmar S. Nicolau1, and Clarice Gebara2,* 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil.

Bronopol-based preservatives evaluation on somatic cell count and chemical composition of raw milk samples.
Silmara Dâmaso1,* Thamara V. de Almeida1, Tatiane L. Batistotti1, Jean R. de Sousa1, Renata T. Pfimer1, Lohanne Damasceno1, Emmanuel Arnhold1, Iolanda A. Nunes1, Edmar S. Nicolau1, and Clarice Gebara2,* 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

Proteomic analysis on whey proteins of Guanzhong goat milk.
Yuxue Sun1,* Cuina Wang1, Xiaomeng Sun2, and Mingruo Guo3,* 1Department of Food Science, College of Food Science and Engineering, Jilin University, Changchun, Jilin, China, 2Department of Nutrition and Food Sciences, College of Agriculture and Life Sciences, University of Vermont, Burlington, VT.

Preservation of lactase activity in a gastric environment.
John F. Flanagan1,* Josh Simmons, J. Ronnie Boone, Cooper Elkins, and Kent Clinger, David Lipscomb University, Nashville, TN.

Changes in structure and antioxidant activity of β-lactoglobulin by ultrasound and enzymatic treatment.
Shuang Ma1, Cuina Wang1, and Mingruo Guo3,* 1Department of Food Science, College of Food Science and Engineering, Jilin University, Changchun, Jilin, China, 2Department of Nutrition and Food Sciences, College of Agriculture and Life Sciences, University of Vermont, Burlington, VT.

Evaluation of the potential of bovine immunoglobulins and glycomacropptide to serve as sources of peptides with dipeptyl-peptidase IV inhibitory activity.
Isabelle M. E. Lacroix1,* Brian Anderson2, Don E. Otter2, and Robert D. Bremel2,* 1Wageningen University & Research, Wageningen, the Netherlands, 2ioGenetics LLC, Madison, WI, 3Centre for Dairy Research, University of Wisconsin-Madison, Madison, WI.
Physicochemical modifications of MFGM proteins during temperature processing of milk.  
Feiran Yu*, Joana Ortega-Anaya, and Rafael Jimenez-Flores, The Ohio State University, Columbus, OH.

Localization of milk gangliosides in emulsion monolayers that resemble the milk fat globule membrane outer leaflet.  
Luis M. Real Hernandez* and Rafael Jimenez Flores, The Ohio State University, Columbus, OH.

The potential of milk production and consumption for improving nutrition of smallholder dairy households in Ethiopia.  
Habtamu Didanna**, Ashenafi Wossen*, Tadesse Work axle, and Berhanu Shano1, Wolaita Sodo University, Sodo, Ethiopia, 1Addis Ababa University, Addis Ababa, Ethiopia.

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

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

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

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

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

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

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

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

Aptamer-based fluorescence-quenching assay for detection of aflatoxin M1 in milk samples.  
Qinqin Qiao1,2, Fang Wen1,4, Lu Chen1,4, Jianbo Cheng1, Hao Zhang1,3, Songli Li1,2, Nan Zheng1,2, and Jiaqi Wang**, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Modulation of intestinal epithelial permeability in differentiated Caco-2 cells exposed to aflatoxin M1 and ochratoxin A individually or collectively.  
Y. N. Gao1,2, J. Q. Wang1,2, C. C. Luo1,2, and N. Zheng1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Chinese Academy of Agricultural Sciences, Beijing, China.

Quantitative PCR coupled with sodium dodecyl sulfate and propidium monoazide for detection of viable Staphylococcus aureus in milk.  
Lei Dong1,2, Huimin Liu1,2, Lu Meng1,2, Nan Zheng1,2, and JiaQi Wang**, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Occurrence of tetracyclines, quinolones, lincomycin and streptomycin in milk in China’s market.  
Bingyao Du1,2, Fang Wen1, Yangdong Zhang1, Nan Zheng1, Songli Li1, Fadi Li1, and Jiaqi Wang**, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2College of Pastoral Agriculture Science and Technology, Lanzhou University, Lanzhou, China.
Development of a rapid detection method of lactoperoxidase in milk.
Weiyong Du\textsuperscript{1,3}, Yangdong Zhang\textsuperscript{1,2}, Nan Zheng\textsuperscript{1,2}, Fadi Li\textsuperscript{3}, and Jiaqi Wang\textsuperscript{*1,2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 3Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 3State Key Laboratory of Grassland Agro-ecosystems, College of Pastoral Agriculture Science and Technology, Lanzhou University, Lanzhou, Gansu, China.

Identification and proteolytic activity quantification of Pseudomonas spp. isolated from different raw milks at storage temperatures.
Lu Meng\textsuperscript{1,2}, Huimin Liu\textsuperscript{1,2}, Lei Dong\textsuperscript{1,2}, Nan Zheng\textsuperscript{1,2}, and Jiaqi Wang\textsuperscript{*1,2, 1Key Laboratory of Quality & Safety Control for Dairy Products of Ministry of Agriculture, Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 2Milk Product Risk Assessment Laboratory of China Ministry of Agriculture (Beijing), Institute of Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China, 3State Key Laboratory of Grassland Agro-ecosystems, College of Pastoral Agriculture Science and Technology, Lanzhou University, Lanzhou, Gansu, China.

Forages and Pastures II

Application of a handheld infrared meter for determining silage moisture.
Jarrod J. Blackburn\textsuperscript{*1}, Richard G. Bonner\textsuperscript{2}, John P. Goeser\textsuperscript{3}, Christopher I. Vahl\textsuperscript{1}, and Micheal J. Brouk\textsuperscript{1, Kansas State University, Manhattan, KS, 2Topcon Agriculture Americas, Fort Atkinson, WI, 3Cumberland Valley Analytical Services, Waynesboro, PA, 4Buerker AXS Inc., Madison, WI, 5Mertens Innovation & Research LLC, Belleville, WI.

Energy-dispersive X-ray fluorescence (EDXRF) as a comprehensive method for mineral analysis of feeds.
Ralph Ward\textsuperscript{1*}, D. Ye\textsuperscript{2}, Arkady Buman\textsuperscript{3}, D. Pecard\textsuperscript{4}, and David R. Mertens\textsuperscript{1, 1Cumberland Valley Analytical Services, Waynesboro, PA, 2Bruker AXS Inc., Madison, WI, 3Mertens Innovation & Research LLC, Belleville, WI.

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

Effect of corn planting population on phosphorus concentration and extraction in the forage (study 2).
Gonzalo Ferreira and Christy L. Teets\textsuperscript{*}, Department of Dairy Science, Virginia Tech, Blacksburg, VA.

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

Meta-analysis of the effect of Lactobacillus buchneri inoculation on dry matter recovery and aerobic stability of silages.
Kathy G. Arriola\textsuperscript{*1,3}, Andre S. Oliveira\textsuperscript{2}, Yun Jiang\textsuperscript{2}, Ibukun M. Ogunade\textsuperscript{1}, Henrique M. Silva\textsuperscript{1}, Felipe X. Amaro\textsuperscript{1}, Andreas A. Pech-Cervantes\textsuperscript{1}, Sam C. Kim\textsuperscript{3}, Halima Sultan\textsuperscript{1}, Diwakar Vyas\textsuperscript{1}, Luiz F. Ferraretto\textsuperscript{2}, and Adegbola T. Adesogan\textsuperscript{1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Institute of Agriculture and Environmental Sciences, Universidade Federal de Mato Grosso, Sinop, Brazil, 3Division of Applied Life Science, Gyeongsang National University, Jinju, South Korea.

Impacts of silage bacterial additives on forage fiber.
Pascal Drouin\textsuperscript{*}, Salvador Ordaz\textsuperscript{2}, and Pattathil Sivakumar\textsuperscript{1, 1Lallemand Specialities Inc., Milwaukee, WI, 2University of Vermont, Burlington, VT, 3Lallemand Inc., Lebanon, NH.

Pasture base dairy farm intensification: the role of growth strategy (stocking rate vs. individual milk production) and availability of infrastructure.
Martin Aguerre\textsuperscript{*}, María N. Méndez\textsuperscript{1}, Santiago Torterolo\textsuperscript{1}, and Pablo Chilibroste\textsuperscript{1, 1Red Tecnológica Sectorial de Lechería, Montevideo, Uruguay, 2Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Udelar, Paysandú, Uruguay.

Effects of forage allowance on production and pasture use efficiency in Uruguay.
Anderson de Moura Zanine\textsuperscript{1}, Gianni Paolo Motta Rebuffo\textsuperscript{2}, Grazielle Silva Oliveira\textsuperscript{*}, Danielle de Jesus Ferreira\textsuperscript{1}, Ricardo Martins Araújo Pinho\textsuperscript{1}, Michelle de Oliveira Maia Parente\textsuperscript{1}, and Henrique Nunes Parente\textsuperscript{1, 1Universidade Federal do Maranhão, Chapadinha, Maranhão, Brazil, 2Universidade Federal do Mato Grosso, Cuiabá, Mato Grosso, Brazil.}
Milk production and composition of dairy cows in response to pasture allowance.
Anderson de Moura Zanine1, Gianni Paolo Motta Rebuffo2, Grazyiele Silva Oliveira3, Danielle de Jesus Ferreira4, Ricardo Martins Araújo Pinho5, Michelle de Oliveira Maia Parente6, and Henrique Nunes Parente7, Universidade Federal do Maranhão, Chapadinha, Maranhão, Brazil, Universidade Federal do Mato Grosso, Cuiabá, Mato Grosso, Brazil.

Pasture dry matter intake in intensive dairy production systems: Effects of grazing and feeding management.

Effect of stocking rate on pasture production and utilization on a grazing dairy system during winter and spring.
Gastón Ortega*, Tatiana Núñez2, Diego Custodio1, Ricardo Mello3, Yesica Lopez4, and Pablo Chilibroste1, Agronomy Faculty, Animal Science Department, Progreso, Canclones, Uruguay, Agronomy Faculty, Animal Science Department, Grass Production and Utilization on Grazing Systems, Paysandú, Paysandú, Uruguay.

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

New approach to properly characterize molasses composition.
Alberto Palmonari1, Ludovica Mammi1, Damiano Cavallini*, Charles J. Sniffen2, Luiza Fernandes3, Phil Holder4, and Andrea Formigoni1, DIMET, Università di Bologna, Bologna, Italy, Fencrest LLC, Holderness, NH, ED&F Man Liquid Products/ Westway Feeds, London, United Kingdom.

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

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

Effect of nitrogen dose and harvesting age on Tithonia diversifolia yield and quality.

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

Effect of cellulase and fermentation period on the nutritive value of Panicum maximum (cv. Mombasa) silage.
P. A. Helrigel, V. L. Banys, M. Dias, L. R. de Q. Carvalho, N. P. S. Morais, and E. A. Collao-Saenz*, Universidade Federal de Goiás-UFG, Jataí, GO, Brazil.

Growth and Development I

Effects of overstocking at the feedbunk on the growth performance of replacement Holstein dairy heifers.
Wayne K. Coblentz*, Matthew S. Akins2, Nancy M. Esser2, Robin K. Ogden1, and Sonia L. Gelsinger1, US Dairy Forage Research Center, Marshfield, WI, University of Wisconsin, Madison, WI.

Estimation of starter intake in young dairy calves during the preweaning phase.
V. L. Daley1, J. K. Drackley2, C. M. Bittar3, L. O. Tedeschii4, S. Y. Morrison5, P. A. LaPierre6, and M. D. Hanigan7, National Animal Nutrition Program (NANP), Lexington, KY, University of Illinois, Urbana, IL, University of São Paulo (ESALQ/USP), Piracicaba, São Paulo, Brazil, Texas A&M University, College Station, TX, Virginia Tech, Blacksburg, VA.

Effect of type of gradual weaning program on intakes and growth of dairy calves fed a high level of milk.
Sarah D. Parsons*, Ken E. Leslie2, Michael A. Steele3, and Trevor J. DeVries4, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, Department of Population Medicine, University of Guelph, Guelph, ON, Canada, Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.
T130  Effect of maternal supplementation with essential fatty acids and conjugated linoleic acid on fatty acid status in neonatal calves.
Harald M. Hammon*, Katrin L. Uken, Laura Vogel, Martina Gnot, Armin Tuchscherer, Arnulf Trösch, and Dirk Dannenberger, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2BASF SE, Lampertheim, Germany.

T131  Effect of maternal supplementation with essential fatty acids and conjugated linoleic acid on postnatal glucose metabolism in calves.
Harald M. Hammon*, Katrin L. Uken, Laura Vogel, Martina Gnot, Solvig Görs, Joachim M. Weitzel, Armin Tuchscherer, and Arnulf Trösch, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2BASF SE, Lampertheim, Germany.

T132  Effects of corn processing and bypass soybean meal in calf starter on growth and digestibility in young dairy calves.
T. S. Dennis*, F. X. Suarez-Mena, T. M. Hill, J. D. Quigley, W. Hu, and R. L. Schlotterbeck, Provimi, Brookville, OH.

T133  Effects of corn processing and bypass soybean meal in calf starter on growth and digestibility in dairy calves from 2 to 4 mo of age.
T. S. Dennis*, F. X. Suarez-Mena, T. M. Hill, J. D. Quigley, W. Hu, and R. L. Schlotterbeck, Provimi, Brookville, OH.

T134  Supplementing pasteurized colostrum from primiparous cows with colostrum replacer improves colostrum quality and serum IgG levels in Holstein neonate calves.
Sonia Vázquez-Flores*, Adam J. Geiger, Andrea E. Olamendi-Uresti, Dulce M. Aguilar-López, Luz E. Díaz, and Cecilia Lucio Rodríguez, 1Department of Bio-engineering, Tecnológico de Monterrey campus, Querétaro, Mexico, 2Zinpro Corp., Eden Prairie, MN.

T135  Dietary effects on rumen epithelial proliferation dynamics in preweaned calves.
Taylor T. Yohe*, Catherine L. M. Parsons, Hannah L. M. Tucker, Benjamin D. Enger, Nicole R. Hardy, and Kristy M. Daniels, Virginia Polytechnic Institute and State University, Blacksburg, VA.

T136  Ruminal and whole-tract diet digestion in calves before, during and after weaning.
Sonia L. Gelsinger*, Wayne K. Coblentz, Geoffrey I. Zanton, and Robin K. Ogden, 1University of Wisconsin, Madison, WI, 2United States Department of Agriculture Dairy Forage Research Center, Madison, WI.

T137  Phenotypic evaluation of body weight at first calving.
L. Han*, A. J. Heinrichs, A. DeVries, and C. D. Dechow, 1Department of Dairy and Animal Science, The Pennsylvania State University, University Park, PA, 2Department of Animal Sciences, University of Florida, Gainesville, FL.

T138  Performance effects of feeding Holstein calves a whole milk formulated milk replacer.
Aaron J. Keunen* and David L. Renaud, 1Mapleview Agri Ltd, Palmerston, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

T139  Prediction of metabolizable energy in calf starters.
James D. Quigley*, Thelton M. Hill, Joanne R. Knapp, Wenping Hu, Tana S. Dennis, Francisco X. Suarez-Mena, and Rick L. Schlotterbeck, Provimi, Brookville, OH.

T140  Weaning based on starter intake: Effects on weight gain and behavior.

T141  Effects of feeding different amounts of milk replacer on nutrient digestibility in Holstein calves to 2 months of age using different weaning transition strategies.
R. N. Klopp*, T. M. Hill, F. X. Suarez-Mena, R. L. Schlotterbeck, and G. J. Lascano, 1Clemson University, Clemson, SC, 2Nurse Research Center, Provimi, Brookville, OH.

T142  Effects of feeding different amounts of milk replacer on nutrient digestibility in 2- to 4-month-old Holstein calves using different weaning transition strategies.
R. N. Klopp*, T. M. Hill, F. X. Suarez-Mena, R. L. Schlotterbeck, and G. J. Lascano, 1Clemson University, Clemson, SC, 2Nurture Research Center, Provimi, Brookville, OH.

T143  Effect of milk replacer feeding program on calf performance and digestion.
F. X. Suarez-Mena*, T. S. Dennis, T. M. Hill, W. Hu, J. D. Quigley, R. L. Schlotterbeck, R. N. Klopp, G. J. Lascano, and L. E. Hulbert, 1Provimi, Brookville, OH, 2Clemson University, Clemson, SC, 3Kansas State University, Manhattan, KS.
T144 Effect of previous milk replacer feeding program on calf performance and digestion from 2 to 4 mo of age.
F. X. Suarez-Mena*, 1 T. S. Dennis, 1 T. M. Hill, 1 W. Hu, 1 J. D. Quigley, 1 R. L. Schlotterbeck, 1 R. N. Klopp, 2 G.J. Lascano, 2 and L. E. Hulbert, 1 1 Proveni, Brookville, OH, 2 Clemson University, Clemson, SC, 3 Kansas State University, Manhattan, KS.

T145 The effects of fatty acid supplementation and provision of a dry teat on the growth of veal calves.
Larissa L. Deikun*1,2, Greg G. Habing1, James D. Quigley1, and Kathryn L. Proudfoot1, 1 The Ohio State University, Columbus, OH, 2 Proveni, Brookville, OH.

Lactation Biology II

T146 Varying the ratio of Lys:Met while maintaining the ratios of Thr:Phe, Lys:Thr, Lys:His, and Lys:Val alters bovine mammary cell transcriptome profiles measured by RNAsequencing.
Xianwen Dong1,2, Zheng Zhou*, 1 Ariane Helmbrecht1, Claudia Parys1, Z. Wang1, and Juan J. Loor1, 1 University of Illinois, Urbana, IL, 2 Sichuan Agricultural University, Ya’an, Sichuan Province, China, 3 Clemson University, Clemson, SC, 4 Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

T147 Methionine and valine activate the mTORC1 pathway through heterodimeric amino acid taste receptor (TAS1R1/TAS1R3) and intracellular Ca2+ in primary bovine mammary epithelial cells.
Yuanfei Zhou1,2, Zheng Zhou*, 1,3 and Juan J. Loor1, 1 University of Illinois, Urbana-Champaign, Urbana, IL, 2 Clemson University, Clemson, SC, 3 Huazhong Agricultural University, Wuhan, Hubei, China.

T148 Increasing the availability of Thr, Ile, Val, and Leu relative to Lys while maintaining an ideal ratio of Lys:Met alters bovine mammary cell transcriptome profiles measured by RNA-sequencing.
Xianwen Dong1,2, Zheng Zhou*, 1 Ariane Helmbrecht1, Claudia Parys1, Z. Wang1, and Juan J. Loor1, 1 University of Illinois, Urbana, IL, 2 Sichuan Agricultural University, Ya’an, Sichuan Province, China, 3 Clemson University, Clemson, SC, 4 Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

T149 Milk composition of Holstein cows through two lactations.
Alex Pape*, 1 Heather M. Dann1, David M. Barbano2, and Richard J. Grant1, 1 William H. Miner Agricultural Research Institute, Chazy, NY, 2 Department of Food Science, Northeast Dairy Food Research Center, Cornell University, Ithaca, NY.

T150 Method for calibrating parlor milk meters and adjusting milk weights for stall effects.
Danielle M. Andreen*, Isaac J. Salfer, Yun Ying, and Kevin J. Harvatine, Pennsylvania State University, University Park, PA.

T151 Intramammary 25-hydroxyvitamin D3 and 1,25-dihydroxyvitamin D3 treatments differentially modulate serum calcium and mammary immune responses.

T152 Effects of in vivo estradiol administration on abundance and localization of yes-associated protein, an evolutionarily conserved molecule implicated in organ size regulation, in prepubertal bovine mammary tissue.
Paulnisha D. Granger*, Adam J. Geiger1,2, Catherine L. M. Parsons1, Kristy M. Daniels1, Robert M. Akers1, and Benjamin A. Corl1, 1 Virginia Polytechnic Institute and State University, Blacksburg, VA, 2 Zinpro Corp., Eden Prairie, MN.

T153 Regulation of lipogenic genes by AMPK in bovine mammary epithelial cells.
Jianhui Huang* and Marc-Antoine Guetchtizer, McGill University, Sainte-Anne-de-Bellevue, QC, Canada.

T154 Stearic acid increased milk fat content in lactating dairy ewes at late lactation.
Rafaela Horstmann, Georgina C. De Aguiar, Laís P. Batalha, and Dimas E. Oliveira*, Santa Catarina State University, Lages, Santa Catarina, Brazil.

Physiology and Endocrinology II

T155 Relationships of metabolites and hormones in follicular fluid and blood serum in transition dairy cows supplemented with a Saccharomyces cerevisiae fermentation product.
Julie A. Sauls*, Katie E. Olagaray, Sarah E. Sivinski, Barry J. Bradford, and Jeffrey S. Stevenson, Kansas State University, Manhattan, KS.
Hyperketonemia does not affect proportional uptake of fatty acids by the mammary gland.
Kristina A. Weld*, Rafael C. Oliveira, Kayla J. Sailer, Henry T. Holdorf, Sandy J. Bertsic, and Heather M. White, University of Wisconsin-Madison, Madison, WI.

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

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

Effects of dietary zinc on energetic requirements of an activated immune system following lipopolysaccharide challenge in lactating cows.

Effects of heat stress and nutritional plane on neutrophil function.

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

Sweat gland cross-sectional cut areas comparisons between slick and wild type-haired Holstein and Senepol cows in Puerto Rico.

MicroRNA involvement during the onset of ketosis and fatty liver in periparturient Holstein dairy cows.
Ryan E. Bucktrout*, Valentino Palombo, Mario Vailati Riboni, and Juan J. Loor, University of Illinois at Urbana-Champaign, Urbana, IL, Università degli Studi del Molise, Campobasso, Italy.

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

Level of estrogen in mammary parenchyma explants from weaned Holstein heifer calves increases growth and proliferation through transcriptional mechanisms as evaluated via RNA-sequencing.
M. Vailati Riboni*, V. Palombo, A. J. Geiger, R. M. Akers, and J. J. Loor, University of Illinois at Urbana-Champaign, Urbana, IL, Università degli Studi del Molise, Campobasso, Italy, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Plasma metabolomics profiling of cattle with divergent residual feed intake.
Ahmed Elolimy*, Zheng Zhou, Daniel Shike, and Juan Loor, Mammalian NutriPhysioGenomics, Department of Animal Sciences, University of Illinois, Urbana, IL, Department of Animal Sciences, University of Illinois, Urbana, IL, Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC.

Anti-inflammatory treatment in early lactation alters global mammary DNA methylation.
C. M. Ylioja*, A. J. Carpenter, M. Garcia, L. K. Mamedova, and B. J. Bradford, Kansas State University, Manhattan, KS, University of Guelph, Ridgetown, ON, Canada.

Does post-absorptive propionate clearance influence insulin sensitivity in dairy heifers?
Andrea Bedford*, Linda Beckett, Keri Hardin, Nicholas Wege Dias, Vitor R. G. Mercadante, Alan D. Ealy, and Robin R. White, Purdue University, West Lafayette, IN.

Effect of glucose infusion dose on glucose tolerance test kinetics in lactating dairy cows.
Erika N. Smith*, MaryGrace Erickson, Fabiana F. Cardoso, Brooklyn P. Biese, Juliana G. Laguna, Jessica Bydalek, and Shawn S. Donkin, Purdue University, West Lafayette, IN.
T170  Effect of serial corpus luteum biopsy collection during early pregnancy on corpus luteum function, size, blood flow, and gene expression.  
Robert Wijma, Emily M. Sitko*, Martin M. Perez, and Julio O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY.

T171  Expression of interferon-stimulated gene 15 (ISG15) mRNA is partially predictive of pregnancy-associated glycoprotein (PAG) concentrations during early pregnancy in dairy cows and heifers.  

T172  Embryo and cow factors affecting pregnancy rate after embryo transfer to multiple-service dairy cows.  
Eliab Estrada-Cortes**, William G. Ortiz2, Ricardo C. Chebel1,2, Elizabeth A. Jannaman1, James I. Moss1, Fernanda C. de Castro1, Adriana M. Zolini1, Charles R. Staples1, and Peter J. Hansen1, Department of Animal Sciences, University of Florida, Gainesville, FL, 1Large Animal Clinical Sciences, University of Florida, Gainesville, FL, 2Departamento de Medicina Veterinaria, Universidade de São Paulo, Pirassununga, São Paulo, Brazil.

T173  Effect of dose of cloprostenol on luteal blood flow measurements in mature and immature corpora lutea.  
Thaina Minela*, Emily L. Middleton, Michael R. Herman, Shianne N. Berthume, and J. Richard Pursley, Michigan State University, East Lansing, MI.

T174  In vitro adipogenic differentiation of subcutaneous primary bovine preadipocytes: A coculture model.  
Clarissa Strieder-Barboza**, Eileen Thompson, Kyan Thelen, and G. Andres Contreras, Department of Large Animal Clinical Sciences, Michigan State University, East Lansing, MI.

Production, Management, and Environment II

T175  Effects of different heating time of high, medium, and low quality colostrum on IgG absorption in dairy calves.  
D. J. Saldaña**1, S. L. Gelsinger2, C. M. Jones1, and A. J. Heinrichs1, 1Department of Animal Science, The Pennsylvania State University, University Park, PA, 2Department of Dairy Science, The University of Wisconsin, Madison, WI.

T176  Factors influencing the electrical resistance of various pathways through the dairy cow.  
Richard J. Norell*1, Jennifer A. Spencer1, Saulo Menegatti Zoca2, and Amin Ahmadzadeh2, 1University of Idaho, Idaho Falls, ID, 2University of Idaho, Moscow, ID.

T177  Partitioning the resistance of electrical pathways through the cow into component segments.  
Richard J. Norell*1, Jennifer A. Spencer1, Saulo Menegatti Zoca2, and Amin Ahmadzadeh2, 1University of Idaho, Idaho Falls, ID, 2University of Idaho, Moscow, ID.

T178  Effect of virginiamycin on milk yield and composition under commercial conditions in Mexico.  
Milton A. Gorocica**, Guillermo Velasco1, and Alejandro Relling2, 1Phibro Animal Health Corp., Teaneck, NJ, 2The Ohio State University, Wooster, OH.

T179  Milk production, intake and ingestive behavior of Holstein cow fed total mixed ration or partial mixed ration in early lactation.  
Mateo Ceriani*, Alejandra Jasinsky, Mariana Carriquiry, and Diego A. Mattiauda, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay.

T180  Relationship between feed bunk refusals and feed conversion efficiency in Argentine dairy farms.  
J. L. Monge*, F. Bagó, E. Giugge1, C. Chiavassa1, A. Barrenechea1, G. Coschica1, M. V. Barrenechea1, and M. P. Turiello1, 1Universidad Nacional Villa María, Villa María, Córdoba, Argentina, 2Universidad de Buenos Aires, Buenos Aires, Argentina, 3Grupo Chiavassa, Carlos Pellegrini, Santa Fe, Argentina, 4Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.

T181  The effect of compost bedded pack or sand bedded freestall barns on milk thermoduric microorganism content.  
Matthew Borchers**, Melissa Morgan1, and Jeffrey Bewley1, 1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

T182  Evaluation of a topical spray-on product for body temperature control in lactating Holstein cows.  
Caio S. Takiya*, Benjamin E. Voelz1, Sarah E. Schuling2, Dan E. Schimek1, Luis G. Mendonça1, and Barry J. Bradford1, 1Kansas State University, Manhattan, KS, 2NutriQuest, Mason City, IA.
Milk fatty acid profile and gene expression related to metabolism in mammary gland from cows fed two dietary zinc sources under heat stress.
Thiago N. Marins1,5, Ruth M. Orellana1, Xisha Weng1, Ana P. A. Monteiro1, Jingru Guo1, John K. Bernard1, Dana J. Tomlinson1, Jeffrey M. DeFrain2, and Sha Tao1; 1University of Georgia, Tifton, GA, 2Zinpro Corp., Eden Prairie, MN.

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

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

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

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

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

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

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

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

The effect of hygiene score on somatic cell count of cows reared in a compost bedded pack dairy barn.
Fazli Alpay1, Cihan Ünal*1, Enver Çavuşoğlu1, Ibrahim Mahamane Abdourhamane1, Merve Efil1, Deniz Dinçel1, Mustafa Ogan1, and Serdal Dikmen1, 1Department of Animal Science, Uludag University, Faculty of Veterinary Medicine, Bursa, Turkey, 2Department of Animal Nutrition, Uludag University, Faculty of Veterinary Medicine, Bursa, Turkey.

Automated body condition scoring: Evaluation of the effects of BCS around calving on metabolic disease.
Carissa M. Truman1, Israel L. Mullins2, Morgan L. Falk1, Jeffrey M. Bewley2, and Joao HC Costa*4, 1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

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

Does the training of nulliparous cows to use a robotic milking system influence their milk yield and milking frequency?
Mateus Peiter*1, Maximiliano H. O. Pasetti2, Jim A. Safer3, and Marcia I. Endres1, 1University of Minnesota, St. Paul, MN, 2University of Sao Paulo-ESALQ, Piracicaba, SP, Brazil, 3University of Minnesota Extension, St. Cloud, MN.

A comparison of milk yield and milking frequency of primiparous versus multiparous cows in robotic milking systems.
Mateus Peiter*1, Maximiliano H. O. Pasetti2, Jim A. Safer3, and Marcia I. Endres1, 1University of Minnesota, St. Paul, MN, 2University of Sao Paulo-ESALQ, Piracicaba, SP, Brazil, 3University of Minnesota Extension, St. Cloud, MN.

Claw measures of Jersey cows: An anatomy study.
Lorena Teixeira Passos1,2, Vivian Fischer1, Jonh Adaska1,3, and Noelia Silva Del-Río1, 1Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA, 2Federal University of Rio Grande do Sul, Postgraduate Animal Science Program, Porto Alegre, RS, Brazil, 3California Animal Health & Food Safety Lab, Tulare, CA.
Effects of a conventional diet or total mixed ration diet offered to Korean female cattle on blood metabolites.
Byongwan Kim1, Minji Kim1, Sarah Andrain Fenila1, Gihwal Son1, Byungki Park2, and Jongsu Shin1, 1Kangwon National Univ, Chuncheon, Kangwondo, South Korea, 2Nonghyup Feed Research Institute, Seoul, South Korea.

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

Effects of recombinant bovine somatotropin supplementation on periparturient dairy cows.
Mario S. F. Zoni1, Luis F. Moroz2, Alex F. Sica3, Ricardo L. Araujo1, Ricardo C. Chebel1, and Rodrigo de Almeida*1, 1Universidade Federal do Parana, Curitiba, PR, Brazil, 2Frank Anna Farm, Carambeí, PR, Brazil, 3Colorado Farm, Arauras, SP, Brazil, 4University of Florida, Gainesville, FL.

Microorganisms isolated from subclinical intramammary infections present in dairy cattle from the southeast United States.
Kellie Enger*1, Christina Petersson-Wolfe2, Raul A. Almeida1, Derek T. Nolan3, Peter D. Krawczel1, Jeffrey Bewley4, Amanda E. Stone1, Stephanie H. Ward5, and Gina M. Pighetti*1, 1University of Tennessee, Knoxville, TN, 2Virginia Polytechnic Institute and State University, Blacksburg, VA, 3University of Kentucky, Lexington, KY, 4Mississippi State University, Starkville, MS, 5North Carolina State University, Raleigh, NC, 6CowFocused Housing, Bardstown, KY.

Microorganisms isolated from subclinical intramammary infections present in cattle managed on organic dairy farms in the southeast United States.
Gina M. Pighetti*1, Victoria L. Couture6, Hannah R. Bailey1, Agustin Rius7, Peter D. Krawczel5, and S. Ray Smith3, 1University of Tennessee, Knoxville, TN, 2University of Kentucky, Lexington, KY.

Reproduction II

Active placental Proteobacteria in healthy dairy cows is strongly associated with dairy calf birth weight.
Connor E. Owens*1, Haley G. Huffard, Haylee H. Hanling, Kristy M. Daniels, Katherine F. Knowlton, and Rebecca R. Cockrum, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Effect of feeding rumen-protected methionine pre- and postpartum on reproductive performance of lactating dairy cows.
Matias L. Stangaferro*1, Mateus Z. Toledo2, Martin M. Perez1, Caiô A. Gamarra2, Pedro L. M. Monteiro2, Alexandre B. Prata1, Daniel Luchini1, Michael E. Van Amburgh1, Randy D. Shaver2, Milo C. Wiltbank3, and Julio O. Giordano4, 1Cornell University, Ithaca, NY, 2University of Wisconsin-Madison, Madison, WI, 3Adisseo USA Inc., Alpharetta, GA.

Estrous expression improves the success of embryo collection and transfer.
Tracy A. Burnett*1, Augusto M. L. Madureira2, Thiago G. Guida1, Josè L. M. Vasconcelos2, and Ronaldo L. A. Cerri3, 1University of British Columbia, Vancouver, BC, Canada, 2São Paulo State University, Botucatu, São Paulo, Brazil.

Validation of an in-house bovine serum enzyme immune assay for progesterone measurement.
Audrey Nadalin1, Augusto Madureira*2, Tracy Burnett1, Janet Bauer1, Ky Pohler1, and Ronaldo Cerri3, 1University of British Columbia, Vancouver, BC, Canada, 2University of Tennessee, Knoxville, TN.

Effects of polymorphisms in GHR, IGFI and TNFA genes on fertility in lactating dairy cows.
W. R. Butler*1, A. Schneider1, P. A. S. Vileira1, D. H. Townson1, P. C. W. Tsang1, R. A. Dailey1, T. L. Ott2, and J. L. Pate3, 1Cornell University, Ithaca, NY, 2Universidade Federal de Pelotas, Pelotas, RS, Brazil, 3University of New Hampshire, Durham, NH, 4West Virginia University, Morgantown, WV, 5Pennsylvania State University, University Park, PA.

One injection of high-concentration prostaglandin F2α is as effective as two injections of conventional prostaglandin F2α in causing luteolysis for dairy cows subjected to a 5-d CIDR-Cosynch protocol.
J. A. Spencer*1, K. Carnahan1, W. J. Price1, B. Shafi1, and A. Ahmadzadeh1, 1Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Statistical Program, University of Idaho, Moscow, ID.

The phenotype of caruncle macrophages is associated with retained placenta in dairy cows.
Rahul K. Nelli*1, Jenne De Koster1, Jennifer N. Roberts1, Jonas de Souza2, Adam L. Lock1, William Raphael3, and Andres G. Contreras3, 1Large Animal Clinical Sciences, Michigan State University, East Lansing, MI, 2Animal Science, Michigan State University, East Lansing, MI, 3Waverly Animal Hospital, Lansing, MI.
Ruminant Nutrition II

Effect of time to resumption of ovarian cyclicity postpartum on fertility and survival of Holstein cows.
Pablo Pinedo*1, Jose Santos2, Gustavo Schuennemann3, Rodrigo Bicalho4, Ricardo Chebel2, Klibs Galvao2, Robert Gilbert4, Sandra Rodriguez-Zas5, Guilherme Rosa6, Christopher Seabury7, John Fetrow8, and William Thatcher2, 1Colorado State University, Fort Collins, CO, 2University of Florida, Gainesville, FL, 3The Ohio State University, Columbus, OH, 4Cornell University, Ithaca, NY, 5University of Illinois, Urbana-Champaign, IL, 6University of Wisconsin, Madison, WI, 7Texas A&M University, College Station, TX, 8University of Minnesota, Saint Paul, MN, 9Ross University, Basseterre, St. Kitts and Nevis, West Indies.

Feeding an amino acid formulated milk replacer.
Bai Yan*1, Liu Ting1, Kayla Hultquist1, Jianping Wu2, and David Casper1, 1Gansu Agricultural University, Lanzhou, Gansu, China, 2Gansu Academy Agricultural Sciences, Lanzhou, Gansu, China, 3Furst-McNess Company, Freeport, IL.

Production performance and nitrogen utilization in dairy cows fed low or high crude protein diets containing corn dried distillers grains with solubles and supplemented with Lactivite or ProLak.
Allison V. Stevens*, Anne H. Laarman1, Pedram Rezamand1, Kip Karges2, and Gwynai Chibisa1, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2H.J. Baker & Bro. LLC, Shelton, CT.

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

Concentrations of the flavonoids baicalin, baicalein, and wogonin in milk from cows supplemented or not with Scutellaria baicalensis extract during early lactation.
Katie E. Olagaray*, Sarah E. Sivinski1, Haixia Liu1, Fabrice Robert2, Emilien Dupuis2, and Barry J. Bradford4, 1Kansas State University, Manhattan, KS, 2CCPA Group, Janze, France.

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

A comparison of mathematical approaches for determining the rate of starch digestion across grains and particle sizes.
Maria N. T. Shipandeni*1,2 and Emiliano Raffrenato1, 1Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa, 2Department of Animal Science, University of Namibia, Windhoek, Namibia.

Effects of lysophospholipids on nitrogen utilization, nutrient digestibility, and production in dairy cows.
Chanhee Lee*, Dennis L. Morris1, Seon-Ho Kim1, Jacob E. Copelin1, Phylis A. Dieter1, and Inhyuk Kwon1, 1Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH, 2Easy Bio Inc., Seoul, South Korea.

The effect of supplementation type on quality and processability parameters of milk from grazing dairy cows in late lactation.
Z. C. McKay*, M. O’Sullivan1, M. B. Lynch1, F. J. Mulligan1, R. Mahon1, and K. M. Pierce1, 1Lyons Research Farm, Lyons Estate, University College Dublin, Celbridge, Co. Kildare, Ireland, 2School of Agriculture and Food Science, University College Dublin, Dublin, Ireland.

The effect of two new formulas of dietary buffer with a high buffering capacity contained Na or K on performance and metabolism of dairy cows.
S. M. Nasrollahi*, A. Zali1, and W. Z. Yang2, 1University of Tehran, Tehran, Iran, 2Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.

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

Effect of grain- or by-product-based concentrate fed with early or late harvested first cut grass silage on dairy cow performance.
Degong Pang*, Tianhai Yan1, Erminio Trevisi1, and Sophie Križan1, 1Swedish University of Agricultural Sciences, Umeå, Sweden, 2Agri-Food and Biosciences Institute, Hillsborough, United Kingdom, 3Catholic University of the Sacred Heart, Piacenza, Italy.

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

Evaluation of batch culture incubation methods, NDF degradation, and bacterial FA detection.
Yairanex Roman-Garcia*, Chanhee Lee12, Bethany Denton7, and Jeffrey Firkins1, 1The Ohio State University, Columbus, OH, 2Ohio Agricultural Research and Development Center, Wooster, OH.

Crosslinking of protein capsules containing fish oil reduces their disintegration rate in ruminal contents but allows rapid fatty acid release in intestinal proteases.
T. C. Jenkins*1, K. Murphy6, S. J. Saunier3, G. J. Lascano7, and N. M. Long3, 1Clemson University, Clemson, SC, 2Virtus Nutrition LLC, Corcoran, CA.

Non-linear essential amino acid use efficiency equations for milk amino acid synthesis.
Robin R. White*, Helene Lapierre3, Jeffrey L. Firkins1, and Luis E. Moraes1, 1Department of Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA, 2Agriculture and AgriFood Canada, Quebec, Canada, 3The Ohio State University, Columbus, OH.

Estimation of total fatty acid content and composition of feedstuffs for dairy cattle.
V. L. Daley*, E. L. Armentano2, P. J. Kononoff4, J. M. Prestegaard2, and M. D. Hanigan4, 1National Animal Nutrition Program (NANP), University of Kentucky, Lexington, KY, 2University of Wisconsin, Madison, WI, 3University of Nebraska-Lincoln, Lincoln, NE, 4Virginia Tech, Blacksburg, VA.

Effects of crude protein level and rumen degradable:undegradable protein ratios on nitrogen balance and milk production in dairy cows.
Omar I. Santana*, Alfonso Peña-Ramos1, and Kassandra M. De la Cruz-Espino1,3, 1INIFAP, Pabellon, Aguascalientes, Mexico, 2Universidad Autonoma de Aguascalientes, Aguascalientes, Mexico.

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

Case study: Comparison of sorghum versus corn distillers grains and its effect in dairy production.
Lauren M. Baker*1, Barbara W. Jones12, William B. Smith3, and Kimberly C. McCuiston13, 1Department of Animal Science and Veterinary Technology, Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX, 3Texas A&M University-Kingsville, Kingsville, TX, 4United Sorghum Checkoff Program, Lubbock, TX.

Effects of branched-chain amino acid supplementation in lactating dairy cows: A meta-analysis.
Anthony J. Kramer*, Hugo A. Ramirez-Ramirez, and J. A. D. R.N. Appuhamy, Iowa State University, Ames, IA.

Establishment of an ileal cannulation technique in preweaning Holstein calves: Effects on growth, health, feed intake and characterization of ileal digesta sampling.
Ivan Ansa*, Sarah V. Morrison, Hans-Henrik Stein, Christine Brøkner, and James K. Drackley1, 1University of Illinois at Urbana-Champaign, Urbana, IL, 2Hamlet Protein A/S, Horsens, Denmark.

Ankom F57 filter bags limit in vitro undigested NDF and gas production for some materials.
Nicole Schlau*, David R. Mertens1, Kyle Taysom1, and Dave Taysom2, 1Dairyland Laboratories Inc., Arcadia, WI, 2Mertens Innovation and Research LLC, Belleview, WI.

Low-density lipoprotein ceramide accrual develops with steatosis, hyperlipidemia, and insulin antagonism during the transition from gestation to lactation.
Amanda N. Davis, J. Eduardo Rico13, William A. Myers13, and Joseph W. McFadden12, 1Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

Replacing cereal grains starch with non-forage fiber in diets of dairy cows: A meta-analysis.
Juan I. Sanchez-Duarte12 and Kenneth F. Kalscheur, 1Dairy Science Department, South Dakota State University, Brookings, SD, 2INIFAP, Matamoros, Coahuila, Mexico, 3USDA-ARS. U.S. Dairy Forage Research Center, Madison, WI.

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

Predicting the concentration and yield of milk fatty acids from diet nutrient composition in dairy cows.
Jonas de Souza*, Normand St-Pierre1, and Adam L. Lock1, 1Department of Animal Science, Michigan State University, East Lansing, MI, 2Perdue Agribusiness, Salisbury, MD.

Fatty liver develops with nonuniform changes in hepatic choline-containing sphingomyelins and phosphatidylcholines.
Sina Saed Samii1,2, Yu Zhang, William A. Myers1,2, Ester Griffi1, and Joseph W. McFadden1,2, 1Cornell University, Ithaca, NY, 2Virginia University, Morgantown, WV, 3University of Bologna, Bologna, Italy.

Methodological and feed factors affecting measurement of protein A, B, and C fractions, degradation rate, and intestinal digestibility of rumen-undegraded protein.
Douglas M. Liebe1, Jeffrey L. Firkins2, Huyen Tran3, Paul J. Kononoff4, and Robin R. White1, 1Virginia Tech, Blacksburg, VA, 2The Ohio State University, Columbus, OH, 3University of Nebraska, Lincoln, NE.

Effect of betaine supplementation on milk fatty acid distribution in Holstein dairy cows.
Hao-Che Hung*, Chia-Yu Tsai1, Gwinyai Chibisa1, Mireille Chahine1,2, Mark McGuire1, and Pedram Rezamand1, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Twin Falls Research and Extension Center, University of Idaho, Twin Falls, Twin Falls, ID.

In situ ruminal dry matter and fiber degradability of distillers dried grains with solubles with varying fat content by lactating dairy cows.
K. C. Krosgstad1, J. L. Anderson*, J. S. Osorio5, and K. J. Herrick2, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 5POET Nutrition, Sioux Fall, SD.

In vitro comparison of Silphium perfoliatum varieties and corn silage.
S. W. Gee*, L. McNee1, B. Gilroyed, and A. J. Carpenter1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2School of Environmental Sciences, University of Guelph, Guelph, ON, Canada.

In vitro evaluation of rumen-protected methionine sources.
Hector L. Diaz*1, Jacob Albrecht1, Jim Linn1, Charles Soderholm1, Mike Van Amburgh2, and Debbie Ross2, 1Milk Specialties Global, Eden Prairie, MN, 2Cornell University, Ithaca, NY.

Effect of crude glycerin on milk yield and composition in early lactation Gyr × Holstein dairy cows.
Alfredo Suarez-Ariza1, Jairo Pardo-Guzman1, Tatiana Garcia-Diaz2, Clemencia Fandino De Rubio1, Camilo Ortiz-Riobo1, Diego Paez-Bernal1, and Roman Castaneda-Serrano*, 1Universidad del Tolima, Ibague, Tolima, Colombia, 2Universidade Estadual de Maringa, Maringa, Parana, Brazil.

An evaluation of the Molly cow model predictions of ruminal metabolism and nutrient digestion for dairy and beef diets.
M. Li1, R. R. White, and M. D. Hanigan, Department of Dairy Science, Virginia Tech, Blacksburg, VA.

Lactation performance and feed efficiency of dairy cows fed freshly ensiled corn silage-based diets with exogenous amylase and protease.
L. K. Shearer1, J. L. Anderson*, J. S. Osorio5, and K. Mjoun1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 5Alltech Inc., Brookings, SD.

Effect of a prebiotic and essential oil based feed additive on the health and performance of dairy calves housed on Central Texas calf ranches.
Devan M. Paulus Compart*, Christie M. Underwood2, Bethany L. Trainer2, Peter Karnezos1, and Tara R. Liska1, 1PMI Nutritional Additives, Arden Hills, MN, 4Purina Animal Nutrition, Arden Hills, MN.

Effects of amino acids on ruminal gas production and fermentation in in vitro batch culture.
Xianjiang Chen1, Susanna E. Räsänen*, Cristina M. M. R. Martins1, Krum Nedelkov1, and Alexander N. Hristov1, 1Lanzhou University, Lanzhou, Gansu, China, 2The Pennsylvania State University, University Park, PA, 3University of São Paulo, Pirassununga, Brazil, 4Trakia University, Stara Zagora, Bulgaria.

Hepatic metabolism of propionate relative to meals for cows in the postpartum period.
Katherine M. Kennedy* and Michael S. Allen, Michigan State University, East Lansing, MI.
T251  Fatty acid digestion in dairy cows fed different fat sources: A meta-analytic approach.
V. L. Daley1,2, E. E. Armentano3, P. J. Kononoff4, J. M. Prestegaard5, and M. D. Hanigan6, 1National Animal Nutrition Program (NANP), University of Kentucky, Lexington, KY, 2University of Wisconsin, Madison, WI, 3University of Nebraska-Lincoln, Lincoln, NE, 4Virginia Tech, Blacksburg, VA.

T252  Palmitic fatty acid supplementation decreased neutral detergent fiber digestibility in continuous culture fermentors.
Benjamin A. Wenner* and Normand R. St-Pierre, Perdue AgriBusiness, Salisbury, MD.

Emily M. Rice*, Kayla M. Aragona, and Peter S. Erickson, University of New Hampshire.

T254  Impact of active dry yeast on production parameters in Friesian × Holstein cows during early lactation.
Ousama AlZahal1, Erica Febery2, and Jenny Dunne3, 1AB Vista, Marlborough, United Kingdom, 2Drayton Animal Health Ltd, Stratford-on-Avon, United Kingdom.

T255  Comparison between dietary palmitic and palmitoleic acid effects on milk performance and gene expression of granulosa cells in early lactation cows.
Marguerite Plante-Dube1, Isabelle Gilbert1, Rachel Gervais1, Claude Robert1, Bruno Vlaeminck2, Veerle Fievez2, and Paul Y. Chouinard3, 1Laval University, Quebec, QC, Canada, 2Ghent University, Ghent, East Flanders, Belgium.

T256  Milk and components response of dairy cows when supplemented with a rumen protected B vitamins blend during heat stress.

T257  Preparum fatty acid blend alters subsequent reproductive performance.
A. Van De Kerckhove1, A. Delaquis1, F. Mueller1, T. Steen2, J. Guyader3, and Aaron Park*, 1Federated Co-operatives Limited, Saskatoon, SK, Canada, 2La Coop Fédérée, Montréal, QC, Canada, 3Kalmbach Feeds, Upper Sandusky, OH, 4Tennessee Farmers, La Vergne, TN, 5Neova, Château-Thierry, France, 6Cooperative Research Farms, Richmond, VA.

T258  Effects of lipopolysaccharide dosing on ruminal bacterial community compositions in a dual-flow continuous culture system.

T259  Saccharomyces cerevisiae fermentation products increase volatile fatty acid production in an in vitro rumen model on forage samples from five European countries.
Cole Reedy*, T. Kwan, T. Werner, J. Butler, and I. Yoon, Diamond V, Cedar Rapids, IA.

T260  Impact of Saccharomyces cerevisiae fermentation product (SCFP) on feed intake parameters and lactation performance of transition dairy cattle.
Katie E. Olagaray*, Sarah E. Sivinski, Benjamin A. Saylor, Julie A. Sauls, Ilkyu Yoon, and Barry J. Bradford, 1Kansas State University, Manhattan, KS, 2Diamond V, Cedar Rapids, IA.

T261  Rumen-protected linseed oil supplementation: Energy status.
Jessica Daniela Iorio*, Eloy Eduardo Salado, Rafael Alejandro Palladino, Martín Guillermo Maciel, Yalisca Milena González Moreno, Maria Florencia Olmeda, and Dino Curletto*, 1University of Buenos Aires, School of Agriculture, Buenos Aires, Argentina, 2National Institute of Agricultural Technology, Santa Fe, Argentina, 3Faculty of Agricultural Sciences-UNLZ, Buenos Aires. Argentina.

T262  Effect of Clostridium butyricum sp. nov. and Pichia kudriavzevii sp. nov. on Holstein milk composition and yield.
Grant Gogul*, Miranda Striluk, Cameron Martino, Alfonso Lago, and Mallory Embree, 1Ascus Biosciences, San Diego, CA, 2Drayton Animal Health Ltd, Tulare, CA.

T263  Evaluation of different fiber contents in solid diets of pre-weaning dairy calves.
Milaïne Poczynek, Gercino F. Virgínio Jr, Ana P. Silva, Ariany F. Toledo, Marina G. Coelho, Marcos D. Silva, Graziele B. Oliveira, and Carla M. M. Bittar*, 1Dept. Of Animal Sciences, Colle of Agriculture Luiz de Queiroz (ESALQ), University of Sao Paulo, Piracicaba, Sao Paulo, Brazil, 2Dept. Animal Production, FMVZ, UNESP/Botucatu, Botucatu, Sao Paulo, Brazil.

T264  Crambe meal can completely replace soybean meal in diets for dairy cows.
Dietary strategies to optimize milk production and composition of dairy goats fed a high-concentrate diet.
Stephanie Dion*, Marie-Eve Brassard1, Janie Levesque2, Daniel E. Rico3, Rachel Gervais3, and Paul Y. Chouinard3, 1Université Laval, Québec, QC, Canada, 2Centre de recherche en sciences animales de Deschambault, Québec, QC, Canada.

M. I. Rivelli*, M. J. Cecava2, P. H. Doane2, and F. C. Cardoso3, 1University of Illinois, Urbana, IL, 2ADM Research Division, Decatur, IL.

Effects of source and level of forage neutral detergent fiber on feeding behavior of Holstein and Jersey cows.
Omar I. Santana1, M. E. Uddin1, and Michel A. Wattiaux1, 1Department of Dairy Science. University of Wisconsin-Madison, Madison, WI, 2INIFAP, Pabellón, Aguascalientes, Mexico.

Monensin modifies fermentation profile and affects the innate immune response in the rumen.
Erminio Trevisi*, Federica Riva2, Andrea Minutti3, Matteo Mezzetti4, Joelle Fernando Soares Filipe3, Paolo Bani5, and Massimo Amadori1, 1Department of Animal Sciences, Food and Nutrition,Università Cattolica del Sacro Cuore, Piacenza, Italy, 2Department of Veterinary Medicine, Università degli Studi di Milano, Milan, Italy, 3Cellular Immunology Laboratory, IZSLER, Brescia, Italy.

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

Determination of optimal inclusion level of bioactive Olea europaea extract in promoting secretion of GLP-1 and its effects on growth in dairy calves.
Sarah Y. Morrison*, Ignacio R. Ipharraguerre2, Rizaldy C. Zapata3, Prasanth K. Chelikani3, Fernanda Rosa4, Johan S. Osorio4, Jose J. Pastor5, Fernando Bargo6, Marta Blanch7, and James K. Drackley1, 1University of Illinois, Urbana, IL, 2University of Kiel, Kiel, Germany, 3University of Calgary, Calgary, AB, Canada, 4South Dakota State University, Brookings, SD, 5Lucta S. A, Barcelona, Spain.

Relationship between near-infrared reflectance spectroscopy and in situ fiber-related analyses of corn silage hybrids.
M. T. Harper*, G. Roth3, C. Canale2, and A. N. Hristov1, 1The Pennsylvania State University, University Park, PA, 2Cargill Animal Nutrition, Shippensburg, PA.

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

Effects of lysophospholipids on rumen fermentation and bacterial population in dairy cows: In vitro and in vivo.
Channhee Lee1, Dennis L. Morris1, Jade M. Hettick2, Seon-Ho Kim1, Jacob E. Copelin1, and Inhyuk Kwon*, 1Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH, 2Easy Bio Inc., Seoul, South Korea.

Feed, nitrogen and energy conversion efficiencies of lactating Holstein and Jersey cows fed 2 levels and 2 sources of forage neutral detergent fiber.
M. E. Uddin*, O. I. Santana, D. D’Huyvetter, T. Wickert, and M. A. Wattiaux, Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

Effects of Saccharomyces cerevisiae fermentation product supplementation during the periparturient period on rumen pH of dairy cows fed postpartum diets differing in starch content.
Weina Shi*, Caroline E. Knoblock1, Ilkyu Yoon2, and Masahito Oba3, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Diamond V, Cedar Rapids, IA.

Ruminal protein degradation of faba bean (Vicia faba L. major): Effect of variety and pelleting temperature.
Fadi Hassanat*, Régis Pilote2, Stéphanie Claveau2, and Chaouki Benchaar1, 1Sherbrooke Research and Development Center-Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 2Agrinova, Alma, QC, Canada.

In vitro assessment of oil releasing extent from calcium salt of fat supplements in different sites of gastrointestinal tract.
Peyman Peravian1, Mehdi Dehghan Banadaky2, Hamidreza Mirzai3, Pedram Rezamand4, and Hamed Khalilvandi5, 1University of Tehran, Tehran, Tehran, Iran, 2College of Agriculture and Natural Science, University of Tehran, Alborz, Karaj, Iran, 3Zanjan University, Zanjan, Zanjan, Iran, 4Animal and Veterinary Science Department, University of Idaho, Moscow, ID, 5University of Urmia, Urmia, Urmia, Iran.
T278  Supplementation of rumen-protected lysine (AjiPro-L) during the close-up dry period affect prepartum feed intake and lactation performance in dairy cows.

T279  Effects of feeding reduced-fat distillers grains with and without monensin on nitrogen, phosphorus, and sulfur utilization and excretion in dairy cows.
Dennis L. Morris*, Seon-Ho Kim, and Chanhee Lee, Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH.

T280  In vitro screening of technical lignins for their antifungal activity against fungi isolated from spoiled hay.
Diana C. Reyes*, Seanna L. Annis†, Santiago A. Rivera†, Dimitris S. Argyropoulos†, Jennifer J. Perry†, Changqing Wu†, Suleyman Alparslan†, Diana Gomez†, Dominique DePippo†, Miguel S. Castillo†, and Juan J. Romero†, 1Animal and Veterinary Sciences, University of Maine, Orono, ME, 2School of Biology and Ecology, University of Maine, Orono, ME, 3Department of Forest Biomaterials, North Carolina State University, Raleigh, NC, 4Food Science and Human Nutrition, University of Maine, Orono, ME, 5Department of Crop and Soil Science, North Carolina State University, Raleigh, NC, 6Department of Animal and Food Sciences, University of Delaware, Newark, DE.

T281  Effects of dietary cation-anion difference (DCAD) on acid-base status and DMI in primigravid cows.

T282  d-Lactate metabolism in dairy cows under risk for subacute ruminal acidosis.
Lorenzo E. Hernández-Castellano*, Adam C. Storm, Torben Larsen, and Mogens Larsen, Department of Animal Science, Aarhus University-Foulum, Tjele, Denmark.

T283  Effects of close-up dietary energy level and supplementing rumen protected lysine on blood β-hydroxybutyrate concentration and milk production in transition cows.
Girma Debele Delelesse†, Lu Ma†, Fang Wang†, Qirongrong Jiang†, and Dengpan Bu†, 1Institute of Animal Science, State key Laboratory of Animal Nutrition, Chinese Academy of Agricultural Sciences, Beijing, China, 2CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 3Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China.

T284  Effects of supplementing active dry yeast, a blend of probiotic bacteria, or the combination on the performance and total-tract digestion of growing steers.
Tyler A. Batchelder*, Yu Liang, Emily Davis, and Micheal A. Ballou, Texas Tech University, Lubbock, TX.

T285  Rumen disappearance of carvacrol and anethole in lactating dairy cows.
Joonpyo Oh†, Michael Harper†, Phil Smith†, Emma Wall‡, and Alexander Hristov†, 1The Pennsylvania State University, University Park, PA, 2Pancosma, Geneva, Switzerland.

T286  A meta-analysis on intestinal digestibility of long-chain fatty acids in lactating dairy cows.
Jonas de Souza*, Heidi Leksinen†, Kevin J. Shingfield‡, Pekka Huhtanen‡, and Adam L. Lock†, 1Department of Animal Science, Michigan State University, East Lansing, MI, 2Animal Genomics, Green Technology, Natural Resources Institute Finland (Luke), Jokioinen, Finland, 3Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden, 4Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, Aberystwyth, UK.

T287  Effect of rumen-protected B vitamins and choline supplementation on feed intake, milk production and liver health of transition dairy cows.
Emma L. Morrison*, Heather Reinhardt†, Juan J. Loor‡, Helene Leclere‡, and Stephen J. LeBlanc†, 1University of Guelph, Guelph, ON, Canada, 2University of Illinois, Urbana, IL, 3Jefo, St. Hyacinthe, QC, Canada.

T288  Production performance in lactating dairy cows fed treated corn stover pelleted with soybean meal or distillers grains.
Kendra L. Ostendorf* and Kenneth F. Kalscheur, 1University of Wisconsin, Madison, WI, 2US Dairy Forage Research Center, USDA-ARS, Madison, WI.

T289  Conjugated linoleic acid, but not α-linolenic acid, improved energy balance in dairy cows fed a diet with reduced n-3 fatty acid content during the late lactation and transition period.
Harald M. Hammon*, Laura Vogel†, Martina Gnott†, Claudia Kröger-Koch†, Joachim M. Weitzel†, Arnulf Tröschler†, and Alexander Starke†, 1Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, 2BASF SE, Lampertshain, Germany, 3Clinic for Ruminants and Swine, Faculty of Veterinary Medicine University of Leipzig, Leipzig, Germany.
Effect of zearalenone hydrolyase ZenA on zearalenone kinetics in the rumen.
Markus Aleschko1, Manuela Killinger1, Andreas Höbartner1, Barbara Doupovec1, Johannes Faas*1, Nicole Reisinger1, Gian Schatzmayer2, Iris Krüger2, Viktoria Neubauer2, Qendrim Zebeli2, and Wulf-Dieter Moll3, 1Biomin Research Center/Biomin Holding GmbH, Tulln, Austria, 2Institute of Animal Nutrition and Functional Plant Compounds, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Vienna, Austria.

Impact of feeding a highly available source of calcium and magnesium on serum concentrations and urinary and excretion in prefresh dairy cattle.
B. N. Ellison1, S. J. Taylor2, A. T. Byrd*3, and J. K. Bernard1, 1Applied Biotechnologies Inc., Evansville, WI, 2Celtic Sea Minerals Ltd, Carrigaline, Cork, Ireland, 3Feedworks, Cincinnati, OH, 4University of Georgia, Tifton, GA.

Replacing dietary starch with a combination of sugar and soluble fiber in combination with soybean oil alters fermentation in continuous culture.
Louisa E. Koch1, Brandon M. Koch1, Rebecca N. Klopp1, Maria J. Oconitrillo2-3, Rickie Hughes1, Meghan Courrey1, Ansley Sackett2, Thomas C. Jenkins1, and Gustavo J. Lascano*1, 1Clemson University, Clemson, SC, 2Earth University, Limon, Mercedez, Costa Rica.

Dietary supplementation of Scutellaria baicalensis extract during early lactation decreases milk somatic cells and increases whole lactation milk yield in dairy cattle.
Katie E. Olagaray*1, Micheal J. Brouk1, Laman K. Mamedova1, Fabrice Robert1, Emilien Dupuis2, Maya Zachut3, and Barry J. Bradford1, 1Kansas State University, Manhattan, KS, 2CCPA Group, Janze, France, 3Agriculture Research Organization, Volcani Center, Rishon Lezion, Israel.

Energy partitioning in primiparous Holstein cows with or without grazing pastures in early lactation.
Alejandra Jasinsky*, Diego A. Mattiudau, Mateo Ceriani, Alberto Casal, and Mariana Carriquiry, Facultad de Agronomia, Universidad de la República, Paysandú, Paysandú, Uruguay.

In situ ruminal starch disappearance kinetics of hull-less barley, hulled barley, and corn grains.
Gonzalo Ferreira*, Yang Yang, Christy Teets, Wynse Brooks, and Carl Griffey, Virginia Tech, Blacksburg, VA.

Evaluating polyhalite as an anionic source to reduce dietary cation-anion difference and urine pH of prepartum dairy cows.
Gonzalo Ferreira*, Christy L. Teets1, and Robert J. Meakin1, 1Virginia Tech, Blacksburg, VA, 2Sirius Minerals Plc, Scarborough, United Kingdom.

Rumen fermentation characteristics, microbial ecology and haematological parameters of yearling calves fed Enterolobium cyclocarpum (Jacq.) Griseb. leaf meal-based diets.

Ruminal escape and duodenal appearance of N-acetyl-l-methionine in lactating dairy cows.
S. Sharp2, M. A. Fagundes1, J.-S. Eun1,3, J. O. Hall1, J. S. Park2, and J. O. Moon2, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT, 2Biotechnology Research Institute, CJ CheilJedang, Suwon, South Korea.

Effects of replacing canola meal with solvent extracted camelina meal on ruminal fermentation in a dual-flow continuous culture system.

Replacing dietary starch with a combination of sugar and soluble fiber in combination with soybean oil alter lactating performance in Holstein dairy cows.
Louisa E. Koch1, Brandon M. Koch1, Rebecca N. Klopp1, Saad M. Hussein1, Maria J. Oconitrillo2-3, Rickie Hughes1, Meghan Courrey1, Ansley Sackett2, Thomas C. Jenkins1, and Gustavo J. Lascano*1, 1Clemson University, Clemson, SC, 2Earth University, Limon, Mercedez, Costa Rica.

Energy utilization of lactating Jersey cows consuming diets containing hydrolyzed feathermeal.
Jared V. Judy and Paul J. Kononoff*, University of Nebraska-Lincoln, Lincoln, NE.

Effects of supplemental β-carotene to lactating Holstein cows on production and rumen fermentation.
Kayla M. Aragona* and Peter S. Erickson, University of New Hampshire, Durham, NH.

Variability in urine pH and macro-mineral concentrations in dairy herds from northern Italy.
P. Colturato1 and A. N. Hristov*1, 1Team Paragon, Crema, Italy, 2Department of Animal Science, The Pennsylvania State University, University Park, PA.
SYMPOSIA AND ORAL SESSIONS

ADSA Foundation Scholar Lecture
Chair: Bob Roberts, Pennsylvania State University
Room 301 E

9:30 AM ADSA Foundation Scholar Presentation: Regulation of milk fat synthesis: Milk fat depression and beyond.
Kevin Harvatine, The Pennsylvania State University, University Park, PA.

ADSA Southern Branch Graduate Student Oral Competition
Chair: Jillian Bohlen, University of Georgia
Room 301 A

9:30 AM 261 Effects of a Megasphaera elsdenii oral drench on rumen pH, feed intake, and milk yield in lactating dairy cows.
Gustavo Mazón1, Cerina Holcomb1, Jeffrey M. Bewley2, and Joao H. C. Costa1, 1University of Kentucky, Lexington, KY, 2CowFocused Housing, Bardstown, KY.

9:45 AM 262 Dietary effects on rumen VFA transporter abundance in preweaned dairy calves.
Taylor T. Yohe*, Robin R. White, Mark D. Hanigan, Hollie Schramm, Hannah L. M. Tucker, Catherine L. M. Parsons, Benjamin D. Enger, Nicole R. Hardy, and Kristy M. Daniels, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Animal Health III
Chair: Andres Contreras, Michigan State University
Room 300 CD

9:30 AM 264 Lameness incidence in dry cows depends on assessment frequency.

9:45 AM 266 Educating dairy producers to systematically evaluate the cows they cull.
Allison Moorman*1,2, Todd F. Duffield1,2, M. Ann Godkin1, Jeffrey Rau1, and Derek B. Haley1,2, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Campbell Centre for the Study of Animal Welfare, University of Guelph, Guelph, ON, Canada, 2Ontario Ministry of Agriculture, Food and Rural Affairs, Elora, ON, Canada, 1Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

10:00 AM 268 Effect of selenium-enriched hay on Se concentration in blood and milk, immune function, and performance in dairy cows during the transition period.
Shana Jaaf*, Matteo Mezzetti1, Angela Krueger1, Brandon Batty1, Jennifer Belveal1, Michele Premi1,2, Jenelle Foster1, Erminio Trevisi1, Gerd Bobe1, Charles Estill1, and Massimo Bionaz1, 1Oregon State University, Corvallis, OR, 2Università Cattolica del Sacro Cuore, Piacenza, Italy.

10:15 AM 269 Statistical validation of a geometric approach to image analysis of anatomical traits.
Catherine McVey*, Juan Velez2, and Pablo Pinedo1, 1Colorado State University, Fort Collins, CO, 2Aurora Organic Dairy, Boulder, CO.

10:30 AM 270 Factors associated with veal calf morbidity on an Ontario grain-fed (red) veal operation.
Kayla J. Scott*, David L. Renaud, Todd F. Duffield, and David F. Kelton, University of Guelph, Guelph, ON, Canada.
Effects of prebiotic supplementation on gut health, cellular immune function and performance of dairy calves.
Rodrigo Gardinal, Carlos Alberto Ferreira Oliveira, Joao Fernando Albers Koch, Bruno Mazzer, Fernado de Oliveira Roberti, Alessandro Morais Rocha, and Vaclav Vetvicka, 1Department of Research and Development, Biorigin Company, Lençois Paulista, SP, Brazil, 2Department of Pathology, University of Louisville, Louisville, KY.

Evaluating the relationship between hoof lesions and culling of dairy cows.
Bobwealth O. Omontese, Roger Bellet-Elias, Almudena Molinero, Giovana Catandi, Renan Casagrande, Zelmar Rodriguez, Rafael S. Bisinotto, and Gerard Cramer, 1Department of Veterinary Population Medicine, University of Minnesota, St. Paul, MN, 2Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL.

Mycotoxin occurrence in 2017 US corn.

Breeding and Genetics Symposium:
Fertility—Filling the Gaps
Chair: Christian Maltecca, North Carolina State University
Ballroom A

Translating the physiology of fertility into improved phenotypes for genetic selection.
Matthew Lucy, University of Missouri, Columbia, MO.

The choice and collection of new relevant phenotypes for fertility selection.
Allison Fleming, Christine F. Baes, Francesca Malchiodi, Luiz F. Brito, and Filippo Miglior, 1CGIL - University of Guelph, Guelph, ON, Canada, 2Canadian Dairy Network, Guelph, ON, Canada.

Embryonic survival: The other side of fertility—A genomic perspective.
Hasan Khatib, Department of Animal Sciences, University of Wisconsin, Madison, WI.

Identification of loci associated with pregnancy in Holstein heifers and primiparous cows.
H. L. Neibergs, J. N. Kiser, E. Clancy, E. M. Keuter, J. Dalton, J. G. N. Moraes, C. M. Seabury, and T. E. Spencer, 1Department of Animal Sciences, Washington State University, Pullman, WA, 2Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 3Division of Animal Sciences, University of Missouri, Columbia, MO, 4Department of Veterinary Pathobiology, Texas A&M University, College Station, TX.

Big data genomic investigation of dairy fertility and related traits with imputed sequences of 27K Holstein bulls.
Jicai Jiang, Paul VanRaden, John Cole, Yang Da, and Li Ma, 1University of Maryland, College Park, MD, 2Animal Genomics and Improvement Laboratory, Beltsville, MD, 3University of Minnesota, St. Paul, MN.

Genetic cues from fertilization to pregnancy establishment.
M. Sofia Ortega, John B. Cole, Thomas E. Spencer, and Peter J. Hansen, 1University of Missouri, Columbia, MO, 2Animal Genomics and Improvement Laboratory, ARS, USDA, Beltsville, MD, 3University of Florida, Gainesville, FL.
Dairy Foods II: Proteins and Dairy Products
Chair: Milena Corredig, University of Guelph
Room 301 B

9:30 AM 279 ADSA®-EAAP PhD Student Travel Award Presentation: Bioactivities of milk proteins evaluated after in vitro digestion and peptidomic/proteomic profile.
Carlotta Giromini*, 1 Ian D. Givens2, Julie A. Lovegrove34, Raffaella Rebucci3, Elisa Maffioli3, Gabriella Tedeschi2, and Antonella Baldi1, 1Department of Health, Animal Science and Food Safety, University of Milan, Milan, Italy, 2Institute for Food, Nutrition and Health, University of Reading, Reading, United Kingdom, 3Hugh Sinclair Unit of Human Nutrition Department of Food and Nutritional Sciences, University of Reading, Reading, United Kingdom, 4Institute for Cardiovascular and Metabolic Research, University of Reading, Reading, United Kingdom, 2Department of Veterinary Medicine (DiMeVet), University of Milan, Milan, Italy.

10:00 AM 280 Quantitative difference in proteomic profiles of milk whey protein in Murrah, Nili-Ravi, and Mediterranean water buffalo.
Shanshan Li*, 1 Ling Li2, Jianxin Liu1, Yongxin Yang1, and Daxi Ren1, 1Institute of Dairy Science, College of Animal Science, Zhejiang University, Hangzhou, Zhejiang, China, 2Water Buffalo Institute, Chinese Academy of Agricultural Science, Nanning, Guangxi, China, 3Institute of Animal Science and Veterinary Medicine, Anhui Academy of Agricultural Sciences, Hefei, Anhui, China.

Haotian Zheng*, 1 Wanqi Wang2, Jiaying Lin2, and Thiago Mendes Borges2, 1Dairy Innovation Institute, Animal Science Department, California Polytechnic State University, San Luis Obispo, CA, 2Department of Wine, Food and Molecular Biosciences, Lincoln University, Christchurch, New Zealand.

10:30 AM 282 Micellar casein concentrate: Purity, serum protein removal, and sensory properties.
David M. Barbano* and MaryAnne Drake2, 1Cornell University, Ithaca, NY, 2North Carolina State University, Raleigh, NC.

10:45 AM Break

11:00 AM 283 Effects of microfluidization on the enzyme coagulation properties of milk.
Anthony J. Bucci2, Diane L. Van Hekken*, 1 Michael H. Tunick12, and Peggy M. Tomasula1, 1USDA, ARS, Wyndmoor, PA, 2Drexel University, Philadelphia, PA.

11:15 AM 284 Effect of milk protein solution viscosities on electrospun fiber formation.
Serife Akkurt12, Laetitia M. Bonnaillie2, and Peggy M. Tomasula2, 1Food Science Department, Rutgers, The State University of New Jersey, New Brunswick, NJ, 2Dairy & Functional Foods Research Unit, United States Department of Agriculture, Agricultural Research Unit Service, Eastern Regional Research Center, Wyndmoor, PA.

11:30 AM 285 Comparison of yogurt gels made from various types of milk proteins.
Nelson Trusler*, 1 John Lucey12, and Mike Molitor12, 1University of Wisconsin-Madison, Madison, WI, 2Center for Dairy Research, Madison, WI.

11:45 AM 286 Performance of dairy and plant proteins in a model high-acid beverage system.
Hong Jiang* and Kimberlee Burrington, Wisconsin Center for Dairy Research, Madison, WI.

287 See Dairy Foods Processing Symposium (page 129)
**Dairy Foods Microbiology Symposium:**
**Whole-Genome Sequencing for Dairy Microbiology**

**Chairs:** Michael Miller, University of Illinois, and Sam Alcaine, Cornell University

**Sponsor:** Chr. Hansen

**Room 200 DE**

9:30 AM  Opening remarks.
Michael Miller, University of Illinois.

9:45 AM  288  ADSA®-EAAP Speaker Exchange Presentation: Whole-genome sequencing investigations of flavor formation by dairy microbiota.
Olivia McAuliffe*, Teagasc Food Research Centre, Fermoy, Cork, Ireland.

10:15 AM  289  Applying whole-genome sequencing to illuminate dairy sporeformers.
Jasna Kovac*,1 Rachel Miller2, Laura Carroll1, Sarah Beno2,3, and Martin Wiedmann2,1 Penn State, University Park, PA, 2Cornell University, Ithaca, NY, 3The University of Alabama at Birmingham, Birmingham, AL.

10:45 AM  290  Whole-genome sequencing: Applications in dairy veterinary medicine.
Laura B. Goodman*, College of Veterinary Medicine, Cornell University, Ithaca, NY.

Matthew J. Stasiewicz*, University of Illinois, Urbana, IL.

11:45 AM  292  Understanding polysaccharide biosynthesis in lactic acid bacteria: Lessons from whole-genome sequencing and systemic approaches.
Ana Rute Neves*, Chr. Hansen A/S, Hørsholm, Denmark.

12:15 PM  Closing remarks.
Sam Alcaine, Cornell University.

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**Growth and Development I**

**Chair:** Adam Geiger, Zinpro

**Ballroom C**

9:30 AM  293  PBMC mitochondrial enzyme activity in dairy heifers from birth to pre-breeding.
Ashley Niesen* and Heidi Rossow, University of California-Davis, Davis, CA.

9:45 AM  294  Prenatal choline supplementation improved health and growth of neonatal Holstein calves.
M. G. Zenobi*,1 J. M. Bollatti1, N. A. Artusso1, A. M. Lopez2, B. A. Barton2, J. E. P. Santos1, and C. R. Staples1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Balchem Corp., New Hampton, NY.

10:00 AM  295  Alteration in oocyte gene expression due to lactation and progression in milk production in dairy cows.
Sameer Alhojaily*, Rusty Stott1, S. Clay Isom1, and John R. Stevens1, 1Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT, 2Department of Mathematics and Statistics, Utah State University, Logan, UT.

10:15 AM  296  Effects of feeding different amounts of milk replacer on growth performance in Holstein calves to 2 months of age using different weaning transition strategies.
R. N. Klopp*, T. M. Hill1, F. X. Suarez-Mena2, R. L. Schlotterbeck1, and G. J. Lascano1, 1Clemson University, Clemson, SC, 2Nurture Research Center, Provimi, Brookville, OH.

10:30 AM  297  Effects of feeding different amounts of milk replacer on growth performance in 2- to 4-month-old Holstein calves using different weaning transition strategies.
R. N. Klopp*, T. M. Hill1, F. X. Suarez-Mena2, R. L. Schlotterbeck1, and G. J. Lascano1, 1Clemson University, Clemson, SC, 2Nurture Research Center, Provimi, Brookville, OH.

10:45 AM  Break
Physiological effects of low rumen pH in calves before, during and after weaning.
Sonia L. Gelsinger*1 and Geoffrey I. Zanton1, 1University of Wisconsin, Madison, WI, 2United States Department of Agriculture Dairy Forage Research Center, Madison, WI.

Can processing corn influence growth performance, nutrient digestibility and ruminal and hindgut fermentation in calves fed low or high plane of milk replacer?
Jolet K. van Niekerk*1, Amanda J. Fischer1, Larissa L. Deikun1, James D. Quigley1, T. Mark Hill2, Rick L. Schlotterbeck2, and Michael A. Steele1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Provi, Brookville, OH.

Effect of solid feed location on feed consumption and growth of dairy calves.
Sarah D. Parsons*1, Ken E. Leslie1, Michael A. Steele1, and Trevor J. DeVries1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 3Department of Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

The effects of different feeding practices on heifer growth and reproduction at five California dairies using single-time-point measurements.
David D. Myers* and Heidi A. Rossow, University of California, Davis, Davis, CA.

Effects of supplemental butyrate during the weaning transition on rumen pH in Holstein calves.
Dana E. McCurdy1, Rebecca L. Hiltz1, Katie R. Wilkins1, Steve Moreland2, Keith Klanderman2, and Anne H. Laarman*1, 1University of Idaho, Moscow, ID, 2Nutriad Inc., Hampshire, IL.

Immunogenetic control of bovine mammary gland health.
Heba Atalla, Lauri Wagter-Lesperance, and Bonnie Mallard*, University of Guelph, Guelph, ON, Canada.

Established approaches and new directions to support innate immunity of the udder.
Corwin D. Nelson*, University of Florida, Gainesville, FL.

Development of vaccines and antibiotics against Staphylococcus aureus based on bacterial gene expression during bovine mastitis.
Francois Malouin*, Universite de Sherbrooke, Sherbrooke, QC, Canada.

Effect of different feeding practices on heifer growth and reproduction at five California dairies using single-time-point measurements.
David D. Myers* and Heidi A. Rossow, University of California, Davis, Davis, CA.

Effects of supplemental butyrate during the weaning transition on rumen pH in Holstein calves.
Dana E. McCurdy1, Rebecca L. Hiltz1, Katie R. Wilkins1, Steve Moreland2, Keith Klanderman2, and Anne H. Laarman*1, 1University of Idaho, Moscow, ID, 2Nutriad Inc., Hampshire, IL.
9:30 AM 308 Methionine supply during late-gestation triggers offspring sex-specific divergent changes in metabolic and epigenetic signatures in bovine placenta.
Fernanda Batistel1*, Rainie R. C. Yamboa1, Abdulrahman S. M. Alharthi1, Yuan-Xiang Pan1, Claudia Parys2, and Juan J. Loor3, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

9:45 AM 309 Maternal supply of methionine during late-pregnancy affects hepatic one-carbon metabolism enzyme activity and plasma amino acids during the preweaning period in Holstein calves.
Abdulrahman S. M. Alharthi1,2*, Fernanda Batistel1, Cesar I. M. Garces1, Claudia Parys2, Yuan-Xiang Pan1, and Juan J. Loor3, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

10:00 AM 310 RNA sequencing reveals that methionine supply during late-gestation alters neonatal Holstein heifer calf liver transcriptome profiles.
Abdulrahman S. M. Alharthi1,2*, Fernanda Batistel1, Valentino Palombo2, Cesar I. M. Garces1, Claudia Parys2, and Juan J. Loor3, 1University of Illinois, Urbana, IL, 2Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.

10:15 AM 311 Maternal supply of methionine during late-pregnancy alters the fecal microbiome in neonatal Holstein heifer calves during the preweaning period.
Ahmed Elolimy1*, Mohamed Zeineldin1,2, Abdulrahman Alharthi1, Fernanda Batistel1, Ariane Helmbrecht1, Claudia Parys2, and Juan J. Loor3, 1Mammalian NutriPhysioGenomics, Department of Animal Sciences, University of Illinois, Urbana, IL, 2Integrated Food Animal Management Systems, Department of Veterinary Clinical Medicine, University of Illinois, Urbana, IL, 3Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany, 4Division of Nutritional Sciences, Illinois Informatics Institute, University of Illinois, Urbana, IL.

10:30 AM 312 Maternal late-gestation metabolic stress is associated with changes in immune and metabolic responses of dairy calves.
Tahila Ling1, Marta Hernandez-Jover2,3, Lorraine M. Sordillo1, and Angel Abuelo*1,3, 1Michigan State University, Department of Large Animal Clinical Sciences, East Lansing, MI, 2Charles Sturt University, School of Animal and Veterinary Sciences, Wagga Wagga, NSW, Australia, 3Graham Centre for Agricultural Innovation (Charles Sturt University and NSW Department of Primary Industries), Wagga Wagga, NSW, Australia.

10:45 AM 313 Evaluation of the biochemical and hematological profile of Holstein calves submitted to LPS challenge and pegbovigrastim injection.
Fernanda Kegles, Otávio Madruga, Luelli Fernandes Bragança, Uriel Secco Londero, Halfen Jessica, Marcio Nunes Corrêa, Francisco Augusto Burcklet Del Pino, Eduardo Schmitt, and Rodrigo Chaves Barcellos Graziotin*, 1Federal University of Pelotas (UFPel), RS, Brazil; 2Center of Research, Teaching and Extension in Animal Science (NUPEEC), Pelotas, Rio Grande do Sul, Brazil.

11:00 AM Break

11:15 AM 315 Embryonic development, luteal size and blood flow area, and metabolite of PGF2α concentrations in dairy cows fed palm or sunflower oil supplement.
Chainarong Navanukraw1,2, Aree Kraisoon1,2, Jaruwan Kaokejon1, Wiroon Inthamonee1, and Sathaporn Navanukraw1, 1Department of Animal Science, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand, 2Agricultural Biotechnology Research Center for Sustainable Economy (ABRCSE), Khon Kaen University, Khon Kaen, Thailand, 3Center of Excellence on Agricultural Biotechnology, Bangkok, Thailand.

11:30 AM 316 Resynchronization treatments in dairy cows at non-pregnancy diagnosis based on corpus luteum status.
Julie A. Sauls1,2, Benjamin E. Voelz2, Kevin C. Dhuyvetter2, and Jeffrey S. Stevenson1, 1Kansas State University, Manhattan, KS, 2Elanco, Greenfield, IN.

11:45 AM 318 Hypothalamic metabolomics profiling in cattle with divergent residual feed intake.
Ahmed Elolimy1,2*, Zheng Zhou3, Daniel Shike1, and Juan Loor3, 1Mammalian NutriPhysioGenomics, Department of Animal Sciences, University of Illinois, Urbana, IL, 2Department of Animal Sciences, University of Illinois, Urbana, IL, 3Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC.

12:00 PM 319 The potential role of choline to alter histone methylation status revealed through a fluorescent protein system in bovine mammary epithelial cells.
Fernanda Rosa* and Johan S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.
Production, Management, and Environment III
Chair: Victor Cabrera, University of Wisconsin-Madison
Room 301 D

9:30 AM 320 Development of an integrated dairy farm decision support system to facilitate dairy management–I. Data integration and warehousing.
Steven R. Wangen*,1, Hector Delgado Rodriguez2, Di Liang2, Adam Christensen1, Micheal Ferris1, and Victor E. Cabrera2, 1The Wisconsin Institution for Discovery, University of Wisconsin-Madison, Madison, WI, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

9:45 AM 321 Development of an integrated dairy farm decision support system to facilitate dairy management–II. Analysis from integrated data.
Adam Christensen*,1, Di Liang2, Hector Delgado Rodriguez2, Steven R. Wangen1, Micheal Ferris1, and Victor E. Cabrera2, 1The Wisconsin Institution for Discovery, University of Wisconsin-Madison, Madison, WI, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

10:00 AM 322 Association between measures of seasonality in milk yield, somatic cell count, and herd size across the United States.
Fernanda C. Ferreira*,1, John S. Clay2, and Albert De Vries1, 1University of Florida, Gainesville, FL, 2Dairy Records Management Systems, Raleigh, NC.

10:15 AM 323 Effect of calving pattern on seasonality of milk yield and somatic cell count across the US.
Fernanda C. Ferreira*,1, John S. Clay2, and Albert De Vries1, 1University of Florida, Gainesville, FL, 2Dairy Records Management Systems, Raleigh, NC.

10:30 AM 324 Culling to achieve reduced somatic cell counts: An economic analysis.
Derek T. Nolan*,1, Tyler B. Mark2, and Roberta M. Dwyer1, 1Department of Animal Science, University of Kentucky, Lexington, KY, 2Department of Agriculture Economics, University of Kentucky, Lexington, KY.

10:45 AM 325 Evaluation of differential SCC as a rapid and affordable tool to improve detection of subclinical mastitis in regular DHI samples.
Debora E. Santschi*,1, Denis Haine2, Anne-Marie Christen1, Daniel Schwarz1, Jean Durocher1, Simon Dufour2, and Daniel M. Lefebvre1, 1Valacta, Ste-Anne-de-Bellevue, QC, Canada, 2Université de Montréal, St-Hyacinthe, QC, Canada, 3Foss Analyticals, Hillerød, Denmark.

11:00 AM Break

11:15 AM 326 The lifetime impact of a clinical mastitis case during the first 100 lactation days in first lactation.
Hector Delgado*,1, Di Liang, and Victor Cabrera, University of Wisconsin-Madison, Madison, WI.

11:30 AM 327 Predicting clinical mastitis at 30 to 60 DIM using an integrated real-time data warehouse.
Di Liang*,1, Anuja Golechha2, Victor Cabrera3, and Jignesh Patel2,1, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Computer Science, University of Wisconsin-Madison, Madison, WI.

11:45 AM 328 Thermal and electrical energy and water consumption in a Midwest dairy parlor.
Kirsten T. Sharpe*, Bradley J. Heins, Eric S. Buchanan, Michael H. Reese, Joel E. Tallaksen, and Lee J. Johnston, University of Minnesota West Central Research and Outreach Center, Morris, MN.

12:00 PM 329 Using inductive learning methods as a tool to facilitate culling decisions in first lactation dairy cows.
Montserrat Lopez-Suarez*,1, Lorena Castillejos1, Eva Armengol2, and Sergio Calsamiglia1, 1Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, 2IIIA-Artificial Intelligence Research Institute, CSIC-Spanish Council for Scientific Research, Bellaterra, Barcelona, Spain.

12:15 PM 330 Predicting pregnancy status from mid-infrared spectroscopy in dairy cow milk using deep learning.
W. Brand*, A. T. Moran, and M. Coffey, SRUC, Edinburgh, United Kingdom.
Reproduction I  
Chair: Verónica M. Negrón-Pérez, Virginia Tech  
Room 300 AB

9:30 AM  331  Knockdown of transcripts for prostate androgen-regulated mucin-like protein 1 (PARM1) decreases trophectoderm formation and alters gene expression in the pre-implantation bovine embryo. 
Adriana Zolini*, Veronica Negron, and Peter Hansen, University of Florida, Gainesville, FL.

9:45 AM  332  Generation of an animal model of clinical endometritis to study infertility in dairy cows. 
R. L. Piersanti*, R. Zimpel1, Z. Ma1, K. C. Jeong1, J. E. P. Santos2, I. M. Sheldon2, and J. J. Bromfield3, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Swansea University Medical School, Swansea, United Kingdom.

10:00 AM  333  Automated system is better than visual observation for detection of estrus in Holstein Friesian cows. 
Melad Ahmed1, Ali Husnain*1, Aijaz Ali Channa1, Muhammad Zahid Tahir1, Hifz ul Rahman1, and Nasim Ahmad1, 1Department of Theriogenology, Faculty of Veterinary Science University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan, 2Dairy Animal Training and Research Center, Ravi Campus, University of Veterinary and Animal Sciences, Pattoki, Punjab, Pakistan.

10:15 AM  334  Economics of replacement dairy heifers managed with reproductive management programs that favor insemination at detected estrus or timed AI. 
Magdalena Masello*, Martin M. Perez1, German E. Granados1, Mathias L. Stangaferro1, Bob Ceglowski2, Mark J. Thomas2, and Julio O. Giordano1, 1Cornell University, Ithaca, NY, 2Dairy Health and Management Services, Lowville, NY.

10:30 AM  335  Luteal blood flow measured by Doppler ultrasonography during the first three weeks after artificial insemination in pregnant and non-pregnant Bos indicus dairy cows. 
Nasim Ahmad*, Mubbashar Hassan1, Usman Arshad1, Muhammad Bilal1, Muhammad Avais1, Abdul Sattar1, and Heinrich Bollwein1,2, 1University of Veterinary and Animal Sciences, Lahore, Pakistan, 2University of Zurich, Zurich, Switzerland.

Ruminant Nutrition III: Forages, Fiber, and Grains  
Chair: Luiz Ferrareto, University of Florida  
Ballroom E

9:30 AM  336  Effects of dietary undigested and physically effective neutral detergent fiber on dry matter intake, milk yield and composition, and chewing behavior of lactating dairy cows. 
Wyatt A. Smith*, Kyohei Ishida2, Jeffrey W. Darrah1, Heather M. Dann1, Catherine S. Ballard1, Michael D. Miller1, and Rick J. Grant1, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2ZEN-NOH National Federation of Agricultural Cooperative Associations, Tokyo, Japan.

9:45 AM  337  Estimating lactation residual energy intake in Holstein cows: When and how long? 
Amélie Fischer*, and Philippe Faverdin2, 1Institut de l’élevage, Paris, France, 2PEGASE, Institut National de la Recherche Agronomique, Agrocampus-Ouest, Rennes, France.

10:00 AM  338  Nutrient allocation between the pellet and PMR can affect eating behavior of mid-lactation dairy cows. 
Jennifer L. Haisan* and Masahito Oba, University of Alberta, Edmonton, AB, Canada.

Virgilio Ambriz-Vilchis*, Jennifer Flockhart3, and John Rooke3, 1SRUC Future Farming Systems Group, Edinburgh, United Kingdom, 2BioSimetrics Ltd, Edinburgh, United Kingdom.

10:30 AM  340  Modeling feed intake and dairy performance with different grass ley harvesting strategies. 
Degong Pang*, Sophie Julie Krizsan1, Auvo Sairanen1, and Pekka Huhtanen1, 1Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden, 2LUKE-Agrifood Research Finland, Animal Production Research, Jokioinen, Finland.
11:15 AM 343 Effect of grass silage chop length when fed alone or with corn silage, on eating behavior and diet selection in dairy cows.

11:30 AM 344 Development of a wet sieving method for measuring corn silage processing score (CSPS).
Ralph Ward* and David R. Mertens. Cumberland Valley Analytical Services Inc., Waynesboro, PA. Mertens Innovation & Research LLC, Belleville, WI.

11:45 AM 345 Effects of starch source and particle size on ruminal fermentation, starch digestibility, and milk production of dairy cows.
Maria N. T. Shipandeni*, Eduardo M. Paula, Antonio P. Faciola, and Emiliano Raffrenato. Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa. Department of Animal Science, University of Namibia, Windhoek, Namibia. Department of Animal Sciences, Gainesville, FL.

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Ruminant Nutrition IV: Additives
Chair: Andre Brito, University of New Hampshire
Ballroom F

9:30 AM 346 Antioxidant capacity of dairy cows after supplementation with dietary probiotic Bacillus subtilis during the transition period.
W. Choonkham* and W. Suriyasathaporn. Graduate/PhD Degree Program in Veterinary Science, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand. Department of Food Animal Clinic, Faculty of Veterinary Medicine, Chiang Mai University, Chiang Mai, Thailand.

9:45 AM 347 Effects of a recombinant bacterial expansin and an exogenous fibrolytic enzyme on preingestive fiber hydrolysis, fermentation and digestibility of corn silage.
Andres Alfredo Pech-Cervantes*, Yun Jiang, Felipe Xavier Amaro, Donghyeon Kim, Kathy Arriola, Milton Flores-Tensos, Claudio Fabricio Gonzalez, Luiz Felipe Ferraretto, Nicolas Dilorrenzo, Diwakar Vyas, and Adegbola Adesogan. Department of Animal Sciences, University of Florida, Gainesville, FL. Department of Microbiology and Cell Science, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. Department of Animal Sciences, University of Florida, North Florida Education Center, Marianna, FL.

10:00 AM 348 Synergistic effects of a recombinant bacterial expansin and a fibrolytic enzyme on digestibility, gas production and sugar release from bermudagrass silage.
Andres Alfredo Pech-Cervantes*, Yun Jiang, Felipe Xavier Amaro, Donghyeon Kim, Kathy Arriola, Milton Flores-Tensos, Claudio Fabricio Gonzalez, Luiz Felipe Ferraretto, Nicolas Dilorrenzo, Diwakar Vyas, and Adegbola Adesogan. Department of Animal Sciences, University of Florida, Gainesville, FL. Department of Microbiology and Cell Science, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. Department of Animal Sciences, University of Florida, North Florida Education Center, Marianna, FL.

10:15 AM 349 The effect of fibrolytic enzymes on lactation performance, feeding behavior, and digestibility in high-producing dairy cows fed a barley silage-based diet.
Basim Refat*, David A. Christensen, John J. McKinnon, Aaron D. Beattie, Tim McAllister, Wenzhu Yang, Ousama AlZahal, and Peiqiang Yu. Department of Animal and Poultry Science, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada. Crop Development Center, Department of Plant Sciences, College of Agriculture and Bioresources, University of Saskatchewan, Saskatoon, SK, Canada. Lethbridge Research and Development Centre, Lethbridge, AB, Canada. AB Vista, Marlborough, United Kingdom.
10:30 AM 350  Feeding a *Saccharomyces cerevisiae* fermentation product during the periparturient period may decrease inflammation of dairy cows. 
Caroline E. Knoblock*1, Weina Shi1, Ilkyu Yoon2, and Masahito Oba1, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Diamond V, Cedar Rapids, IA.

10:45 AM 351  The effect of supplementation type and vitamin E level on milk production, milk composition and rumen health parameters of grazing dairy cows in late lactation. 

11:00 AM 352  Effects of *Saccharomyces cerevisiae* fermentation product (SCFP) on liver and plasma biomarkers of metabolic function in transition dairy cattle. 
Katie E. Olagaray*, Sarah E. Siinski¹, Laman K. Mamedova¹, Benjamin A. Saylor¹, Chadron Koehn¹, Julie A. Sauls¹, Ilkyu Yoon², and Barry J. Bradford², ¹Kansas State University, Manhattan, KS, ²Diamond V, Cedar Rapids, IA.

11:15 AM 354  The effects of adding exogenous amylases and proteases on ruminal *in vitro* dry matter and starch digestibility of dent corn grain. 

11:30 AM 355  Effects of administering an oral probiotic drench containing *Megasphaera elsdenii* NCIMB 41125 to dairy cows fed a high starch diet in early lactation. 
Matt R. O'Neil*, Emily H. Branstad¹, Carrie S. McCarthy¹, Brooke C. Dooley¹, Donald C. Beitz¹, Aaron J. Hund¹, and Gary A. Ducharme¹, ¹Iowa State University, Ames, IA, ²MS Biotec, Wamego, KS.

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**Ruminant Nutrition Symposium:**
**Interface of Environment and Nutrition—Targeted Nutrition to Overcome Heat Stress**
**Chair: Stephanie Ward, North Carolina State University**
**Ballroom G**

Yao Xiao and Benjamin J. Renquist*, School of Animal and Comparative Biomedical Sciences, University of Arizona, Tucson, AZ.

10:00 AM 357  Nutritional strategies to overcome physiological adaptations to heat stress. 
A. G. Rius*, University of Tennessee, Knoxville, TN.

10:30 AM 358  The effects of progressive heat stress on muscle dysfunction. 
Joshua T. Selsby*, Shanthi Ganesan¹, Alexandra J. Brownstein¹, Olga Volodina², Sarah Pearce¹, Nicholas K. Gabler¹, Robert P. Rhoads², and Lance H. Baumgard³, ¹Iowa State University, Ames, IA, ²Virginia Polytechnic Institute and State University, Blacksburg, VA.

11:00 AM 359  Practical considerations for feeding cows under heat stress. 
Duarte Diaz*, University of Arizona, Tucson, AZ.

11:30 AM 360  Nutritional and metabolic strategies to improve reproductive performance during heat stress. 
M. L. Rhoads*, Virginia Polytechnic Institute and State University, Blacksburg, VA.
ADSA Southern Branch Symposium:  
Sustaining the Southern Dairy Industry—University Research, Teaching, and Extension Outlook  
Chair: Stephanie Ward, North Carolina State University  
Ballroom B

2:00 PM  Southern Branch Business Meeting

3:00 PM  Dairy extension programs in the southern region: Finding novel ways to meet the needs of our producers.  
J. K. Bernard*, University of Georgia, Tifton, GA.

3:35 PM  Ice cream break in Exhibit Hall

4:05 PM  Dairy teaching programs in the southern region: Keeping dairy science students relevant for tomorrow’s industry.  
Cathleen C. Williams*, Louisiana State University, Baton Rouge, LA.

4:40 PM  Dairy research programs in the southern region: Importance of multi-institution and industry collaboration in moving the dairy industry forward.  
Michael A. Ballou*, Texas Tech University, Lubbock, TX.

5:15 PM  Speaker Panel/Discussion

5:45 PM  Southern Branch Reception and Awards Ceremony

Animal Behavior and Well-Being II  
Chair: Peter D. Krawczel, University of Tennessee  
Room 300 AB

2:00 PM  Understanding the association between hock and knee injuries on lameness in dairy cattle.  
A. M. Armstrong*, T. F. Duffield, D. B. Haley, and D. F. Kelty, Department of Population Medicine, Guelph, ON, Canada.

Amanda A. Boatswain Jacques1, Ryan S. Knight2, Maxime Leduc3, Viacheslav I. Adamchuk4, and Elsa Vasseur2, 1Bioresource Engineering Department, McGill University, Montreal, PQ, Canada, 2Animal Science Department, McGill University, Montreal, PQ, Canada, 3Valacta, Sainte-Anne-de-Bellevue, PQ, Canada.

2:30 PM  The impact of tie-stall facilities on dairy welfare and the broader dairy industry.  
Kimberley M. Morrill5, Emily Yeiser-Stepp1, Jamie Jonker5, Nigel B. Cook6, Jason E. Lombard4, K. Fred Gingrich7, and Steven Nolt6, 1University of California, Cooperative Extension, Santa Rosa, CA, 2University of Florida, Gainesville, FL, 3University of Wisconsin-Madison, Madison, WI, 4APHIS-USDA, Fort Collins, CO, 5National Milk Producers Federation, Arlington, VA, 6Elizabethtown College, Elizabethtown, PA, 7American Association of Bovine Practitioners, Ashland, OH.

2:45 PM  The effect of tie-rail placements on neck injuries and lying and rising ability of tie-stall-housed dairy cows.  
Jessica St John*1, Jeffrey Rushen2, Steve Adam3, and Elsa Vasseur4, 1McGill University, Animal Science, Montréal, QC, Canada, 2University of British Columbia, Dairy Research and Education Center, Agassiz, BC, Canada, 3Valacta, Sainte-Anne-de-Bellevue, QC, Canada.

3:00 PM  Impact of hoof health on Holstein cow behavior.  
Amber L. Adams Progar*, Lindsey R. Dearmin, and Amy R. Allen, Washington State University, Pullman, WA.

3:15 PM  Effect of prepartum exercise on calving behavior and cortisol concentrations.  
Randi A. Black*1,2 and Peter D. Krawczel1, 1University of California, Cooperative Extension, Santa Rosa, CA, 2University of Tennessee, Knoxville, TN.

3:30 PM  Ice cream break in Exhibit Hall
Effects of oral administration of acetylsalicylic acid on physiological parameters and biomarkers of inflammation, pain and stress in organic dairy cows that experienced vulvar lesion at calving.
A. A. Barragan*, S. Bas, L. M. Bauman, J. Lakritz, J. Velez, J. D. Rozo Gonzalez, G. M. Schuenemann, and R. J. Van Saun, 1Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, 2Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, 3Department of Veterinary Clinical Sciences, The Ohio State University, Columbus, OH, 4Aurora Organic Farms, Boulder, CO.

Physiological and behavior response of dairy calves disbudded with oral administration of an herbal tincture as a method to reduce pain and stress.
Hannah N. Phillips* and Brad J. Heins, University of Minnesota West Central Research and Outreach Center, Morris, MN.

Outcome-based welfare measures of high-producing Holstein freestall-housed dairy cattle across regional benchmarks in the United States.

Remote assessment of herd-level welfare status based on indicators from routinely collected milking records.
Daniel Warner1,2, Elsa Vasseur*, Steve Adam1, Marianne Villetta Robichaud2, Doris Pellerin3, Daniel Lefebvre1, and René Lacroix1, 1Valacta, Dairy Production Centre of Expertise Quebec-Atlantic, Sainte-Anne-de-Bellevue, QC, Canada, 2McGill University, Department of Animal Science, Sainte-Anne-de-Bellevue, QC, Canada, 3Université Laval, Département des sciences animales, Québec, QC, Canada.

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

Statistical validation of a clinical assessment scoring chart for neonatal calves with diarrhea (acidosis).
Patrick Dillane*, Gearoid Sayers1, Lea Krump1, Riona Sayers2, and Emer Kennedy2, 1Department of Biological and Pharmaceutical Sciences, Institute of Technology Tralee, Tralee, Co. Kerry, Ireland, 2Animal & Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland.

Spatial heterogeneity and interactions of microbiota in raw milk and teat skin of dairy cows.
Hui Yan1, Shoukn Ji1, Chunyan Guo1,2, Jiang Mao1, Yun Du1, Feiran Wang*, Yajing Wang1, Zhijun Cao1, Wen Du1, and Shengli Li1, 1State Key Laboratory of Animal Nutrition, Beijing Engineering Technology Research Center of Raw Milk Quality and Safety Control, College of Animal Science and Technology, China Agricultural University, Beijing, China, 2College of Animal Science and Technology, Shihezi University, Shihezi, Xinjiang, China.

High-concentrate feeding and supplementation of a clay-mineral based mix modifies plasma metabolome in dairy cows.
Nicole Reisinger*, Elke Humer2, Iris Kröger1, Viktoria Neubauer2, and Qendrim Zebeli2, 1Biomin Research Center, Tulln, Austria, 2Institute of Animal Nutrition and Functional Plant Compounds, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Vienna, Austria.

Observational longitudinal study of feed additives as risk factors for herd diarrhea incidents on US dairy farms.
Gerald Poppy*12 and Paul Morley1, 1Colorado State University, Fort Collins, CO, 2Fermented Nutrition, Luxemburg, WI.

Metabolic changes in Simmental and Holstein cows after pegbovigrastim injections during the periparturient period.
Vincenzo Lopreiato*, Erminio Trevisi2, Domenico Britti1, Valeria M. Morittu1, Juan J. Loor3, and Andrea Minuti2, 1Interdepartmental Services Centre of Veterinary for Human and Animal Health, Department of Health Science, Magna Graecia University, Catanzaro, Italy, 2Department of Animal Sciences, Food and Nutrition, Università Cattolica del Sacro Cuore, Piacenza, Italy, 3Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.
Dynamics of rumination, activity, and milk yield around hoof trimming. 
Sushil Paudyal*, Fiona Maunsell¹, and Pablo Pinedo¹, ¹Colorado State University, Fort Collins, CO, ²University of Florida, Gainesville, FL.

Ice cream break in Exhibit Hall

Efficacy of novel treatment options for digital dermatitis in organic dairy systems. 
Sushil Paudyal*, Diego Manriquez¹, Ana Velasquez¹, Jan Shearer³, Paul Plummer³, Hans Bothe², Juan Velez¹, and Pablo Pinedo¹, ¹Colorado State University, Fort Collins, CO, ²Aurora Organic Dairy, Boulder, CO, ³Iowa State University, Ames, IA.

Impact of inhibitors of choline product synthesis and signaling on the inflammatory response of innate and adaptive immune cells. 
Miriam Garcia*, Melissa Riley¹, Laman K. Mamedova¹, Barbara Barton², and Barry J. Bradford¹, ¹Kansas State University, Manhattan, KS, ²Balchem Corp., New Hampton, NY.

Long-term effects of clinical diseases postpartum on culling, production, and reproduction of dairy cows. 
Murilo R. Carvalho*, Trevor J. DeVries, Brian McBride, and Eduardo S. Ribeiro, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

The effects of stocking density, heat stress, and combination on variations in cell-mediated and humoral immunity. 
Amanda R. Lee*, Peter D. Krawczel¹, Rick J. Grant², and Gina M. Pighetti², ¹University of Tennessee Knoxville, Knoxville, TN, ²William H. Miner Agricultural Research Institute, Chazy, NY.

Molecular epidemiology of bovine anaplasmosis in Khyber Pakhtunkhwa Province of Pakistan. 
Muhammad Ijaz*, Shahid Hussain Farooqi, Amjad Islam Aqib, Kashif Hussain, and Amjad Khan, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan.

Breeding and Genetics III: Feed Efficiency, Crossbreeding, and Production
Chair: Filippo Miglior, Canadian Dairy Network
Room 301 A

Progeny testing results in accurate genomic breeding values for feed efficiency in Holstein dairy sires. 
Claas Heuer*, Nader Deeb, Chuan Yu Sun, David Kendall, Juan Moreno, and R. Vishwanath, STgenetics, Navasota, TX.

Dry matter intake, production, body condition score, body weight, and frame size of ProCROSS crossbred versus Holstein cows. 
B. N. Shonka-Martin*, B. J. Heins², and L. B. Hansen¹, ¹University of Minnesota, St. Paul, MN, ²West Central Research and Outreach Center, Morris, MN.

Feed efficiency and residual feed intake of ProCROSS crossbred versus Holstein cows. 
B. N. Shonka-Martin*, B. J. Heins², and L. B. Hansen¹, ¹University of Minnesota, St. Paul, MN, ²West Central Research and Outreach Center, Morris, MN.

Activity and rumination of Holstein versus crossbred cows in an organic grazing and low-input conventional herd. 
Glenda M. Pereira* and Bradley J. Heins, University of Minnesota West Central Research and Outreach Center, Morris, MN.

Incorporation of feed efficiency into a selection index for Holstein cattle. 
Kerry Houlihan*, Filippo Miglior¹,², Morten Kargo³, Zhiqian Wang⁴, Christian Maltecca⁵, Birgit Gredler⁶, Allison Fleming⁷, and Christine F. Baes⁸, ¹Centre for Genetic Improvement of Livestock, Department of Animal Bioscience, University of Guelph, Guelph, ON, Canada, ²Canadian Dairy Network, Guelph, ON, Canada, ³Center for Quantitative Genetics and Genomics, Department of Molecular Biology and Genetics, Aarhus University, Tjele, Denmark, ⁴Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ⁵Department of Animal Science and Genetics, North Carolina State University, Raleigh, NC, ⁶Qualitas AG, Zug, Switzerland.
Methods to compute reliabilities for genomic predictions of feed intake.
Paul M. VanRaden and Jana L. Hutchison*, USDA Animal Genomics and Improvement Lab, Beltsville, MD.

Ice cream break in Exhibit Hall

Indicator traits to predict dry matter intake in Holstein cattle.
Shannon C. Beard**, Filippo Miglior†‡, Flavio Schenkel‡, Birgit Gredler†, Zhiquan Wang‡, Allison Fleming‡, and Christine F. Baes†, †Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, ‡Canadian Dairy Network, Guelph, ON, Canada, †Qualitas AG, Zug, Switzerland, ‡Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Dairy Wellness Traits from genomic testing with a control Holstein cow population compared to contemporary Holstein cows in a pasture production system.
Bradley J. Heins**, Glenda M. Pereira†, Lydia C. Hardie‡, and Chad D. Dechow‡, †University of Minnesota, Morris, MN, ‡Penn State University, State College, PA.

Heritability and genetic correlations of shape and size of lactation curves in Israeli Holsteins using geometric morphometrics.
Angel A. Duron-Benitez†, Joel I. Weller**, and Ephraim Ezra†, †ARO, The Volcani Center, Rishon LeZion, Israel, **Israel Cattle Breeders Association, Caesaria Industrial Park, Israel.

Montbeliarde- and Viking Red-sired crossbred cows compared with Holstein cows for health treatment cost in high-performance dairies in Minnesota.
A. R. Hazel**, B. J. Heins†, and L. B. Hansen†, †University of Minnesota, St. Paul, MN, ‡West Central Research and Outreach Center, Morris, MN.

Dairy Foods III: Microbiology and Health
Chair: Olivia McAuliffe, Teagasc Food Research Centre
Room 301 B

Elucidating the contribution of Listeria monocytogenes plasmids to survival in dairy foods and production facilities.
Anna L. Naditz*, Debarpan Dhar, and Stephan Schmitz-Esser, Iowa State University, Ames, IA.

Physical removal of bacteria from raw milk by centrifugation: effect of force and temperature.
Emily R. Griep* and Carmen I. Moraru, Cornell University, Ithaca, NY.

Transcriptomic analysis of high exopolysaccharide-producing dairy starter bacterium Streptococcus thermophilus ASC 1275 in milk.
Qinglong Wu and Nagendra P. Shah*, The University of Hong Kong, Pokfula Road, Hong Kong.

Impact of farm management on microflora of raw bovine milk: A Swedish farm-based study.
Li Sun**, Gun Bernes‡, Johan Dicksveld‡, Annika Höjer‡, Karin Hallin Saedén‡, Monika Johansson‡, Mårten Hetta‡, and Åse Lundh‡, ‡Department of Molecular Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden, †Department of Animal Nutrition and Management, Swedish University of Agricultural Sciences, Uppsala, Sweden, ‡Norremejerier Ek. Förening, Mejerivägen, Umeå, Sweden, †Department of Agricultural Research for Northern Sweden, Swedish University of Agricultural Sciences, Umeå, Sweden.

Time for change—Indicators of public health concern for raw milk and processed dairy products.
Steven Murphy*, EAS Consulting Group LLC, Alexandria, VA.

Interaction of lactic acid bacteria with MFGM phospholipids – Surface adherence.
Joana Ortega-Anaya*, Israel García-Cano, Diana Rocha-Mendoza, and Rafael Jiménez-Flores, The Ohio State University, Columbus, OH.

Ice cream break in Exhibit Hall
Milk consumption and childhood obesity: Does milk really deserve the bad rap?
Katherine Swanson*1, Sarah Akers1, Cassie Penix1, Nicolas Aguilera1,2, Sebastiano Busato1, Brandon Batty1, Michelle Kutzler1, and Massimo Bionaz1,2 Oregon State University, Corvallis, OR, Universidad Zamorano, Tegucigalpa, Honduras.

Effect of milk supplementation on bone growth in pre-pubertal pigs.
Brandon Batty1, Michelle Kutzler2, Scott Campbell1, Angel Torres1, Nina Enos1, Katherine Swanson1, Sebastiano Busato1, Nicolas Aguilera1,2, Efren Plancarte1, and Massimo Bionaz1,2 Oregon State University, Corvallis, OR, Universidad Zamorano, Francisco Morazan, Honduras.

The effect of bovine milk consumption on in vivo porcine adipose stem cells.
Katherine Swanson*, David Hendrix, Duo Jiang, and Massimo Bionaz, Oregon State University, Corvallis, OR.

Dairy Foods Processing Symposium:
Emerging Processing Technologies to Improve Quality and Functionality of Dairy Ingredients
Chair: Rohit Kapoor, National Dairy Council
Sponsor: National Dairy Council
Room 200 DE

Opening remarks.
Rohit Kapoor, National Dairy Council, Rosemont, IL.

Opportunities for novel dairy ingredients—End-user perspective.
Praveen Upreti*, Nestle R&D Center Inc., Solon, OH.

High-pressure-jet spray-drying to create novel dairy products.
Federico Harte*, Department of Food Science, Pennsylvania State University, University College, PA.

Use of forward osmosis as a non-thermal method of concentration for the manufacture of high quality milk concentrates and powders.
Carmen I. Moraru*, Cornell University, Ithaca, NY.

Ice cream break in Exhibit Hall

Innovations in micro- and nano-bubble technology to improve dairy powder functionality.
Jayendra Amamcharla*, Food Science Institute/Animal Sciences and Industry, Kansas State University, Manhattan, KS.

Single droplet drying—A new technology for optimization of drying conditions for dairy ingredients.
Lloyd E. Metzger* and Hiral N. Vora, South Dakota State University, Brookings, SD.

Closing remarks.
Rohit Kapoor, National Dairy Council, Rosemont, IL.
Integration of post-weaning nutrient requirements and supply with growth and mammary development in modern dairy heifers.
Michael E. Van Amburgh*, Cornell University, Ithaca, NY.

Macronutrient metabolism in the growing calf.
W. J. J. Gerrits*, Animal Nutrition Group, Wageningen University & Research, Wageningen, the Netherlands.

Ice cream break in Exhibit Hall

Re-evaluation of NRC energy estimates in calf feeds.
James D. Quigley*, T. Mark Hill, Joanne R. Knapp, Xavier Suarez-Mena, Tana S. Dennis, and Wenping Hu, Provimi, Brookville, OH.

Growing and developing dairy heifers from birth to weaning.
Arlyn J. Heinrichs*, The Pennsylvania State University, University Park, PA.

Period2 gene silencing impacts on the proliferation, apoptosis and cell cycle progression of bovine mammary epithelial cells.
Liangyu Hu*1, Mengzhi Wang2, Liangpeng Wei1, Yujia Jing3, Qiaoyun Xu3, and Juan J. Loor2, 1College of Animal Science and Technology, Yangzhou University, Yangzhou, China, 2Mammalian NutriPhysioGenomics, Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.

Temporal effect of dry period heat stress on mammary gland gene expression and structure.

The impact of pre-weaning plane of nutrition on the myoepithelial cell population within the immature bovine mammary parenchyma.
Adam J. Geiger*, 1Zinpro Corp., Eden Prairie, MN, 2Virginia Tech, Blacksburg, VA.

Heat stress negatively affects the transcriptome related to overall metabolism and milk synthesis in mammary tissue of mid-lactating dairy cows.
Dengpan Bu*1,3, Lu Ma1,3, Shengtao Gao1, Zhongkui Zhou1, Lance H. Baumgard4, Jiang Duo3, and Massimo Bionaz2, 1State Key Laboratory of Animal Nutrition, Institute of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China, 3Hunan Co-Innovation Center of Safety Animal Production, Changsha, Hunan, China, 4Department of Animal Science, Iowa State University, Ames, IA, 5Animal and Rangeland Sciences, Oregon State University, Corvallis, OR.

Comprehensive analysis of fatty acid biohydrogenation intermediates involved in milk fat depression over time in dairy cows.
Heidi M. Leskinen*, Laura Ventto, Piaa Kairenius, Tomasz Stefanski, Kevin Shingfield, and Johanna Vilki, Natural Resources Institute Finland (Luke), Jokioinen, Finland.
Photoperiod affects mammary clock gene expression during late pregnancy and lactation in dairy goats.
Sameer J. Mabjeesh*1, Muggaga Kalyesubula1, Chris Sebastian1, Naama Reicher1, Avi Shamay2, Yosi Wein3, Enav Bar-Shira3, Karen Plaut3, and Theresa M. Casey1, 1The Hebrew University of Jerusalem, Rehovot, Israel, 2The Volcani Center, Rehovot, Israel, 3Purdue University, West Lafayette, IN.

Physiology and Endocrinology III
Chair: Zheng Zhou, Clemson University
Lecture Hall

Effects of dietary zinc source on inflammatory biomarkers and PMN function following lipopolysaccharide challenge in lactating cows.
E. A. Horst*1, E. J. Mayorga1, S. L. Portner1, M. Al-Qaisi2, C. S. McCarthy3, M. A. Abeysa1, B. M. Goetz2, H. A. Ramirez-Ramirez2, D. H. Kleinshmit4, and L. H. Baumgard1, 1Iowa State University, Ames, IA, 2Zinpro Corp., Eden Prairie, MN.

Nutrient-sensing kinase signaling and energy storage in bovine immune cells during the transition period.
Sabine Mann*4, Anja Sipka1, Francisco Leal-Yepes2, Daryl Nydam2, Thomas Overton3, and Joseph Wakshlag4, 1Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY, 2Department of Animal Science, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY, 3Department of Clinical Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY.

Hormone-sensitive lipase activity modulates the biosynthesis of oxidized linoleic acid metabolites in adipose tissue of periparturient dairy cows.
G. Andres Contreras*, Clarissa Strieder Barboza, Jonas De Souza, Jeff Gandy, Rahul Nelli, Jenne De Koster, Adam L. Lock, and Lorraine M. Sordillo, Michigan State University, East Lansing, MI.

Short-chain fatty acids regulate the inflammatory response and peripheral blood mononuclear cells recruitment via G protein-coupled receptor 41 in bovine rumen epithelial cells.
Maocheung Jiang*, Kang Zhan, Xiaoxiao Gong, Guoqi Zhao, and Miao Lin, Institute of Animal Culture Collection and Application, College of Animal Science and Technology, Yangzhou University, Yangzhou, Jiangsu, China.

Beta-hydroxybutyrate enhances kisspeptin-stimulated expression of gonadotropin releasing hormone in GT1-7 cells.
L. L. Amelse*1, J. T. Mulliniks2, J. A. Daniel3, and B. K. Whitlock2, 1College of Veterinary Medicine, University of Tennessee, Knoxville, TN, 2West Central Research and Extension Center, University of Nebraska, North Platte, NE, 3Department of Animal Science, Berry College, Mount Berry, GA.

Ice cream break in Exhibit Hall

Assessing tissue-specific metabolic rate to predict production.
Yao Xiao* and Benjamin J. Renquist, University of Arizona, School of Animal and Comparative Biomedical Sciences, Tucson, AZ.

Identification of immune cells migrated into the jejunum of heat-stressed dairy cows using RNAseq.
Franziska Koch*, Ulrike Thom1, Elke Albrecht1, Rosemarie Weikard1, Björn Kühla1, and Christa Kühn1, 1Institute of Nutritional Physiology “Oskar Kellner,” Leibniz Institute for Farm Animal Biology, Dummerstorf, MV, Germany, 2Institute of Muscle Biology and Growth, Leibniz Institute for Farm Animal Biology, Dummerstorf, MV, Germany, 3Institute for Genome Biology, Genome Physiology Unit, Leibniz Institute for Farm Animal Biology, Dummerstorf, MV, Germany.

“Feeding” the transcriptome: Nutrigenomic effect of NEFA on peroxisome proliferator-activated receptor activity.
Sebastiano Busato* and Massimo Bionaz, Oregon State University, Corvallis, OR.

What’s the norm in normalization? A note on the use of RTqPCR in livestock-related studies.
Sebastiano Busato*1, Nicolas Aguilera2, Matteo Mezzetti1, and Massimo Bionaz2, 1Oregon State University, Corvallis, OR, 2Università Cattolica del Sacro Cuore, Piacenza, Italy.
Reproduction Symposium: Recent Innovations in Reproductive Management  
Chair: Stephen Butler, Teagasc, Moorepark, Ireland  
Ballroom G

2:00 PM 430 Focusing on bull management and puberty attainment in the genomic era.  
Bo Harstine*, Select Sires Inc., Plain City, OH.

2:30 PM 431 Impact of early life nutrition on the molecular and physiological regulation of puberty onset in the bull.  

3:00 PM 432 Effects of the adoption of automated monitoring systems for monitoring transition cows and reproduction on performance.  
Ricardo Chebel*1,2, 1Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL, 1Department of Animal Sciences, University of Florida, Gainesville, FL.

3:30 PM Ice cream break in Exhibit Hall

4:00 PM 433 Detection and management of pregnancy loss in a cow herd.  
Ky G. Pohler*, Michael F. Smith, Jon A. Green, and Jose L. M. Vasconcelos, 1Department of Animal Science, University of Tennessee, Knoxville, TN, 2Division of Animal Sciences, University of Missouri, Columbia, MO, 3Department de Produção Animal, Faculdade de Medicina Veterinária e Zootecnia, UNESP, Botucatu, São Paulo, Brazil.

4:30 PM 434 Embryo transfer as a reproductive management tool.  
Pietro S. Baruselli*, Roberta Ferreira, Carlos A. Rodrigues, and Gabriel A. Bo, 1Departamento de Reprodução Animal, FMVZ-USP, São Paulo, Brazil, 3SAMVET, São Carlos-SP, Brazil, 2Instituto de Reproducción Animal Córdoba (IRAC), Córdoba, Argentina.

Ruminant Nutrition V: Calves and Heifers  
Chair: Gustavo Lascano, Clemson University  
Ballroom C

2:00 PM 435 Relationships between birth season and protein and energy consumed from milk replacer and starter on calf growth and first lactation production performance of Holstein dairy cows.  
Jessica J. Rauba*, Bradley J. Heins, Hugh Chester-Jones, Hector L. Diaz, David Ziegler, James Linn, and Neil Broadwater, 1Milk Specialties Global, Eden Prairie, MN, 2University of Minnesota West Central Research and Outreach Center, Morris, MN, 3University of Minnesota Southern Research and Outreach Center, Waseca, MN, 4University of Minnesota Extension, Rochester, MN.

2:15 PM 436 Growth performance of dairy heifers fed carinata meal compared with canola meal and a control diet.  
Karla Rodriguez-Hernandez*, Jill L. Anderson, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Matamoros, Coahuila, México.

2:30 PM 437 Evaluation of carinata meal included in a total mixed ration fed ad libitum to dairy heifers.  
R. D. Lawrence* and J. L. Anderson, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

2:45 PM 438 Comparative analysis of host tissue transcriptomics and rumen wall microbial metatranscriptomics in neonatal calves treated with artificial dosing of rumen content from adult donor cow.  
Wenli Li*, Andrea Edwards, Madison Cox, Sarah Raab, Joseph Skarlupka, Andrew Steinberger, and Garret Suen, 1US Dairy Forage Research Center, Madison, WI, 2Department of Microbiology, University of Wisconsin, Madison, WI, 3School of Veterinary Medicine, University of Wisconsin, Madison, WI.

3:00 PM 439 Growth performance, nutrient utilization, and health of calves supplemented with condensed whey solubles.  
N. D. Seneviratne*, J. L. Anderson, J. S. Osorio, L. Metzger, and B. St Pierre, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Department of Animal Science, South Dakota State University, Brookings, SD.
3:15 PM 440 Dietary transition from hay to silage-based TMR in weaned dairy calves: Effect on sorting behavior, intake, growth performance, and blood metabolites.
Muhammad Afzal Rashid*, Zaib Ali Qamar1, Habib Ur Rehman1, Muhammad Shahbaz Yousaf2, and Mohsin Raza2,
1Department of Animal Nutrition, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan, 2Department of Physiology, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan.

3:30 PM

Ice cream break in Exhibit Hall

4:00 PM 442 Growth performance and health of dairy calves supplemented with flax and soy oil.
C. R. Schossow*, J. L. Anderson, and J. S. Osorio, Dairy and Food Science Dept., South Dakota State University, Brookings, SD.

4:15 PM 443 Amino acid supplementation in calf milk replacer.
Marta Terré*, Maria Font-i-Furnols, Anna Bassols, Maria Vidal1, Albert Brun2, and Alex Bach4, 1Institut de Recerca i Tecnologia Agroalimentàries, Caldes de Montbui, Spain, 2Institut de Recerca i Tecnologia Agroalimentàries, Monells, Spain, 3Universitat Autònoma de Barcelona, Bellaterra, Spain, 4Institución Catalana de Recerca i Estudis Avançats, Barcelona, Spain.

4:30 PM 444 Offering drinking water at birth could improve growth performance and fiber digestibility in Holstein heifer calves.
Wednesday, June 27

Animal Health Symposium:
Bovine Tuberculosis—An Ongoing Animal Health Challenge
Chair: Ken Olson, KEO Consulting
Ballroom F

9:30 AM  Opening remarks.
          Ken Olson.

9:45 AM  445  Ferret transmission model for tuberculosis.
          Tuhina Gupta, Shelly Helms, Kaori Sakamoto, Steve Harvey, Ted Ross, Christopher Whalen, Russell Karls, and
          Frederick Quinn*, University of Georgia, Athens, GA.

10:15 AM  446  The current status of bovine tuberculosis in the world.
          A. Perera*, USDA APHIS VS/IS Mexico, Mexico City, Mexico.

10:45 AM  Break

11:00 AM  447  Development of a subunit vaccine for bovine tuberculosis.
          N. Guy1, N. Rawlyk1, M. Bains2, O. Ihebomba1, Z. Lim1, K. Bock1, S. Walker1, C. Wheler1, C. Gerdts*1, J. Chen1, R. E. Han-
          cock2, and A. A. Potter1, 1Vaccine and Infectious Disease Organization-InterVac, Saskatoon, SK, Canada, 2Centre for
          Microbial Disease and Immunity Research, Vancouver, BC, Canada.

11:30 AM  448  Bovine tuberculosis—An ongoing animal health challenge.
          V. Kapur*, Pennsylvania State University, University Park, PA.

12:00 PM  Closing remarks.
          Ken Olson.

Breeding and Genetics: Joint ADSA and Interbull Session:
Phenotyping and Genetics in the New Era of Sensor Data from Automation
Chair: Marj Faust, Data Driven Genetics
Sponsor: GrowSafe
Ballroom E

9:30 AM  Introductory comments.
          Marj Faust.

9:30 AM  449  The value of precision technologies in the genetic evaluation of dairy cows.
          M. van der Voort*1, C. Kamphuis2, and H. Hoogeveen3, 1Wageningen University, Business Economics Group, Wageningen,
          the Netherlands, 2Wageningen Livestock & Research, Animal Breeding and Genetics Centre, Wageningen, the
          Netherlands.

10:00 AM  450  Early prediction of lactational milk, fat and protein yields using daily milk data.
          O. Nir (Markusfeld), G. Katz*, and L. Reuveni, Afinimilk, Kibbutz Afikim, Israel.

10:30 AM  451  Comparison of milk composition and somatic cell count estimates from automatic milking systems sensors and
          milk recording laboratory analyses.
          L. Fadul-Pacheco1,2, R. Lacroix3, M. Séguin4, M. Grisé5, E. Vasseur5, and D. Lefebvre*1, 1Valacta, Ste-Anne-de-Bellevue,
          QC, Canada, 2McGill University, Ste-Anne-de-Bellevue, QC, Canada.
Canadian Society of Animal Science (CSAS) Symposium:
Genomic Alterations and Implications on Health: Gut and Beyond
Chair: Michael Steele, University of Alberta
Ballroom A

9:30 AM
Application of omics to understand host-microbial interactions in dairy cows.
Nilusha Malmuthuge¹ and Le Luo Guan*², ¹Vaccine and Infectious Disease Organization, University of Saskatchewan, Saskatoon, SK, Canada, ²Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

10:00 AM
Genetics of gut health robustness in dairy cows.
Jan C. Plaizier*¹, Ehsan Khafipour¹, Greg B. Penner², and Michael A. Steele³, ¹University of Manitoba, Winnipeg, MB, Canada, ²University of Saskatchewan, Saskatoon SK, Canada, ³University of Alberta, Edmonton, AB, Canada.

10:30 AM
Characterization of the bovine milk protein profile using proteomic techniques.
Sabrina L. Greenwood*, The University of Vermont, Burlington, VT.

11:00 AM
Using high-throughput molecular biology techniques to study early conceptus development in dairy cows.
Eduardo S. Ribeiro*¹, José E. P. Santos², Francisco Peñagaricano¹, Elvis Ticiani¹, Murilo R. Carvalho¹, and José F. W. Sprícigo², ¹Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, ²Department of Animal Sciences, University of Florida, Gainesville, FL.

11:30 AM
Metabolomics in dairy research: characterization of metabolotype in healthy and disease states.
John Doelman*¹, Leonel N. Leal¹, Michael A. Steele¹, and Javier Martin-Tereso¹, ¹Trouw Nutrition B.V, Amersfoort, the Netherlands, ²University of Alberta, Edmonton, AB, Canada.

12:00 PM
The genomic architecture of inbreeding: How homozygosity affects health and performance in dairy cattle.
Christine F. Baes*, Filippo Miglior¹,², Bayode Makanjuola¹, Calista Vogelzang¹, Flavio Schenkel¹, Jeremy T. Howard³, Christian Maltecca¹, and Gabriele Marras², ¹Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, ²Canadian Dairy Network, Guelph, ON, Canada, ³Department of Animal Science, University of Nebraska, Lincoln, NE, ⁴Department of Animal Science, North Carolina State University, Raleigh, NC.

Dairy Foods IV: Chemistry
Chair: Tonya Schoenfuss, University of Minnesota
Room 301 B

9:30 AM
Survey of relationship between bulk tank milk fat and true protein and de novo fatty acid content in Holstein dairy herds in the United States.
David M. Barbano*, Melissa E. Carabeau¹, Heather M. Dann², and Rick J. Grant³, ¹Cornell University, Ithaca, NY, ²W. H. Miner Agricultural Research Institute, Chazy, NY, ³Poulin Grain Inc., Newport, VT.
Simultaneous analysis of of three adulterants in raw milk using Fourier-transform infrared spectroscopy.
Daniela C. S. Z. Ribeiro, Wanessa L. F. Tavares, Juliana S. Lima, Mônica O. Leite, Mônica M. O. P. Cerqueira, Letícia F. Ferreira, João P. A. Haddad, Júlia P. M. Heringer, and Geoges M. Fonseca.*1,2,1 Veterinary School, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil, 2FAPEMIG, Belo Horizonte, MG, Brazil.

Mid-infrared prediction of protein fractions in milk-based beverages and microfiltration retentates of skim milk.
Larissa Di Marzo* and David M. Barbano, Cornell University, Ithaca, NY.

Matilde Portnoy* and David M. Barbano, Cornell University, Ithaca, NY.

The relationship between seasonal variation in bulk tank milk fat and true protein and milk fatty acid composition for Holstein herds.
David M. Barbano, Caterina Melilli, Melissa E. Carabeau, Heather M. Dann, and Rick J. Grant, 1Cornell University, Ithaca, NY, 2W. H. Miner Agricultural Research Institute, Chazy, NY, 3Paulin Grain Inc., Newport, VT.

Break

Vibrations during yogurt fermentation—Impact on particle formation and further texture defects.
Adrian Orlando Körzendörfer*, Philipp Temme, Eberhard Schlücker, Jörg Hinrichs, and Stefan Nöbel, 1Institute of Food Science and Biotechnology, University of Hohenheim, Stuttgart, BW, Germany, 2Department of Chemical and Biological Engineering, Friedrich-Alexander University Erlangen-Nürnberg, Erlangen, Germany.

Development of a continuous cavitation-assisted thermal treatment for skim milk concentrate: Process characterization and microbial efficiency.
JaeYoung Sim*, Sergio I. Martinez-Monteagudo, and Sanjeev Anand, Dairy and Food Science, South Dakota State University, Brookings, SD.

Controlling milk oxidation during high intensity retail LED light storage requires light-blocking and oxygen-barrier packaging properties.
Aili Wang*, Catherine H. Dadmun, Rachel M. Hand, and Susan E. Duncan, 1Virginia Polytechnic Institute and State University, Blacksburg, VA, 2College of Charleston, Charleston, NC, 3Michigan State University, East Lansing, MI.

Reconstitution of MFGM phospholipids in liposomes—Physical and chemical characterization.
Joana Ortega-Anaya*, Israel García-Cano, Diana Rocha-Mendoza, and Rafael Jiménez-Flores, The Ohio State University, Columbus, OH.

Dairy Foods V: Processing: Utilization of Whey
Chair: Carmen I. Moraru, Cornell University
Ballroom G

Opening remarks.
Carmen Moraru, Cornell University, Ithaca, NY.

Use of acid whey protein as an ingredient in nonfat set-style yogurt.
Bryan Wherry*, David Barbano, and MaryAnne Drake, 1North Carolina State University, Raleigh, NC, 2Cornell University, Ithaca, NY.

Calcium precipitation as a pretreatment for improving the membrane filtration behavior of acid whey from Greek-style yogurt.
Ana G. Ortiz Quezada*, Alejandra Castilla Asaf, Carmen I. Moraru, and Gavin L. Sacks, Cornell University, Ithaca, NY.

Suitability of biomass produced by anaerobic digestion of manure and whey as a renewable peat moss substitute and economic assessment.
Donald J. McMahon*, Dillon Fallon, DeeVon Bailey, Nabil Yousef, and Conly Hansen, 1Western Dairy Center, Utah State University, Logan, UT, 2Nutrition, Dietetics and Food Sciences Department, Utah State University, Logan, UT, 3Applied Economics Department, Utah State University, Logan, UT.

Break
10:45 AM  473  **Whey tonics: One-step fermentation of acid whey to acetic acid.**
Marie R. Lawton* and Samuel D. Alcaine, *Department of Food Science, Cornell University, Ithaca, NY.

11:00 AM  474  **Carotenoids from dairy waste: evaluation of astaxanthin produced by *Haematococcus pluvialis* fed de-proteinized whey permeate.**
Madeline A. Brandt*, Catrin E. Tyl1, Joshua G. Stepanek2, Matthew L. Julius1, and Tonya C. Schoenfuss, 1University of Minnesota, St. Paul, MN, 2St. Cloud State University, St. Cloud, MN.

11:15 AM  475  The fermentation and distillation of sweet and acid whey and comparison of volatile compounds present in each distillate using headspace solid-phase microextraction (HS-SPME)-GC/MS.
Derrick Risner, Elizabeth Tomasino, Danton Batty, Paul Hughes*, and Lisbeth Meunier-Goddik, *Oregon State University, Corvallis, OR.

11:30 AM  Closing remarks.
Carmen Moraru, *Cornell University, Ithaca, NY.

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**Lactation Biology II**
*Chair: Theresa Casey, Purdue University*
*Room 301 D*

9:30 AM  476  **Fetal exposure to thermal stress has long-term effects on mammary morphology and function in dairy cattle.**

9:45 AM  477  **In vitro histone manipulation of bovine mammary epithelial cells through methionine supplementation.**
Fernanda Rosa* and Johan S. Osorio, *Dairy and Food Science Department, South Dakota State University, Brookings, SD.

10:00 AM  478  **mTORC1 regulates de novo lipid synthesis in bovine mammary epithelial cells.**
Marc-Antoine Guesthier*, Jianhui Huang, and Sergio A. Burgos, *Department of Animal Science, McGill University, Sainte-Anne-de-Bellevue, Québec, Canada.

10:15 AM  Break

10:30 AM  479  **Citrate and choline in milk are biomarkers of mammary inflammation in heat stressed and LPS challenged dairy goats.**
Alexandra Contreras-Jodar*, Samantha Love1, Nabil Mehaba1, Gerardo Caja1, and Ahmed A. K. Salama1,2, 1Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, 2South Dakota State University, Brookings, SD.

10:45 AM  480  **The effect of night restricted feeding on the molecular circadian clock of the mammary gland.**
Isaac J. Saifer* and Kevin J. Harvatine, *The Pennsylvania State University, University Park, PA.

11:00 AM  481  **Evaluation of increasing serotonin concentrations and effect on calcium metabolism in mid- to late-lactation dairy cows.**
Meghan K. Connelly*, Sam R. Weaver, Hannah Fricke, Jordan Kuehn, Marisa Klister, and Laura L. Hernandez, *University of Wisconsin-Madison, Madison, WI.

11:15 AM  482  **Dry period heat stress impacts mammary protein metabolism in the subsequent lactation.**
Bethany Dado-Senn*, Amy L. Skibiel, Emma Meyer, Sebastian I. Arriola Apelo, and Jimena Laporta, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.
Ruminant Nutrition Platform Session II: Protein and Amino Acid Nutrition

Chair: Paul Kononoff, University of Nebraska

Sponsors: Ajinomoto and SoyBest

Ballroom C

9:30 AM 483 Effects of infused leucine and isoleucine or methionine, lysine, and histidine on cow performance.
Peter S. Yoder*1,2, Xinbei Huang3, and Mark D. Hanigan3,3, Virginia Tech, Blacksburg, VA, 1Perdue AgriBusiness, Salisbury, MD.

9:45 AM 484 Effects of varying extracellular amino acid concentration on amino acid transport in mammary epithelial cells.
Peter S. Yoder*1,2, Juan J. Castro3, Tatiana Ruiz-Cortes4, and Mark D. Hanigan3,3, Virginia Tech, Blacksburg, VA, 1Perdue AgriBusiness, Salisbury, MD, 2Dairy Visions LLC, Chandler, AZ, 3Universidad de Antioquia, Medellin, Antioquia, Colombia.

10:00 AM 485 Lactational performance of dairy cows in response to supplementing N-acetyl-L-methionine as a source of rumen-protected methionine.
F. X. Amaro*1, K. G. Arriola1, Y. Jiang1, D. Kim1, A. R. Cervantes1, V. P. Silva1, M. C. N. Agarussi1, J. T. Silva1, A. T. Adesogan1, L. F. Ferrareto1, C. R. Staples1, J.-S. Eun1, J. S. Park1, J. O. Moon1, D. Vyas1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT, 3Biotechnology Research Institute, CJ CheilJedang, Suwon, South Korea.

10:15 AM 486 Dietary supplementation with a rumen-protected L-arginine product enhances milk production by dairy cows.
Ashley B. Keith, Michael C. Satterfield, Fuller W. Bazer, and Guoyao Wu*, Texas A&M University, College Station, TX.

10:30 AM 487 Efficiency of utilization of amino acid increased with energy supply at low and high metabolizable protein supply in dairy cows.
Cléo Omphalius*1,2, Hélène Lapierre1, Lahlou Bahliou2, and Sophie Lemosquet1, 1PEGASE, INRA, Agrocampus-Ouest, Rennes, France, 2Adisseo France S.A.S, Antony, France, 3Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.

10:45 AM 488 Leucine and lysine alter inflammatory response of immune cells from growing cattle.
Miriam Garcia*, Kimberly A. Pearl, Evan C. Titgemeyer, and Barry J. Bradford, Kansas State University, Manhattan, KS.

11:00 AM 489 Alterations in amino acid transporters and the mTOR pathway in adipose tissue of Holstein cows during the periparturient period in response to methionine supply.
Y. Liang*1, F. Batistel1, C. Parys3, and J. J. Loor4, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, 2Evonik Nutrition & Care GmbH, HanauWolfgang, Germany.

11:15 AM 490 Methionine supply during the periparturient period alters glutathione metabolism in adipose tissue of Holstein cows.
Y. Liang*1, F. Batistel1, C. Parys3, and J. Loor4, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, 2Evonik Nutrition & Care GmbH, HanauWolfgang, Germany.

11:30 AM 491 Predictions of rumen outflow of amino acids in dairy cattle.
A.J. Myers*5, H. Lapierre6, R.R. White6, H. Tran6, P. J. Kononoff6, R. Martineau7, W. P. Weiss6, and M. D. Hanigan1, 1Virginia Tech, Blacksburg, VA, 2Agricultural and Agri-Food Canada, Sherbrooke, QC, Canada, 3Department of Dairy Science, University of Nebraska, Lincoln, NE, 4Department of Animal Sciences, The Ohio State University, Columbus, OH.

11:45 AM 492 Predicting milk protein production from amino acid supply.
Mark D. Hanigan*, Helene Lapierre2, Roger Martineau3, and Adelyn M. Myers4, 1Virginia Tech, Blacksburg, VA, 2Agriculture and Agri-Food Canada, Lennoxville, QB, Canada.

12:00 PM 493 A new model to predict microbial protein synthesis in the rumen.
Luis E. Moraes*, Robin R. White3, and Jeffrey L. Firkins3, 1The Ohio State University, Columbus, OH, 2Virginia Tech, Blacksburg, VA.

12:15 PM 494 Diets to maximize milk protein secretion: Is the single limiting amino acid model the whole story?
Louis E. Armentano*, University of Wisconsin, Madison, WI.
Ruminant Nutrition VI: Early Lactation and Inflammation
Chair: Kristy Daniels, Virginia Tech
Ballroom B

9:30 AM 495 Impacts of short-term sodium salicylate administration and infrequent milking on early lactation cow energetics and milk yield through mid-lactation.
Miriam Garcia*, Caroline Ylioja, Laman K. Mamedova, and Barry J. Bradford, Kansas State University, Manhattan, KS.

9:45 AM 496 Mitochondrial function of cryopreserved liver biopsies during early and late lactation of dairy cows.
Mercedes García-Roche*,1,2, Alberto Casal1, Mariana Carriquiry3, Celia Quijano1, and Adriana Cassina3,4, Centro de Investigaciones Biomédicas - Departamento de Bioquímica, Facultad de Medicina, Montevideo, Montevideo, Uruguay, 2Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Montevideo, Montevideo, Uruguay.

10:00 AM 497 Independent effects of metabolizable protein and heat stress affected milk production and plasma free fatty acid and insulin concentrations in dairy cows.
Jeffrey D. Kaufman*, Hannah R. Bailey, and Agustín G. Rius, University of Tennessee, Knoxville, TN.

Elena Mariani1, Guido Invernizzi4*, Giovanni Savoini3, Antonella Baldi4, and Ioannis Politis2, 4Department of Health, Animal Science and Food Safety, Università degli Studi di Milano, Milan, Italy, 2Department of Animal Science and Aquaculture, Agricultural University of Athens, Athens, Greece.

10:30 AM 499 Meta-analysis of the effects of prepartum dietary cation-anion difference on performance and health of dairy.
Jose E. Santos*,1, Helen M. Golder2, Elliot Block3, and Ian J. Lean1,1, University of Florida, Gainesville, FL, 2Scibus, Camden, NSW, Australia, 3Arm & Hammer Animal Nutrition, Princeton, NJ.

10:45 AM 500 Hyperlipidemia promotes hepatic ceramide accumulation during steatosis.

11:00 AM 501 Diet starch content and fermentability affect markers of inflammatory response and oxidative stress during early lactation.
Rodrigo I. Albornoz*,1, Lorraine M. Sordillo1, Barry J. Bradford2, Laman K. Mamedova3, and Michael S. Allen3, Michigan State University, East Lansing, MI, 2Kansas State University, Manhattan, MI.

11:15 AM 502 Lactation performance and energetic metabolism of transition cows fed rumen protected glucose.
Carrie S. McCarthy*,1, Brooke C. Dooley1, Emily H. Branstad1, Anthony J. Kramer1, Erin A. Horst1, Edith J. Mayorga1, Mohammad Al-Qaisi2, Megan A. Abeyta3, Gabriela Perez-Hernandez3, Brady M. Goetz3, Alejandro R. Castillo4, Mark R. Knobbe4, Charles A. Macgregor5, Juan P. Russo5, J. A. D. R. N. Appuhamy2, L. H. Baumgard1, and H. A. Ramirez-Ramirez2, Iowa State University, Ames, IA, 1Universidad Autónoma Chapingo, Chapingo, Mexico, 2University of California, Cooperative Extension, Merced, CA, 3Grain States Soya, Inc., West Point, NE, 4Rusitec Argentina, General Villegas, Buenos Aires, Argentina.

11:30 AM 503 Elevated prepartum adiposity predisposes cows to hepatic steatosis with distinct postpartum lipidome remodeling.
J. Eduardo Rico*,1,2, Amanda N. Davis1,2, and Joseph W. McFadden1,2, Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.

11:45 AM 504 Time course of changes in lactation performance, blood metabolites, inflammation and milk fatty acids during subacute ruminal acidosis induction and recovery in dairy cows.
Eveline Sandri1, Yvon Couture1, Rachel Gervais1, Janie Levesque1, and Daniel Rico*,1, CRSSAD, Deschambault, QC, Canada, 2Université de Montréal, Saint-Hyacinthe, QC, Canada, 3Université Laval, Quebec, QC, Canada.

12:00 PM 505 Injectable trace minerals (selenium, copper, zinc, and manganese) alleviates inflammation and oxidative stress during an aflatoxin challenge in lactating multiparous Holstein cows.
Russell T. Pate* and Felipe C. Cardoso, Department of Animal Sciences, University of Illinois, Urbana, IL.

12:15 PM 506 Characterization of hepatic sphingomyelin during the peripartum.
Amanda N. Davis*,1,2, J. Eduardo Rico1,2, and Joseph W. McFadden1,2, Cornell University, Ithaca, NY, 2West Virginia University, Morgantown, WV.
Determing immune-modulating components of *Saccharomyces cerevisiae* with RAW 264.7 murine macrophages.
Sarah E. Sivinski*, Rachel A. Rusk, Jodi L. McGill, and Barry J. Bradford, Kansas State University, Manhattan, KS.

Long-term effects of reduced-fat distillers grains with and without monensin on performance of dairy cows.
Dennis L. Morris*, Seon H. Kim, Paul J. Kononoff, and Chanhee Lee, Department of Animal Sciences, Ohio Agricultural Research and Development Center; The Ohio State University, Wooster, OH, Department of Animal Science, University of Nebraska, Lincoln, NE.

Effects of feeding corn stover pelleted with soybean meal or distillers grains on lactating dairy cow performance.
Brooke C. Dooley*, Carrie S. McCarthy, Emily H. Branstad, Gaston M. Bonetto, Russ Zeeck, Abigail G. Carpenter, Jones O. Sartori, and Hugo A. Ramirez-Ramirez, Iowa State University, Ames, IA, Pellet Technology USA, Greina, NE, Instituto Nacional de Tecnologia Agropecuaria, Manfredi, Córdoba, Argentina, University of Guelph, Ridgetown, ON, Canada, Texas Tech University, Lubbock, TX.

Production effects of extruded soybean meal in early lactation cow diets.

Effect of source and processing of protein feedstuffs pelleted with treated corn stover in dairy cow diets.
Kendra L. Ostendorf*, and Kenneth F. Kalscheur, University of Wisconsin, Madison, WI, US Dairy Forage Research Center, USDA-ARS, Madison, WI.

Quantifying the effects of amino acid profile, energy supply, and diet nutrient composition on the requirement of metabolizable protein by lactating dairy cows.
Luis E. Moraes*, Jeffrey L. Firkins, Helene Lapierre, Ernias Kebreab, and Robin R. White, The Ohio State University, Columbus, OH, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, University of California, Davis, CA, Virginia Tech, Blacksburg, VA.

Quantifying the variation in resilience to protein-deficient diets in lactating dairy cows.
E. Liu* and M. J. VandeHaar, Michigan State University, East Lansing, MI.

Feeding incremental amounts of rumen-protected histidine to lactating dairy cows.

Predicting energy-corrected milk and milk true protein yields using NorFor or the Nutritional Dynamics System version of the Cornell Model.

Insulin is required for essential amino acid stimulation of mTORC1 signaling in mammary cells.
Virginia L. Pszczolkowski*, Madison M. Kurth, Emma Meyer, and Sebastian I. Arriola Apelo, Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

Assessing bioavailability of amino acids from various feedstuffs in dairy cattle using a stable isotope–based approach.
Xinbei Huang*, Kari A. Estes, Peter S. Yoder, and Mark D. Hanigan, Virginia Polytechnic Institute and State University, Blacksburg, VA, Balchem Corp., New Hampton, NY.
Author Index

Numbers following names refer to abstract numbers. A number alone indicates an oral presentation; an M preceding the number indicates a Monday poster and a T indicates a Tuesday poster. Orals are listed first, followed by Monday and Tuesday posters in numeric order.

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