Conferences Information and Scientific Program

adsa.org/2020
# 2020 ADSA Annual Meeting
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[https://www.adsa.org/2020/](https://www.adsa.org/2020/)
Welcome to ADSA 2020!

Welcome to this year’s version of our ADSA Annual Meeting. We are all living in very unusual times of a worldwide pandemic, where our humanity and thoughts allow us to respond in many different ways to adapt and succeed in overcoming the challenges presented. The ADSA leadership has responded to this crisis in the only way that we know — taking the high road and keeping up with our mission to maintain the latest scientific advances and communicating them for the benefit of our industry.

This year, we will have the opportunity to witness (virtually) the bright young minds of our society present the advances of their research, and to interact “live” if so desired. In addition, we will all have the benefit of seeing the presentations and asking questions of presenters long after the scheduled meeting time; in fact, we are making sure that these presentations are archived online and available to our members for the next few months.

It is with singular optimism and great enthusiasm that we at ADSA and FASS have worked diligently (mostly from our respective homes and amid domestic challenges) to bring you the best possible Annual Meeting.

Welcome and enjoy!

Rafael Jiménez-Flores
ADSA President

ADSA members and guests, welcome to the ADSA Annual Meeting! I’m Catharine Perry, ADSA’s new executive director. My professional background is in association management and most recently was the vice president for the Global Cold Chain Alliance association. Personally, I have a strong connection to the dairy industry. I grew up raising dairy cattle in 4-H and FFA in Clovis, California. My family’s business supplies products to the dairy industry and many of our family friends are dairy farmers in the Central Valley. To me, the important connection between science and the dairy industry is a seamless one and ADSA members are at the forefront of that.

As you can see, ADSA is a great fit for me professionally and personally — it is a blend of my professional background of association management with my personal love and respect for the dairy industry. When I was selected by the search committee for this role in February, it was my hope to meet many of you in person during the Annual Meeting in June. Although we are not gathering in person, I am glad to see the positive reception that this Virtual Annual Meeting has had among the membership. It’s incredibly important to gather as an association community to share the latest dairy science and connect with each other.

I look forward to getting to interacting with as many of you as possible this week and beyond. Please don’t hesitate to reach out and let me know how ADSA can be of assistance to you.

Catharine Perry
ADSA Executive Director
General Meeting Information

Location

The 2020 ADSA Virtual Annual Meeting is being held online (https://virtual2020.adsa.org) from June 21 to June 24. All times shown in the program are Eastern Daylight Time (EDT; UTC/GMT –04:00).

Schedule of Events

All prerecorded presentations (orals and posters) will be made available for viewing online at 12:01 am (EDT) on Monday, June 22. Oral and poster presenters will be available for live text chats and moderated discussion sessions at scheduled intervals throughout the meeting. The scientific program also includes live panel discussions on current topics of interest to dairy scientists. Graduate and undergraduate contests will continue as planned, with students submitting recorded presentations for judging. We have set aside time for you to visit live via chat or Zoom with exhibitors and sponsors.

Opening and Closing Sessions

Please join us live on the Main Stage at the opening session on Monday for an address on the current status of our association by the ADSA president, Rafael Jiménez-Flores, an introduction to the new ADSA executive director, Catharine Perry, and brief comments by the chair of the overall program committee, Mike VandeHaar. Join us again on Wednesday as we close the meeting. At the closing session, we will recognize the outgoing board members and install the new board members and officers.

New in 2020!

Welcome Desk Live!
The Welcome Desk will be open from 9:00 am to 5:00 pm on Monday, Tuesday, and Wednesday. As the name suggests, the Welcome Desk will provide attendees a welcoming place to start their ASDA Virtual Annual Meeting experience. Think of it as your first stop — the “registration desk” at our typical in-person annual meeting. The Welcome Desk will be staffed by an ADSA volunteer and a member of the ADSA staff, so drop by to say hello, ask questions about the Virtual Annual Meeting, or network with association staff and leaders.

Live Roundtable Panel Discussions
Each day, from 4:00 to 5:00 pm, we will have up to four live Roundtable Panel Discussions, each focused on a specific dairy science topic. These focused discussions will include one moderator and three to five panelists. Current topics include relevance of dairy science in dairy foods, regulation of milk protein and fat synthesis, Informal Calf Session, affective state as a measure of animal welfare, precision ag, strategies for online learning, genetic and genomic evaluations, advances in dairy efficiency, optimizing reproductive performance, and recaps of Discover conferences 36, 37, and 38. See the Livestream Schedule on page 18 for more information.

Late-Night Live Discussions
Each day, from 9:00 to 10:00 pm, we will have a live discussion to connect especially with our colleagues in Oceania and east Asia time zones. Panelists will discuss some of the papers they found especially interesting during the meeting or and other matters related to dairy science and its practical application. See the Livestream Schedule on page 18 for more information.
Program Format for 2020

Oral and poster presentations available at 12:01 am on June 22

- Live text chats with oral presenters (M–W) 10:30 am – 12:00 pm
- Live panel discussions with oral presenters 12:00 pm – 2:00 pm
- Live text chats with poster presenters (M–W) 2:00 pm – 4:00 pm
- Expert roundtable discussions 4:00 pm – 5:00 pm
- Late-night live panel discussions 9:00 pm – 10:00 pm

ARPAS Continuing Education Units

The 2020 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 of the ARPAS exams.

Social Media

Follow the ADSA Virtual Annual Meeting on Twitter (@ADSAorg and @ADSAgsd) using the official conference hashtag #ADSA2020. Be part of our virtual meeting and #dairyscience #community. Tweet about interesting posters and presentations, share your virtual annual meeting setup, or tell us about fun things to do and see while not in West Palm Beach! #dairyscience #dairyfoods #dairymanagement #dairyproduction

As we prepare for the 2020 ADSA Virtual Annual Meeting (#ADSA2020), we will be honoring ADSA Award Winners via Twitter. Watch our feed in the next few days to see if you find someone you know and congratulate them when you do with a “like” or “retweet”! Let’s keep the celebration going! #ADSA2020 #dairyscience #dairyfoods #dairymanagement #dairyproduction

ADSA 2020 Mobile App—An Easier Way to Plan Your Schedule

Using the ADSA 2020 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 “EventPilot conference app”, and then search for “ADSA2020”. If you previously used this app for a different conference, click “... More” from the home screen, choose “Find Event” and then enter “ADSA2020”. Stop by the Welcome Desk if you have questions on how to use the app.
Special Events

Events marked as “prerecorded” will be available at the times shown from June 22 to August 24. Events marked as “live” will only be available within the time period noted. Events marked as “live, recorded” will not be available until the start time noted but will be available for viewing until August 24. All times shown are Eastern Daylight Time (UTC/GMT –04:00).

GSD Business Meeting and Open Forum
Sunday, June 21
5:00 – 5:45 pm
Live, recorded
In addition to greeting the incoming GSD officer team, attend this live 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.

GSD Preconference Social: Online Trivia
Sunday, June 21
8:00 – 9:00 pm
Live on Zoom
Ready to test your dairy knowledge with your peers from around the globe? Join us for a casual evening of online trivia! Bring your own snack and beverage, and we will bring the fun.

SAD Undergraduate Student Posters and Papers
Monday, June 22
12:01 am
Prerecorded
Support the future of ADSA—plan time in your schedule to view the undergraduate poster and oral presentations. All presentations for the meeting will be available for viewing online starting at 12:01 am on Monday.

GSD Three-Minute Thesis Challenge
Monday, June 22
12:01 am (recorded presentations available)
12:01 am – 2:00 pm: voting for People’s Choice
ADSA graduate students are encouraged to participate in 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! New this year — vote for your favorite in the People’s Choice Award!

SAD Undergraduate Student Career Panel
Monday, June 22
1:15 – 2:15 pm
Live, recorded
A program favorite, the Career Panel gives students the opportunity to network with professional members representing a wide array of careers in the dairy industry. Participants will learn about careers in the industry, get useful tips on planning for their careers, and much more.

GSD Workshop: Thesis and Dissertation Writing
Monday, June 22
2:00 – 3:30 pm
Live, recorded (open to all attendees)
All attendees are encouraged to attend this valuable thesis and dissertation writing workshop. Dr. Vernetta Williams of Cultivate the Writer will guide students through thesis and dissertation project management. She will help us understand how to approach projects as a whole and develop an organizational framework to start and maintain the writing process. Following this discussion, Dr. Williams will offer hands-on writing exercises and advice to improve skills such as conciseness in writing. Undergraduate students considering graduate school and professional members interested in promoting their students' writing skills are also welcome to attend. Don't miss this informative event!

ADSA Awards Ceremony
Monday, June 22
5:00 – 6:00 pm
Prerecorded
All meeting participants, families, and friends are welcome to attend the virtual 2020 ADSA Awards program. Please join us at this special event to recognize and congratulate the 2020 award winners.

SAD Undergraduate Student Happy Hour: Game Night
Monday, June 22
6:15 – 8:00 pm
Live on Zoom
Join us Monday evening for Game Night — a friendly competition among dairy clubs.

SAD and GSD Virtual Dairy Tour
Tuesday, June 23
9:00 – 10:00 am
Milking R Dairy in Okeechobee, Florida
Prerecorded; live Q&A (open to all attendees)
The Rucks family has been milking cows in South Florida since the mid-1930s. Today, Milking R Dairy owners Sutton and Kris Rucks milk 1,200 cows in Okeechobee and operate a successful agri-tourism program. Their dairy is National Dairy FARM Program certified, which proactively addresses the concerns of consumers, retailers and processors who are interested in how their food is produced. This on-farm audit assesses areas including animal care and wellness, environmental stewardship, employee training, milk safety and milk quality. The Ruckses are committed to the educating the South
Florida community about the integrity of production practices and benefits of technology use in the dairy industry. They tell their dairy story through exposure to daily life on a large and modern farm—engaging the tourist in interactive and enjoyable experiences at Milking R Dairy. During this virtual tour, we will learn about the environmentally innovative farming practices they have adopted.

**GSD Morning Mix and Mingle**  
*Tuesday, June 23*  
10:00 – 11:00 am  
*Live*

The GSD Mix and Mingle will have the structure of a casual, free-talk networking event aiming to connect graduate students with professional members from industry and academia. Graduate students interested in joining industry or academia after completing their degrees will have the opportunity to ask questions of professional members regarding professional life, job applications and interviews, and early career challenges.

**Undergraduate Educational Workshop: Addressing Animal Rights Activists in the Dairy Industry, with Colleen Larson, University of Florida Extension**  
*Tuesday, June 23*  
11:00 am – 12:00 pm  
*Prerecorded; live Q&A*

With the ever-increasing presence of animal rights groups in the dairy industry, there is an increased need to address animal rights groups to control the spread of misinformation. This program will discuss the background of animal rights groups and how to interact with them.

**SAD Career Workshop: How to Find a Job During a Global Pandemic, with Mark Hosmann, Cargill**  
*Tuesday, June 23*  
1:00 – 2:00 pm  
*Prerecorded; live Q&A*

With the abrupt end to the school year in mid-March, many students lost the opportunity for on-campus career fairs and interviews, as well as spring competition and networking events like Dairy Challenge. Join us online Tuesday, when Mark Hosmann, talent acquisitions manager for Cargill, will explore opportunities for finding jobs and internships in this new landscape.

**GSD Career Insights Panel**  
*Tuesday, June 23*  
2:00 – 3:00 pm  
*Live, recorded*

Graduate students—plan to join us for this live session 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 event 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.

**Student Affiliate Division Awards Ceremony**  
*Tuesday, June 23*  
2:30 – 3:30 pm  
*Live, recorded*

We invite you to attend this year’s VIRTUAL Student Affiliate Division awards ceremony. Our keynote speaker will be Emily Yeiser Stepp, senior director of the National Dairy FARM Program and former SAD president. 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 show your support and appreciation for our industry’s next generation.

**GSD Evening Mix and Mingle**  
*Tuesday, June 23*  
8:00 – 9:00 pm  
*Live*

The GSD Mix and Mingle will have the structure of a casual, free-talk networking event aiming to connect graduate students with professional members from industry and academia. Graduate students interested in joining industry or academia after completing their degrees will have the opportunity to ask questions of professional members regarding professional life, job applications and interviews, and early career challenges.

**Closing Session**  
*Wednesday, June 24*  
3:00 – 3:30 pm  
*Prerecorded*

Please join us for the closing session as we reach the end of this unique virtual experience. Hear remarks by 2019–2020 ADSA President Rafael Jiménez-Flores. Then, the 2020–2021 ADSA President Rich Erdman will recognize the outgoing board members and install new board members and officers. ADSA annual business meeting materials that would have been distributed in person will be posted on ADSA’s website. Attire is casual!
2020 ADSA Award Donors

Alltech Biotechnology Center
American Dairy Science Association
American Dairy Science Association Foundation
American Feed Industry Association
Cargill Animal Nutrition
Council on Dairy Cattle Breeding
DeLaval Inc.
Hoard’s Dairyman
International Dairy Foods Association
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National Milk Producers Federation Dairy Scholarship Fund
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Graduate Student Division Sponsors

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Thank you for your support!
Exhibit Schedule

In the Exhibit Hall, you can interact with the many vendors supporting this event. Each exhibitor has its own “virtual booth,” with video, one-on-one chat, and digital offerings of all kinds. Chat live with company representatives during the Exhibitor Power Hours from 11:00 am to 1:00 pm Monday through Wednesday.

Guide to Exhibitors

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A special thank you to our 2020 ADSA Annual Meeting Exhibitors!
Ajinomoto Animal Nutrition North America  
8430 W Bryn Mawr Ave Ste 650  
Chicago, IL  60631-3421  
www.AjiPro-L.com

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.

American Dairy Science Association (ADSA)  
1800 S Oak St., Ste 100  
Champaign, IL 61820-6974  
www.adsa.org

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  
www.arpas.org

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.

Ajinomoto Animal Nutrition North America
8430 W Bryn Mawr Ave Ste 650
Chicago, IL 60631-3421
www.AjiPro-L.com

Anpario plc is a world-leader in producing Specialist Feed Technologies which are both innovative and tailored to meet the ever increasing population requirements for healthy food. Anpario's technologies are sold in over 80 countries through established sales and distribution networks, which includes a number of wholly owned subsidiaries in key markets around the world. Our main focus is understanding animal nutrition, so we can help our customers achieve optimum results, with good return on investment, boosting profitability in today's modern livestock production systems. Our technologies are developed, produced, and dispatched directly from our pioneering quality assured manufacturing plant in the UK. We have over 30 years of expertise in the agricultural sector and we work with key research institutes and universities across the world to evaluate our innovative, cutting-edge technologies. Anpario's technologies come in specially designed packaging to guarantee consistency of the product and an excellent shelf life. Anpario's cutting-edge technologies work to optimise results and profitability.

American Registry of Professional Animal Scientists (ARPAS)
1800 S Oak St., Ste 100
Champaign, IL 61820-6974
www.arpas.org

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Anpario
PO Box 5131
Spartanburg, SC 29304
www.anpario.com

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C-Lock Inc.
1350 Concourse Dr.
Rapid City, SD  57703
www.c-lockinc.com

C-Lock Inc. manufactures SmartFeed systems for measuring as well as controlling individual feed intake for the Dairy Industry, as well as GreenFeed systems for measuring ruminant metabolic gases for health, genetics, feed additive effects, and DMI intake on pasture.

American Registry of Professional Animal Scientists (ARPAS)
1800 S Oak St., Ste 100
Champaign, IL 61820-6974
www.arpas.org

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FASS Inc.
1800 S Oak St., Ste 100
Champaign, IL 61820-6974
www.fass.org

FASS specializes in providing services to science-focused organizations, allowing them to function more efficiently as a group than as individual units. FASS promotes education and research by bringing together scientists and educators in animal agriculture and facilitating the dissemination of scientific and technical information to users through publications and scientific meetings. Through the FASS Science Policy Committee (SPC), FASS advocates for science-based policy making, increased funding for animal agriculture research, and the importance of animal science and animal scientists in ensuring humane, sustainable, profitable and safe animal food production. FASS holds 501(c)(3) non-profit status.
Kemin Animal Nutrition and Health – North America
1900 Scott Avenue
Des Moines, IA 50317
www.kemin.com/ag

Since its founding by R. W. and Mary Nelson in 1961, Kemin is a privately held, family-owned-and-operated company and has worked to improve the quality of life for humans and animals alike. Kemin produces more than 500 specialty ingredients, spanning six continents, employing thousands of team members and serving more than 120 countries.

Kemin Animal Nutrition and Health – North America helps customers raise healthy animals by providing superior nutritional benefits in every stage of life. Our portfolio includes a wide range of dairy nutrition and health solutions to help maintain feed quality, optimize nutrition and improve gut health. Visit kemin.com/ag to learn more!

Nimrod Veterinary Products Ltd.
2 Wychwood Court, Cotswold Business Village
Moreton-in-Marsh
Gloucestershire GL56 0JQ
United Kingdom
www.nimrodvet.co.uk

Nimrod Veterinary Products is a leading manufacturer of equipment for oral fluid therapy for cattle, and has a full range of clinical-nutrition products for cows under its SELEKT brand. The SELEKT equipment is safer for cows. And it is lightweight, robust, and easy to use.

Sealpro by Connor Agriscience
13428 E. Herndon Avenue
Clovis, CA 93619
www.connoragriscience.com

Sealpro Silage Barrier Film by Connor Agriscience is the world’s premier silage protection film line. Developed by the people who introduced oxygen barrier films to the Western US, Sealpro is available is three formulas to fit farmer needs and budget: Sealpro TITANIUM, Sealpro PURPLE, And Sealpro ExtraCling. Improvements have been made in all three!

We don’t just sell plastic — we help farmers make and manage better forages through education and resources. For nearly 15 years top dairies have made more, better, and safer feed with our program. Even experienced farmers run into complex fermentation problems, and we are on call for solutions.

Please stop by our virtual booth to learn how we can partner with you in education and research. We gladly offer our expertise and products to collegiate programs.

It is our honor to serve on the Keith Bolsen Silage Safety Foundation and continue his message of silage safety. We also sponsor safety vests for the Dairy Challenge regional and national contests.

Student Affiliate Division of ADSA
1800 S Oak St., Ste 100
Champaign, IL 61820-6974
www.adsa.org/Membership/Student-Affiliate-Division

The Student Affiliate Division of the American Dairy Science Association (ADSA) consists of more than 700 students from across North America representing Student Affiliate chapters across the country. The division exists to provide a channel of communication for the exchange of information among the various member chapters and between ADSA and the member chapters. It also acquaints students with ADSA, its scope, purpose and program, and develops leadership and promotes scholastic achievement among students interested in the dairy industry.

Stuhr Enterprises LLC
2210 Hwy 34
Waco, NE 68460
www.stuhrenterprises.com

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.

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- RP Nutrients
  Science. Research. Service
- QualiTech
- Virtus Nutrition
Orientation to the Virtual Meeting Site

Welcome to the 2020 ADSA Annual Virtual Meeting. We are glad you are able to join us, if not in person, and we sincerely hope you find this event productive, interactive, and entertaining! Once registered for the meeting, you will have a user name (email address) and password to access the virtual meeting site: https://virtual2020.adsa.org/.

Once logged in, you will be at the Welcome Desk — your “information station” during the Virtual Annual Meeting. The Welcome Desk will be staffed by ADSA staff, leaders, and volunteers from 9 am to 5 pm (EDT) on Monday, Tuesday, and Wednesday.

The tabs shown below will help you navigate to the main locations online where events will take place:

**Main Stage**: Visit the Main Stage for the opening session and awards ceremony on Monday and for the closing session on Wednesday.

**Exhibit Hall**: Visit our virtual Exhibit Hall and click on an exhibitor’s logo to visit their page, watch videos, download materials and chat live with exhibitors during the daily Exhibitor Power Hours from 11:00 am to 1:00 pm on Monday, Tuesday, and Wednesday.

**Meeting Sponsors**: Stop by the Sponsor area to meet with and thank our meeting sponsors and visit the sponsor pages to see what our meeting sponsors have to share with you.

**Oral Sessions**: All oral presentations in the meeting will be available starting at 12:01 am on Monday, June 22. All presentations can be accessed from the main Oral Sessions page. Sessions are divided by scientific section as well as date and time of live panel discussions of the presentations. Click on a listed presentation title to view the recording, abstract, and chat box to chat with the author and other attendees viewing this poster. Presenters will be available for live text chat between 10:30 am and 12:00 pm on each day (on Monday for Monday orals; on Tuesday for Tuesday orals, and on Wednesday for Wednesday orals). Then, head over to the Livestream tab for live moderated panel discussions with presenters between 12:00 pm and 2:00 pm.

**Poster Sessions**: All poster presentations in the meeting will be available starting at 12:01 am on Monday, June 22. All presentations can be accessed from the main Poster Sessions page. Click on a listed presentation title to view the recording, abstract, and chat box to chat with the author and other attendees viewing this poster. Presenters will be available for live text chat between 2:00 and 4:00 pm on each day (on Monday for Monday posters; on Tuesday for Tuesday posters, and on Wednesday for Wednesday posters).

**Livestreams**: Click the Livestreams tab to join all live events: live panel discussions of oral sessions, roundtable discussions, and late-night live! Check the live session schedule following the Schedule of Events on page 17.

**Live panel discussions**: For papers you find especially interesting, we suggest you join the presenters during their live discussion. These will take place in up to six rooms each day, with scientific sessions assigned to 30-minute blocks within the rooms between 12:00 pm and 2:00 pm. Check the abbreviated daily schedule on the Livestreams webpage for each room or click on the room to visit that livestream. Join the conversation and post your questions for oral presenters via the text chat box. Each presenter should be prepared to discuss their findings and relevance with the moderator and audience.
Roundtable discussions: Join an expert roundtable discussion each day from 4:00 to 5:00 pm. See the schedule of events for the daily topics. Join the conversation via text chat.

Late-night live: If you’re joining the virtual meeting from Asia or Oceania or are a nightowl in other parts of the world, you can join hosted discussions each evening from 9:00 to 10:00 pm on specific topics of interest to dairy scientists. See the Livestream Schedule on page 17 for topics and join the discussion via text chat.

Student Programming: All events for undergraduate and graduate students will be accessible from this tab, including business meetings, workshops, social events, GSD Mix and Mingle, GSD Three-Minute Thesis, and SAD Awards.

Events marked as “prerecorded” will be available at the times shown from June 22 to August 24. Events marked as “live” will only be available within the time period noted. Events marked as “live, recorded” will not be available until the start time noted but will be available for viewing until August 24. All times shown are Eastern Daylight Time (UTC/GMT –04:00).

ADSA Division Meetings

Dairy Foods Division Council Meeting
- Tuesday, July 14
- 4:30 pm – 5:30 pm (central time)

Dairy Production Division Business Meeting
- Wednesday, July 15
- 11:00 am – 12:00 pm (central time)

Dairy Foods Division Business Meeting
- Wednesday, July 15
- 4:30 pm – 5:30 pm (central time)

Dairy Foods Division Program Planning Meeting
- Tuesday, July 21
- 4:30 pm – 5:30 pm (central time)

Registration links will be emailed to members and posted on the ADSA website. Please visit ADSA.org for updates.
## Schedule of Events

### Sunday, June 21

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<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>9:00 am – 5:00 pm</td>
<td>National Animal Nutrition Program (NANP) Workshop (live via Zoom; separate registration required)</td>
<td>(tab)</td>
</tr>
<tr>
<td>5:00 pm – 5:45 pm</td>
<td>GSD Business Meeting and Open Forum (live, recorded)</td>
<td>Student Programming</td>
</tr>
<tr>
<td>8:00 pm – 9:00 pm</td>
<td>GSD Preconference Social: Online Trivia via Zoom</td>
<td>Student Programming</td>
</tr>
</tbody>
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### Monday, June 22

12:01 am All prerecorded presentations (orals and posters) available for viewing Oral/Poster Sessions

12:01 am GSD Three-Minute Thesis presentations available for viewing (prerecorded) Student Programming

12:01 am – 2:00 pm Voting for GSD Three-Minute Thesis People's Choice Award Student Programming

8:15 am – 9:00 am 2019–2020 SAD Office and Advisor Meeting Student Programming

9:00 am – 5:00 pm Welcome Desk (live) Meeting homepage

9:30 am – 9:50 am SAD Business Meeting: meet the officers, roll call, overview of annual meeting activities (live, recorded) Student Programming homepage

10:00 am – 10:30 am Opening Session: Welcome to the ADSA Virtual Annual Meeting (live, recorded) Main Stage

10:00 am – 11:00 am SAD Small Group Mentoring Session 1 (advance sign-up required) Student Programming

10:30 am – 12:00 pm Judging of SAD Undergraduate Student Poster Competition Student Programming

10:30 am – 12:00 pm Live individual text chats with Monday oral presenters and graduate student oral presenters (text chat box on individual recorded presentation page) Oral Sessions

11:00 am – 1:00 pm Exhibitor Power Hours: Chat live with exhibitors Exhibit Hall

12:00 pm – 2:00 pm Live, moderated discussions with Monday oral presenters (see Livestream Schedule on page 17 for topics and times) Livestream Rooms 1–6

1:15 pm – 2:15 pm SAD Undergraduate Student Career Panel (live, recorded) Student Programming

2:00 pm – 3:30 pm Graduate Student Writing Workshop, hosted by Dr. Vernetta Williams (live, recorded; open to all attendees) Student Programming

2:00 pm – 4:00 pm Live individual text chats with Monday poster presenters and graduate student poster presenters (text chat box on individual recorded presentation page) Poster Sessions

2:30 pm – 3:45 pm Judging of SAD Undergraduate Oral Competitions Student Programming

4:00 pm – 5:00 pm Roundtable discussions with expert panels:

(1) Regulation of milk protein and fat synthesis Livestream Room 2

(2) Informal Calf Session: automated milk feeding systems for dairy calves Livestream Room 3

(3) Assessing affective state as a measure of animal welfare Livestream Room 4

(4) Importance and relevance of science in dairy foods Livestream Room 5

5:00 pm – 6:00 pm ADSA Awards Ceremony (recorded) Main Stage

5:00 pm – 7:00 pm ARPAS Exam: Contact ARPAS (arpas@assochq.org) to secure your seat

6:00 pm – 7:00 pm Iowa State Alumni and Friends Reception (live via Zoom)

6:15 pm – 8:00 pm Undergraduate Happy Hour/Game Night (live via Zoom) Student Programming

9:00 pm – 10:00 pm Late-night live (mid-morning in Asia and Oceania) discussion focused on lactation and ruminant nutrition, hosted by Lance Baumgard, Russ Hovey, Frank Dunshea, and Mike VandeHaar Livestream Room 1

### Tuesday, June 23

9:00 am – 10:00 am SAD-GSD Milking R Dairy Virtual Farm Tour (prerecorded, live Q&A; open to all) Student Programming

9:00 am – 10:00 am ADSA Southern Branch business meeting (live via Zoom)

9:00 am – 5:00 pm Welcome desk (live) Meeting homepage
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<td>10:00 am – 11:00 am</td>
<td>SAD Small Group Mentoring Session 2 (advance sign-up required)</td>
<td>Student Programming</td>
</tr>
<tr>
<td>10:00 am – 11:00 am</td>
<td>GSD Morning Mix and Mingle (live)</td>
<td>Student Programming</td>
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<tr>
<td>10:30 am – 12:00 pm</td>
<td>Live individual text chats with Tuesday oral presenters (text chat boxes on individual recorded presentation page)</td>
<td>Oral Sessions</td>
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<tr>
<td>11:00 am – 12:00 pm</td>
<td>SAD Educational Workshop: Addressing Animal Rights Activists (prerecorded; live Q&amp;A)</td>
<td>Student Programming</td>
</tr>
<tr>
<td>11:00 am – 1:00 pm</td>
<td>Exhibitor Power Hours: Chat live with exhibitors</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>12:00 pm – 2:00 pm</td>
<td>Live, moderated discussions with Tuesday oral presenters (see Livestream Schedule on page 17 for topics and times)</td>
<td>Livestream Rooms 1–6</td>
</tr>
<tr>
<td>1:00 pm – 2:00 pm</td>
<td>SAD Career Workshop: How to Find a Job During a Global Pandemic (prerecorded; live Q&amp;A)</td>
<td>Student Programming</td>
</tr>
<tr>
<td>2:00 pm – 4:00 pm</td>
<td>Live individual text chats with Tuesday poster presenters (text chat boxes on individual recorded presentation page)</td>
<td>Poster Sessions</td>
</tr>
<tr>
<td>2:00 pm – 3:00 pm</td>
<td>GSD Career Insights Panel (live, recorded)</td>
<td></td>
</tr>
<tr>
<td>2:30 pm – 3:30 pm</td>
<td>SAD Awards Ceremony (live, recorded)</td>
<td>Student Programming</td>
</tr>
<tr>
<td>3:45 pm – 4:30 pm</td>
<td>SAD Old and New Officer and Advisor Meeting</td>
<td>Student Programming</td>
</tr>
<tr>
<td>4:00 pm – 5:00 pm</td>
<td>Roundtable discussions with expert panels:</td>
<td>Livestream Rooms 1–6</td>
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<tr>
<td></td>
<td>(1) Precision ag in the dairy industry – ideas for DC38</td>
<td>Livestream Room 1</td>
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<tr>
<td></td>
<td>(2) Lipid metabolism – recap of DC36</td>
<td>Livestream Room 2</td>
</tr>
<tr>
<td></td>
<td>(3) Online teaching: So now what?</td>
<td>Livestream Room 3</td>
</tr>
<tr>
<td></td>
<td>(4) Genetic and genomic evaluation in 2020</td>
<td>Livestream Room 4</td>
</tr>
<tr>
<td>5:00 pm – 7:00 pm</td>
<td>ARPAS Exam: Contact ARPAS (<a href="mailto:arpas@assochq.org">arpas@assochq.org</a>) to secure your seat</td>
<td></td>
</tr>
<tr>
<td>8:00 pm – 9:00 pm</td>
<td>GSD Evening Mix and Mingle (live on Zoom)</td>
<td>Student Programming</td>
</tr>
<tr>
<td>9:00 pm – 10:00 pm</td>
<td>Late-night (mid-morning in Asia and Oceania) live discussion focused on ruminant nutrition, hosted by Barry Bradford, Bill Weiss, Ian Sawyer, and Kristy DiGiacomo</td>
<td>Livestream Room 1</td>
</tr>
</tbody>
</table>

**Wednesday, June 24**

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<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 am – 5:00 pm</td>
<td>Welcome desk (live)</td>
<td>Meeting homepage</td>
</tr>
<tr>
<td>10:00 am – 11:00 am</td>
<td>SAD Small Group Mentoring Session 3 (advance sign-up required)</td>
<td>Student Programming</td>
</tr>
<tr>
<td>10:30 am – 12:00 pm</td>
<td>Live individual text chats with Wednesday oral presenters (text chat boxes on individual recorded presentation page)</td>
<td>Oral Sessions</td>
</tr>
<tr>
<td>11:00 am – 1:00 pm</td>
<td>Exhibitor Power Hours: Chat live with exhibitors</td>
<td>Exhibit Hall</td>
</tr>
<tr>
<td>12:00 pm – 2:00 pm</td>
<td>Live, moderated discussions with Wednesday oral presenters (see Livestream Schedule on page 17 for topics and times)</td>
<td>Livestream Rooms 1–6</td>
</tr>
<tr>
<td>2:00 pm – 4:00 pm</td>
<td>Live individual text chats with Wednesday poster presenters (text chat boxes on individual recorded presentation page)</td>
<td>Poster Sessions</td>
</tr>
<tr>
<td>3:00 pm – 3:30 pm</td>
<td>Closing Session: Hear remarks from the outgoing (2019–2020) and incoming (2020–2021) ADSA presidents.</td>
<td>Main Stage</td>
</tr>
<tr>
<td>4:00 pm – 5:00 pm</td>
<td>Roundtable discussions with expert panels:</td>
<td>Livestream Rooms 1–6</td>
</tr>
<tr>
<td></td>
<td>(1) Advances in dairy efficiency</td>
<td>Livestream Room 1</td>
</tr>
<tr>
<td></td>
<td>(2) Natural bioactives in dairy production – recap of DC37</td>
<td>Livestream Room 2</td>
</tr>
<tr>
<td></td>
<td>(3) Unmet needs for optimizing reproductive performance</td>
<td>Livestream Room 3</td>
</tr>
<tr>
<td></td>
<td>(4) ADSA Foundation Scholar Lectures and discussion</td>
<td>Livestream Room 4</td>
</tr>
<tr>
<td>5:00 pm – 7:00 pm</td>
<td>ARPAS Exam: Contact ARPAS (<a href="mailto:arpas@assochq.org">arpas@assochq.org</a>) to secure your seat</td>
<td></td>
</tr>
<tr>
<td>9:00 pm – 10:00 pm</td>
<td>Late-night live (mid-morning in Asia and Oceania) discussion focused on health, reproduction, and physiology, hosted by Ian Lean, Geoff Dahl, José Santos, and Heather White</td>
<td>Livestream Room 1</td>
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# Livestream Schedule

## Oral Sessions

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<tr>
<td></td>
<td>12:00–12:30 pm</td>
<td>12:30–1:00 pm</td>
<td>1:00–1:30 pm</td>
<td>1:30–2:00 pm</td>
</tr>
<tr>
<td>Room 1</td>
<td>Animal Health: Transition Cow 1 (39–44)</td>
<td>Animal Health: Transition Cow 2 (68–73)</td>
<td>Breeding and Genetics (118–123)</td>
<td>Breeding and Genetics (124–130)</td>
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<tr>
<td>Room 1</td>
<td>Room 2</td>
<td>Room 3 Ruminant Nutrition: Protein/ Amino Acids (315–318)</td>
<td>Room 4 Ruminant Nutrition: Protein/ Amino Acids (349–353)</td>
<td>Ruminant Nutrition: Protein/ Amino Acids (349–353)</td>
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### Livestream Schedule

#### Roundtable Sessions: 4:00–5:00 pm

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<th>Moderator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Room 2: Regulation of milk protein and fat synthesis</td>
<td>Michael Steele, University of Guelph</td>
</tr>
<tr>
<td></td>
<td>Room 3: Informal Calf Session on automated milk feeding systems in dairy calves</td>
<td>Joao Costa, University of Kentucky, with panelists Nelson Dinn, Tom Earleywine, Jan Ziemerink, and Dave Renaud</td>
</tr>
<tr>
<td></td>
<td>Room 4: Assessing affective state as a measure of animal welfare</td>
<td>Emily Miller-Cushon, University of Florida, and Janice Siegford, Michigan State University</td>
</tr>
<tr>
<td></td>
<td>Room 5: Importance and relevance of science in dairy foods</td>
<td>Paul Kindstedt, University of Vermont</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Room 1: Precision ag in the dairy industry – ideas for DC38</td>
<td>Marcia Endres, University of Minnesota</td>
</tr>
<tr>
<td></td>
<td>Room 2: Lipid metabolism – recap of DC36</td>
<td>Kevin Harvatine, Penn State University</td>
</tr>
<tr>
<td></td>
<td>Room 3: Online teaching: So now what?</td>
<td>Elizabeth Karcher, Purdue University</td>
</tr>
<tr>
<td></td>
<td>Room 4: Genetic and genomic evaluation in 2020</td>
<td>Christine Baes, University of Guelph</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Room 1: Advances in dairy efficiency</td>
<td>Daryl Kleinschmit, Zinpro Corp.</td>
</tr>
<tr>
<td></td>
<td>Room 2: Natural bioactives in dairy production – recap of DC37</td>
<td>Todd Callaway, University of Georgia</td>
</tr>
<tr>
<td></td>
<td>Room 3: Unmet needs for optimizing reproductive performance</td>
<td>Alan Ealy, Virginia Tech</td>
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<tr>
<td></td>
<td>Room 4: ADSA Foundation Scholar lectures and discussion</td>
<td>Hasmukh Patel, Land O’ Lakes</td>
</tr>
<tr>
<td></td>
<td>ADSA Foundation Scholar in Dairy Foods</td>
<td>Sam Alcaine, Cornell University</td>
</tr>
<tr>
<td></td>
<td>ADSA Foundation Scholar in Dairy Production</td>
<td>Michael Steele, University of Guelph</td>
</tr>
</tbody>
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#### Late-Night Live: 9:00 pm – 10:00 pm EDT
- 9:00 am – 10:00 am in Beijing, China, and Perth, Australia
- 11:00 am – 12:00 pm in Sydney and Melbourne, Australia
- 1:00 pm – 2:00 pm in Wellington, New Zealand

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<tr>
<th>Day</th>
<th>Topic</th>
<th>Hosts</th>
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<tr>
<td>Monday</td>
<td>Lactation and ruminant nutrition</td>
<td>Lance Baumgard, Russ Hovey, Frank Dunshea, and Mike VandeHaar</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Ruminant nutrition</td>
<td>Barry Bradford, Bill Weiss, Ian Sawyer, and Kristy DiGiacomo</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Health, reproduction, and physiology</td>
<td>Ian Lean, Geoff Dahl, José Santos, and Heather White</td>
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Thank you to the ADSA 2020 Program Committees

Overall Program Committee
Mike VandeHaar
Michael Miller
Lorraine Sordillo
Dave Everett
Emma Wall
Trish Dawson

Animal Behavior and Well-Being
Emily Miller-Cushon
Amber Adams-Progar
Alex Bach

Animal Health
Andres Contreras
Eduardo de Souza Ribeiro
Sabine Mann

Breeding and Genetics
Christine Baes
Francisco Peñagaricano
Daniela Lourenco
Brad Hein
Paul VanRaden

Dairy Foods
Dave Everett
Rani Govindasamy-Lucey
Sam Alcaine
Sanjeev Anand
Rohit Kapoor
Haotian Zheng

Extension Education
Noa Roman-Muniz
Lindsay Ferlito
Gustavo Schuenemann

Forages and Pastures
Daryl Kleinschmit
Matt Akins
Luiz Ferraretto
Kathy Soder

Growth and Development
Gustavo Cruz
Peter Erickson
Sonia Vázquez Flores

Lactation Biology
Jimena LaPorta
Theresa Casey
FenQi Zhao
Sha Tao

Milk Protein and Enzymes
Dave Everett
Lloyd Metzger
Rodrigo Roesch
Beth Briczinski
Donald McMahon
Phoebe Qi
Don Otter
Federico Harte
Rafael Jimenez-Flores
Christina Levendoski
Hadi Eshpari

Physiology and Endocrinology
Ronaldo Cerri
Massimo Bionaz
Angel Abuelo

Production, Management, and the Environment
Todd Callaway
Jennifer Heguy
Abigail Carpenter

Reproduction
Alan Ealy
Stephen LeBlanc
Luciana Caixeta

Ruminant Nutrition
Duarte Diaz
Jill Anderson
Joe McFadden
Stephanie Ward

Small Ruminant
Guido Invernizzi
Noemi Castro
Benjamin Wenner

Teaching/Undergraduate and Graduate Education
Elizabeth Karcher
Abigail Carpenter
Michel Wattiaux

ADSA Southern Section Symposium
Kristy Daniels

ADSA Graduate Student Symposium
Bethany Dado-Senn
Holly Miller
Graduate Student Competition: ADSA Dairy Foods
Oral
Don Otter
Beth Briczinski
Hari Meletharayil

Graduate Student Competition: ADSA Dairy Foods
Poster
Sam Alcaine
Liz Ng
Khilendra Bhanduriya

Graduate Student Competition: ADSA Production
Oral (MS/PhD)
Dan Cooke
Luis Moraes
Lorraine Sordillo-Gandy
Jamie Jarrett
Corwin Nelson
Laura Hernandez

Graduate Student Competition: ADSA Production
Poster (MS/PhD)
Benjamin Wenner
Kees Plaizier
Kamal Mjoun
Jeff Weyers
Pablo Pinedo
Ben Enger

ADSA Southern Section Oral Competition
Kristy Daniels

ADSA SAD Undergraduate Oral and Poster Competitions
Peter Erickson
Molly Kelley

Workshop:
NANP Nutrition Models
Tim Hackmann
The Power of 3
Palmitic for milk fat
Oleic for milk & body condition
Omega-3s for immune balance
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<td>Lactation Biology</td>
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<td>Production, Management, and the Environment</td>
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<td>Ruminant Nutrition: General</td>
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### Wednesday, June 24

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Locating a presentation

All presentations have been prerecorded and uploaded to the virtual meeting website. To access an oral or poster presentation, log in to the meeting website and navigate to the Oral Session or Poster Session tab. There, you will find presentations arranged by scientific session. Expand the menus to see all presentations within a session. Click on a title to go to that presentation’s page, where you can watch the recorded presentation, read the abstract, and use the text chat to interact with the presenter.

Individual text chat with presenters

Monday oral presenters will be available for live chat from 10:30 am to 12:00 pm on Monday; presenters of Tuesday and Wednesday orals will be available at the same time on the respective days. Monday poster presenters will be available for live chat from 2:00 to 4:00 pm on Monday; presenters of Tuesday and Wednesday posters will be available at the same time on the respective days.

Live panel discussions of oral sessions

Live, moderated panel discussions with oral presenters will be held on Monday, Tuesday, and Wednesday from 12:00 to 2:00 pm, in up to six rooms per day under the Livestream tab. Within each room, sessions are divided into four time blocks, as follows:

- Block 1: 12:00 to 12:30 pm
- Block 2: 12:30 to 1:00 pm
- Block 3: 1:00 to 1:30 pm
- Block 4: 1:30 to 2:00 pm

Each oral session listed in this program book lists the session name, room, time, and block for discussion of each presentation.
Monday, June 22

Undergraduate Student Competitions

ADSA-SAD Dairy Foods Oral Competition
Chair: Peter Erickson, University of New Hampshire

1. The surprising benefits of camel milk.
   G. M. DeMers* and D. R. Olver, Pennsylvania State University, University Park, PA.

2. Evaluating the impact of novel products to the dairy market on fluid milk utilization.
   A. Crews* and J. Bohlen, University of Georgia, Athens, GA.

3. Effects of pasteurization method on milk composition.
   L. M. Adams*, G. Mazon, and J. H. C. Costa, University of Kentucky, Lexington, KY.

ADSA-SAD Dairy Production Oral Competition
Chair: Elizabeth Eckelkamp, University of Tennessee

   C. McGehee*, R. Cockrum, and D. Winston, Virginia Tech, Blacksburg, VA.

5. Manipulating the circadian rhythms through controlled light-dark phases in the prepartum period on cow performance in the next lactation.
   A. Rauton* and J. Bohlen, University of Georgia, Athens, GA.

   A. K. Bitter* and C. C. Williams, Louisiana State University, Baton Rouge, LA.

7. Nutritional management of subacute ruminal acidosis in early lactation.
   M. Mosher* and E. Eckelkamp, University of Tennessee Institute of Agriculture, Knoxville, TN.

ADSA-SAD Original Research Oral Competition
Chair: Stephanie Hill Ward, North Carolina State University

8. Precision and accuracy of mid-infrared spectroscopy for milk urea nitrogen analysis.

9. Evaluating the use of pulse oximetry, lactate levels, and lung ultrasounds in predicting respiratory illness in dairy calves.
   M. Hillis*, M. Gray, and J. Bohlen, Animal and Dairy Science, University of Georgia, Athens, GA.

415. Impacts of exogenous estradiol on mammary collagen distribution in Holstein heifers.
    C. T. Oduyelu*, C. L. M. Parsons, A. J. Geiger, R. M. Akers, and K. M. Daniels, Virginia Tech, Blacksburg, VA.

416. Effect of a live yeast supplement and altered ruminal fermentability of dietary starch on the yields of milk and milk components of mid- to late- lactation dairy cows.
    U. Abou-Rjeileh*, A. N. Negreiro, and A. L. Lock, Michigan State University, East Lansing, MI.
ADSA-SAD Original Research Poster Competition
Chair: Peter Erickson, University of New Hampshire

M1
Foaming and baking properties of spray-dried ingredient from whey protein and pectin complexes.
J. Xu* and B. Vardhanabhuti, University of Missouri, Columbia, MO.

M2
Effects of starch and fat concentrations in starter grain on Jersey calf performance.
E. Sgambati* and M. Eastridge, The Ohio State University, Columbus, OH.

M3
Effects of intramammary infections on colostrum quality in Jersey cows.
E. M. Hist*, N. R. Hardy, K. M. Enger, and B. D. Enger, The Ohio State University, OARDC, Wooster, OH.

M4
Effects of *Yucca schidigera* based additive on in vitro dry matter digestibility, efficiency of microbial production, and greenhouse gas emissions.
X. L. Crumel*, D. P. Compart1, and U. Y. Anele1, 1North Carolina Agricultural and Technical State University, Greensboro, NC, 2PMI, Arden Hills, MN.

M5
Effect of chemical and biological preservatives on the dry matter loss, nutritional composition, microbial counts, and heating of aerobically exposed wet brewer’s grain silage.

M6
Assessment of the effects of intrauterine dextrose infusion on clinical cure rate, daily milk yield, and daily rumination in postpartum dairy cows diagnosed with clinical metritis.
J. Hamilton*, A. A. Barragan1, E. Hovingh1, L. Byler1, M. Martinez1, S. Bas2, J. Zug3, and S. Haan3, 1Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, 2Phytobiotics Futterzusatzstoffe GmbH Bvd, Villa Maria, Córdoba, Argentina, 3Zugstead Farm, Mifflintown, PA.

M137
On-farm assessment of insulin sensitivity from glucose responses to insulin infusion in neonatal dairy calves.
N. P. Uzee*, C. C. Williams2, E. L. Oberhaus2, S. J. Blair2, and B. S. Whitley3, 1Louisiana State University, Baton Rouge, LA, 2LSU AgCenter, Baton Rouge, LA.

Graduate Student Competitions

ADSA Dairy Foods Oral Competition
Chair: Don Otter

10 Manufacturing heat-stable whey protein isolate by clarification.
G. Subbiah Prabhakaran*, J. A. Lucey1,2, and M. Molitor3, 1University of Wisconsin, Madison, Madison, WI, 2Wisconsin Centre for Dairy Research, Madison, WI.

11 Application of lactose oxidase to control *Pseudomonas* spp. and delay age gelation in UHT milk.

12 Improving the extraction of dairy phospholipids by the combined effect of ultrasound pretreatment and switchable solvents.
K. Rathnakumar*, J. Ortega-Anaya2, R. Jimenez-Flores2, J. Reineke1, and S. I. Martinez-Monteagudo1, 1South Dakota State University, Brookings, SD, 2The Ohio State University, Columbus, OH.

13 Effect of cold plasma treatment on the functional properties of MPC 85.

14 Shelf stability of milk protein gels created by pressure-assisted enzymatic gelation.
L. Wang* and C. I. Moraru, Cornell University, Ithaca, NY.
A method to diagnose mid-infrared milk analyzer prediction equation performance.
M. Portnoy* and D. M. Barbano, Department of Food Science, Northeast Dairy Food Research Center, Cornell University, Ithaca, NY.

Impact of milk protein type and concentration on the composition, physical, and sensory properties of low-fat, high-protein ice cream.
L. R. Sipple*, D. M. Barbano, and M. A. Drake, North Carolina State University, Raleigh, NC, Cornell University, Ithaca, NY.

Decarboxylation of hydroxycinnamic acids by lactic acid bacteria strains isolated from dairy products.
G. Miyagusuku-Cruzado*, I. Garcia-Cano, D. Rocha-Mendoza, R. Jimenez-Flores, and M. M. Giusti, The Ohio State University, Columbus, OH.

Radiofrequency-assisted thermal process validation of dairy powder considering the effect of storage time.
X. Wei*, B. Chaves, M.-G. Danao, S. Agarwal, and J. Subbiah, University of Nebraska, Lincoln, NE, University of Arkansas, Fayetteville, AR, Mars Wrigley, Chicago, IL.

ADSA Dairy Foods Poster Competition
Chair: Liz Ng, Daisy Brand

M7 Application of micro-nano-bubbles to improve the processability of milk protein concentrates.
K. Sajith Babu* and J. Amamcharla, Kansas State University, Manhattan, KS.

M8 Tracking microbiome shifts throughout cheddar cheese production.
J. Choi, B. Rackerby*, S. Lee, R. Frojen, L. Goddik, S. Ha, and S. Park, Department of Food Science and Technology, Oregon State University, Corvallis, OR, Department of Food Science and Technology, Chung-Ang University, Ansung, Geonggi-Do, South Korea.

M9 Characterization of adhesion property between Lactobacillus reuteri and milk phospholipids, and the gene expression of binding-promoting proteins.
L. Zhang*, I. García-Cano, and R. Jiménez-Flores, Department of Food Science and Technology, The Ohio State University, Columbus, OH.

M10 Effect of soluble casein isolate on the functionality and mechanical properties of milk protein concentrate (MPC80) during storage.
Y. Zhu*, M. S. Molitor, S. Ikeda, and J. A. Lucey, Department of Food Science, University of Wisconsin-Madison, Madison, WI, Center for Dairy Research, University of Wisconsin-Madison, Madison, WI.

M11 The effect of micellar casein concentrate purity on sulfur/eggy flavor in UHT milk protein-based beverages.

M12 Development of a novel milk protein concentrate containing whey proteins as fibrils.
G. Rathod* and J. Amamcharla, Kansas State University, Manhattan, KS.

ADSA Production MS Oral Competition
Chair: Dan Cooke

19 The effect of pre-, pro-, and symbiotic supplementation in milk to pre-weaned Holstein heifers on body weight gain and health outcomes.
P. Lucey*, I. Lean, S. Aly, H. Golder, and H. Rossow, University of California-Davis, Davis, CA, Scibus, Camden, NSW, Australia.
Metabolomic profile differs between Holstein strains at grazing conditions during early and mid lactation.
E. Jorge-Smeding1, D. Armand-Ugon1, A. Mendoza1, M. Carriquiry1, and A. Astessiano1, 1Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay, 2Programa de Producción de Leche, Estación Experimental INIA La Estanzuela, Instituto Nacional de Investigación Agropecuaria, Colonia, Uruguay.

Simultaneous minimization of diet costs and phosphorus excretion on dairy farms.
A. F. White* and L. E. Moraes, The Ohio State University, Columbus, OH.

Predictive models for early detection of metritis and clinical cure of dairy cows using behavioral parameters.
V. R. Merenda*1, and R. C. Chebel1, 2Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL, 2Department of Animal Sciences, Institute of Food and Agricultural Sciences, Gainesville, FL.

Effect of a commercial active dry yeast (CNCM I-1079) on productive and metabolic measures during the periparturient transition.
M. R. Steelreath*1, H. C. Hung1, R. L. Hilt2, M. N. Degenshein1, A. Aguilar1, H. Nielsen2, A. H. Laarman1, and P. Rezamand1, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Lallemand Animal Nutrition, Milwaukee, WI, 3Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Identifying factors associated with lameness and its impact on productivity in automated milking herds.
E. Jorge-Smeding*1, D. Armand-Ugon1, V. R. Merenda*1, and R. C. Chebel1, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Lallemand Animal Nutrition, Milwaukee, WI, 3Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.

Heat stress abatement for late-gestation dairy heifers improves thermoregulation and productivity.

The effects of feeding pelleted dried distillers grains with different concentrations of forage on milk production, nutrient digestibility, passage rate, rumen characteristics, and chewing behavior of lactating Jersey dairy cows.
K. C. Krogstad1, 1, K. J. Herrick2, and P. J. Kononoff3, 1Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, 2POET Nutrition, Sioux Falls, SD.

Prepartum shifting light circadian rhythm disruptions cause insulin resistance in periparturient dairy cows.
C. J. McCabe*, A. Suarez-Trujillo, T. M. Casey, and J. P. Boerman, Department of Animal Sciences, Purdue University, West Lafayette, IN.

**ADSA Production MS Poster Competition**

**Chair: Benjamin Wenner**

M13 Impact of palmitic acid and pH on ruminal NDF digestibility and fermentation in a continuous culture system.
L. Padilla*, A. Sears, and F. Battistel, Department of Animal, Dairy and Veterinary Sciences, Utah State University, Logan, UT.

M14 Effects of fatty acid supplementation to prepartum dairy cows on immunity in dams and their offspring.
L. Eastridge* and M. Eastridge, The Ohio State University, Columbus, OH.

V. Brisson1, 1, C. L. Girard1, J. A. Metcalf1, D. S. Castagnino2, J. Dijkstra3, and J. L. Ellis4, 1University of Guelph, Guelph, ON, Canada, 2Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada, 3Trouw Nutrition Canada, Guelph, ON, Canada, 4 Wageningen University and Research, Wageningen, the Netherlands.

M16 Genome-wide association study and functional analyses of clinical and subclinical ketosis in Holstein cattle.
R. A. N. Soares*, G. Vargas, F. S. Schenkel, and E. J. Squires, University of Guelph, Guelph, ON, Canada.

M17 Mammary blood vessel development in response to estradiol administration in heifer calves.
N. R. Hardy*1, K. M. Enger1, M. L. Eastridge1, L. E. Moraes2, and B. D. Enger1, 1The Ohio State University, Department of Animal Sciences, OARDC, Wooster, OH, 2The Ohio State University, Department of Animal Sciences, Columbus, OH.
Effects of physically effective undigested neutral detergent fiber and rumen fermentable starch on lactation performance and total tract digestibility of lactating cows.
*Miner Institute, Chazy, NY, †ZEN-NOH, Tokyo, Japan.

Effects of probiotics, enzymes, and yeast combinations on ruminal fermentation in a dual-flow continuous culture system.
*University of Florida, Gainesville, FL, †State University of Maringá, Maringá, Paraná, Brazil, ||Sao Paulo State University, Sao Paulo, Sao Paulo, Brazil.

ADSA Production PhD Oral Competition
Chair: Dan Cooke

Mitochondrial genome diversity and association of mitochondrial protein gene expression with energy metabolism in dairy cattle.
J. Dorji*, C. J. Vander Jagt†, J. B. Garner‡, L. C. Maretty‡, B. A. Mason‡, C. M. Reich‡, C. P. Prowse-Wilkins‡, R. Xiang‡, P. N. Ho†, J. Pryce‡, B. G. Cocks‡, A. J. Chamberlain‡, I. M. MacLeod*, and H. D. Daetwyler‡.
School of Applied Systems Biology, La Trobe University, Bundoora, Victoria, Australia, Agriculture Victoria, AgriBio, Centre for Agrbioscience, Bundoora, Victoria, Australia, Agriculture Victoria, Ellinbank Dairy Centre, Ellinbank, Victoria, Australia, Faculty of Veterinary & Agricultural Science, University of Melbourne, Parkville, Australia.

Bioactivity of the endocannabinoid arachidonylethanolamide in cultured bovine endothelial cells.
C. F. Walker* and M. Bionaz, Michigan State University, East Lansing, MI.

Effect of feeding Camelina sativa cake on rumen microbiota and gene expression in follicular cells in dairy Italian Holstein Friesian heifers.
F. Omodei Zorini*, M. Dell’Anno*, G. Pennarossa†, G. Morini†, G. Ranzenigo†, V. Caprarulo†, L. Rossi†, P. Cremonesi‡, B. Castiglioni‡, F. Biscarini‡, and G. Invernizzi‡.
Department of Health, Animal Science and Food Safety ‘Carlo Cantoni’, University of Milan, Milan, Italy, Department of Veterinary Medical Sciences, University of Parma, Parma, Italy, DVM, Varese, Italy, Institute for Biology and Biotechnology in Agriculture (IBBA), NRC, Lodì, Italy.

One plus one is … three? Evidence for a compounding effect of long-chain fatty acids on peroxisome proliferator-activated receptor activity.
S. Busato* and M. Bionaz, Oregon State University, Corvallis, OR.

Effects of dietary organic acid and plant botanical supplementation on growth performance in Holstein calves challenged by heat stress.
A. B. P. Fontoura*, V. Sáinz de la Maza-Escolà†, B. N. Tate‡, J. T. Siegel Nieves‡, A. T. Richards‡, F. Wang‡, L. F. Wang‡, M. E. Van Amburgh†, E. Grilli‡, and J. W. McFadden‡.
Cornell University, Ithaca, NY, University of Bologna, Bologna, Italy, China Agricultural University, Beijing, China, Henan Agricultural University, Zhengzhou, China, VetAgro S.p.A, Reggio Emilia, Italy.

Feeding rumen-protected lysine prepartum increased energy-corrected milk in Holstein cows during early lactation.
L. K. Fehlberg*, A. R. Guadagnin†, B. L. Thomas†, Y. Sugimoto‡, I. Shinzato‡, and F. C. Cardoso‡.
University of Illinois, Urbana, IL, Ajinomoto Co. Inc., Tokyo, Japan.

Effects of rumen undegradable protein and amino acid sources and replacing forage or non-forage fiber in postpartum cows on production.
A. W. Tebbe* and W. P. Weiss, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH.

Reproductive outcomes associated with delayed clinical cure of metritis in dairy cows.
C. Figueiredo*, V. Merenda†, E. de Oliveira†, F. Lima†, R. Chebel†, K. Galvao†, J. Santos†, and R. Bisinotto†.
University of Florida, Gainesville, FL, University of California, Davis, CA.

Variation in bovine colostrum fat content is related to specific lipid species.
R. N. Klopp*, A. Suarez-Trujillo†, C. R. Ferreira†, T. M. Casey†, and J. P. Boerman†.
Department of Animal Sciences, Purdue University, West Lafayette, IN, Metabolite Profiling Facility, Bindley Bioscience Center, Purdue University, West Lafayette, IN.
Effect of hyperketonemia on circadian patterns of blood metabolites and milk predicted constituents in dairy cows.
C. Seely*, K. Bach¹, D. Barbano², and J. McArt³. ¹Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY; ²Department of Food Science, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY.

Isoprostanes reduce production of reactive oxygen species and apoptosis in a bovine model of oxidative stress.
A. K. Putman*, J. C. Gandy, and L. M. Sordillo, Michigan State University College of Veterinary Medicine, East Lansing, MI.
Monday Oral Presentations

Animal Health: Transition Cow 1
Chair: Eduardo Ribeiro, University of Guelph
Room 1
12:00 – 12:30 PM (Monday block 1)


40 Induced endometritis affects production in early lactation.

41 Assessment of the accuracy and test characteristics of a multivariable metabolic index to predict hyperketonemia in early postpartum Holstein dairy cows.
Z. Rodriguez¹, L. Caixeta*¹, P. Ferro¹, N. Moraes¹, M. Endres¹, K. Nakagawa¹, A. Imaizumi², I. Shinzato², and T. Fujieda², ¹University of Minnesota, Saint Paul, MN, ²Ajinomoto Co. Inc., Kawasaki, Japan.

42 The association of prepartum urine pH, and plasma total calcium at calving in Holstein dairy cows.
P. Melendez*, J. Bartolome¹, C. Roehslehn¹, B. Soto¹, A. Arevalos¹, and J. Moller*, ¹University of Georgia, Tifton, GA, ¹National University of La Pampa, Gral. Pico, Argentina, ²University of Chile, Santiago, Chile, ³Fundo Los Laureles, Chahuilco, Chile.

43 Association of calcium and energy balance metabolites in the first 3 days after parturition with disease and production outcomes in multiparous Jersey cows.
P. R. Menta*, L. Fernandes¹, D. Poit², M. Celestino¹, V. S. Machado¹, M. A. Ballou¹, and R. C. Neves¹,², ¹Department of Veterinary Sciences, College of Agricultural Sciences and Natural Resources, Texas Tech University, Lubbock, TX, ²Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Purdue University, West Lafayette, IN.

44 Effects of carprofen on inflammation biomarkers and health of transition Holstein cows.
S. T. Quanz*, A. R. Rodriguez², H. A. Bustamante², L. K. Mamedova³, and B. J. Bradford³, ¹Kansas State University, Manhattan, KS, ²Universidad Austral de Chile, Valdivia, Los Rios Region, Chile, ³Michigan State University, East Lansing, MI.

Growth and Development
Chair: Gustavo Cruz, Land O’ Lakes
Room 2
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45 The effect of fecal microbiota transplants in pre-weaned dairy calves.
G. S. Slanzon*, L. M. Parrish, S. C. Trombeta, W. M. Sischo, and C. S. McConnel, Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Washington State University, Pullman, WA.

46 Seaweeds supplementation affects the short-chain fatty acids profile in digesta from milk-fed Holstein calves.
M. B. Samarasinghe*, M. Vestergaard, J. Sehested, T. Larsen, and L. E. Hernández-Castellano, Department of Animal Science, Aarhus University, Foulum, Tjele, Denmark.

47 Supplementation of seaweeds improves the immune status of milk-fed Holstein calves.
M. B. Samarasinghe*, M. Vestergaard, J. Sehested, T. Larsen, and L. E. Hernández-Castellano, Department of Animal Science, Aarhus University, Foulum, Tjele, Denmark.
The effect of tributyrin supplementation to milk replacer on growth performance, diarrhea frequency, and blood biochemical parameters of dairy calves.
S. Liu*, J. Zhou, J. Wu, J. Ma, and Z. Cao, State Key Laboratory of Animal Nutrition, College of Animal Science and Technology, China Agricultural University, Beijing, China.

Effects of feeding Saccharomyces cerevisiae fermentation products on the health and growth performance of Holstein dairy calves through 4 months of age.
R. N. Klopp*, I. Yoon², and J. P. Boerman¹, ¹Purdue University Department of Animal Sciences, West Lafayette, IN, ²Diamond V, Cedar Rapids, IA.

Evaluation of Lifeline Protect at arrival and NutraPro formulated into a traditional milk program under California feeding and housing conditions during the winter season on calf growth, morbidity, and mortality.
M. Fringer*, J. M. Campbell¹, S. Williamson¹, and K. S. Thompson¹, ¹California State University Fresno, Fresno, CA, ²APC Inc., Ankeny, IA.

Effects of transition milk on intestinal development of neonatal calves.
B. Van Soest*, M. Weber Nielsen, A. Moeser, A. Abuelo, and M. VandeHaar, Michigan State University, East Lansing, MI.

Lactation Biology
Chair: Jimena Laporta, University of Florida
Room 3
12:00 – 12:30 PM (Monday block 1)

Disruption of circadian clocks in the prepartum dry period negatively affect mammary development.
K. Teeple¹*, A. Suarez-Trujillo¹, C. McCabe¹, J. Townsend², S. Donkin¹, K. Plaut¹, J. Boerman¹, and T. Casey¹, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN, ²College of Veterinary Medicine, Purdue University, West Lafayette, IN.

Light-dark phase shift circadian disruption does not affect cortisol and progesterone concentrations in periparturient dairy cows.
A. Suarez-Trujillo¹*, J. Franco², T. Steckler¹, J. Boerman¹, K. Plaut¹, and T. M. Casey¹, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN, ²Metabolite Profiling Facility, Bindley Bioscience Center, Purdue University, West Lafayette, IN.

Mammary gland transcriptome profiling reveals an abundance of transcripts for cell maintenance and protein turnover.
L. Beckett*, J. Thimmapuram, S. Xie, T. Casey, and S. S. Donkin, Purdue University, West Lafayette, IN.

Elevated circulating serotonin alters calcium metabolism in mid-late lactation dairy cows.
M. K. Connelly*, H. P. Fricke, J. Kuehn³, M. Klister, and L. L. Hernandez, University of Wisconsin-Madison, Madison, WI.

Methionine supplementation impacts casein gene expression and cell death in the mammary tissue of lactating dairy goats fed low and adequate net energy supplies.
M. Boutinaud¹*, E. Chanat¹, A. Leduc¹, S. Wiart¹, P. Debournoux¹, L. Balhoul², and S. Lemosquét¹, ¹INRAE Agrocampus Ouest, PEGASE, Saint Gilles, France, ²Centre of Expertise and Research in Nutrition, Adisseo France S.A.S, Commentry, France.

Production, Management, and the Environment
Chair: Jen Heguy, University of California
Room 4
12:00 – 12:30 PM (Monday block 1)

Effects of exposure to heat stress during late gestation on the daily time budget of nulliparous Holstein heifers.

Metabolic and productive characteristics of sensitive and heat-tolerant phenotypes in dairy sheep.
B. Chaalia, S. Serhan, S. Gonzalez-Luna, X. Such, A. A. K. Salama*, and G. Caja, Research Group in Ruminants (G2R), Universitat Autonoma de Barcelona, Barcelona, Spain.
Pasture housing increases heat stress in late pregnant heifers: Management challenges for productivity and health.

Methods for assessing chronic heat stress in dairy calves in a subtropical environment.
V. Ouellet*, B. Dado-Senn, G. E. Dahl, and J. Laporta, Department of Animal Sciences, University of Florida, Gainesville, FL.

Estimation of daily maximum temperature-humidity index thresholds affecting milk traits in Italian Brown Swiss.
A. Maggiolino*, G. Dahl1, N. Bartolomeo1, A. Rossoni4, and P. De Palo1, 1Department of Veterinary Medicine, University of Bari “A. Moro,” Bari, Italy, 2Department of Animal Sciences, University of Florida, Gainesville, FL, 3Department of Biomedical Science and Human Oncology, University of Bari “A. Moro,” Bari, Italy, 4Italian Brown Swiss Breeders Association, Verona, Italy.

Ruminant Nutrition: General
Chair: Duarte Diaz, University of Arizona
Room 5
12:00 – 12:30 PM (Monday block 1)

Meta-analysis to quantify the effect of chromium supplementation on production in dairy cows and how it is affected by Cr source and stage of lactation.
Y. Roman-Garcia*, D. Kleinschmit, and L. Moraes, The Ohio State University, Columbus, OH, Zinpro Corporation, Eden Prairie, MN.

Effect of supplementary source of selenium on animal performance during intramammary endotoxin challenge in lactating Holstein cows.
K. M. Cruickshank*, B. Hatew, E. S. Ribeiro, and M. A. Steele, University of Guelph, Guelph, ON, Canada.

Impact of supplementary trace mineral source on health and reproduction in lactating dairy cows.
B. Mion*, J. F. W. Spricigo, K. King, L. Olgilvie, O. Chiu, L. Lobe, B. Van Winters, E. Merry, S. LeBlanc, M. A. Steele, B. W. McBride, and E. S. Ribeiro, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

Impact of supplementary trace mineral source on production, feed intake and efficiency, metabolism, and rumen parameters in dairy cows.

Controlled trial of the effect of negative dietary cation-anion difference on postpartum health and culling of dairy cows.
R. Couto Serrenho*, T. C. Bruinje, E. I. Morrison, T. J. DeVries, T. F. Duffield, and S. J. LeBlanc, Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

Impact of supplementary trace mineral source on immune cell function of dairy cows and its association with postpartum diseases.
L. Olgilvie*, J. F. W. Spricigo, B. Mion, B. Van Winters, M. A. Steele, B. W. McBride, S. J. LeBlanc, and E. S. Ribeiro, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.
Animal Health: Transition Cow 2
Chair: Maya Zachut, Volcani Center, Israel
Room 1
12:30 – 1:00 PM (Monday block 2)

Relationship between nutrient metabolism during the periparturient period and health measures in a Pacific Northwest dairy herd.
C. Y. Tsai1*, H. H. Hung2, T. Weber1, W. J. Price1, and P. Rezamand1, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID.

Hepatic differential gene expression of cows clustered by postpartum metabolites: A model for susceptibility to lipid-related metabolic disorders.
R. Pralle1*, W. Li1, and H. White1, 1Department of Dairy Science, University of Wisconsin, Madison, WI, 2Cell Wall Biology and Utilization Laboratory, USDA-ARS, Madison, WI.

Effect of metabolic and digestive disorders on patterns of behavioral, physiological, and performance parameters of lactating dairy cows.
M. M. Pérez1*, E. M. Cabrera1, C. Rial1, D. V. Nydam2, and J. O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY.

Antimicrobial resistance in fecal commensal bacteria isolated from dairy cows in California.
E. Abdelfattah1*, P. Ekong1, E. Okello1-2, T. Chamchay1, B. Karle1, R. Black6, D. Sheedy5, W. El-Ashmawy1, D. Williams1, D. Califano1, L. Duran1, J. Ongom1, B. Byrne1, T. Lehenbauer1-2, S. Aly1-2, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California, Tulare, CA, 2Department of Population Health & Reproduction, School of Veterinary Medicine, University of California, Davis, CA, 3Cooperative Extension, Division of Agriculture and Natural Resources, University of California, Orland, CA, 4Cooperative Extension, Division of Agriculture and Natural Resources, University of California, Santa Rosa, CA, 5Department of Pathology, Microbiology, and Immunology, School of Veterinary Medicine, University of California, Davis, CA.

Performance of the machine learning method XGBoost for prediction of clinical health disorders in lactating dairy cows.
M. M. Pérez1*, Y. You1, Y. Wang2, K. Q. Weinberger2, D. V. Nydam3, and J. O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Department of Computer Science, Cornell University, Ithaca, NY, 3Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY.

Performance of different machine learning methods for prediction of the health status of lactating dairy cows.
M. M. Pérez1*, Y. You1, Y. Wang2, K. Q. Weinberger2, D. V. Nydam3, and J. O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Department of Computer Science, Cornell University, Ithaca, NY, 3Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY.

Growth and Development
Chair: Gustavo Cruz, Land O Lakes
Room 2
12:30 – 1:00 PM (Monday block 2)

Source of cobalt fed during late pregnancy to Holstein cows affects postnatal calf growth and innate immune function.
A. S. Alharthi1*, E. Abdel-Hamied1, H. Dai1, Y. Liang1, V. Lopreiato1, A. A. Elolimy1,2, M. T. Socha1, and J. J. Loor1, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL, 2Department of Animal Production, College of Food and Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia, 3Animal medicine department, Beni-Suef University, Beni-Suef, Egypt, 4College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, PR China, 5Department of Animal Sciences, Food and Nutrition Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy, 6Department of Animal Production, National Research Centre, Dokki, Giza, Egypt, 7Zinpro Corporation, Eden Prairie, MN.

The development of the fecal microbiome in Holstein dairy calves throughout the weaning transition.
M. Hennessy1*, B. Vecchiarelli1, N. Indugu1, J. Bender1, C. Pappalardo1, M. Leibstein2, J. Toth1, A. Katepalli1, S. Garapati2, and D. Pitta1, 1University of Pennsylvania School of Veterinary Medicine, New Bolton Center Kennett Square, PA, 2Oceanside High School, Oceanside, NY, 3Northwest High School, Germantown, MD, 4Drexel University, Philadelphia, PA.
Early life indicators of future growth in Holstein dairy heifers.
T. S. Steckler*1, N. Lopez-Villalobos2, and J. P. Boerman3, 1Purdue University Department of Animal Sciences, West Lafayette, IN, 2School of Agriculture and Environment, Massey University, Palmerston North, New Zealand.

Maternal body condition during late-pregnancy and its influence on calf development and whole-blood mRNA abundance after ex vivo lipopolysaccharide challenge.
M. G. Lopes*1,2, A. S. Alharthi2,3, Y. Liang2, H. Dai4, V. Lopreiatò5, M. N. Corrêa1, and J. J. Loor2, 1NUPEC (Núcleo de Pesquisa, Ensino e Extensão em Pecuária), Departamento de Clínicas Veterinária, Programa de Pós-Graduação em Biotecnologia, Universidade Federal de Pelotas, Pelotas, RS, Brazil, 2Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL, 3Department of Animal Production, College of Food and Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia, 4College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China, 5Department of Animal Sciences, Food and Nutrition, Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy.

Supplementation with cobalt sources, folic acid, and rumen-protected methionine during late pregnancy in Holstein cows alters whole-blood mRNA abundance after ex vivo lipopolysaccharide challenge in newborn calves.
M. G. Lopes*1,2, A. S. Alharthi2,3, H. Dai4, V. Lopreiatò5, E. Abdel-Hamied6, M. N. Corrêa1, M. T. Socha7, and J. J. Loor2, 1NUPEC (Núcleo de Pesquisa, Ensino e Extensão em Pecuária), Departamento de Clínicas Veterinária, Programa de Pós-Graduação em Biotecnologia, Universidade Federal de Pelotas, Pelotas, RS, Brazil, 2Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL, 3Department of Animal Production, College of Food and Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia, 4College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China, 5Department of Animal Sciences, Food and Nutrition, Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy, 6Animal Medicine Department, Beni-Suef University, Beni-Suef, Egypt, 7Zinpro Corporation, Eden Prairie, MN.

Lactation Biology
Chair: Theresa Casey, Purdue University
Room 3
12:30 – 1:00 PM (Monday block 2)

Laser capture microdissection-seq analysis of local and systemic responses of mammary epithelial cells in cows locally treated with lipopolysaccharide.
R. K. Choudhary*1, A. Spitzer1, T. B. McFadden2, E. M. Shangraw7, R. O. Rodrigues2, and F.-Q. Zhao1, 1Department of Animal and Veterinary Sciences, University of Vermont, Burlington, VT, 2Division of Animal Sciences, University of Missouri, Columbia, MO.

Sialylated oligosaccharide and sialic acid profile of colostrum, transition milk, and whole milk in primiparous and multiparous Holstein dairy cattle.
A. J. Fischer-Tlustos*1, R. K. H. Yoo2, A. M. Garner3, S. A. Bakker2, S. M. Lyons1, W. F. Zandberg2, and M. A. Steele1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Chemistry, University of British Columbia, Kelowna, BC, Canada, 3Department of Biology, University of British Columbia, Kelowna, BC, Canada.

Effect of acetate absorption on the daily rhythm of milk synthesis and plasma hormones and metabolites in dairy cows.
C. Matamoros*1, I. Salfer2, and K. Harvatine1, 1Department of Animal Science, The Pennsylvania State University, University Park, PA, 2Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Production, Management, and the Environment
Chair:: Jen Heguy, University of California
Room 4
12:30 – 1:00 PM (Monday block 2)

Cow longevity and culling on China dairy farms from 2013 to 2015.
S. Liu*, J. Ma, and Z. Cao, China Agricultural University, Beijing, China.
Use of bulk tank milk fatty acid profiles as an on-farm decision-support tool.

Impacts of BIOWiSH application on greenhouse gases and air quality from liquid dairy manure.
C. B. Peterson*, Y. Zhao, Y. Pan, and F. M. Mitloehner, University of California-Davis, Davis, CA.

B. Garcia¹, S. Zimmerman*, and K. Schaefer¹, ¹C-Lock Inc., Rapid City, SD, ²DSM Nutritional Products, Basel, Switzerland.

An environmental assessment of dairy farms in the eastern United States.
C. A. Rotz¹, R. Stout*, M. Holly², and P. Kleinman¹, ¹USDA-ARS, University Park, PA, ²University of Wisconsin-Green Bay, Green Bay, WI.

National consumer survey of dairy food preferences and purchase interest.
M. Camire¹*, R. Bernier², R. Labbe², D. Bouchard², G. Shaler³, and L. Yeitz³, ¹University of Maine, Orono, ME, ²Atlantic Corporation, Waterville, ME, ³University of Southern Maine, Portland, ME.

Ruminant Nutrition: General
Chair: Duarte Diaz, University of Arizona
Room 5
12:30 – 1:00 PM (Monday block 2)

H. M. Golder* and I. J. Lean, Scibus, Camden, NSW, Australia.

Bioefficacy of hydroxy-selenomethionine in dairy cows.
N. L. Whitehouse*, J. R. Sexton¹, S. M. Hollister¹, L. H. P. Silva¹, S. M. Fredin¹, and M. Briens¹, ¹University of New Hampshire, Durham, NH, ²Adisseo USA Inc., Alpharetta, GA, ³Adisseo France SAS, Commentry, France.

Effect of electrochemically activated drinking water on production performance and somatic cell counts in dairy cows.
E. Vargas-Bello-Pérez*, S. Cruz-Morales, R. Dhakal, and H. H. Hansen, Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark.

Inclusion of calcium-magnesium tetrahydroxide as a dietary source of inorganic Mg alters ruminal pH and fermentation in a dual-flow continuous culture system.

Effects of reduced dietary cation and anion difference on production, nutrient digestibility, and urine pH in lactating cows.
C. Lee*, J. E. Copelin¹, L. R. Rebello¹, P. A. Dieter³, W. P. Weiss¹, and T. Brown², ¹Department of Animal Sciences, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH, ²Dairy Nutrition Plus, Ralston, IA.

A. Ruiz Gonzalez*, W. Suissi², L. H. Baumgard³, P.-Y. Chouinard³, R. Gervais¹, and D. E. Rico², ¹Université Laval, Quebec, QC, Canada, ²CRSAD, Deschambault, QC, Canada, ³Iowa State University, Ames, IA.
Small Ruminant
Chair: Guido Invernizzi, University of Milan
Room 3
12:40 – 1:00 PM (Monday block 2)

94 Productive performance, milk composition, and milk fatty acids of goats supplemented with sunflower and linseed whole seeds.
E. Vargas-Bello-Pérez*, C. A. García Montes de Oca1, N. Pescador-Salas2, J. G. Estrada Flores3, J. Romero Bernal2, L. E. Robles Jimenez2, and M. González-Ronquillo1,1Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark, 2Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de México, México, 3Instituto en Ciencias Agropecuarias y Rurales, Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de México, México.

95 Physiological, lactational, and blood metabolite profile of dairy goats exposed to low ambient temperatures.
W. Coloma-Garcia1,2, N. Mehaba1, X. Such1, G. Caja1, and A. A. K. Salama*1, 1Research Group in Ruminants (G2R), Universitat Autonoma de Barcelona, Barcelona, Spain, 2Facultad de Medicina Veterinaria, Universidad Agraria del Ecuador, Guayaquil, Ecuador.

Dairy Foods Processing
Chair: Hadi Eshpari, Tillamook
Room 6
1:00 – 1:30 PM (Monday block 3)

96 Effect of heat treatment conditions and pH on physicochemical properties and protein denaturation of liquid milk protein concentrate.
N. Rafiee Tari*, A. Guri2, Z. Gaygadzhiev3, and A. Wright1, 1Department of Human Health and Nutritional Sciences, University of Guelph, Guelph, ON, Canada, 2Gay Lea Co-operative Foods Ltd, Hamilton, ON, Canada, 3Reckitt Benckiser, Evansville, IN.

97 Reconstitution properties of micellar casein powders with different calcium contents and their production.
J. Schäfer1, R. Kohlus2, J. Hinrichs1, and Z. Atamer*1, 1Department of Soft Matter Science and Dairy Technology, Institute of Food Science and Biotechnology, University of Hohenheim, Stuttgart, Germany, 2Department of Process Engineering and Food Powders, Institute of Food Science and Biotechnology, University of Hohenheim, Stuttgart, Germany.

98 Effect of temperature on the performance of plate-and-frame filtration during milk protein concentrate manufacture.
A. Mishra* and L. E. Metzger, South Dakota State University, Brookings, SD.

99 Processing of high-protein yogurt from milk concentrates: Power ultrasound as an innovative tool to generate specific texture properties.
A. Körzendörfer* and J. Hinrichs, University of Hohenheim, Stuttgart, Germany.

100 Freezing high-pressure-jet–treated ice cream mix: A study of the kinetics and microstructure.

Production, Management, and the Environment
Chair: Jen Heguy, University of California
Room 4
1:00 – 1:30 PM (Monday block 3)

101 Management strategies impact milk fatty acid production and its relationship with milk composition.
S. C. Allen*, D. M. Barbano1, D. H. Poole1, J. Odle1, M. A. Drake1, and S. H. Ward1, 1North Carolina State University, Raleigh, NC, 2Cornell University, Ithaca, NY.
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<td>Milk fat and protein yield in Holstein California herds with different milk production levels.</td>
<td>M. B. Abreu*1,2, M. I. Marcondes1, F. C. Ferreira2, B. Verboort3, and N. Silva-Del-Rio2, 1Universidade Federal de Vicsa, Vicsa, MG, Brazil, 2Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA, 3Agritech Analytics, Visalia, CA.</td>
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<td>Do biological and management causes of a short or long dry period induce the same effects on dairy cattle productivity?</td>
<td>K. E. Olagaray*1, M. W. Overton2, and B. J. Bradford1, 1Kansas State University, Manhattan, KS, 2Elanco Animal Health, Greenfield, IN.</td>
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<td>Economics of capture of phosphorus from liquid dairy manure.</td>
<td>J. Harrison*1, J. Fullerton1, E. Whitefield1, K. Bowers1, and S. Norberg1, 1Washington State University, Puyallup, WA, 2Multiform Harvest, Seattle, WA, 3Washington State University, Pasco, WA.</td>
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<td>Economic impacts of feeding an immune modulator to multiparous dry Holstein dairy cows.</td>
<td>L. T. Casarotto*1, V. Ouellet1, J. Laporta1, J. D. Chapman1, A. De Vries1, and G. E. Dahl1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Phibro Animal Health Corporation, Teaneck, NJ.</td>
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**Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion**

**Chair:** Jeff Firkins, The Ohio State University

**Room 5**

1:00 – 1:30 PM (Monday block 3)

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<td>The effect of 3-nitrooxypropanol on ruminal microbial gene expression in dairy cows.</td>
<td>D. Pitta*1, A. Melgar2, N. Indugu1, V. Shabtai2, M. Hennessy1, B. Vecchiarelli2, M. Kindermann2, N. Walker1, R. Thauer1, and A. Hristov1, 1University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, 2The Pennsylvania State University, University Park, PA, 3DSM Nutritional Products, Basel, Switzerland, 4Max Planck Institute for Terrestrial Microbiology, Marburg, Germany.</td>
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<td>108</td>
<td>Temporal changes in total and metabolically active ruminal methanogens induced by 3-nitrooxypropanol in dairy cows.</td>
<td>D. Pitta1, A. Melgar2, N. Indugu1, C. Pappalardo*2, M. Hennessy2, B. Vecchiarelli2, V. Shabtai1, M. Kindermann2, N. Walker1, and A. Hristov1, 1University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, 2The Pennsylvania State University, University Park, PA, 3DSM Nutritional Products, Basel, Switzerland.</td>
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<td>Early life modulation of the gut microbiota and antibiotic resistance in calves fed oregano essential oil.</td>
<td>P. P. Ray*1, C. Rymer2, D. Wilde1, E. F. Lund1, and A. C. Singer1, 1Department of Animal Sciences, School of Agriculture, Policy and Development, University of Reading, Reading, United Kingdom, 2Anpario plc, Worksop, United Kingdom, 3NERC Centre for Ecology and Hydrology, Wallingford, United Kingdom.</td>
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Effect of protected dietary oils on dry matter intake, nutrient digestibility, and milk production in dairy goats.
E. Vargas-Bello-Pérez*, R. Ayala-Hernández, N. Pescador-Salas, O. Castelán-Ortega, and M. González-Ronquillo, 1Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark, 2Facultad de Medicina Veterinaria y Zootecnia, Instituto Literario 100, Universidad Autónoma del Estado de México, Toluca, Estado de México, México.

Effect of dietary inclusion of sunflower seed silage (Helianthus annuus) on physical and sensory characteristics of sheep cheese.
A. C. Narvaes-López, L. E. Robles-Jiménez, E. Cardoso-Gutiérrez, M. d. l. Á. Colín-Cruz, M. González-Ronquillo, and E. Vargas-Bello-Pérez*, 1Facultad de Medicina Veterinaria y Zootecnia, Instituto Literario 100, Universidad Autónoma del Estado de México, Toluca, Estado de México, México, 2Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark.

Effect of dietary neutral detergent fiber on mid-infrared predicted milk constituents of non-traditional dairy sheep breeds milked on an accelerated lambing system.
N. Kochendoerfer*, M. L. Thonney, and D. M. Barbano, Cornell University, Ithaca, NY.

A high rumen degradable starch diet modulates jejunum microbiota and alters enterohepatic circulation of bile acids in dairy goats.
J. Shen, X. Chen, L. Wang, J. Yao, and Y. Cao*, 1Northwest A&F University, Yangling, Shaanxi, China, 2Harvard Medical School, Boston, MA.

The effects of Saccharomyces cerevisiae-based products on the ruminal environment and performance of sheep submitted to dietary changes.

Metabolic and productive characteristics of sensitive and heat-tolerant phenotypes of Murciano-Granadina dairy goats.
S. Serhan, S. González-Luna*, B. Chaalia, X. Suchi, A. A. K. Salama, and G. Caja, 1Group of Research in Ruminants (G2R), Universitat Autonoma de Barcelona, Bellaterra, Spain, 2F.E.S. Cuautitlan, Universidad nacional Autónoma de México, Cuautitlan, Mexico.

Association between lifetime selection index predictions and lifetime performance.
B. Fessenden*, D. Weigel, J. Osterstock, D. Galligan, and F. Di Croce, 1Zoetis Genetics, Kalamazoo, MI, 2Zoetis Outcomes Research, Kalamazoo, MI, 3University of Pennsylvania School of Veterinary Medicine, New Bolton Center, Kennett Square, PA.

Conformation traits of Holstein cows and their association with the Pro;selection index.
L. Alcantara*, C. Baes, G. Oliveira Junior, and F. Schenkel, 1Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

Opportunity costs in beef-on-dairy breeding strategies.
A. De Vries*, University of Florida, Gainesville, FL.

The effect of synchronized breeding on genetic evaluations of fertility traits in dairy cattle: Preliminary analysis.
C. Lynch*, G. A. Oliveira Junior, F. S. Schenkel, and C. F. Baes, 1Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland.
Implementation of national health trait evaluations in Jersey.
K. L. Parker Gaddis1, L. M. Jensen1, P. M. VanRaden1, J. H. Megonigal Jr.1, E. L. Nicolazzi1, H. D. Norman2, and C. W. Wolfe4,  
1Council on Dairy Cattle Breeding, Bowie, MD, 2University of Florida, Gainesville, FL, 3Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD, 4American Jersey Cattle Association, Reynoldsburg, OH.

Breeding dairy cattle for the future: Where is the Canadian industry headed?  
S. Larmer*, Semex Alliance, Arthur, ON, Canada.

Breeding and Genetics  
Chair: Francisco Peñagaricano, University of Florida  
Room 1  
1:30 – 2:00 PM (Monday block 4)

Genomic prediction of dairy bull fertility using X chromosome markers.  
H. A. Pacheco*, F. M. Rezende1, and F. Peñagaricano1, 1University of Florida, Gainesville, FL, 2Universidade Federal de Uberlândia, Uberlândia, MG, Brazil.

Variation in the timing of puberty in grazing Holstein-Friesian dairy heifers.  
N. Steele*1, M. Stephen1, A. Young1, B. Kuhn-Sherlock1, P. Amer1, S. Meier1, C. Phyn1, and C. Burke1, DairyNZ Limited, Private Bag 3221, Hamilton, New Zealand, AbacusBio Limited, Dunedin, New Zealand.

Alternative models for genetic analysis of pregnancy loss in dairy cattle.  
A. Sigdel*, R. S. Bisinotto, and F. Peñagaricano, University of Florida, Gainesville, FL.

Targeted sequencing reveals deleterious mutations affectin dairy bull fertility.  

Multiparous Holstein cow vaginal microbiome near parturition associated with neonatal fecal microbiome.  

Investigating conception rate for beef service sires bred to dairy cows.  

Across-country genomic prediction of bull fertility in Jersey dairy cattle.  
F. M. Rezende*, M. Haile-Marimam, J. E. Pryce, and F. Peñagaricano, University of Florida, Gainesville, FL, Agriculture Victoria Research, Bundoora, VIC, Australia.

Dairy Foods Processing  
Chair: Carmen Moraru, Cornell University  
Room 6  
1:30 – 2:00 PM (Monday block 4)

Effect of pH on the morphology and tensile properties of milk protein-based electrospun fibers.  

Production of high-purity phospholipid concentrate from buttermilk powder using ethanol-modified supercritical carbon dioxide.  
A. Ubeyitogullari* and S. S. H. Rizvi, Cornell University, Ithaca, NY.
Understanding the switchable solvent extraction of phospholipids from dairy by-products.
K. Rathnakumar* and S. I. Martínez-Monteagudo, South Dakota State University, Brookings, SD.

Pilot-scale production of enriched phospholipid concentrate from whey protein phospholipid concentrate using enzymatic hydrolysis and microfiltration.
A. V. Swaminathan*, M. Molitor1, K. J. Burrrington2, D. Otter2, and J. A. Lucey1,2, 1University of Wisconsin-Madison, Madison, WI, 2Wisconsin Center for Dairy Research, Madison, WI.

Production, Management, and the Environment
Chair: Jen Heguy, University of California
Room 4
1:30 – 2:00 PM (Monday block 4)

Evaluating the predictive ability of point cloud deep learning to identify individual animals using surface-based body shape of dairy calves.
R. E. P. Ferreira*, T. Bresolin1, L. G. Pereira2,1, and J. R. R. Dorea1, 1University of Wisconsin-Madison, Madison, WI, 2Embrapa Dairy Cattle, Juíz de Fora, MG, Brazil.

Inconsistency of precision dairy monitoring technologies measuring the same behaviors.
B. W. Jones*, I. C. Tsai1, Y. M. Chang1, and J. M. Bewley4, 1Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX, 3DeLaval, Lansing, MI, 4University of London, London, UK.

Is the rate of milk yield increase in early lactation associated with milking frequency, rumination, and activity in dairy cows?
M. Peiter*, H. N. Phillips, and M. I. Endres, Department of Animal Science, University of Minnesota, Saint Paul, MN.

Energy consumption on five Midwest dairy farms.
K. Sharpe*, B. Heins, E. Buchanan, and M. Reese, West Central Research and Outreach Center, Morris, MN.

Use of agrivoltaics to shade cows in a pasture dairy system.
K. Sharpe*, B. Heins, E. Buchanan, and M. Reese, West Central Research and Outreach Center, Morris, MN.

Ruminant Nutrition: Calves and Heifers
Chair: Stephanie Ward, North Carolina State University
Room 3
1:30 – 2:00 PM (Monday block 4)

Performance and digestibility of dairy calves fed milk replacer with all-milk protein or with 35% of vegetable proteins.

A. L. T. Zhu1, W. H. Liu1, L. J. Ren1, S. T. Gao1, Z. T. Yu2, D. P. Bu1, and L. Ma*, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Department of Animal Sciences, The Ohio State University, Columbus, OH.

Effects of inclusion of a high-fat extruded pellet mixed with a conventional pellet in rearing calves.
L. Amado*, L. N. Leal1, H. van Laar1,2, H. Berends1, W. J. J. Gerrits2, and J. Martín-Tereso1, 1Trouw Nutrition, Amersfoort, the Netherlands, 2Wageningen University, Wageningen, the Netherlands.

Effect of dietary energy source replacement in calf milk replacer fed ad libitum on voluntary feed intake and performance in dairy calves.
J. Echeverry-Munera*, L. Leal1, J. Wilms2, H. Berends1, M. A. Steele1, and J. Martin-Tereso2, 1University of Guelph, Guelph, ON, Canada, 2Trouw Nutrition, Amersfoort, the Netherlands.
Health and performance of dairy calves supplemented with prebiotics: A systematic review.
R. Branco Lopes* and N. Silva-del-Río, Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.

Impact of supplementary trace mineral source in the diet of prepartum cows on quality of colostrum and passive transfer of immunity in newborn calves.
L. Ogilvie*1, B. Mion1, J. F. W. Spricigo1, B. Van Winters1, B. W. McBride1, S. J. LeBlanc2, M. A. Steele1, and E. S. Ribeiro1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

The effect of pre-, pro-, and symbiotic supplementation in milk to pre-weaned Holstein heifers on body weight gain and health outcomes.
P. Lucey*1, I. Lean2, S. Aly1, H. Golder2, and H. Rossow1, 1University of California-Davis, Davis, CA, 2Scibus, Camden, NSW, Australia.

Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion
Chair: Jeff Firkins, The Ohio State University
Room 5
1:30 – 2:00 PM (Monday block 4)

Effects of probiotics on in vitro digestibility, rumen fermentation, methane and gas production from a corn silage-based TMR.

Saccharomyces cerevisiae fermentation products reduce effects of subacute ruminal acidosis on CowPi-predicted function-alities of rumen microbiota in lactating dairy cows.
J. Guo*1, Z. Zhang3, I. Yoon2, M. Zhou1, E. Khafipour*, and J. Plaizier1, 1University of Manitoba, Winnipeg, MB, Canada, 2Diamond V, Cedar Rapids, IA, 3University of Alberta, Edmonton, AB, Canada.

Influence of hydrolyzed soybean meal on glycogen production by mixed ruminal microbes.
M. B. Hall* and M. L. Sullivan, U.S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

Effect of autochthonous Nepalese plants on ruminal methane production in vitro.
R. Dhakal1, E. Vargas-Bello-Pérez1*, M. González-Ronquillo2, and H. H. Hansen3, 1Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksborg C, Denmark, 2Facultad de Medicina Veterinaria y Zootecnia, Instituto Literario 100, Universidad Autónoma del Estado de México, Toluca, Estado de México, México.

Effects of feeding a yeast culture product on performance, blood biomarkers, rumen fermentation, and rumen bacteria species in peripartal dairy cows.
N. A. Carpinelli*1, J. Halfen13, S. D. L. Ramirez13, E. Trevisi4, J. D. Chapman1, E. D. Sharman4, and J. S. Osorio5, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil, 3Universidad de la Salle, Bogotá, DC, Colombia, 4Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Science, Italy, 5Phibro Animal Health Corporation, Teaneck, NJ.

Yeast culture supplementation effects on lactation performance, rumen fermentation characteristics, and abundance of major species of ruminal bacteria in mid-lactation Holstein dairy cows.
J. Halfen*1, 2, N. Carpinelli1, J. Chapman1, E. D. Sharman1, J. L. Anderson1, and J. S. Osorio1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Departamento de Clínica Veterinaria, Universidade Federal de Pelotas, Pelotas, RS, Brazil, 3Phibro Animal Health Corporation, Teaneck, NJ.

The effects of neomycin inclusion in milk replacers on the health, growth, and performance of male Holstein calves.
L. N. Buss*1, T. T. Yohe1, L. R. Cangiano1, A. J. Keunen5, D. L. Renaud1, L. L. Guan3, and M. A. Steele1, 1University of Guelph, Guelph, ON, Canada, 2Mapleton ON, Canada, 3University of Alberta, Edmonton, ON, Canada.
Monday Poster Presentations

Monday poster presenters will be available for individual live text chats from 2:00 to 4:00 pm.
To interact with a presenter, navigate to the recorded presentation page.

Animal Health 1: Transition Cow

M30 Population approach for determining behavioral thresholds associated with health status during transition.
D. Manriquez and P. Pinedo*, Colorado State University, Fort Collins, CO.

M31 Consistency of lying time is associated with reduced serum non-esterified fatty acids of prepartum dairy heifers and cows.
B. T. Menichetti*1, J. M. Piñeiro1, A. Garcia-Guerra2, A. E. Relling3, W. P. Weiss4, and G. M. Schuenemann1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, 2Department of Animal Science, Texas A&M AgriLife Extension Service, Amarillo, TX, 3Department of Animal Sciences, The Ohio State University, Columbus, OH, 4Department of Animal Sciences, The Ohio State University, Wooster, OH.

M32 Metabolite health index relationship with metabolism and milk yield and its composition of postpartum dairy cows.
E. J. Askel1, M. Poczynek1, A. M. Fillus1, I. F. Carrari2, J. H. Carneiro1, J. C. S. Lourenço2, G. F. M. Leão2, and R. Almeida*1, 1Universidade Federal do Paraná, Curitiba, PR, Brazil, 2Castrolanda Cooperativa Agroindustrial, Castro, PR, Brazil.

M33 Metabolic markers for purulent vaginal discharge and subclinical endometritis in dairy cows.
O. Bogado Pascottini* and S. LeBlanc, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

M34 Late gestation conditions leading to postpartal subclinical ketosis in dairy cows affects offspring growth and performance.
N. A. Carpinelli*1, J. Halfen1-2, S. D. L. Ramirez1-2, and J. S. Osorio1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Núcleo de Ensino, Pesquisa e Extensão em Pecuaria (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil, 3Universidad de la Salle, Bogotá, DC, Colombia.

M35 Effect of timing of prepartum vaccination relative to pen change of dairy cows on lying time and serum glucose, nonesterified fatty acids, and calcium at calving.
B. T. Menichetti*1, J. M. Piñeiro2, J. Lakritz3, W. P. Weiss3, J. S. Velez3, D. Merchant3, and G. M. Schuenemann1, 1Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH, 2Department of Animal Sciences, The Ohio State University, Columbus, OH, 3Department of Animal Sciences, The Ohio State University, Columbus, OH.

M36 Blood biomarkers through an ex vivo LPS challenge under ketotic conditions in peripartal dairy cows.
N. A. Carpinelli*1, J. Halfen1-3, F. Rosa1, E. Trevisi1, A. Minuti1, and J. S. Osorio1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Núcleo de Ensino, Pesquisa e Extensão em Pecuaria (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil, 3Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Science, Italy.

M37 Assessment of the effects of intrauterine dextrose on clinical cure rate, body condition score, and concentration of β-hydroxybutyrate and haptoglobin in postpartum dairy cows diagnosed with clinical metritis.
A. A. Barragan*1, J. Hamilton1, E. Hovingh1, M. Martinez2, L. Byler1, S. Bas2, J. Zug3, and S. Haan3, 1Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, 2Phytobiotics Futterzusatzstoffe GmbH Bvd, Villa Maria, Córdoba, Argentina, 3Zugstead Farm, Milford, PA.

M38 The effect of vaccination with a Mannheimia haemolytica subunit vaccine on milk yield in lactating dairy cows.
M. Overton* and M. Armfelt, Elanco Animal Health, Greenfield, IN.

M39 OmniGen-AF and OmniGen Pro improve immunocompetence of ewes subjected to dexamethasone-induced immunosuppression.

M40 Low expression of sirtuin 1 in the dairy cows with mild fatty liver alters hepatic lipid metabolism.
Y. Li*1, H. Ding1, S. Feng1, J. Li2, X. Wang1, J. Wu1, Y. Liang1, and J. J. Loor1, 1Anhui Agricultural University, Hefei, Anhui, China, 2University of Illinois at Urbana-Champaign, Urbana, IL.

M41 Validation of putative target genes of nuclear factor erythroid 2-related factor 2 (NRF2) in bovine.
H. Ford* and M. Bionaz, Oregon State University, Corvallis, OR.
Whole-transcriptome analysis of nuclear factor erythroid 2-related factor 2 (NRF2) modulation in bovine mammary cells.
H. Ford*, M. Bionaz, and S. Busato, Oregon State University, Corvallis, OR.

Plasma alpha-1-acid glycoprotein concentration is associated with key blood biomarkers and disease incidence during the transition period.
W. E. Brown*, M. Garcia1, L. K. Mamedova1, K. R. Christman1, M. G. Zenobi1, C. R. Staples1, B. M. Leno3, T. R. Overton1, B. K. Whitlock*, J. A. Daniel5, and B. J. Bradford1,6, 1Kansas State University, Manhattan, KS, 2University of Florida, Gainesville, FL, 3Cornell University, Ithaca, NY, 4University of Tennessee, Knoxville, TN, 5Berry College, Mount Berry, GA, 6Michigan State University, East Lansing, MI.

Dairy Foods 1

Evaluation of the effects of gamma irradiation treatment on the compositional, textural, color, volatile profile, and microbiological quality of an artisanal hard-pressed cheese.
F. Nyamakwere1, G. Esposito2,1, K. Dzama1, P. Gouws1, T. Rapisarda1, G. Belvedere3, and E. Raffrenato*1,2, 1Stellenbosch University, Stellenbosch, South Africa, 2RUM&N Consulting, Reggio Emilia, Italy, 3Consorzio per la Ricerca nel settore della Filiere Lattiero-Casearia e dell'agroalimentare, Ragusa, Italy.

The viability of probiotics during ripening and storage in Pladolens: A new Russian semi-hard cheese.
O. Musina1, E. Ott1, J. Allen2, and S. Roohinejad*2, 1Siberian Research Institute of Cheese-Making, Federal Altai Scientific Centre of Agro-Bio Technologies, Barnaul, Russia, 2Tillamook County Creamery Association, Tillamook, OR.

Manufacture of imitation Mozzarella cheese without emulsifying salts using acid curd and micellar casein concentrate.
A. R. A. Hammam* and L. E. Metzger, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Liquid chromatography-tandem mass spectrometry analysis of glycomacropeptide from whey protein isolate.
Y. Qu*, B. J. Kim, and D. Dallas, Oregon State University, Corvallis, OR.

Effect of inulin on the microbiological and organoleptic characteristics of synbiotic yogurt.
D. G. Kamel*, Dairy Science Department, Assiut University, Assiut, Egypt.

Microbial degradation of FD&C Red No. 40 in strawberry-flavored milk.
C. Rush* and J. Waite-Cusic, Oregon State University, Corvallis, OR.

Production and physico-chemical characterization of functional ice cream with whey and buttermilk powder.
A. F. Cruz*1, R. T. Pfriemer2, L. Damasceno2, D. S. Fernandes2, L. A. F. Silva2, E. S. Nicola2, and C. Gebara3, 1School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 3School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil.

Influence of protein content on acidity of fermented dairy beverages with buttermilk and gabiroba pulp (Campomanesia xanthocarpa).
L. Damasceno2, R. T. Pfriemer1, C. F. Cardoso2, E. C. Nogueira3, E. S. Nicola1, and C. Gebara3, 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, 4Maroca Dairy Industry, Piranhas, Goiás, Brazil.

Comparing some genetic determinants associated with colonization of Listeria isolates within dairy plant environment.
N. Singh*1,2, S. Anand1,2, J. Gonzalez2, and B. Kraus1, 1Midwest Dairy Foods Research Center, Brookings, SD, 2South Dakota State University, Brookings, SD, 3Wells Enterprises Inc., Le Mars, IA.

Fermentation kinetics of dairy-relevant sugars in acid whey conditions by Saccharomyces, Kluyveromyces, and Brettanomyces species.

Preliminary studies on the use of fluorescence spectroscopy and chemometrics for classification of nonfat dry milk based on spore counts.
C. Qian*, D. Vega, K. Bonilla, R. Phebus, and J. Amamcharla, Kansas State University, Manhattan, KS.

Low-level microbial contaminants in whey multiply rapidly on food contact surfaces under production conditions.
B. Selover* and J. Waite-Cusic, Oregon State University, Corvallis, OR.
The effect of whey protein hydrolysate as a binder on the physical characteristics of agglomerated whey protein isolate.
B. Zaitoun*1, J. Amamcharla1, K. Siliveru1, A. Suprabha Raj1, and N. Palmer2, 1Kansas State University, Manhattan, KS, 2Glanbia Nutritionals, Twin Falls, ID.

Growth and Development 1

Effects of a natural herbal extract on colostrum apparent efficiency of absorption and vigor of neonatal dairy calves.
M. E. Reis*2,1, M. C. Cantor1, C. M. M. Bittar3, and J. H. C. Costa1, 1University of Kentucky, Lexington, KY, 2University of São Paulo, Piracicaba, SP, Brazil.

Weekly body weight change in wild-type and slick-haired Puerto Rican Holstein calves during the first eight weeks of life.
I. Colón-Rodríguez*, K. I. Domenech-Pérez, and H. L. Sánchez-Rodríguez, University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico.

The impact of early life events on future reproductive and milk production performance in Holstein dairy heifers.
T. S. Steckler* and J. P. Boerman, Purdue University Department of Animal Sciences, West Lafayette, IN.

Evaluating physically effective fiber from hay in the diet of 2- to 4-month-old Holstein calves.
K. Aragona*, T. Dennis, F. Suarez, T. Hill, and J. Quigley, Proviimi North America, Brookville, OH.

Effects of milk replacer plane of nutrition and levels of starch and neutral detergent fiber in pelleted starter on calf growth performance and visceral tissue measurements.
T. T. Yohe*, T. S. Dennis2, J. D. Quigley3, T. M. Hill1, F. X. Suarez-Mena4, K. M. Aragona2, and M. A. Steele1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Proviimi, Cargill Animal Nutrition, Brookville, OH.

Effects of transition milk on postnatal growth and health of neonatal calves.

Corn processing increases starch digestibility but does not improve performance or other digestibility estimates in weaned dairy calves.
T. S. Dennis*, F. X. Suarez-Mena, K. M. Aragona, T. M. Hill, and J. D. Quigley, Nurture Research Center, Proviimi, Cargill Animal Nutrition, Brookville, OH.

Impact of phase feeding Holstein calves in winter on growth and feed efficiency.
T. S. Dennis*, F. X. Suarez-Mena, K. M. Aragona, T. M. Hill, and J. D. Quigley, Nurture Research Center, Proviimi, Cargill Animal Nutrition, Brookville, OH.

Carcass characteristic of dairy bull calves fed different energy sources.
E. R. Q. Vieira*, D. O. Cutrim1, F. G. F. Castro2, J. N. M. Neiva1, H. P. S. L. Rocha3, and R. A. Oliveira4, 1Universidade Federal do Tocantins, Araguaína, Tocantins, Brazil, 2Instituto Federal do Tocantins, Pedro Afonso, Tocantins, Brazil, 3Agrocria Animal Nutrition and Seeds, Goiânia, Goiás, Brazil, 4Universidade Federal de Goiás, Goiânia, Goiás, Brazil.

Health status blood parameters in northern Italian Holstein growing calves.
M. Pollesel, D. Cavallini*, A. Martini, P. Parazza, M. Dall’Olio, S. Marchetti, A. Formigoni, and M. Tassinari, Department of Veterinary Sciences, University of Bologna, Ozzano Emilia, Italy.

Evaluation of Lifeline Protect at arrival and bovine or porcine NutraPro formulated into a traditional milk program under California feeding and housing conditions during the summer season on calf growth, morbidity, and mortality.
M. Fringer*1, J. M. Campbell2, S. Williamson3, and K. S. Thompson1, 1California State University Fresno, Fresno, CA, 2APC Inc., Ankeny, IA.

Effects of feeding whole milk, waste milk and pasteurized waste milk on dairy bull calf performance.
S. F. Vieira1, H. C. Diniz Neto2, J. P. Campolina*, S. G. Coelho1, and M. M. Campos2, 1Department of Animal Science, School of Veterinary Medicine, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil, 2Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária, EMBRAPA), National Center for Research on Dairy Cattle, Juiz de Fora, MG, Brazil.
M68 Effects of feeding whole milk, waste milk, and pasteurized waste milk on ruminal parameters and gut weight on dairy bull calves.
H. C. Diniz Neto¹, S. F. Vieira², J. P. Campolina*¹, S. G. Coelho¹, and M. M. Campos², ¹Department of Animal Science, School of Veterinary Medicine, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil, ²Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária, EMBRAPA), National Center for Research on Dairy Cattle, Juiz de Fora, MG, Brazil.

M69 The effects of two feedings of colostrum on the pre-weaning average daily gain of Holstein heifer calves.
Q. Zheng*, M. Hayes, and F. Leal-Yepes, Cornell University College of Veterinary Medicine, Ithaca, NY.

M70 Telomere length variation and association with age and health status.
T. Muratori*¹, I. Haagen¹, A. Shabtay¹, M. Cohen-Zinder¹, U. Lipkin³, and C. Dechow¹, ¹Penn State University, University Park, PA, ²Newye Ya'ar Research Center, Agricultural Research Organization, Ramat Yishay, Israel, ³The Hebrew University of Jerusalem, Jerusalem, Israel.

M71 Comparison of fecal bacterial populations in diarrheic and healthy Holstein dairy calves from multiple farms in southeastern Pennsylvania.
M. Hennessy¹, N. Indugu¹, B. Vecchiarelli¹, L. Redding¹, C. Pappalardo¹, M. Leibstein*¹, J. Toth¹, S. Garapati³, and D. Pitta¹, ¹University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, ²Oceanside High School, Oceanside, NY, ³Drexel University, Philadelphia, PA.

M72 Pre- and post-weaning performance of calves fed milk replacer containing different sources of butyrate.
A. Kerr*¹, P. Sudhakaran², and M. Drewery¹², ¹Grober Nutrition, Cambridge, ON, Canada, ²Texas State University, San Marcos, TX.

M73 Water delivery methods for neonatal calves during winter.

M74 Effects of milk replacer feeding rate and fat content on Jersey calves to 4 months of age.

Lactation Biology 1

M75 Sodium salicylate reduced transcript abundance of hypoxia-associated genes in MAC-T cells.
C. M. Ylioja, T. H. Swartz, L. K. Mamedova*, and B. J. Bradford, Kansas State University, Manhattan, KS.

M76 Circadian PER2 gene silencing suppresses lipid synthesis partly via inhibition of PPARG and SREBF1 in bovine mammary epithelial cells.
Y. J. Jing², Y. F. Chen³, M. Z. Wang¹, L. Y. Hu¹, Q. Y. Xu³, Z. N. Xi¹, and J. J. Loor¹, ¹Yangzhou University, Yangzhou, Jiangsu, China, ²University of Illinois, Urbana, IL.

M77 Milk fatty acid profiles of beef cows in response to a short feed restriction during lactation.
I. Casasús*, J. R. Bertolin, K. Orquera, J. Ferrer, and M. Blanco, Ctr Invest y Tecnol Agroal Aragon (CITA), IA2 (CITA-Universidad de Zaragoza), Zaragoza, Spain.

M78 Effects of glucose and acetate infusion on mammary uptakes of essential amino acids by lactating dairy cows.
B. Li¹, R. Laforest¹, L. Wright¹, J. Kim¹, P. Kedzierski¹, V. Osborne¹, J. Doelman¹², and J. Cant¹, ¹University of Guelph, Guelph, ON, Canada, ²Trouw Nutrition, Putten, the Netherlands.

M79 Effect of methionine in membrane traffic for milk secretion in the goat’s mammary epithelial cell.
M. Boutinaud*¹, A. Leduc¹, S. Lemosquet¹, and L. Bahloul², ¹INRAE, Agrocampus Ouest, PEGASE, Saint-Gilles, France, ²Centre of Expertise and Research in Nutrition, Adisseo France S.A.S, Commentry, France.

M80 Effect of heat stress during the dry period on estradiol and prolactin interactions in mammary gland gene expression of Holstein cows.
J. A. Negrao*¹², V. Ouellet¹, M. Marrero-Perez², T. F. Fabris², J. Laporta², and G. E. Dahl², ¹University of Sao Paulo, Pirassununga, SP, Brazil, ²University of Florida, Gainesville, FL.
M82 Evaluation of breed and udder characteristics on somatic cell count and udder pathogens in lactating Holstein and Jersey cows.
B. M. Brown, M. W. Hollis*, and J. G. Carter, Middle Tennessee State University, Murfreesboro, TN.

M83 Relationships of somatic cell count with milk lactose and protein over the first 10 days postpartum in dairy cows.
H. Peterson*, T. Kelley, J. Williams, W. Price, E. Peterson, M. McGuire, and M. McGuire, Animal and Veterinary Sciences, University of Idaho, Moscow, ID, Margaret Ritchie School of Family and Consumer Sciences, University of Idaho, Moscow, ID, 3Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID, 4Erik L. Peterson Dairy, Filer, ID.

M84 Evaluation of mammary gland involution in dairy cows during the dry period using a 3-dimensional scanner.

M85 Potential of nanoparticles containing matrix metalloproteinase-9 (MMP-9) as a dry-off enhancer: Pulling apart the effects of MMP-9 and nanoparticles.
L. Gifre-Renom, J. V. Carratalá, S. Parés, L. Sanchez-Garcia, N. Ferrer-Miralles, A. Villaverde, A. Bach, E. Garcia-Fruitós, and A. Ariés, Department of Ruminant Production, Institut de Recerca i Tecnologia Agroalimentàries (IRTA), Caldes de Montbui, Catalonia, Spain, 2Institut de Biotecnologia i de Biomedicina, Universitat Autònoma de Barcelona, Cerdanyola del Vallés, Catalonia, Spain, 3Departament de Genètica i de Microbiologia, Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Catalonia, Spain, 4Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Catalonia, Spain.

M86 Mitochondrial function in the liver and skeletal muscle of mid-lactation dairy cattle.
V. R. Favorit*, A. N. Kavazis, W. R. Hood, P. Villamediana, and A. L. Skibiel, University of Idaho, Moscow, ID, Auburn University, Auburn, AL.

M87 An optimized laser capture microdissection protocol for intact RNA isolation from lipopolysaccharide treated mammary epithelial cells.
R. K. Choudhary*, T. B. McFadden, E. M. Shangraw, R. O. Rodrigues, and F.-Q. Zhao, Department of Animal and Veterinary Sciences, University of Vermont, Burlington, VT, Division of Animal Sciences, University of Missouri, Columbia, MO.

Production, Management, and the Environment 1

M88 Environmental effects on teat microbial population of transition dairy cows housed in compost bedded pack barns.
T. L. France*, J. C. H. Costa, and M. C. Morgan, University of Kentucky, Lexington, KY.

M89 Distribution of seasonality of milk yield, adjusted for parity and days in milk, according to heat stress intensity in the United States.

M90 Mammary health program and subclinical mastitis in dairy farms in Córdoba, Argentina.
C. Vissio1,2, B. Mancilla1, P. Turiello*, and A. Larriestra1, UNRC, Río Cuarto, Córdoba, Argentina, IDAS UNRC-CONICET, Río Cuarto, Córdoba, Argentina.

M91 Applying machine learning on feeding behavior data for estrus detection in dairy heifers.

M92 A field case study: Body condition change and metabolic status of transition cows in a small dairy farm.
M. Rosales Gallardo*, and A. A. Barragan, The Pennsylvania State University, Penn State Extension, Lancaster, PA, Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA.

M93 Immunoglobulin G and serum total protein concentration assessment in dairy calves over the first 2 weeks of age.
A. Correa*, A. Villadecabres, and N. Silva-del-Río, Veterinary Medicine Teaching and Research Centre, University of California-Davis, Tulare, CA.

M94 Preparation and evaluation of a film-forming teat dip containing chitosan for the prevention of mastitis.
H. Zhang*, H. Jiang, Z. Han, Y. Mao, and Z. Yang, College of Animal Science and Technology, Yangzhou University, Yangzhou, Jiangsu, PR China.


**M95** Association of subclinical hypocalcemia at calving with productive outcomes in multiparous Jersey cows.  
A. Valdecastres* and N. Silva-del-Rio, *Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.

**M96** Switchgrass (*Panicum virgatum*) harvested using two different strategies in lactating dairy cow rations.  
B. Lemay*1, R. Nagle2, A. J. Carpenter1, T. J. DeVries1, P. H. Luimes1, M. Thimmanagari2, J. DeBruyn1, and A. Heeg2; 1*University of Guelph, Guelph, ON, Canada, 2OMAFRA, Ontario, Canada.

**M97** Simultaneous minimization of diet costs and phosphorus excretion on dairy farms.  
A. F. White* and L. E. Moraes, *The Ohio State University, Columbus, OH.

**M98** Effects of rearing conditions of primiparous cow prior to weaning on their performance and behavior after calving.  
C. J. McCabe* and J. P. Boerman, *Purdue University, Department of Animal Sciences, West Lafayette, IN.

**M99** Differences in total mixed ration dry matter percentage affect the feed intake and the milk yield of Holstein cows.  

**M100** Effects of dietary organic acid and plant botanical supplementation on growth performance in Holstein calves challenged by heat stress.  
A. B. P. Fontoura*1, V. Sáinz de la Maza-Escolà1, B. N. Tate1, J. T. Siegel Nieves1, A. T. Richards1, F. Wang1, L. F. Wang2, M. E. Van Amburgh1, E. Grilli1, and J. W. McCadden1; 1Cornell University, Ithaca, NY, 2University of Bologna, Bologna, Italy, 3China Agricultural University, Beijing, China, 4Henan Agricultural University, Zhengzhou, China, 5VetAgro S.P.A, Reggio Emilia, Italy.

**M101** Effect of rearing conditions of primiparous cow prior to weaning on their performance and behavior after calving.  
J. Broucek*, M. Uhrincat, P. Kisac, and A. Hanus, National Agricultural and Food Centre, Luzianky, Slovakia.

**M102** Relationships between longissimus dorsi muscle depth, body weight, and parity during the first five months of lactation.  
C. J. McCabe* and J. P. Boerman, *Purdue University, Department of Animal Sciences, West Lafayette, IN.

**Ruminant Nutrition: Calves and Heifers**

**M103** Supplement protein level affects performance and reproduction of grazing heifers.  
A. F. Machado1; 1Universidade Federal de Vindices, Vindices, MG, Brazil, 2Univocosa, Vicoso, MG, Brazil.

**M104** Performance of calves fed starter and grower diets formulated with inorganic, organic, or organic trace minerals with additives from birth to 6 months of age.  
D. Ziegler1, H. Chester-Jones1, B. Ziegler1, A. Manthey1, E. Dufour2, and K. Mjoun1; 1University of Minnesota, Waseca, MN, 2Hubbard Feeds, Mankato, MN, 3Alltech, Nicholasville, KY.

**M105** Use of sensory additives to mask bitter taste in calf milk replacers.  
M. Terré*, M. Verdú2, A. Frongia2, R. Cresci2, and M. Blanch3; 1IRTA, Caldes de Montbui, Spain, 2bonÀrea Agrupa, Guissona, Spain, 3Lucta S.A, Bellaterra, Spain.

**M106** Effects of a blend of essential oils in milk replacer on blood parameters of dairy heifers.  
J. P. Campolina1, S. G. Coelho2, A. L. Belli3, L. G. R. Pereira2, T. R. Tomich1, W. A. Carvalho1, and M. M. Campos*2; 1Department of Animal Science, Veterinary School, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil, 2Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária, EMBRAPA), National Center for Research on Dairy Cattle, Juiz de Fora, MG, Brazil.

**M107** Effects of a blend of essential oils in milk replacer on gut weight and histology of dairy calves.  
J. P. Campolina1, S. G. Coelho2, A. L. Belli3, F. S. Machado4, L. G. R. Pereira2, T. R. Tomich1, S. F. Costa5, and M. M. Campos*2; 1Department of Animal Science, Veterinary School, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil, 2Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária, EMBRAPA), National Center for Research on Dairy Cattle, Juiz de Fora, MG, Brazil, 3Department of Veterinary Medicine, Federal University of Lavras, Lavras, MG, Brazil.
M108 Pre- and postweaning performance of calves fed milk replacer formulated with different levels of sodium butyrate.
D. Ziegler1, H. Chester-Jones2, B. Ziegler3, A. Manthey2*, E. Dufour2, and K. Mjoun3, 1University of Minnesota, Waseca, MN, 2Hubbard Feeds, Mankato, MN, 3Alltech, Nicholasville, KY.

M109 Performance and health of dairy calves fed milk replacers formulated with different levels of coconut oil as a partial replacement of animal fat in two feeding rates.
D. Ziegler2*, H. Chester-Jones1, B. Ziegler2, A. Manthey2, and E. Dufour2, 1University of Minnesota, Waseca, MN, 2Hubbard Feeds, Mankato, MN.

M110 Pre- and postweaning performance and health of dairy calves fed milk replacers supplemented with a direct-fed microbial and/or brewery yeast cell wall.
D. Ziegler2*, H. Chester-Jones1, and T. Marubushi2, 1University of Minnesota, Waseca, MN, 2Calpis America Inc., Peachtree City, GA.

M111 Effects of beta-glucans addition on milk replacer for Holstein dairy calves.
M. E. Reis2*, A. F. Toledo2, A. P. Silva1, A. M. Cezar1, E. A. Fiorucci1, R. C. Silva1, S. C. Dondé1, L. Greco1, and C. M. M. Bittar1, 1Dept. Of Animal Sciences, College of Agriculture Luiz de Queiroz (ESALQ), University of Sao Paulo, Piracicaba, Sao Paulo, Brazil, 2Kemin Animal Nutrition & Health Division South America, Valinhos, Sao Paulo, Brazil.

M112 Effects of dietary organic acid and plant botanical supplementation on growth and hematological profile in Holstein calves transitioning from milk replacer to starter.
B. N. Tate2*, A. B. P. Fontoura1, V. Sáinz de la Maza-Escolà2, J. T. Siegel Nieves2, F. Wang1, L. F. Wang1,4, M. E. Van Amburgh1, E. Grilli1,2, and J. W. McFadden2, 1Cornell University, Ithaca, NY, 2University of Bologna, Bologna, Italy, 3China Agricultural University, Beijing, China, 4Henry Agricultural University, Zhengzhou, China, 5VetAgro S.p.A, Reggio Emilia, Italy.

M113 Clinical evaluation of diarrhea calves submitted to therapeutic protocols containing sulfonamides with different routes of administration.
R. Klaus1, L. V. Vieira1, A. D. C. de Matos2*, U. S. Londero1, J. Halfen1, V. R. Rabassa1, E. Schmitt1, R. A. Pereira1, M. N. Corrêa1, A. A. Barbosa1, F. A. B. Del Pino1, J. Feijó1, and C. C. Brauner1, 1Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil, 2Laboratory Ibaso, Porto Alegre, Rio Grande do Sul, Brazil.

Ruminant Nutrition: General

M114 Is dietary selenite transformed into elemental selenium by rumen micro-organisms? Comparison of mineral and organic selenium forms in cows.
M. A. Hachemi1*, E. Pinloche1, M. De Marco1, S. Fredin1, and M. Briens1, 1Adisseo France SAS, Commentry, France, 2Adisseo USA Inc., Alpharetta, GA.

M115 Effects of Lactobacillus, cellulase, and molasses on fermented sugarcane bagasse ruminal fermentation and in vitro digestibility.
S. So2*, A. Cherdhong1, and A. P. Faciola1, 1Khon Kaen University, Khon Kaen, Thailand, 2University of Florida, Gainesville, FL.

M116 Effect of nitrate and hydrogen addition on methane production in vitro.
M. E. Rendon1*, S. L. Ratiff, J. McDermott, J. Scott, R. Rha, and R. Kohn, University of Maryland, College Park, MD.

M117 Milk production and nitrogen efficiency in Holstein cows supplemented with a natural additive, Valkalor, in a low protein content diet.
J. Ferguson1*, L. Baker1, J. Bender1, J.-P. Ricaud1, M. Aoun2, and D. Pitta1, 1University of Pennsylvania, School of Veterinary Medicine, Kennett Square, PA, 2Idena Inc., Sautron, Pays de la Loire, France.

M118 Effectiveness of precision feeding in reducing N excretion in dairy cattle.
M. Terré1,2,3, L. Morey1, D. Sabrià1, and A. Bach1,2, 1Ruminant Department, IRTA, Caldes de Montbui, Spain, 2GIRO, IRTA, Caldes de Montbui, Spain, 3EVAM, IRTA, Monells, Spain, 4ICREA, Barcelona, Spain.

M119 Direct effect of lipopolysaccharide and histamine on permeability barrier of rumen epithelium.
S. T. Gao, L. Ma, A. L. T. Zhu La, W. H. Liu, and D. P. Bu1*, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2State Key Laboratory of Animal Nutrition, Chinese Academy of Agricultural Sciences, Beijing, China, 3Department of Animal Sciences, The Ohio State University, Columbus, OH, 4World Agroforestry Center, East and Central Asia, Kunming, China, 5CAASICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China.

M120 Effect of leaves of six forest plants on rumen microbiota and fermentation characteristics in vitro.
A. Ayemele Gnetegha1, L. Ma1, T. Park2, J. C. Xu1,3, Z. T. Yu1, and D. P. Bu1,4*, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Department of Animal Sciences, The Ohio State University, Columbus, OH, 3World Agroforestry Center, East and Central Asia, Kunming, China, 4CAASICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China.
M121 Prediction of dry matter intake using linear regression of sensor, blood metabolite, and performance variables in mid-lactation cows.

M122 Fatty acid metabolism may vary in dairy cows with high and low residual feed intake.
M. J. Martin*, R. S. Pralle, K. A. Weigel, Z. Zhou, and H. M. White, 1University of Wisconsin Madison, Madison, WI, 2Michigan State University, East Lansing, MI.

M123 Biotin, folic acid, and vitamin B12 supplements: Their effects on glucose tolerance in early lactation.
M. Duplessis and C. L. Girard*, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.

M124 Peroxisome proliferator-activated receptor alpha pathway in dairy cows in a TMR vs. a pasture-based system.
M. Garcia-Roche*, G. Çahiibe, M. Ceriani, A. Jasinsky, A. Casal, D. A. Mattauda, A. Cassina, C. Quijano, and M. Carriquiry, 1Departamento de Producción Animal y Pasturas, Facultad de Agrofomba, Universidad de la República, Uruguay, 2Centro de Investigaciones Biomédicas-Departamento de Bioquímica, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay.

M125 Effect of inoculant dose and time of ensiling on the fermentation and aerobic stability of snaplage.
C. A. Mellinger*, X. J. Liu, J. D. Stypinski, N. A. Moyer, and L. Kung Jr., University of Delaware, Newark, DE.

M126 Evaluation of gluconeogenic substances in fresh cows.
M. Norouzi, G. Desrousseaux*, B. Médina, A. Kalantari, and J.-F. Gabarrou, 1Razavi Khorasan Agricultural and Natural Resources Research Center, Mashhad, Iran, 2Phodé, Terrassac, France, 3Probiotech International Inc., Ste-Hyacinthe, QC, Canada, 4Kimia Darou Mehr, Tehran, Iran.

M127 The effect of different milk feeding levels on starter intake and subsequent performance and health of calves pre- and post-weaning.
D. Ziegler*, H. Chester-Jones, and B. Heinz, 1University of Minnesota, Waseca, MN, 2University of Minnesota, Morris, MN.

M128 Maintenance energy requirements of two Holstein genotypes managed under pasture-based system.
D. Talmón*, M. Garcia-Roche, A. Mendoza, and M. Carriquiry, 1Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay, 2Instituto Nacional de Investigación Agropecuaria, Colonia, Uruguay.

M129 Evaluating different doses of probiotics on rumen fermentation, nutrient digestibility, and methane production using batch fermentation assay.

M130 In vitro evaluation of two additives with different mode of action on rumen protein degradability.
A. Alvarado, A. Britos, A. Pérez-Ruchel, F. Gadeyne, and C. Cajarville*, 1Departamento de Producción Animal (IPAV), Facultad de Veterinaria, UdelaR, San José, Uruguay, 2Royal Agrifirm Group, Apeldoorn, the Netherlands.

M131 Effects of pH and temperature on amylase and glucoamylase activity of exogenous enzymes.

M132 Effect of direct-fed microbial on commercial dairy drylot.
J. Lefler*, S. Minini, A. Morandi, and M. Embree, 1Ascus Biosciences, San Diego, CA, 2Independent Nutritional Advisor, Argentina.

M133 Supplementation with sunflower or soybean oil: Ruminal fluid fatty acid profile in a Rusitec system.

M134 Influence of substrates on efficacy of exogenous glucoamylase on in vitro dry matter digestibility, pH, and gas production.
M135  
**Effects of calcium carbonate supplementation rate on metabolic acid-base status and feed intake of cows with compensated metabolic acidosis.**  
H. Fujan*, T. Brown, L. K. Mamedova, and B. J. Bradford, *Kansas State University, Manhattan, KS; Landus Cooperative, Ames, IA.*

M138  
**Feed efficiency indexes in crossbred Holstein × Gyr heifers and its effects on energy and nitrogen partitioning, blood metabolic variables and gas exchanges.**  

M139  
**Meta-analysis of the effects of linoleic fatty acid intake on lactating dairy cow performance.**  
F. Díaz*, J. Sánchez-Duarte, and A. Garcia, *Dairy Research Center, dellait, Brookings, SD.*

**Small Ruminant 1**

M136  
**Effects of condensed tannins from sainfoin on the milk fatty acid profile of ewes.**  
C. Baila, S. Lobón, M. Blanco, I. Casasús*, J. Bertolin, and M. Joy, *Ctre Invest y Tecnol Agroal Aragon (CITA), IA2 (CITA-Universidad de Zaragoza), Zaragoza, Spain.*

**Roundtable Discussions**

Livestreams from 4:00 to 5:00 PM

Room 2: **Regulation of milk protein and fat synthesis**  
Moderator: Michael Steele, University of Guelph

Room 3: **Informal Calf Session on automated milk feeding systems**  
Moderator: Joao Costa, University of Kentucky

Room 4: **Assessing affective state as a measure of animal welfare**  
Moderators: Emily Miller-Cushon, University of Florida, and Janice Siegford, Michigan State University

Room 5: **Importance and relevance of science in dairy foods**  
Moderator: Paul Kindstedt, University of Vermont

**Late-Night Live**

Livestream Room 1 from 9:00 to 10:00 PM  
Lactation and Ruminant Nutrition

Lance Baumgard, Russ Hovey, Frank Dunshea, and Mike VandeHaar
Tuesday, June 23

Oral Presentations

Breeding and Genetics
Chair: Brad Heins, University of Minnesota
Room 1
12:00 – 12:30 PM (Tuesday block 1)

153 Assessing the use of public weather station data to investigate the effects of heat stress on milk production in Canadian Holstein cattle.
I. Campos*, C. Baes, A. Canovas, and F. Schenkel, University of Guelph, Guelph, ON, Canada.

154 Estimation of genetic parameters for stayability in organic Holsteins.
L. C. Hardie*, B. J. Heins², and C. D. Dechow¹, ¹The Pennsylvania State University, University Park, PA, ²University of Minnesota, West Central and Outreach Center, Morris, MN.

155 Genomic evaluation of heifer livability.
M. Neupane*, C. P. Van Tassell, and P. M. VanRaden, Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD.

156 Genomic evaluation for abortions and twinning in dairy cattle.
N. Vukasinovic*, D. Gonzalez-Pena, J. Brooker, C. Przybyla, and S. DeNise, Zoetis, Kalamazoo, MI.

157 A feasibility study to implement genetic and genomic evaluations for twinning in Holstein cattle.
A. Sewalem*, M. McClure, and K. Olson, ABS Global, DeForest, WI.

158 Identification and validation of candidate genes for heat tolerance in Australian Holstein dairy cattle.
E. K. Cheruiyot*,², M. Haile-Mariam¹, B. G. Cocks¹², I. MacLeod¹, and J. E. Pryce¹², ¹Agriculture Victoria Research, Department of Jobs, Precincts and Regions, Melbourne, Australia, ²School of Applied Systems Biology, La Trobe University, Melbourne, Australia.

Dairy Foods: Dairy Products
Chair: Haotian Zheng, North Carolina State University
Room 6
12:00 – 12:30 PM (Tuesday block 1)

159 Rheological, texture, structural, and functional properties of Greek-style yogurt fortified with cheese whey-spent coffee ground powder.
J. Osorio-Arias¹, A. Pérez-Martínez², O. Vega-Castro², and S. Martínez-Monteagudo*², ¹Faculty of Pharmaceutical and Food Science, Medellín, Colombia, ²Aoxlab S.A.A, Medellín, Colombia, ³Dairy and Food Science Department, South Dakota State University, South Dakota, Brookings, SD.

160 Valorization of Greek yogurt acid whey using filtration and acid-catalyzed lactose hydrolysis.
M. Lindsay*, M. Molitor³, K. Huang¹, C. Maravelias¹, J. Dumesic¹, S. Rankin², and G. Huber², ¹Department of Chemical and Biological Engineering, University of Wisconsin-Madison, Madison, WI, ²Department of Food Science, University of Wisconsin-Madison, Madison, WI, ³Center for Dairy Research, University of Wisconsin-Madison, Madison, WI.

161 Effect of nanopowdered eggshell on the characteristics of probiotic yogurt.
D. G. Kamel*, Dairy Science Department, Assiut University, Assiut, Egypt.
Meta-analysis of the effects of preservatives on hay spoilage II: Microbial inoculants.
M. Killerby*, R. White, D. C. Reyes, A. Y. Leon-Tinoco, S. Rivera, H. Paz, J. A. Jendza, and J. J. Romero, \textsuperscript{1}Animal and Veterinary Sciences, School of Food and Agriculture, University of Maine, Orono, ME, \textsuperscript{2}Animal and Poultry Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA, \textsuperscript{3}Department of Animal and Dairy Sciences, Mississippi State University, Starkville, MS, \textsuperscript{4}BASF, Florham Park, NJ.

The use of a silage inoculant for sustainable milk production.
I. Eisner*, K. Witt, L. Vandaele, J. De Boever, and G. Copani, \textsuperscript{1}Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark, \textsuperscript{2}Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Melle, Belgium.

Fermentation parameters and microbiome dynamic of whole-plant corn silage inoculated with \textit{Lactobacillus buchneri} or in combination with \textit{Lactobacillus hilgardii} and \textit{Pediococcus pentosaceus}.
P. Drouin, R. Scuderi*, and E. Apper, \textsuperscript{1}Lallemand Specialties, Milwaukee, WI, \textsuperscript{2}Lallemand SAS, Blagnac, France.

Effect of microbial inoculation on fermentation profile and aerobic stability of rye silage harvested at different stages of maturity.
I. Eisner*, K. Witt, V. Vrotniakiene, J. Jatkauskas, and G. Copani, \textsuperscript{1}Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark, \textsuperscript{2}Institute of Animal Science of Lithuanian University of Health Sciences, Baisogala, Lithuania.

Artificial wilting in a forced-air oven has minimal effects on silage fermentation and quality in both inoculated and untreated vacuum-bag mini-silos.
A. Wilder* and S. Bosworth, University of Vermont, Burlington, VT.

The effects of a silage inoculant on fermentation parameters in big bales and mini-silos.
I. Eisner*, K. Witt, V. Vrotniakiene, J. Jatkauskas, and G. Copani, \textsuperscript{1}Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark, \textsuperscript{2}Institute of Animal Science of Lithuanian University of Health Sciences, Baisogala, Lithuania.

Effect of lignosulfonates on the dry matter loss, nutritional composition, and microbial counts of high-moisture alfalfa silage.
A. Y. Leon-Tinoco*, B. C. Guimarães, S. T. R. Almeida, D. C. Reyes, S. Rivera, R. Hollandsworth, M. Killerby, Z. X. Ma, B. Perkins, S. L. Anis, C. Wu, C. Knight, A. Lichtenwalner, D. Skonberg, J. J. Romero, \textsuperscript{1}University of Maine, Orono, ME, \textsuperscript{2}University of Lavras, Lavras, Minas Gerais, Brazil, \textsuperscript{3}University of Florida, Gainesville, FL, \textsuperscript{4}University of Delaware, Newark, DE.

Physically effective neutral detergent fiber content modulates chewing activity, rumen fermentation, plasma metabolites, and performance.
Y. Cao*, X. Chen, L. Wang, and J. Yao, \textsuperscript{1}Northwest A&F University, Yangling, Shaanxi, China, \textsuperscript{2}Harvard Medical School, Boston, MA.

Hepatic lipid-associated protein abundances vary by day relative to calving and are associated with hepatic triglyceride content in transition dairy cows.
H. T. Holdorf*, R. S. Pralle, S. J. Erb, and H. M. White, University of Wisconsin-Madison, Madison, WI.

Effects of hindgut acidosis in lactating dairy cows already experiencing systemic inflammation.

Physiology and Endocrinology
Chair: Ronaldo Cerri, University of British Columbia
Room 3
12:00 – 12:30 PM (Tuesday block 1)
Effects of hindgut acidosis in feed-restricted dairy cows.

Prepartum light shifting circadian rhythm disruption did not affect amount of muscle and adipose mobilized in transition dairy cows.
C. J. McCabe*, A. Suarez-Trujillo, T. M. Casey, and J. P. Boerman, Purdue University, Department of Animal Sciences, West Lafayette, IN.

Effects of antioxidant supplementation on metabolism and inflammatory biomarkers in heat-stressed dairy cows.

Milk production responses of dairy cows to fatty acid supplements with different ratios of palmitic and oleic acid in low- and high-fat basal diets.

Evaluation of sweet potato flour addition partially replacing corn on milk yield and metabolism of dairy cows.

Effect of high-amylase corn silage on lactational performance and enteric methane emission in dairy cows.

Impact of combinations of dietary palmitic, stearic, and oleic acids on rumen fermentation and fiber digestibility.
O. Gonzalez, A. Sears, J. de Souza, and F. Batistel, Department of Animal, Dairy and Veterinary Sciences, Utah State University, Logan, UT, Perdue AgriBusiness, Salisbury, MD.
Effects of duodenal casein and glutamic acid infusion on small intestinal starch digestion and energy and nitrogen balance in cattle.
S. Acharya*, E. A. Petzel, E. A. Bailey, and D. W. Brake, Division of Animal Sciences, University of Missouri, Columbia, MO.

Effects of different weaning strategies when feeding moderate and high milk replacer rates on ruminal bacteria taxonomic profile, diversity, and community structure in Holstein calves.
A. Poulin*, J. Romero1, R. Klopp1, V. Richards4, F. Suarez-Mena1, T. Dennis1, T. Hill1, R. Causey1, R. Schlotterbeck1, and G. Lascano1, 1Animal and Veterinary Sciences, SFA, University of Maine, Orono, ME, 2Department of Molecular and Biomedical Sciences, Orono, ME, 3Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC, 4Department of Biological Sciences, Clemson University, Clemson, SC, 3Nurture Research Center, Proviimi, Brookville, OH.


The effects of adding exogenous amylases, a protease and their combinations on in vitro dry matter and starch digestibility of mature dent corn grain.
F. X. Amaro*1, K. G. Arriola1, D. Kim1, M. C. N. Agarussi1, V. P. Silva1, A. P. Cervantes1, Y. Jiang1, L. F. Ferrareto1, S. Yu1, W. Li1, A. T. Adesogan1, and D. Vyas1, 1University of Florida, Gainesville, FL, 2Universidade Federal de Vicos, Vicos, MG, Brazil, 3DuPont Nutrition & Biosciences, Aarhus, Denmark, 4DuPont Nutrition & Biosciences, Wilmington, DE.

Effects of a cashew nut shell extract on production and rumen dynamics in transition dairy cows.
B. M. Goetz*, E. A. Horst1, E. J. Mayorga1, M. A. Abeyta1, S. Rodriguez-Jimenez1, S. Carta1, C. Hikita1, T. Watanabe1, J. M. Lourencó2, M. N. Carmichael2, T. R. Callaway2, and L. H. Baumgard2, 1Iowa State University, Ames, IA, 2University of Georgia, Athens, GA, 3Idemitsu Kosan Co. Ltd, Tokyo, Japan.

Animal Health: Calves 1
Chair: Angel Abuelo, Michigan State University
Room 2
12:30 – 1:00 PM (Tuesday block 2)

Effects of a Bacillus-based direct-fed microbial on high- and low-health calf herds.
S. R. Fensterseifer*, R. P. Arias1, C. M. Peter1, D. Haag1, A. M. Lange1, and E. A. Galbraith2, 1United Animal Health Inc., Sheridan, IN, 2Microbial Discovery Group, Franklin, WI.

Feeding Saccharomyces cerevisiae fermentation products modulates immune function and reduces the severity of bovine respiratory syncytial virus infection in preweaned calves.
A. Mahmoud1,2, J. Slate3, S. Hong1, I. Yoon1, and J. McGill1, 1Iowa State University, Department of Veterinary Microbiology and Preventive Medicine, Ames, IA, 2Veterinary Quarantine of Alexandria, General Organization for Veterinary Services, Ministry of Agriculture and Land Reclamation, Alexandria, Egypt, 3Diamond V, Cedar Rapids, IA.

Assessing the utility of leukocyte differential cell counts for predicting morbidity, mortality and growth in a grain-fed veal facility: A prospective single cohort study.
T. E. von Konigslow*, D. L. Renaud, T. F. Duffield, C. B. Winder, and D. F. Kelton, University of Guelph, Guelph, ON, Canada.

Effect of colostrum replacer to ameliorate a disease bout in preweaned calves on an automated feeder.
M. Cantor*, M. Woodrum Setser1, D. Renaud2, and J. H. Costa1, 1University of Kentucky, Lexington, KY, 2University of Guelph, Guelph, ON, Canada.

Effects of different blood buffers administered in electrolyte solution to grain-fed veal calves experiencing diarrhea.
D. R. Wood*, R. M. Blome1, L. C. Ribeiro1, A. J. Keunen2, B. W. Keunen2, and D. L. Renaud1, 1Animix, Juneau, WI, 2Mapleview Agri, Palmerston, ON, Canada, 3Department of Population Medicine, University of Guelph, Guelph, ON, Canada.

Production and bioactivity of anti-Streptococcus equinus antibodies.
G. Balieiro Neto*, L. E. Ferreira2, A. Daurea2, and L. Bertelli3, 1Animal Science Institute of Department of Agriculture and Food Supply, Ribeirão Preto, São Paulo, Brazil, 2Premix, Ribeirão Preto, São Paulo, Brazil.
Breeding and Genetics
Chair: Brad Heins, University of Minnesota
Room 1
12:30 – 1:00 PM (Tuesday block 2)

193
Association of a SNP in the \textit{DGAT1} gene with productive and reproductive performance and profitability in grazing cows milked once and twice a day.
N. Lopez-Villalobos*1, H. B. P. C. Ariyarathne1, K. Gedye1, M. Correa-Luna1, and D. J. Donaghy1, 1School of Agriculture and Environment, Massey University, Palmerston North, New Zealand, 2School of Veterinary Sciences, Massey University, Palmerston North, New Zealand.

194
Direct, indirect, and pleiotropic genetic effects associated with calving ease, retained placenta and metritis in US Holstein cows.
R. A. Teixeira*1,2, L. T. Dias1,2, A. Sigdel1, and F. Peñagaricano1, 1University of Florida, Gainesville, FL, 2Universidade Federal do Paraná, Curitiba, PR, Brazil.

195
Estimation of genetic parameters for dry matter intake, energy-corrected milk, metabolic body weight, and milk yield using a random regression model.
K. Houalan*1, C. F. Baes1,2, F. Miglior1, G. A. Oliveira Jr.1, F. S. Schenkel1, and T. C. S. Chud1, 1Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

196
Genetic parameters of passive transfer in Holstein calves.
I. Haagen*1, L. Hardie1, B. Heins1, and C. Dechow1, 1The Pennsylvania State University, University Park, PA, 2University of Minnesota, Morris, MN.

198
Assessment of methane emission traits in Canadian Holstein cows.
S. Kamalanathan*1, T. C. S. Chud1, D. Hailemariam2, P. Stothard2, G. Plastow2, F. Miglior1, C. F. Baes1,3, and F. S. Schenkel1, 1Center for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 3Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

Dairy Foods: Dairy Products
Chair: Sanjeev Anand, South Dakota State University
Room 6
12:30 – 1:00 PM (Tuesday block 2)

199
Effect of soy lecithin concentration on the formation and stability of ultrasound emulsions.
C. K. Nyuydze*, J. Reineke, and S. I. Martinez-Monteagudo, South Dakota State University, Brookings, SD.

200
Multi-origin skim milk powder comparative benchmarking.

201
Electrical resistance tomography for monitoring the rehydration characteristics of high-protein dairy powders.
K. S. Babu* and J. Amamcharla, Kansas State University, Manhattan, KS.

202
Investigating the suitability of acid whey in the manufacture of cornichon pickles.
O. Ozturk, S. Cebeci, O. Yemis, A. C. Mehmetoglu, and M. Ozturk*, Sakarya University, Food Engineering Department, Sakarya, Turkey.

203
The effect of total milk protein, casein, and whey protein ingestion on blood glucose and insulin in rats.
T. Olowookere1, E. Vandenboer1, Y. Anini2, M. Akbarifakhrabadi1, C. Kale1, N. Tari1, and B. Luhovyy*1,2, 1Mount Saint Vincent University, Halifax, NS, Canada, 2Dalhousie University, Halifax, NS, Canada, 3University of Guelph, Guelph, ON, Canada.

204
Milk protein fractions in liquid and solid matrices and their sensory perception.
E. MacEachern, Y. Xu, P. Kathirvel, and B. Luhovyy*, Mount Saint Vincent University, Halifax, NS, Canada.
Methionine and arginine supplementation alters mechanistic target of rapamycin (mTOR) and insulin signaling in bovine subcutaneous adipose explants challenged with C2-ceramide.
Y. Liang*1, N. Ma1,2, D. N. Coleman1, F. Liu1,3, Y. Li4, H. Y. Ding4, F. F. Cardoso1, F. C. Cardoso1, and J. J. Loor1, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, 2College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China, 3Department of Animal Science and Veterinary Medicine, Henan Agricultural University, Zhengzhou, China, 4Department of Veterinary Medicine, College of Animal Science and Technology, Anhui Agricultural University, Hefei, China.

Branched-chain amino acid supplementation alters protein abundance of mechanistic target of rapamycin (mTOR) and insulin signaling pathway components in bovine subcutaneous adipose explants.
Y. Liang*1, N. Ma1,2, D. N. Coleman1, F. Liu1,3, Y. Li4, H. Y. Ding4, F. F. Cardoso1, F. C. Cardoso1, and J. J. Loor1, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, 2College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China, 3Department of Animal Science and Veterinary Medicine, Henan Agricultural University, Zhengzhou, China, 4Department of Veterinary Medicine, College of Animal Science and Technology, Anhui Agricultural University, Hefei, China.

Body condition alters lipidomic profiles in subcutaneous adipose tissue of Holstein cows during the periparturient period.
Y. Liang*1, A. Elomily2, K. Wilachai3, A. Alharthi4, V. Lopreiato5, R. Bucktrout1, I. Martinez-Cortés5, and J. J. Loor3, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, 2Department of Pediatrics, University of Arkansas for Medical Sciences, Little Rock, AR, 3Program of Animal Science, Faculty of Agricultural Technology, Rajabhat Maha Sarakham University, Thailand, 4Animal Production Department, King Saud University, Kingdom of Saudi Arabia, 5Department of Animal Sciences, Food and Nutrition, Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy, 6Agricultural and Animal Production Department, UAM-Xochimilco, Mexico City, Mexico.

Influence of cobalt source, folic acid and rumen-protected Methionine supplementation on performance, metabolism, and liver tissue 1-carbon metabolism biomarkers in peripartal Holstein cows.
A. S. Alharthi*1,2, V. Lopreiato1, R. Bucktrout1, Y. Liang1, A. A. Elolimy1,4, H. Dai1, I. Martinez-Cortes6, M. T. Socha7, and J. J. Loor3, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL, 2Department of Animal Production, College of Food and Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia, 3Department of Animal Sciences, Food and Nutrition Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy, 4Department of Animal Production, National Research Centre, Dokki, Giza, Egypt, 5College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, PR China, 6Department of Agriculture and Animal Production, University Autonomous Metropolitan, Mexico City, Mexico, 7Zinpro Corporation, Eden Prairie, MN.

Rumen-protected methionine supply to cows during heat stress alters liver tissue protein abundance of mechanistic target of rapamycin.
D. N. Coleman*1, P. Totakul2,3, N. Onjai-Uea3,4, M. Vailati-Riboni1, R. T. Pate1, D. Luchini5, F. C. Cardoso1, and J. J. Loor1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Department of Animal Science, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand, 3Institute of Agricultural Technology, Suranaree University of Technology, Nakhon Ratchasima, Thailand, 4Adisseo, Alpharetta, GA.

Heat stress and rumen-protected methionine alter whole-blood mRNA abundance of transsulfuration and antioxidant pathway genes.
D. N. Coleman*1, M. G. Lopes1,2, M. Vailati-Riboni1, R. T. Pate1, D. Luchini5, F. C. Cardoso1, and J. J. Loor1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Universidade Federal de Pelotas, Pelotas, Rio Grande do Sul, Brazil, 3Adisseo, Alpharetta, GA.
Ruminant Nutrition: Carbohydrates and Lipids  
Chair: Joseph McFadden, Cornell University  
Room 4  
12:30 – 1:00 PM (Tuesday block 2)

Effects of precision feeding Holstein and Jersey heifers a gradual increase of dietary poultry fat on nutrient digestibility.  
S. M. Hussein1*, S. Twyman1, M. Toledo1, O. Thomas1, J. Echesabal2, R. M. Stockler3, M. J. Aguerre1, and G. J. Lascano1, 1Clemson University, Clemson, SC; 2Auburn University, Auburn, AL.

In vitro gas production detected differences among corn hybrids at silage maturities.  
N. Schlau1*, D. R. Mertens2, and D. Taysom3, 1Dairyland Laboratories Inc., Arcadia, WI, 2Mertens Innovation and Research LLC, Belleville, WI.

Effect of altering the ratio of dietary C16:0 and cis-9 C18:1 on production and energetic responses of lactating dairy cows: a meta-analysis.  
J. M. dos Santos Neto1*, J. de Souza2, A. M. Burch2, and A. L. Lock1, 1Michigan State University, East Lansing, MI, 2Perdue Agri-Business, Salisbury, MD.

The effects of parity and stage of lactation on odd- and branched-fatty acid profile in milk fat from dairy cows.  
L. L. Sun1, L. Lei2, J. T. Brenna3, Z. H. Wu1, L. Ma1, J. C. Xu1, and D. P. Bu1*, 1State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, 2Hunan Agricultural University, Hunan, China, 3Dell Pediatric Research Institute and Departments of Nutrition and of Chemistry, University of Texas at Austin, Austin, TX, 4Key Laboratory of Economic Plants and Biotechnology, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China, 5Hunan CoInnovation Center of Animal Production Safety, CICAPS, Hunan, China.

Profiles of odd- and branched-chain fatty acids in bovine colostrum and transition milk.  
H. S. Xin1*, Y. Xu1, Y. H. Chen2, G. Chen2, and L. L. Guan3, 1College of Animal Science and Technology, Northeast Agricultural University, Harbin, Heilongjiang, China, 2Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Alberta, Canada.

Effect of a low forage diet on the yields of milk and milk components and feed efficiency of mid-lactation dairy cows.  
A. N. Negreiro* and A. L. Lock, Michigan State University, East Lansing, MI.

Predicting the yield of milk fat and milk fatty acid sources from fatty acid intakes in lactating dairy cows: A meta-analysis.  
J. M. dos Santos Neto1*, J. de Souza2, and A. L. Lock1, 1Michigan State University, East Lansing, MI, 2Perdue AgriBusiness, Salisbury, MD.

Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion  
Chair: Duarte Diaz, University of Arizona  
Room 5  
12:30 – 1:00 PM (Tuesday block 2)

Effects of rumen-protected choline on hepatic metabolism during induction of fatty liver.  

Effects of different weaning strategies when feeding moderate and high milk replacer rates on fecal bacteria taxonomic profile, diversity, and community structure in Holstein calves.  
A. Poulin1*, J. Romero1, R. Kloppe1, V. Richards3, F. Suarez-Mena1, T. Dennis1, T. Hill1, R. Causey1, R. Schlotterbeck1, and G. Lascano1, 1Animal and Veterinary Sciences, SFA, University of Maine, Orono, ME, 2Department of Molecular and Biomedical Sciences, University of Maine, Orono, ME, 3Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC, 4Department of Biological Sciences, Clemson University, Clemson, SC, 5Nurture Research Center, Provimi, Brookville, OH.

Effects of acute intravenous trimethylamine N-oxide infusion on plasma and serum markers of liver health, glucose tolerance, and milk production in early lactation cows.  
W. A. Myers1*, F. Wang2, C. Chang3, A. N. Davis1, J. E. Rico1, B. N. Tate1, L. F. Wang1, 3, and J. W. McFadden1, 1Cornell University, Ithaca, NY, 2China Agricultural University, Beijing, China, 3Henan Agricultural University, Zhengzhou, China.
Effects of milk replacer plane of nutrition and levels of starch and neutral detergent fiber in pelleted starter on whole gastrointestinal tract pH around weaning.
T. T. Yohe*1, T. S. Dennis2, J. D. Quigley2, T. M. Hill2, F. X. Suarez-Mena2, K. M. Aragona2, J. H. Costa3, and M. A. Steele1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Nurture Research Center, Provimi, Cargill Animal Nutrition, Brookville, OH, 3Dairy Science Program, Animal and Food Sciences, University of Kentucky, Lexington, KY.

Unprotected choline chloride alters microbial community composition in a dual-flow continuous culture system.
J. A. Arce-Cordero*1, P. Fan1, H. F. Monteiro1, X. Dai1, B. Calvo1, R. Lobo1, K. Estes1, K. C. Jeong1, and A. P. Faciola1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Animal Sciences, Maringa State University, Maringa, Parana, Brazil, 3Balchem Corporation, New Hampton, NY.

Animal Behavior and Well-Being
Chair: Emily Miller-Cushon, University of Florida
Room 1
1:00 – 1:30 PM (Tuesday block 3)

Calf welfare views and dairy consumption habits of parents compared with their children.
R. Perttu*, B. Ventura, and M. Endres, Department of Animal Science, University of Minnesota, St. Paul, MN.

Disbudding and dehorning practices for pre-weaned dairy calves by farmers in Wisconsin.
J. Saraceni*1, J. Van Os2, C. Miltenburg3, E. Nelson4, D. Renaud1, C. Winder5, M. Akins6, T. Ollivett6, T. Kohlman6, H. Schlesser6, B. Schley6, S. Stutgen6, and J. Versweyveld6, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 3Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada, 4Department of Sociology and Anthropology, University of Guelph, Guelph, ON, Canada, 5School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI, 6Division of Extension, University of Wisconsin-Madison, Madison, WI.

Use of a shelter in group-housed calves shows consistency over time and is affected by disbudding.

The effects of xylazine sedation in 2- to 6-wk-old calves disbudded with a cauter y iron.
C. N. Reedman*1, T. F. Duffield1, T. J. DeVries2, K. D. Lissemore1, and C. B. Winder1, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

Effects of two methods of castration on the growth and intake of dairy calves.

Effects of pair or single housing on performance of dairy calves in outdoor hutches.
R. Salter* and J. Van Os, University of Wisconsin-Madison, Madison, WI.

Animal Health: Calves 2
Chair: Angel Abuelo, Michigan State University
Room 2
1:00 – 1:30 PM (Tuesday block 3)

Fecal microbiome profiles of pre-weaned Jersey and Holstein calves with gastrointestinal disease.
G. S. Slanzon*, L. M. Parrish, S. C. Trombeta, W. M. Sischo, and C. S. McConnel, Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Washington State University, Pullman, WA.
D. Gomez1, L. Arroyo1, D. Renaud*2, and J. S. Weese3, 1Department of Clinical Studies, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, 2Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, 3Department of Pathobiology, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada.

Antimicrobial use and decision making with respect to treatment of diarrhea in Canadian dairy calves.
T. Uyama*1, D. Kelton1, S. LeBlanc1, D. Léger2, S. Dufour3, J. Roy4, H. Barkema5, E. de Jong6, K. McCubbin4, M. Fonseca5, L. Heider5, and D. Renaud2, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Centre for Food-borne, Environmental & Zoonotic Infectious Diseases, Public Health Agency of Canada, Guelph, ON, Canada, 3Faculté de médecine vétérinaire, Université de Montréal, St-Hyacinthe, QC, Canada, 4Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 5Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI, Canada.

Behavior activity derived from 3-dimensional accelerations to monitor diarrhea in neonatal dairy calves.
T. C. Michelotti*1, L. Drehmer1,2, A. J. Triminio1,3, N. A. Carpinelli1, and J. S. Osorio1, 1South Dakota State University, Brookings, SD, 2Universidade Federal de Lavras, Lavras, Minas Gerais, Brazil, 3Escuela Agrícola Panamericana El Zamorano, El Zamorano, Francisco Morazan, Honduras.

In vitro evaluation of Bacillus licheniformis and Bacillus subtilis enzyme activity, Clostridium perfringens Type A inhibition, and biofilm formation.
A. Segura*1, N. Milora1, O. Queiroz2, M. D. Cantor2, and G. Copani1, 1Animal Health and Nutrition, Chr. Hansen A/S, Hørsholm, Denmark, 2R&D Discovery, Chr. Hansen A/S, Hørsholm, Denmark.

Production, Management, and the Environment
Chair: Gail Carpenter, CSA Animal Nutrition
Room 3
1:00 – 1:30 PM (Tuesday block 3)

Performance, feed efficiency, and carcass composition of growing beef dairy steers.
J. Johnson*, G. Toro, C. Lundgren, A. Arnett, and N. Deeb, STgenetics, Navasota, TX.

Effects of dietary forage level and source on partial carbon footprint of milk in Holsteins and Jerseys.
M. E. Uddin*1,3, H. A. Aguirre-Villegas2, R. A. Larson2, and M. A. Wattiaux3, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Biological Systems Engineering, University of Wisconsin-Madison, Madison, WI, 3Department of Animal Science, University of California-Davis, Davis, CA.

Evaluating the establishment of perennial forages with annual warm-season grasses as companion crop on forage yield and quality.
S. Thevakumaran*1, C. Matteau2, B. Baurhoo1,2, P. Seguin1, and A. Mustafa1, 1McGill University, Saint Anne de Bellevue, QC, Canada, 2Belisle Solution Nutrition Inc., Saint-Mathias-sur-Richelieu, QC, Canada.

Annual rhythms of feed intake and milk production in the western United States and relationships to management strategies.
W. Sanchez1, K. Johnson1, K. Harvatine2, and I. Salfer*3,2, 1Diamond V, Cedar Rapids, IA, 2The Pennsylvania State University, University Park, PA, 3South Dakota State University, Brookings, SD.

An open-source microprocessor-based sensor for monitoring grazing animal behaviors.
B. R. dos Reis*, D. Fuka, Z. Easton, and R. R. White, Virginia Tech, Blacksburg, VA.
Reproduction
Chair: Stephen LeBlanc, University of Guelph
Room 4
1:00 – 1:30 PM (Tuesday block 3)

239 Physiological mechanisms underpinning fertility differences in cows with divergent genetic merit.
R. C. Doyle*, C. Millar†, S. G. Moore*, S. A. Holden*, M. C. Lucy*, and S. T. Butler†, *Teagasc, Fermoy, Cork, Ireland, †University of Missouri, Columbia, MO.

240 Effect of two different approaches of synchronization of follicular wave emergence on follicle turnover, oocyte recovery and quality, and early in vitro developmental competence of embryos in Nili-Ravi buffaloes.
M. Sagheer†, F. Ullah†, M. Saleem†, M. Nawaz†, A. Riaz†, U. Arshad**, and N. Ahmad**, †Department of Theriogenology, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, Pakistan, **Department of Animal Sciences, University of Florida, Gainesville, FL.

241 Evaluation and characterization of estrus alerts from an ear-attached accelerometer-based automated estrus detection system.

242 Effect of a high dose of gonadorelin hydrochloride at the first gonadotropin-releasing hormone of the breeding-Ovsynch of a fertility program on ovulation rate and pregnancies per AI in first-service lactating Holstein cows.

243 Association between age at first calving and reproductive performance of primiparous cows managed with a program that favored insemination at detected estrus.
E. Sitko*, M. M. Pérez, M. Masello, G. E. Granados, and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY.

244 Age at first calving affected reproductive performance of primiparous cows managed with a program that favored timed artificial insemination.
E. Sitko*, M. M. Pérez, M. Masello, G. E. Granados, and J. O. Giordano, Department of Animal Science, Cornell University, Ithaca, NY.

245 Effect of timing of AI using sexed semen relative to induction of ovulation after a Double-Ovsynch protocol on pregnancy outcomes and fetal sex in lactating primiparous Holstein cows.
M. R. Lauber**, B. McMullen†, J. J. Parrish², and P. M. Fricke†, †Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, ‡Department of Animal Science, University of Wisconsin-Madison, Madison, WI, ªBridgewater Dairy Group, Montpelier, OH.

Ruminant Nutrition: General
Chair: Duarte Diaz, University of Arizona
Room 6
1:00 – 1:30 PM (Tuesday block 3)

246 Effect of water status (drought) on in situ starch digestibility of corn for silage.
G. Ferreira†, C. Teets, L. Martin, S. Hines, G. Shewmaker, M. de Haro-Martí, and M. Chahine, †Virginia Tech, Blacksburg, VA, ‡University of Idaho, Twin Falls, ID, §University of Idaho, Jerome, ID, ¶University of Idaho, Kimberly, ID, ″University of Idaho, Gooding, ID.

247 Simulating the effect of two-day-delayed sealing on the fermentation characteristics and aerobic stability of an alfalfa crop during the early stage of fermentation, treated with a dual strain inoculant.
Assessing the antifungal activity of various sources of sodium lignosulfonate and chitosan against fungi isolated from spoiled hay.  
A. Y. Leon-Tinoco*1, S. L. Annis1, S. T. R. Almeida2, B. C. Guimarães2, R. Hollandsworth1, A. Poulin1, K. Dean1, M. Killerby1, C. Wu3, A. Lichtenwalner1, B. Perkins1, D. Skonberg1, Z. X. Ma4, R. Causey1, J. J. Romero1, 1University of Maine, Orono, ME, 2University of Lavras, Lavras, MG, Brazil, 3University of Delaware, Newark, DE, 4University of Florida, Gainesville, FL.

Effect of chemical and biological preservatives on the dry matter loss, nutritional composition, microbial counts, and aerobic stability of ensiled wet brewer’s grain.  
M. Killerby*1, S. T. R. Almeida2, R. Hollandsworth1, B. C. Guimarães2, A. Y. Leon-Tinoco1, Z. Ma3, D. Coffin4, B. Perkins5, S. Annis6, C. Knight6, C. Wu7, J. Bolton4, and J. J. Romero1, 1Animal and Veterinary Sciences, School of Food and Agriculture, University of Maine, Orono, ME, 2Department of Animal Sciences, University of Lavras, Lavras, Brazil, 3Department of Animal Sciences, University of Florida, Gainesville, FL, 4University of Maine Cooperative Extension, Orono, ME, 5Food Science and Human Nutrition, School of Food and Agriculture, University of Maine, Orono, ME, 6School of Biology and Ecology, University of Maine, Orono, ME, 7Department of Animal and Food Sciences, University of Delaware, Newark, DE.

An optimized lignosulfonate-based product matched propionic acid preservation effects on high-moisture alfalfa hay.  
A. Y. Leon-Tinoco*1, S. L. Annis1, S. T. R. Almeida2, B. C. Guimarães2, R. Hollandsworth1, M. Killerby1, C. Wu1, R. Kersbergen1, A. Lichtenwalner1, B. Perkins1, C. Knight1, D. Skonberg1, Z. X. Ma4, and J. J. Romero1, 1University of Maine, Orono, ME, 2University of Lavras, Lavras, MG, Brazil, 3University of Delaware, Newark, DE, 4University of Florida, Gainesville, FL.

Meta-analysis of the effects of preservatives on hay spoilage I: Chemical treatments.  
M. Killerby*1, R. White1, D. C. Reyes1, A. Y. Leon-Tinoco1, S. Rivera1, H. Paz2, A. J. Jendza4, and J. J. Romero1, 1Animal and Veterinary Sciences, School of Food and Agriculture, University of Maine, Orono, 2Animal and Poultry Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA, 3Department of Animal and Dairy Sciences, Mississippi State University, Starkville, MS, 4BASF, Florham Park, NJ.

Ruminant Nutrition: Carbohydrates and Lipids  
Chair: Joseph McFadden, Cornell University  
Room 5  
1:00 – 1:30 PM (Tuesday block 3)

A hybrid hepatic tissue model to highlight changes in peroxisome-proliferator activated receptor activity through the peripartum period.  
S. Busato*1, A. M. Abdelatty2,3, and M. Bionaz1, 1Oregon State University, Corvallis, OR, 2Cairo University, Cairo, Egypt.

Effects of serine palmitoyltransferase inhibition by myriocin in ad libitum-fed and nutrient-restricted non-lactating ewes.  
A. N. Davis*1, W. A. Myers2, J. E. Rico1, L. F. Wang2,3, C. Chang1, A. T. Richards1, M. Moniruzzaman1, N. J. Haughey1, and J. W. McFadden1, 1Cornell University, Ithaca, NY, 2Henan Agricultural University, Zhengzhou, China, 3Johns Hopkins University, Baltimore, MD.

Hepatic gene expression of gluconeogenic enzymes and its regulation in Holstein cows under two contrasting feeding strategies.  
G. Cañibe*1, M. Garcia-Roche1,2, D. A. Mattiauda1, A. Cassina1, C. Quijano1, and M. Carriquiry1, 1Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay, 2Centro de Investigaciones Biomédicas, Departamento de Bioquímica, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay.

Effects of dietary polyunsaturated fatty acid sources on lipid-related genes in bovine milk somatic cells.  
E. Vargas-Bello-Pérez*1,2, N. Cancino-Padilla1, C. Geldsetzer-Mendoza1, M. S. Morales1, H. Leskinen1, P. C. Garnsworthy3, J. J. Loor1, and J. Romero1, 1Departamento de Ciencias Animales, Facultad de Agronomía e Ingeniería Forestal, Pontificia Universidad Católica de Chile, Santiago, Chile, 2Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark, 3Department of Fomento de la Producción Animal, Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile, La Pintana, Santiago, Chile, 4Milk Production, Production Systems, Natural Resources Institute Finland (Luke), Jokioinen, Finland, 5School of Biosciences, Sutton Bonington Campus, The University of Nottingham, Loughborough, United Kingdom, 6Mammalian NutriPhysioGenomics, Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL, 7Laboratorio de Biotecnología en Alimentos, Unidad de Alimentos, Instituto de Nutrición y Tecnología de los Alimentos, Universidad de Chile, Macul, Santiago, Chile.
Differential fates for gluconeogenic precursors in diverging Holstein genotypes.
M. Garcia-Roche*1,2, D. Cañibe1, D. Talmón1, A. Mendoza1, C. Quijano2, A. Cassina2, and M. Carriquiry1, 1Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay, 2Departamento de Bioquímica, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay, 1INIA La Estanzuela, Colonia, Uruguay.

Characterization of fatty acid esters of hydroxy fatty acids, a novel class of bioactive lipids, in milk fat of cows supplemented with stearic and palmitic acid.
C. Matamoros*1, B. Harsch2, I. Salfer3, R. Shepardson1, G. Shearer2, and K. Harvatine1, 1Department of Animal Science, The Pennsylvania State University, University Park, PA, 2Department of Nutritional Sciences, The Pennsylvania State University, University Park, PA, 3Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Animal Behavior and Well-Being
Chair: Jennifer Van Os, University of Wisconsin-Madison
Room 1
1:30 – 1:50 PM (Tuesday block 4)

Impact of pre- and postnatal heat stress on dairy calf behavior.

A yearlong study: Effects of weather and animal characteristics on respiration rate in dairy cattle.
G. Tresoldi*1,2, M. Hejazi1, and C. B. Tucker1, 1College of Agriculture, California State University, Chico, CA, 2Center for Animal Welfare, Department of Animal Science, University of California, Davis, CA.

Effects of shade provision on the behavior of prepartum dairy cows in southern Chile.
D. Cartes*1, F. Matamala1, A. Strappini2, and P. Sepúlveda-Varas3, 1Escuela de Graduados, Facultad de Ciencias Veterinarias, Universidad Austral de Chile, Valdivia, Chile, 2Instituto de Ciencia Animal, Facultad de Ciencias Veterinarias, Universidad Austral de Chile, Valdivia, Chile, 3Instituto de Ciencias Clínicas Veterinarias, Facultad de Ciencias Veterinarias, Universidad Austral de Chile, Valdivia, Chile.

Effect of episodic heat stress on behavior, body temperature, and lameness of lactating dairy cows on farms in northern New York.
C. S. Ballard*, S. Green, S. Baldwin, A. E. Pape, and R. J. Grant, William H. Miner Agricultural Research Institute, Chazy, NY.

Animal Health: Calves 3
Chair: Michael Steele, University of Guelph
Room 2
1:30 – 2:00 PM (Tuesday block 4)

The cost of bovine respiratory disease in Holstein replacement heifers.
M. Overton*, Elanco Animal Health, Greenfield, IN.

Associations of serum protein concentrations with serum metabolites, average daily gain, and health measures during the early stages of growth in Holstein dairy calves.
B. J. Tverdy*, C. Y. Tsai1, H. C. Hung1, P. Rezamand4, and W. J. Price1, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID.

Growth, rectal temperature, and health of male Holstein calves exposed to heat stress during pre-weaning.
A. B. Montevcecchio*, W. Frøta1, V. R. Merenda1, J. G. Martin III1, and R. C. Chebel1, 1Department of Large Animal Clinical Sciences & Department of Animal Sciences, University of Florida, Gainesville, FL, 2Dairy Design Engineers, Gainesville, FL.

Passive immunity and colostrum management practices on Ontario dairy farms and auction facilities: A cross-sectional study.
C. B. Winder*, J. Marshall1, B. Tuer1, R. Genore2, and D. L. Renaud1,2, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2ACER Consulting, Guelph, ON, Canada.
Lactobacillus animalis LA51 and Bacillus sp. probiotics confer protection from the damaging effects of pathogenic Clostridium perfringens and Escherichia coli on the intestinal barrier.

Effects of feeding Saccharomyces cerevisiae fermentation products on the health of Holstein dairy calves following a lipopolysaccharide (LPS) challenge.
R. N. Klopp*, I. Yoon†, and J. P. Boerma², Purdue University Department of Animal Sciences, West Lafayette, IN, ‡Diamond V, Cedar Rapids, IA.

Production, Management, and the Environment
Chair: Gail Carpenter, CSA Animal Nutrition
Room 3
1:30 – 2:00 PM (Tuesday block 4)

Rumination time in early lactation is associated with peak milk yield.
M. Peiter*, H. N. Phillips, and M. I. Endres, Department of Animal Science, University of Minnesota, Saint Paul, MN.

The effects of morning compared with afternoon feed delivery on milk production, feed intake, and feeding behavior in lactating dairy cows.
P. D. French*¹ and C. S. Shugart², ¹PHD R&D LLC, Fort Atkinson, WI, ²Iowa State University, Ames, IA.

Increase of feed efficiency in early lactation dairy cows using butafosfan associated or not with cyanocobalamin.

The effect of metaphylactic use of tildipirosin for the control of respiratory disease associated with long-distance transportation of dairy calves.
M. Celestino*¹, L. Fernandes¹, P. Menta¹, D. Paiva¹, T. Ribeiro¹, T. Silva¹, R. Neves¹, M. Ballou¹, and V. Machado¹, ¹Texas Tech University, Lubbock, TX, ²University of São Paulo, Pirassununga, São Paulo, Brazil, ³Purdue University, West Lafayette, IN.

Impact of heat stress and OmniGen-AF on performance and immunity of mid-lactation dairy cows.
T. N. Marins*¹, J. Gao¹, Q. Yang², R. M. Binda¹, C. M. B. Pessoa³, R. M. Orellana¹, J. K. Bernard¹, M. Garcia², D. J. McLean², J. D. Chapman², D. J. Kirk², and S. Tao¹, ¹University of Georgia, Tifton, GA, ²Phibro Animal Health Corp, Teaneck, NJ.

Reproduction
Chair: Luciano Caixeta, University of Minnesota
Room 4
1:30 – 2:00 PM (Tuesday block 4)

Effects of feeding rumen-protected lysine during the transition period on postpartum uterine health and follicular dynamics of Holstein cows.
A. Guadagnin*¹, L. Fehlberg¹, B. Thomas¹, Y. Sugimoto², I. Shinzato², and F. Cardoso³, ¹University of Illinois, Department of Animal Sciences, Urbana, IL, ²Ajinomoto Co. Inc., Tokyo, Japan.

Does timing of AI affect P/AI in seasonal-calving, pasture-based lactating dairy cows inseminated with sex-sorted sperm?
E. Drake¹,², S. A. Holden¹, A. R. Cromie³, F. Randi⁴, P. Lonergan², and S. T. Butler*¹, ¹Teagasc, Fermoy, Co. Cork, Ireland, ²University College Dublin, Dublin 4, Ireland, ³ICBF, Bandon, Co. Cork, Ireland, ⁴CEVA Sante Animale, Bordeaux, France.

Effect of three different schemes of ovum pick-up on the follicular population, recovery, quality, and in vitro developmental competence of oocytes in Sahiwal cattle.
M. Saleem*¹, M. Nawaz¹, M. Yaseen¹, M. Sagheer¹, M. R. Yousuf², A. G. Bajwa², and A. Riaz³, ¹Department of Theriogenology, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan, ²Department of Microbiology, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan.
Association between delayed clinical cure and culling in dairy cows diagnosed with metritis.
C. Figueiredo*1, V. Merenda1, E. de Oliveira1, F. Lima1, R. Chebel1, K. Galvao1, J. Santos1, and R. Bisinotto1, 1University of Florida, Gainesville, FL, 2University of California, Davis, CA.

An electronically controlled intravaginal hormone delivery device successfully induced luteal regression in dairy cattle.
M. Masello*1, Y. Ren2, D. Erickson2, and J. O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Sibley School of Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY.

Associations between pregnancy associated glycoproteins in milk and calving characteristics in seasonal-calving pasture-based dairy cows.
R. C. Doyle*1,2, M. M. Herlihy1, M. C. Lucy2, and S. T. Butler1, 1Teagasc, Fermoy, Cork, Ireland, 2University of Missouri, Columbia, MO.

Dietary energy source effects on pregnancy rates and progesterone concentrations in heifers.

Ruminant Nutrition: General
Chair: Stephanie Ward, North Carolina State University
Room 5
1:30 – 2:00 PM (Tuesday block 4)

Relationship between urinary energy and N excretion in lactating Jersey cows.
D. L. Morris*1, J. L. Firkins2, W. P. Weiss3, and P. J. Kononoff4, 1Department of Animal Science, University of Nebraska–Lincoln, Lincoln, NE, 2Department of Animal Sciences, The Ohio State University, Columbus, OH, 3Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH.

Effects of enzyme extracts from Aspergillus oryzae and Aspergillus niger on lactational performance of dairy cows fed a decreased-energy diet.
M. E. Fetter*1, S. E. Räisänen1, C. de Assis Lage1, H. A. Stefenni1, A. Melgar1, S. F. Cueva1, D. E. Wasson1, D. M. Paulus Compart2, and A. N. Hristov1, 1Department of Animal Science, The Pennsylvania State University, University Park, PA, 2PMI, Arden Hills, MN.

New perspectives for metagenomic analysis: Rumen sampling via esophageal tube using a manual vacuum pump.
F. E. Miccoli*1,2, S. Ferreyra3, S. Maresca4, S. Lopez-Valiente3, P. Sueldo3, N. Juliano1, R. A. Palladino1,4, J. L. Danelón5, and R. I. Galarza6, 1Faculta de Ciencias Agrarias - UNLZ, Buenos Aires, Argentina, 2Departamento de Produccion Animal, UBA, Buenos Aires, Argentina, 3INTA Cuenca del Salado, Buenos Aires, Argentina, 4Consejo de Investigaciones Científicas, CONICET, Buenos Aires, Argentina.

Phytogensics improved colostrum quality when fed to close-up cows.
E. Schwandt*1, P. Gott1, A. Tacconi2, R. Murugesan3, and S. Ramirez4, 1BIOMIN America Inc., Overland Park, KS, 2BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.

Dietary phylogenics affect milk production in Holstein dairy cows.
S. Ramirez1, P. Gott1, A. Tacconi2, and R. Murugesan3, 1BIOMIN America Inc., Overland Park, KS, 2BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.

Effect of breed and parity on performance responses in early lactation dairy cows.
G. I. Zanton*, USDA-ARS, US Dairy Forage Research Center, Madison, WI.
**Extension Education**

**Chair: Lindsay Ferlito, Cornell University**

**Room 1**

**1:50 – 2:00 PM (Tuesday block 4)**

285  
Tennessee producers’ perceptions of dairy farm facilities and their future in the industry.

A. Sen*, S. Schexnayder, D. Bilderback, and E. Eckelkamp, University of Tennessee Institute of Agriculture, Knoxville, TN.

286  
Do educational farm tours reduce concerns of individuals with greater concern about how food is produced?

T. A. Ferris¹, R. R. Peters*, E. A. Richer¹, R. G. Slattery¹, C. W. Anderson², M. J. Rupp³, and K. M. Miller¹, ¹Michigan State University, E. Lansing, MI, ²University of Maryland, College Park, MD, ³Ohio State University Extension, Wauseon, OH.

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**Roundtable: Lipid Metabolism – Recap of DC36**

**Chair: Kevin Harvatine, Penn State University**

**Room 2**

**4:00 – 5:00 PM**

414  
Recap of 36th Discover Conference on Lipids in Dairy Nutrition.

K. Harvatine*, Penn State University, University Park, PA.

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**Roundtable: Online Teaching: So Now What?**

**Chair: Elizabeth Karcher, Purdue University**

**Room 3**

**4:00 – 5:00 PM**

421  
Putting theory into practice: Teaching strategies to increase student interest and engagement in introductory animal science courses.

E. L. Karcher*, Purdue University, West Lafayette, IN.

422  
Uses of technology to increase interest and learning.

M. A. Wattiaux*, University of Wisconsin-Madison, Madison, WI.

423  
Motivation and interest in online courses.

M. D. Stern*, A. E. Neu, K. L. Martinson, University of Minnesota, Saint Paul, MN.
**Tuesday Poster Presentations**

Tuesday poster presenters will be available for individual live text chats from 2:00 to 4:00 pm. To interact with a presenter, navigate to the recorded presentation page.

### Animal Behavior and Well-Being 1

| T1 | Effects of social contact from birth on feeding behavior and health early in life and after introduction to an autofeeder.  
| T2 | Effects of early social contact on dairy calf reactivity to novelty following introduction to group housing.  
| T3 | Effect of rearing method of calves during milk drinking period on their response to an open-field and maze test after weaning.  
J. Broucek*, M. Uhrincat, P. Kisac, and A. Hanus, National Agricultural and Food Centre, Luzianky, Slovakia. |
| T4 | Pre- and post-weaning performance of calves housed individually or in pairs.  
D. Ziegler*, H. Chester-Jones1, B. Ziegler2, A. Manthey2, and E. Dufour2, 1University of Minnesota, Waseca, MN, 2Hubbard Feeds, Mankato, MN. |
| T5 | Effects of space allowance on activity and cleanliness of group-housed dairy calves.  
M. B. Ugarte Marin*1,2, K. J. Rapp2, A. Abraham2, K. N. Gingerich3, and E. K. Miller-Cushon2, 1Universidad Nacional de Córdoba, Córdoba, Argentina, 2University of Florida, Gainesville, FL. |
| T6 | Association between feed efficiency, milk production, rumen fermentation, and feed sorting behavior of lactating dairy cows.  
| T7 | Association of feed intake with body condition loss during the dry period.  
R. R. Daros*1,2, C. D. Havekes3, and T. J. DeVries1, 1Animal Welfare Program, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada, 2Graduate Program in Animal Science, School of Life Sciences, Pontificia Universidade Católica do Paraná, Curitiba, Paraná, Brazil, 3Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada. |
| T8 | The effect of increased stall slope on lying behavior, rumination, and milk production of lactating dairy cows.  
A. M. Wilson*, T. C. Wright, J. P. Cant, and V. R. Osborne, 1University of Guelph, Guelph, ON, Canada, 2Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada. |
| T9 | Slick-haired Puerto Rican Holstein cows spend more time grazing under sunlight than their wild-type counterparts.  
| T10 | Automatic shade and solar radiation exposure assessment in dairy cattle using light sensors.  
| T11 | Can housing system affect automated estrus detection in Holstein dairy heifers?  
R. A. Figueiredo1, G. Mazon*, and J. H. C. Costa, 1Embrapa Genetic Resources and Biotechnology, Brasília, DF, Brazil, 2University of Kentucky, Lexington, KY. |
| T12 | Utilizing an ear-mounted accelerometer to estimate dry matter intake in transition dairy cows.  
G. Mazon*, M. R. Campler, and J. H. C. Costa, University of Kentucky, Lexington, KY. |
| T13 | Characterizing drinking behavior from reticular temperature with artificial neural networks.  
A. E. Pape* and C. S. Ballard, William H. Miner Agricultural Research Institute, Chazy, NY. |
| T14 | Assessing animal welfare: Deriving individual welfare phenotypes from existing milk recording data.  
Estrus prediction model for dairy Gyr heifers.
V. Vilela Andrade1, P. Arrigucci Bernardes1, R. Ribeiro Vicentini1, A. Penido Oliveira1, and L. El Faro Zadra*1, 1Instituto de Zootecnia, Sertãozinho, SP, Brazil, 2Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil, 4Universidade Federal de Juiz de Fora, Juiz de Fora, MG, Brazil, 4Empresa de Pesquisa Agropecuária de Minas Gerais, Uberaba, MG, Brazil.

Animal Health 2: Calves

The effect of a fish oil based-product and canola oil on blood lactate, rectal temperature, health, daily gain, and starter intake on Holstein dairy calves.
P. Melendez*, C. Roeschmann2, A. Baudo3, S. Tao1, J. Bernard1, P. Pinedo4, and F. Farcey5, 1University of Georgia, Tifton, GA, 2University of Chile, Santiago, Chile, 3Abraham Baldwin Agricultural College, Tifton, GA, 4Colorado State University, Fort Collins, CO, 5National University La Pampa, Gral. Pico, Argentina.

Colostrum supplementation with omega-3 fatty acids does not alter calf outcome on a commercial farm.
J. Opgenorth*, L. M. Sordillo, and M. J. VandeHaar, Michigan State University, East Lansing, MI.

The occurrence of diseases and their relationship with passive immune transfer in Holstein dairy calves submitted to individual management in southern Brazil.

Antimicrobial use and decision making with respect to treatment of respiratory disease in Canadian dairy calves.
T. Uyama*, D. Kelton1, S. LeBlanc2, D. Léger2, S. Dufour3, J. Roy4, H. Barkema5, E. de Jong6, K. McCubbin7, M. Fonseca8, L. Heider9, and D. Renaud10, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Centre for Foodborne, Environmental & Zoonotic Infectious Diseases, Public Health Agency of Canada, Guelph, ON, Canada, 3Faculté de médecine vétérinaire, Université de Montréal, St-Hyacinthe, QC, Canada, 4Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 5Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI, Canada.

The systemic inflammatory response to intramuscular endotoxin challenge in dairy heifers.
T. M. Sullivan*13, A. Sharma12, K. Lamers13, A. Canovas13, B. Mallard23, and N. A. Karrow13, 1Ontario Agricultural College, Department of Animal Biosciences, Guelph, ON, Canada, 2Ontario Veterinary College, Department of Pathobiology, Guelph, ON, Canada, 3University of Guelph, Guelph, ON, Canada.

Using a rapid blood test to study the impact of heat stress on the immune status of first-time pregnant heifers and their calves.

Microbial composition of fecal transplant inoculum from dairy calf feces.
G. S. Slanzon*, L. M. Parrish, S. C. Trombetta, W. M. Sischo, and C. S. McConnel, Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Washington State University, Pullman, WA.

Identification of internal control genes via RNA-seq analysis for data normalization in fecal RNA isolated from dairy calves.
F. Rosa and J. S. Osorio*, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Microbiome and resistome characterization of colostrum from selectively treated dry cows.
A. K. Vasquez*, D. V. Nydam2, C. Fedtisch3, L. Warnick4, P. Morley5, and E. Doster6, 1Cornell University, Ithaca, NY, 2Texas A&M College Station, TX, 3Colorado State University, Fort Collins, CO.

The exfoliated fecal transcriptome (exfoliome) and its resemblance to the intestinal gene expression in dairy calves.
F. Rosa1, N. A. Carpinelli4, R. Mohan1, F. C. Avaroma2, S. Busato3, M. Bionaz5, A. Gomez6, and J. S. Osorio1, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR, 3Department of Animal Sciences, University of Minnesota, Twin Cities, MN.

Colostrum management practices on New York dairy farms.
Dairy Foods 2

T30 Subpopulations of non-starter bacteria increase in the draining and matting conveyors during extended production shifts. B. Selover*, J. Johnson, and J. Waite-Cusic, Oregon State University, Corvallis, OR.

T31 Influence of goat milk composition and level of $\alpha_s$-casein on the yield of fat-free fresh cheese model. F. Pinto1, J. L. Riveros2, and R. A. Ibáñez*1,2, 1Pontificia Universidad Católica de Chile, Facultad de Agronomía e Ingeniería Forestal, Escuela de Graduados, Santiago, Chile, 2Pontificia Universidad Católica de Chile, Facultad de Agronomía e Ingeniería Forestal, Departamento de Ciencias Animales, Santiago, Chile, 1University of Wisconsin-Madison, Center for Dairy Research, Madison, WI.

T32 Perception of cheese aromas: The case of 2-nonanone. C. C. Licon*1,2, H. Razafindrazaka3, D. Pierron4, and M. Bensaïfi2, 1Department of Food Science and Nutrition, California State University, Fresno, CA, 2Lyon Neuroscience Research Center, CNRS UMR5292, INSERM U1028, Université Claude Bernard Lyon 1, Lyon, France, 3Institute for Advanced Study in Toulouse, Université Toulouse 1 Capitole, Toulouse, France, 4Paul Sabatier University-Toulouse III, Toulouse, France.

T33 Profiles of fatty acid composition in relation to water activity of powder goat milk stored under different storage time and temperature. R. Paswan*1, A. Siddique2, A. Mishra3, and Y. W. Park4, 1Fort Valley State University, Fort Valley, GA, 2Auburn University, Auburn, AL, 3University of Georgia, Athens, GA.

T34 The stability of whipped cream: Effect of emulsifier synergy on partial coalescence and crystallization of milk fat. Y. Wang*1,2, R. Hartel1, and L. Zhang3, 1University of Wisconsin–Madison, Madison, WI, 2China Agricultural University, Beijing, China.

T35 Using iso-conversional kinetics to study the effect of $\alpha$-tocopherol on the oxidation of formulated milk powder. K. A. Alsaleem*1,2, K. Muthukumarappan3, and S. I. Martinez-Montaño4, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Food Science and Human Nutrition Department, Qassim University, Al-Qassim, Saudi Arabia, 3Agricultural and Biosystems Engineering Department, South Dakota State University, Brookings, SD.

T36 Comparison of milk iodine concentration between retail conventional and organic milk in the United States. M. Gellichkhan*5,6, L. H. P. Silva7, R. C. R. Tinini8, J. G. Dessbesell9, M. A. Zambom1, and A. F. Brito2, 1Universidade Estadual do Oeste do Paraná, Maréchal Cândido Rondon, Brazil, 2University of New Hampshire, Durham, NH.

T37 Influence of monk fruit sweetener on the physico-chemical characteristics of camel milk yogurt. A. Buchilina*1, and K. Aryana2, 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University Agricultural Center, Baton Rouge, LA.

T38 Impact of butterfat content and composition on the quality of laminated pastries. S. Ramirez, T. Kongratsaweech, Q. Ferraris, B. Riesgaard, A. Ross, M. Qian, L. Meunier-Goddik, and J. Waite-Cusic*, Oregon State University, Corvallis, OR.

T39 Influence of cell surface properties on the adhesion potential of environmental Listeria isolates to dairy floors. N. Singh*1,2, S. Anand1,3, and B. Kraus4, 1Midwest Dairy Foods Research Center, Brookings, SD, 2South Dakota State University, Brookings, SD, 3Wells Enterprises Inc., Le Mars, IA.

**Bacillus cereus** group species isolated from dairy products and dairy environments are not appropriate for use in inoculated-milk human sensory studies.
S. Reichler*, N. Martin, and M. Wiedmann, Cornell University, Ithaca, NY.

**Effect of cavitation and nanofiltration temperature on the functional properties of milk protein concentrate (MPC80).**
A. Mishra* and L. E. Metzger, South Dakota State University, Brookings, SD.

**Development and characterization of whey-buttermilk fermented beverages with Gabiroba pulp (*Campomanesia xanthocarpa*).**
L. Damasceno*, R. T. Pfrimer, A. F. Cruz, C. F. Cardoso, T. V. de Almeida, E. Arnhold, E. S. Nicolau, and C. Gebara, 1Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil, 3School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

**Association among serum IgG concentrations in newborn dairy heifers and fertility, milk yield, and survival to first lactation.**
A. Velasquez Munoz*, P. Pinedo, C. Shivley, N. Urie, and J. Lombard, 1Colorado State University, Fort Collins, CO, 2USDA–APHIS–Veterinary Services, Fort Collins, CO.

### Extension Education 1

**Texas dairy industry assessment of research, education, and service importance of the Southwest Regional Dairy Center.**
B. W. Jones*, 1Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX.

**Wisconsin farmer-reported housing and milk-feeding practices for preweaned dairy calves.**
J. Van Os, C. Winder, M. Akins, T. Kohlman, T. Ollivet, H. Schlesser, B. Schley, S. Stuttgen, and J. Versweyveld, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 3Division of Extension, University of Wisconsin-Madison, Madison, WI, 4School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI.

**Use of dairy advisory teams as a tool for improvement.**
L. A. Holden*, The Pennsylvania State University, University Park, PA.

**Evaluation of trainings provided to Central Texas dairy workers.**
J. A. Garcia Buitrago*, G. R. Hagevoort, J. Spencer, and J. Pineiro, 1New Mexico State University, Agricultural Science Center at Clovis, Clovis, NM, 2Texas A&M University, Texas AgriLife Extension, College Station, TX.

### Forages and Pastures 1

**Microbial community and fermentation dynamics of corn silage prepared with heat-resistant lactic acid bacteria in hot environment.**
H. Guan*, Y. Shuai, Y. Yan, Y. Cai, and X. Zhang, 1Sichuan Agricultural University, Chengdu, China, 2Japan International Research Center for Agricultural Science (JIRCAS), Tsukuba, Ibaraki, Japan.

**Effect of microbial inoculation and storage length on fermentation profile, aerobic stability, and nutrient composition of whole-plant sorghum.**

**Effect of inoculant dose and time of ensiling on the fermentation and aerobic stability of corn silage.**
X. Liu*, C. Mellinger, J. Stypinski, N. Moyer, and A. Colberg, Dairy Nutrition and Silage Fermentation Laboratory, University of Delaware, Newark, DE.

**Effects of Lactobacillus hilgardii 4785 and L. buchneri 40788 on the bacterial community of high-moisture corn.**
TS2 Evaluation of an enzymatic lignocellulolytic complex on corn silage fermentation profile.
B. C. Agustinho*1,2, L. M. Zeoula3, L. F. Ferraretto4, H. F. Monteiro2, M. R. Pupo3, L. G. Ghizzi4, M. C. N. Agarussi2, C. Heinzen Junior2, J. R. Vinyard1, S. L. Bennett1, and A. P. Faciola3, 1Universidade Estadual de Maringá, Maringá, Paraná, Brazil, 2University of Florida, Gainesville, FL, 3Escola Superior de Agricultura, Piracicaba, São Paulo, Brazil, 4Universidade de São Paulo, Pirassununga, São Paulo, Brazil.

TS3 Effect of storage length and microbial inoculation on fermentation, dry matter loss and aerobic stability of wet brewer’s grains ensiled with increasing amounts of corn grain.

TS4 Fermentation and protein evaluation of 12 binary legume-grass mixtures ensiled during multiple small-plot harvests using vacuum-bag mini-silos.
A. Wilder* and S. Bosworth, University of Vermont, Burlington, VT.

TS5 Effects of sorghum hybrid, microbial inoculation, and storage length on fermentation profile, ruminal starch disappearance and aerobic stability of sorghum silage.
E. M. Paula*, T. Fernandes1,2, H. Sultana1, and L. Ferraretto1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Federal University of Lavras, Lavras, MG, Brazil.

Physiology and Endocrinology 1

TS6 Neutrophil immune dysfunction induced by acetoacetic acid via TLR2/4-NF-κB signaling pathway in dairy cows.
H. Ding*, Y. Li1, S. Feng1, J. Li1, X. Wang1, J. Wu1, Y. Liang1, and J. J. Loor1, 1Anhui Agricultural University, Hefei, Anhui, China, 2University of Illinois at Urbana-Champaign, Urbana, IL.

TS7 Effects of LPS administration and subsequent nutrient restriction on systemic inflammation and hepatic steatosis in lactating dairy cows.
E. A. Horst*, S. Rodriguez-Jimenez, E. J. Mayorga, M. A. Abeyta, B. M. Goetz, S. Carta, and L. H. Baumgard, Iowa State University, Ames, IA.

TS8 Mechanistic target of rapamycin pathway components and proteins associated with amino acid metabolism differ among adipose depots and mammary gland in late-lactation Holstein cows.
Y. Liang*, N. Ma1,2, D. N. Coleman1, F. Liu1,2, Y. Li1,2, H. Y. Ding1,4, F. F. Cardoso1, F. C. Cardoso1, and J. J. Loor1, 1Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, Urbana, IL, 2College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China, 3Department of Animal Science and Veterinary Medicine, Henan Agricultural University, Zhengzhou, China, 4Department of Veterinary Medicine, College of Animal Science and Technology, Anhui Agricultural University, Hefei, China.

TS9 Impacts of endocrine signals altered by heat stress on mammary gland gene expression during the dry period.

T60 Comparison of ruminal and serum short-chain fatty acids concentrations in dairy cows with different levels of milk production.

T61 Adipose and muscle transcriptome analysis of dairy calves supplemented with 5-hydroxytryptophan.
S. Field*, M. Marrero, F. Peñagaricano, and J. Laporta, Department of Animal Sciences, University of Florida, Gainesville, FL.

T62 A fluorescence resonance energy transfer approach to determine intracellular bioavailability of zinc in blood samples using a bovine mammary epithelial cell model.
R. Mohan*, F. Rosa, and J. S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

T63 Methionine and arginine supply alleviate oxidative stress and inflammation in subcutaneous bovine adipose explants challenged with H2O2.
N. Ma*,2, Y. Liang1, D. N. Coleman1, F. Liu1,2, Y. Li1,2, H. Ding1,4, F. F. Cardoso1, F. C. Cardoso1, X. Shen1, and J. J. Loor1, 1University of Illinois, Urbana, IL, 2Nanjing Agricultural University, Nanjing, Jiangsu, China, 3Henan Agricultural University, Zhengzhou, Henan, China, 4Anhui Agricultural University, Hefei, Anhui, China.
Effect of an ad libitum milk supply during the first three weeks of life of dairy calves on heart rate and heart rate variability during feeding.
S. Wiedemann*1, L. Prokop2, G. Hoffmann3, and M. Kaske4, 1Rhine-Waal University of Applied Sciences, Livestock Sciences and Environmental Impacts, Kleve, Germany, 2University of Kiel, Institute of Animal Breeding and Husbandry, Kiel, Germany, 3Leibniz Institute for Agricultural Engineering and Bioeconomy, Department Engineering for Livestock Management, Potsdam, Germany, 4University of Zurich, Vetsuisse Faculty, Department for Farm Animals, Zurich, Switzerland.

Somatotropin increases plasma ceramide concentrations in relation to enhanced milk yield in Holstein dairy cows.
A. N. Davis*1, W. A. Myers1, B. N. Tate1, J. E. Rico1, M. Moniruzzaman1, N. J. Haughey1, and J. W. McFadden1, 1Cornell University, Ithaca, NY, 2Johns Hopkins University, Baltimore, MD.

Associations of mild heat stress and genetic lineage with dry matter intake, water intake, rectal temperature, and active ghrelin concentration in Holstein heifers.
L. Han*, C. Dechow, and A. Macrina, Department of Dairy and Animal Science, The Pennsylvania State University, State College, PA.

Methionine and arginine alter antioxidant and mechanistic target of rapamycin (mTOR) protein abundance in mammary explants stimulated with hydrogen peroxide.
D. N. Coleman*1, P. Totakul1,2, N. Onjea-uea1,2, Y. Liang1, F. F. Cardoso1, F. C. Cardoso1, and J. J. Loor1, 1Department of Animal Sciences, University of Illinois, Urbana, IL, 2Department of Animal Science, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand, 3Institute of Agricultural Technology, Suranaree University of Technology, Nakhon Ratchasima, Thailand.

Effects of an immunomodulatory feed additive on biomarkers of inflammation and oxylipid profile in blood of transition cows.
C. S. Takiya*1, L. K. Mamedova1,2, L. Sordillo1, J. Gandy2, M. Garcia3, E. E. Gultepe4, D. E. Nuzback5, and B. J. Bradford1,2, 1Kansas State University, Manhattan, KS, 2Michigan State University, East Lansing, MI, 3Phibro Animal Health, Teaneck, NJ, 4Afyon Kocatepe University, Afyonkarahisar, Turkey.

Effects of an immunomodulatory feed additive on granulocyte activity in peripheral blood and uterus of early lactating cows.
C. S. Takiya*1, J. L. McGill2, L. K. Mamedova1,2, A. L. A. Scanavez1, R. Rusk1, L. G. D. Mendonça1, M. Garcia1, D. E. Nuzback1, and B. J. Bradford1,2, 1Kansas State University, Manhattan, KS, 2Iowa State University, Ames, IA, 3Michigan State University, East Lansing, MI, 4Phibro Animal Health, Teaneck, NJ.

The effects of zinc chelator TPEN in bovine mammary epithelial cells evaluated via a fluorescence resonance energy transfer approach.
R. Mohan* and J. S. Osorio, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Production, Management, and the Environment 2

Effect of dry period length on risk of culling in the subsequent lactation.
P. Pattamanont1, M. I. Marcondes2, and A. De Vries*1, 1University of Florida, Gainesville, FL, 2Federal University of Viçosa, Viçosa, MG, Brazil.

Evaluation of research needs and management practices on organic, grass-fed dairy farms in the United States.
M. A. Snider*1, S. E. Ziegler1, H. M. Darby1, K. J. Soder1, A. F. Brito1, B. Beidler1, S. Flack1, S. L. Greenwood1, and M. T. Niles1, 1University of Vermont, Burlington, VT, 2University of Vermont Extension, St. Albans, VT, 3USDA-ARS, Pasture Systems and Watershed Management Research Unit, University Park, PA, 4University of New Hampshire, Durham, NH, 5Beidler Family Farm, Randolph, VT, 6Sarah Flack Consulting, Enosburg Falls, VT.

Effects of herd fertility on the economics of sexed semen in a high-producing, pasture-based dairy production system.
D. Walsh*1, A. Fahey1, F. Mulligan2, and M. Wallace1, 1School of Agriculture and Food Science, University College Dublin, Dublin, Ireland, 2School of Veterinary Medicine, University College Dublin, Dublin, Ireland.

Potentials and flaws of using 3-dimensional models to describe changes in energy reserves in dairy cattle.
J. H. M. Viana1, E. K. N. Arashiro1, L. G. B. Siqueira1, and L. G. R. Pereira*1, 1Embrapa Recursos Genéticos e Biotecnologia - Embrapa, Brasília, DF, Brazil, 2Universidade Federal Fluminense, Niterói, RJ, Brazil, 3Embrapa Gado de Leite, Juiz de Fora, MG, Brazil.
Integrated solutions to maintain dairy production resilience under six different future scenarios in a regional food, energy, and water systems analysis.
M. E. de Haro Martí, J. Wilson, S. Elmer, P. Williams, and A. Kliskey. 1University of Idaho, Gooding, ID, 2University of Idaho, Twin Falls, ID, 3University of Idaho, Moscow, ID.

Implementation of animal and herd phosphorus balance in the Ruminant Farm Systems (RuFaS) model.

An integrated sensor network for monitoring pastured cattle health and location.
B. R. dos Reis and R. R. White. Virginia Tech, Blacksburg, VA.

A time-series analysis of increasing milk productivity and yearly seasonality.
M. Li, V. E. Cabrera, and K. F. Reed. 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Animal Science, Cornell University, Ithaca, NY.

Thermoelectric energy harvesting for wearable precision agriculture technologies.
B. R. dos Reis, B. Poudel, S. Priya, and R. R. White. 1Virginia Tech, Blacksburg, VA, 2Penn State University, University Park, PA.

Control charts to monitor growth in dairy heifers.
P. Turiello, B. Mancilla, C. Vissio, and A. Larriestra. 1UNRC, Río Cuarto, Córdoba, Argentina, 2IDAS UNRC-CONICET, Río Cuarto, Córdoba, Argentina.

Concentration levels of butyrylcholinesterase in cows as an indicator of the use of agrochemicals in farms in Colombia.
A. Celemín-Sarmiento and L. Bernal-Bechara. Animal Science Research Group (ASRG), Animal Science Program, Faculty of Agricultural Sciences, La Salle University, Bogotá, Cundinamarca, Colombia.

Associations of milk production and quality with management and housing of robotic milking herds.
R. D. Matson, M. T. M. King, T. F. Duffield, D. E. Santschi, K. Orsel, E. A. Pajor, G. B. Penner, T. Mutsangwa, and T. J. DeVries. 1Department of Animal Biosciences, Guelph, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 3Lactanet, Sainte-Anne-de-Bellevue, QC, Canada, 4Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 5Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

Does 500 ohms accurately describe the electrical resistance of Idaho dairy cows?
R. Norell, M. de Haro Martí, J. Wilson, M. Chahine, J. Packham, and K. Kruger. 1University of Idaho, Idaho Falls, ID, 2University of Idaho, Gooding, ID, 3University of Idaho, Twin Falls, ID, 4University of Idaho, Burley, ID.

A dynamic model to predict herd consistency and milk deliveries of a dairy herd.
A. S. Atzori and A. Gallo. 1Dipartimento di Agraria, University of Sassari, Sassari, Italy, 2Department of Animal Science, Food and Nutrition (DIANA), Università Cattolica del Sacro Cuore, Piacenza, Italy.

Development of an identification system to recognize individual animals based on biometric facial features.

Reproduction 1

Association between automated body condition scores and fertility of Holstein cows.

Risk factors for early pregnancy loss in primiparous Holstein cows.
E. Webster, D. Manriquez, P. Melendez, and P. Pinedo. 1Colorado State University, Fort Collins, CO, 2University of Georgia, Tifton, GA.

Human chorionic gonadotropin (hCG) dose response 7 days after synchronization of ovulation in lactating Holstein cows I: Ovulatory response and serum progesterone concentrations.
Human chorionic gonadotropin (hCG) dose response 7 days after synchronization of ovulation in lactating Holstein cows II: Pregnancy outcomes and accessory corpus luteum regression.
E. M. Cabrera*1, M. R. Lauber2, E. M. Peralta3, T. R. Bilby4, and P. M. Fricke1, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Merck Animal Health, Kenilworth, NJ.

Effect of reusing intravaginal progesterone implant on sexual behavior and pregnancy rate in dairy Gir heifers (Bos taurus indicus).
R. R. Vicentini1, A. P. Oliveira2, R. Veroneze3, A. Ujita4, and L. El Faro5, 1Federal University of Juiz de Fora (UFJF), Juiz de Fora, MG, Brazil, 2Agricultural Research Company of Minas Gerais State (EPMAG Oeste), Uberaba, MG, Brazil, 3Federal University of Viçosa (UFV), Viçosa, MG, Brazil, 4University of São Paulo (FZEA/USP), Pirassununga, SP, Brazil, 5Institute of Animal Science (IZ), Sertãozinho, SP, Brazil.

Relationships between dietary composition and reproductive outcomes in cattle.
T. Davis* and R. White, Virginia Tech, Blacksburg, VA.

Assessment of the effects of intrat uterine dextrose infusion on clinical cure rate, number of health events, culling rate, and reproductive performance in postpartum dairy cows diagnosed with clinical metritis.
A. A. Barragan1, J. Hamilton1, E. Hovingh1, L. Byler1, M. Martinez1, S. Bas2, J. Zug3, and S. Haan4, 1Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA, 2Phytobiotics Futterzusatzstoffe GmbH Bvd, Villa Maria, Córdoba, Argentina, 3Zugstead Farm, Mifflintown, PA.

Pattern of behavioral, physiological, and performance parameters before insemination in dairy cows that became pregnant or not to first service.
G. E. Granados*, M. M. Perez, and J. O. Giordano, Cornell University, Ithaca, NY.

Association between age at first calving and economic performance of replacement dairy heifers.
M. Masello*1, M. M. Perez1, G. E. Granados1, M. L. Stangaferro2,3, B. Ceglowski2, M. J. Thomas2, and J. O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Dairy Health and Management Services, Lowville, NY.

Characterization of pregnancy associated glycoproteins (PAG) and progesterone (P4) as a predictor of twins and conceptus loss in high-risk pregnancy Holstein cows.
P. M. Peixoto*1, A. M. Hubner1, L. Cunha1,2, W. M. Coelho Jr1, K. G. Pohler1, N. W. Dias3, V. R. G. Mercadante4, I. F. Canisso1,2, and F. S. Lima2,3, 1Department of Veterinary Clinical Medicine, College of Veterinary Medicine, University of Illinois, Urbana, IL, 2Department of Comparative Biosciences, College of Veterinary Medicine, University of Illinois, Urbana, IL, 3Department of Animal Science, Texas A&M University, College Station, TX, 4Department of Animal and Poultry Sciences, Virginia Tech University, Blacksburg, VA, 5Department of Population Health and Reproduction, University of California, Davis, CA.

Prediction of pregnancy probability at first service in multiparous dairy cows based on early lactation data.
M. Stangaferro*1,2, I. Giordano2, M. Toledo3, and M. Wittbank3, 1Dairy Health and Management Services, Lowville, NY, 2Cornell University, Ithaca, NY, 3University of Wisconsin-Madison, Madison, WI.

Effect of gonadotropin-releasing hormone (GnRH) seven days before pre-synchronization with simultaneous prostaglandin F2α and GnRH on reproductive outcomes in Holstein dairy cows.
A. Hubner*1,2, P. Peixoto1, J. Hillesheim1, I. Canisso1,2, and F. Lima2, 1Department of Comparative Biosciences, College of Veterinary Medicine, University of Illinois, Urbana, IL, 2Department of Veterinary Clinical Medicine, College of Veterinary Medicine, University of Illinois, Urbana, IL, 3Lena Veterinary Clinic, Lena, IL, 4Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, CA.

Factors affecting pregnancy associated glycoprotein (PAG) and pregnancy specific protein B (PSPB) profiles in plasma during early pregnancy.
R. C. Doyle*1,2, J. Kenneally1, M. C. Lucy2, and S. T. Butler2, 1Teagasc, Fermoy, Cork, Ireland, 2University of Missouri, Columbia, MO.

Characterization of ano-genital distance and its relationship to fertility in Holstein heifers.
J. E. Carrelli1*, M. Gobikrushanth1, M. G. Colazo2, and D. J. Ambrose1,2, 1Department of Agricultural, Food, and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Systems Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada.

Repeatability of ano-genital distance measurements at different stages of the estrous cycle.
I. Rajesh*, M. Gobikrushanth1, E. E. Carrelli1, and D. J. Ambrose1,2, 1Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, 2Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada.
Gene expression in the uterus of heifers challenged with lipopolysaccharide.

Association between postpartum health and subsequent detection of spontaneous estrus by activity monitors in dairy cows.
T. C. Bruinjé*, E. I. Morrison1, R. Couto Serrenho1, E. S. Ribeiro2, D. Renaud1, and S. J. LeBlanc1, 1Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 2Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

Ruminant Nutrition: General 2

Fumonisin esterase degrades fumonisins in lactating dairy cows.
A. Gallo1, A. Minuti1, B. Doupovec2, J. Faas**, G. Bichi2, D. Schatzmayer2, and E. Trevisi1, 1Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy, 2BIOMIN Research Center, Tulln, Austria.

Effect of potassium sorbate application rate and timing of application on aerobic stability of corn silage.
J. D. Stypinski*, C. A. Mellinger, X. Liu, N. A. Moyer, and L. Kung Jr., University of Delaware.

Effect of potassium sorbate application rate and timing of application on aerobic stability of corn silage.
L. G. Ghizzi*1,3, T. A. Del Valle1, C. Heinzen1, M. R. Pupo1, L. F. Ferraretto1, and F. P. Rennô2, 1University of São Paulo, Pirassununga, SP, Brazil, 2University of Pampa, Itaquí, Rio Grande do Sul, Brazil, 3University of Florida, Gainesville, FL.

Assessing milk response to branched-chain volatile fatty acids.
K. E. Mitchell**, M. T. Socha, L. E. Moraes1, Y. Roman Garcia1, and J. L. Firkins1, 1The Ohio State University, Columbus, OH, 2Zinpro Corporation, Eden Prairie, Minnesota.

The effects of cut height and fungicide application on whole-plant corn silage yield.
F. F. Cardoso**, S. E. Kemp1, R. Schmidt2, and F. C. Cardoso1, 1University of Illinois, Urbana, IL, 2Lallemand Animal Nutrition, Milwaukee, WI.

Effect of different levels of Ascophyllum nodosum meal on iodine metabolism in Jersey cows.
M. Ghelichkhan**, L. H. P. Silva2, R. C. R. Tinini1, J. G. Dessbesell1, M. A. Zambom1, and A. F. Brito2, 1Universidade Estadual do Oeste do Paraná, Marechal Cândido Rondon, Brazil, 2University of New Hampshire, Durham, NH.

Phenotypic correlation of residual feed intake in mid and early lactation in Holstein cows.
M. M. Nehme*, F. Peñagaricano, and J. E. P. Santos, University of Florida, Gainesville, FL.

Effects of acute intravenous trimethylamine N-oxide infusion on the bovine lipidome and metabolome during early lactation.
F. Wang1,2, W. A. Myers*, C. Chang1, A. N. Davis1, J. E. Rico1, B. N. Tate1, L. F. Wang1,3, and J. W. McFadden2, 1Cornell University, Ithaca, NY, 2China Agricultural University, Beijing, China, 3Henan Agricultural University, Zhengzhou, China.

A dynamic approach for BCS prediction in NDS Professional.
G. Esposito*, M. Shipandeni1, E. Raffrenato1,2, and E. Melli1, 1RUM&N, Reggio Emilia (RE), Italy, 2Department of Animal Sciences, Faculty of AgrisSciences, Stellenbosch University, Stellenbosch (WC), South Africa, 3Department of Animal Science, University of Namibia, Windhoek, Namibia.

Effects of rumen-protected lysine fed to Holstein cows prepartum and the blood amino acids and metabolites profile on their calves.
B. L. Thomas*, A. R. Guadagnin1, L. K. Fehlberg1, Y. Sugimoto2, I. Shinzato2, and F. C. Cardoso1, 1University of Illinois, Urbana-Champaign, IL, 2Ajinomoto Co. Inc., Tokyo, Japan.

Effects of rumen-protected lysine fed to Holstein cows prepartum and the outcome on their calves.
B. L. Thomas*, A. R. Guadagnin1, L. K. Fehlberg1, Y. Sugimoto2, I. Shinzato2, and F. C. Cardoso1, 1University of Illinois, Urbana-Champaign, IL, 2Ajinomoto Co. Inc., Tokyo, Japan.
**T114** Effect of essential oils and amylase supplementation on productive performance of lactating dairy cows.
1São Paulo State University, Botucatu, SP, Brazil, 2DSM Nutritional Products, São Paulo, SP, Brazil, 3Embrapa Dairy Cattle, Juiz de Fora, MG, Brazil, 4Federal University of Juiz de Fora, Juiz de Fora, MG, Brazil.

**T115** Effects of dietary 25-hydroxyvitamin D₃ for prepartum dairy cows receiving acidogenic diet.
1São Paulo State University, Botucatu, SP, Brazil, 2DSM Nutritional Products, São Paulo, SP, Brazil, 3Embrapa Dairy Cattle, Juiz de Fora, MG, Brazil, 4Federal University of Juiz de Fora, Juiz de Fora, MG, Brazil.

**T116** A meta-analysis to compare feed and milk N efficiency of Holstein and Jersey cows.
J. P. Sacramento*, L. H. F. Silva1, D. C. Reyes1, L. G. R. Pereira1, and A. F. Brito1,
1University of New Hampshire, Durham, NH, 2Federal University of São João do Rei, São João del Rei, MG, Brazil, 3Brazilian Agricultural Research Corporation EMBRAPA Dairy Cattle, Juiz de Fora, MG, Brazil.

**T117** Energy partition in Holstein x Gyr lactating cows raised under tropical conditions.
1State University of Santa Cruz, Ilheus, Bahia, Brazil, 2Federal University of São João del Rei, São João del Rei, MG, Brazil, 3Brazilian Agricultural Research Corporation EMBRAPA Dairy Cattle, Juiz de Fora, MG, Brazil.

**T118** The effect of a mycotoxin deactivator on the vitamin and mineral status of lactating dairy cows.
J. Faas*, B. Doupovec1, R. Nicole1, A. Gallo2, Q. Zebeli3, and D. Schatzmayr4,
1BIOMIN Research Center, Tulln, Austria, 2Department of Animal Science, Food and Nutrition (DIANA) Facoltà di Scienze Agrarie, Alimentari e Ambientali Università Cattolica del Sacro Cuore, Piacenza, Italy, 3Institute of Animal Nutrition and Functional Plant Compounds and Institute for Food Safety, Food Technology and Veterinary Public Health, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine, Vienna, Austria.

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**Ruminant Nutrition: Carbohydrates and Lipids**

**T119** Ruminal degradability and bypass fraction of a coated omega-3 source.
L. R. Royo*, T. de Evans2, M. Puyalto1, J. J. Mallo3, and M. D. Carro2,
1Norel SA, Madrid, Spain, 2Dpto. Producción Agraria, ET-SIAAB, Universidad Politécnica de Madrid, Madrid, Spain.

**T120** Assessing fatty acids and starch solubility in corn grain and corn silage using in vitro method.
X. Huang*, J. de Souza2, and R. Ward1,
1Cumberland Valley Analytical Services, Waynesboro, PA, 2Perdue Agribusiness LLC, Salisbury, MD.

**T121** Dietary energy source and rumen-protected amino acids: Effects on CH₄ emissions and heat production in lactating dairy cows.
Y. Zang*, L. H. P. Silva3, Y. Geng4, M. J. Lange3, N. O. Dattolico1, N. L. Whitehouse1, M. Miura4, M. A. Zambom3, and A. F. Brito1,
1University of New Hampshire, Durham, NH, 2Chinese Academy of Agricultural Sciences, Beijing, China, 3Universidade Estadual do Oeste do Paraná, Marechal Cândido Rondon, Brazil, 4Ajinomoto Co. Inc., Kawasaki-shi, Japan.

**T122** Evaluating rumen degradation of protected gelatin capsules filled with fish oil when fed to Holstein or Jersey lactating cows.
O. M. Peña*, S. Saunier, K. Murphy, N. M. Long, G. L. Lascano, M. J. Aguerre, and T. C. Jenkins, Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC.

**T123** Effects of maturity and storage method on gas production kinetics of corn grains.
N. Schlau*, D. R. Mertens3, and D. Taysom1,
1Dairyland Laboratories Inc, Arcadia, WI, 2Mertens Innovation and Research LLC, Belleville, WI.

**T124** Effect of increasing levels of roasted high oleic soybean on milk fat yield in lactating dairy cows.
B. Khonkaeng1,2, R. Bomberger1, and K. J. Harvatine*1,
1Penn State University, University Park, PA, 2Khon Kaen University, Khon Kaen, Thailand.

**T125** Supplementation of methionine and methionine analogs to diets with risk of biohydrogenation-induced milk fat depression.
M. Baldin1, S. Fredin2, and K. Harvatine*1,
1Penn State University, University Park, PA, 2Adisseo USA Inc., Ithaca, NY.

**T126** Effects of dietary deoiled lecithin supplementation on apparent fatty acid digestibility and absorption in dairy cows.
J. E. Rico1, A. B. P. Fontoura2, R. Gervais2, and J. W. McFadden*1,
1Cornell University, Ithaca, NY, 2Université Laval, Québec City, QC, Canada.
T127 Impact of dry ground corn particle size on production performance of dairy cows.
I. F. Carrari1, M. Poczynski1, A. M. Fillus2, C. B. da Silva3, F. S. Baptista3, L. B. Los4, L. F. Ferraretto4, and R. Almeida*5, 1Universidade Federal do Paraná, Curitiba, PR, Brazil, 2Universidade Federal de Lavras, Lavras, MG, Brazil, 3Frisia Cooperativa Agroindustrial, Carambeí, PR, Brazil, 4University of Florida, Gainesville, FL.

T128 Performance of early lactation dairy cows receiving doses of calcium salts of palm oil supplemented or not with lysolecithin.
D. Machado1, S. L. Antunes1, J. M. dos Santos Neto2, L. F. Greco*3, M. A. P. Meschiatti1, and F. A. P. Santos1, 1College of Agriculture Luiz de Queiroz (ESALQ), University of Sao Paulo, Piracicaba, SP, Brazil, 2Michigan State University, East Lansing, MI, 3Kemin Animal Nutrition & Health division, South America, Indaiatuba, SP, Brazil.

T129 Crosslinked gelatin capsules containing fish oil compared to untreated capsules improved milk fat yield when fed or directly placed into the rumen of Holstein cows.
O. M. Peña*1, S. Saunier3, K. Murphy4, G. L. Lasciano2, M. J. Aguerre2, and T. C. Jenkins2, 1Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC, 2Virtus Nutrition LLC, Corcoran, CA.

T130 Effects of choline and docosahexaenoic acid on the lipidome of bovine precision-cut liver slices cultured with palmitic acid.
J. E. Rico*1, B. N. Tate1, W. A. Myers2, V. Sainz de la Maza-Escolà2, C. Chang1, L. F. Wang*1, and J. W. McFadden2, 1Cornell University, Ithaca, NY, 2University of Bologna, Bologna, Italy, 3Henan Agricultural University, Zhengzhou, China.

T131 An upgrade of the neutral detergent fiber characterization in NDS Professional.
E. Raffrenato*, A. Ferrari, and E. Melli, RUM&N Consulting, Reggio Emilia, Italy.

T132 Effects of abomasal infusions of fatty acids and one-carbon donors on apparent fatty acid digestibility and absorption in lactating cows.
J. E. Rico*1, W. A. Myers2, R. Gervais2, and J. W. McFadden2, 1Cornell University, Ithaca, NY, 2Université Laval, Québec City, QC, Canada.

T133 Evaluating the effects of feeding whole cottonseed on primiparous and multiparous lactating dairy cows.
R. Pierce*, R. Bomberger, and K. Harvatine, The Pennsylvania State University, University Park, PA.

T134 The effect of a unique high-fatty-acid supplement on milk fatty acid profile and energy utilization of lactating Jersey cows.
K. Buse*, D. Morris, and P. Kononoff, University of Nebraska-Lincoln, Lincoln, NE.

T135 Low starch diets improve dry matter intake and energy balance in early lactating Holstein dairy cows.
N. Juliano*1,5, M. F. Olmeda2,3, L. M. Buraschi3, M. V. Dunleavy4, F. Bargo4, and R. A. Palladino4*1,5, 1Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina, 2Universidad de Lomas de Zamora, Buenos Aires, Argentina, 3Universidad Nacional de Mar del Plata, Buenos Aires, Argentina, 4Instituto de Patobiología, Instituto Nacional de Tecnología Agropecuaria, Buenos Aires, Argentina, 5PROLACT (UNLZ-FIL), Buenos Aires, Argentina.

T136 In situ effective ruminal dry matter and neutral detergent fiber disappearance of canola meal from twelve Canadian crushing plants over four production years.
E. M. Paula*1, J. L. P. Daniel1, L. G. Silva1, G. M. Wachekowski1, H. H. A. Costa1, and A. P. Faciola1, 1Instituto de Zootecnia, Centro APTA Bovinos de Corte, Sertãozinho, SP, Brazil, 2Universidade Estadual de Maringá, Maringá, PR, Brazil, 3Department of Animal Science, College of Agrarian and Vet Sciences, Jaboticabal, SP, Brazil, 4Universidade Estadual Vôle do Açarau, Sobral, CE, Brazil, 5University of Florida, Animal Sciences Department, Gainesville, FL.

**Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion**

T137 Effects of Ascophyllum nodosum meal and monensin on ruminal fermentation and microbiota.
L. H. P. Silva*1, A. T. O. Melo1, S. F. Reis2, B. P. Jackson1, F. Evans2, and A. F. Brito1, 1University of New Hampshire, Durham, NH, 2Faculdade de Ciências Biomédicas de Cacoal, Cacoal, RO, Brazil, 3Dartmouth College, Hanover, NH, 4Acadian Seaplants Ltd, Dartmouth, NS, Canada.

T138 Effects of OmniGen Pro on performance and rumen fermentation of Jersey heifers.

T139 Effects of OmniGen Pro on performance, digestibility, and rumen fermentation of Holstein heifers.
T140 Evaluation of in vitro fermentation methodology to characterize the aNDFoM degradation of intensively managed pasture samples.
M. Dineen*1,2, B. McCarthy2, and M. E. Van Amburgh1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Teagasc, Animal and Grassland Research and Innovation Centre, Moorepark, Fermoy, Co. Cork, Ireland.

T141 Effect of betaine supplementation on rumen microbiome of mid-lactating Holstein dairy cows.
H. C. Hung*1, C. Y. Tsai1, J. E. Williams1, G. E. Chibisa2, W. J. Price2, M. A. McGuire1, M. Chahine1,3, and P. Rezamand1, 1Department of Animal and Veterinary Science, University of Idaho, Moscow, ID, 2Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID, 3Twin Falls Research and Extension Center, University of Idaho, Twin Falls, ID.

T142 Using near infrared spectroscopy versus in vitro procedures for predicting dry matter digestibility.

T143 Characterization of the dairy cow rumen epimicrobial microbiota under high-forage and high-starch diets.
D. Sbardellati*1, A. Fischer1, K. Kalscheur1, and G. Suen1, 1Department of Bacteriology, University of Wisconsin-Madison, Madison, WI, 2USDA Dairy Forage Research Center, USDA-Agricultural Research Service, Madison, WI.

T144 Effect of oscillating dietary starch on metabolic and acidotic status of lactating dairy cows.

T145 The effects of supplementing a seaweed, Asparagopsis taxifora, to dairy cows on bacteria-archaea interactions in the rumen.
D. Pitta1, H. Stefenoni1, N. Indugu1, M. Hennessy1, B. Vecchiarelli1, R. Shah3, S. Garapati3, C. Yarish3, S. Welchez2, S. Räisänen2, D. Wasson3, C. Lage1, A. Melgar1, M. Fetter1, A. Hristov2, 1University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, 2The Pennsylvania State University, University Park, PA, 3University of Pennsylvania, Philadelphia, PA, Drexel University, Philadelphia, PA.

T146 Effects of rumen hypomotility on microbial community composition.
A. Palmonari, D. Cavallini*, G. Canestrari, G. Buonaiuto, G. Canestrari, G. Basilico, and L. Mammi, Department of Veterinary Science, University of Perugia, Perugia, Italy.

T147 Effects of a cashew nut shell extract on energetic metabolism and inflammatory biomarkers in transition dairy cows.
B. M. Goetz*1, E. A. Horst1, E. J. Mayorga1, M. A. Abeyta1, S. Rodriguez-Jimenez1, S. Carta1, C. Hikita2, T. Watanabe3, and L. H. Baumgard1, 1Iowa State University, Ames, IA, 2Idemitsu Kosan Co. Ltd., Tokyo, Japan.

T148 Effect of cashew nutshell extract on nutrient digestibility and rumen pH when simulating close-up or fresh-cow conditions under in vitro conditions.
C. Compton*, C. Hikita2, T. Watanabe2, T. C. Jenkins1, G. J. Lascano3, and M. J. Aguerre3, 1Clemson University, Clemson, SC, 2Agri-Bio Business Department, Idemitsu Kosan Co., Tokyo, Japan.

T149 Effect of 3-nitrooxypropanol on total and metabolically active bacteria and archaea interactions in the rumen of dairy cows.
D. Pitta1, A. Melgar1, N. Indugu1, V. Shabtai1, M. Hennessy1, B. Vecchiarelli2, M. Kindermann2, N. Walker2, and A. Hristov2, 1University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, 2The Pennsylvania State University, University Park, PA, 3DSM Nutritional Products, Basel, Switzerland.

T150 Investigating the effects of different soybean products on rumen microbial populations in dairy cows using in vitro fermentation.
M. Hennessy1, J. Bender1, M. Leibstein*1, B. Vecchiarelli1, N. Indugu1, S. Garapati1, J. Toth1, L. Baker1, and D. Pitta1, 1University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, 2Oceanside High School, Oceanside, NY, Drexel University, Philadelphia, PA.

T151 Nitrogen metabolism of Holstein calves on high or low pre- and post-weaning feeding plan.
G. Antunez*1, C. Cajavilca1, C. Fernández2, L. Artus1, J. Dayuto1, F. Correa1, G. Oleggini2, and J. Repetto1, 1Departamento Producción Animal de Veterinaria (IPAV), Facultad de Veterinaria, UdelaR, Libertad, San José, Uruguay, 2CONAPROLE, Montevideo, Uruguay.

T152 Oscillating dietary starch had minor effects on performance in Holstein cows.
M. Larsen*, P. Lund, L. E. Hernández-Castellano, and M. R. Weisbjerg, Department of Animal Science, Aarhus University-Foulum, Tjele, Denmark.
T153 Effect of circadian rhythm and frequency of feeding on bacteria and archaea populations in the rumen of dairy cows. 
C. Pappalardo*, M. Hennessy, B. Vecchiarelli, N. Indugu, J. Bender, T. Gleysteen, J. Toth, and D. Pitta, University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA.

T154 Yerba-mate as feed additive and its effects on feed intake and digestibility. 
R. R. Lobo*1,2, Y. A. Peña-Bermúdez1, D. A. Rojas-Moreno1, C. M. da Silva1, L. L. Panosso2, V. Benetel Junior1, L. R. Ghussn1, V. C. Mufalo1, A. P. Faciola2, R. S. B. Pinheiro3, A. Berndt4, and I. C. S. Bueno1, 1Universidade de São Paulo, Pirassununga, SP, Brazil, 2University of Florida, Gainesville, FL, 3Universidade Estadual Paulista, Ilha Solteira, SP, Brazil, 4Embrapa Pecuária Sudeste, São Carlos, SP, Brazil.

T155 In vitro dry matter digestibility of Typha domingensis using adapted rumen microbes. 
S. LeShure Ratiff* and R. Kohn, University of Maryland College Park, College Park, MD.

Roundtable Discussions
Livestreams from 4:00 to 5:00 PM

Room 1: Precision ag in the dairy industry – ideas for DC38
Moderator: Marcia Endres, University of Minnesota
Sponsored by Danone and Alltech

Room 2: Lipid metabolism – recap of DC36
(see abstract 414 on page 68)
Moderator: Kevin Harvatine, Penn State University

Room 3: Online teaching: So now what?
(see abstracts 421–423 on page 68)
Moderator: Elizabeth Karcher, Purdue University

Room 4: Genetic and genomic evaluation in 2020
Moderator: Christine Baes, University of Guelph
Sponsored by Zoetis

Late-Night Live
Livestream Room 1 from 9:00 to 10:00 PM

Ruminant Nutrition
Barry Bradford, Bill Weiss, Ian Sawyer, and Kristy DiGiacomo
Feeding behavior and performance of dairy cows in an automated milking system is related to personality traits.
A. J. Schwanke*1, K. M. Dancy1, G. B. Penner6, N. W. Neave1, and T. J. DeVries1, 1Department of Animal Biosciences, Guelph, ON, Canada, 2Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada, 3Ruakura Research Centre, AgResearch Ltd, Hamilton, New Zealand.

Repeated regroupings affect body and reproductive development and energetic metabolism.
M. Moratorio*1, A. Amil1, M. Pedrozo1, R. Ungerfeld2, M. Carriquiry3, and C. Fiol1, 1Departamento de Bovinos, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay, 2Departamento de Fisiología, Facultad de Veterinaria, Universidad de la República, Montevideo, Uruguay, 3Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay.

Impact of a dietary citrus extract on the rumination behavior of cows following social regrouping.
F. H. Padua*1, R. Bergeron1, G. Desrousseaux2, J.-F. Gabarrou1, and T. J. DeVries1, 1Department of Animal Biosciences, Guelph, ON, Canada, 2Phodé, Terssac, France.

Validation of an infrared camera for measuring ocular temperatures of veal calves.
H. Goetz*1, D. Kelton1, J. Costa1, W. Winder1, and D. Renaud1, 1Department of Animal and Food Sciences, University of Kentucky, Lexington, KY.

Effect of two stable fly control methods on dairy cattle bunching behavior on a California dairy.
E. Abdelfattah*1, J. Tonooka1, D. Williams1, W. El Ashmawy2, A. Gerry3, H. Rossow1, T. Lehenbauer1, and S. Aly1, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California-Davis, Tulare, CA, 2Department of Entomology, University of California, Riverside, CA, 3Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, CA.

Daily milk losses associated with bunching, dairy cattle’s protective behavior against stable flies (*Stomoxys calcitrans*), on a California dairy.
W. R. Elashmawy*2, D. R. Williams1, A. C. Gerry3, and S. S. Aly1, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California-Davis, Tulare, CA, 2Department of Internal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Cairo University, Giza, Egypt, 3Department of Entomology, University of California Riverside, Riverside, CA, 4Department of Population Health and Reproduction, School of Veterinary Medicine, University of California-Davis, Davis, CA.

Methods to implement ancestor discovery in the US dairy cattle database.
J. Nani*1, J. Cole2, and P. VanRaden3, 1Instituto Nacional de Tecnologia Agropecuaria EEA Rafaela, Rafaela, Santa Fe, Argentina, 2Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD.
Bias of dairy sheep evaluations using BLUP and single-step genomic BLUP with metafounders and unknown parent groups.
F. L. Macedo1,2, O. F. Christensen1, J. M. Astruc3, I. Aguilar4, Y. Masuda5, and A. Legarra*,1, 1INRA, Toulouse, France, 2UdelaR, Montevideo, Uruguay, 3Aarhus University, Aarhus, Denmark, 4IDEL, Toulouse, France, 5INIA, Montevideo, Uruguay, 6University of Georgia, Athens, GA.

Parent and grandsire discovery in a rapidly expanding collection of genotypes.
G. Wiggins*, Council on Dairy Cattle Breeding, Bowie, MD.

Profiles of causative SNP in a genome-wide association study.
I. Misztal1, I. Pocrnic2,3, M. Perez-Enciso4, and D. A. L. Lourenco5, 1University of Georgia, Athens, GA, 2The Roslin Institute, Midlothian, United Kingdom, 3CRAG, Barcelona, Spain.

Predicted producing value: Formula to account for actual inbreeding in a mating program framework.
S. Westberry*, C. Heuer, N. Deeb, and D. Kendall, STgenetics, Navasota, TX.

Inbreeding depression due to different age classes of inbreeding on production and fertility traits in Canadian Holsteins.
B. O. Makanjula1, C. Maltecca2,3, F. Miglior2,3, F. S. Schenkel1, and C. F. Baes1,4, 1Centre for Genomic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Animal Science and Genetics Program, North Carolina State University, Raleigh, 3Ontario Genomics, Toronto, ON, Canada, 4Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

Dairy Foods: Cheese
Chair: Trish Dawson, Sargento
Room 6
12:00 – 12:30 PM (Wednesday block 1)

Impact of milk fat globule membrane materials on cheese made from reconstituted milk: Structure and volatile organic compounds.
H. Zheng*,1, M. Arnold2, K. Kilcawley1, T. Harding1, and M. Weststeyn2, 1Department of Food, Bioprocessing and Nutrition Sciences, Southeast Dairy Foods Research Center, North Carolina State University, Raleigh, NC, 2Dairy Innovation Institute, Animal Science Department, College of Agriculture, Food and Environmental Sciences, California Polytechnic State University, San Luis Obispo, CA, 3Teagasc Food Research Centre Moorepark, Fermoy, Ireland, 4School of Food Science and Environmental Health, Technical University Dublin, Dublin, Ireland, 5Utah State University, Logan, UT.

Application of laser-induced breakdown spectroscopy technique for studying salt diffusion in model cheese matrices.
P. Sharma*,1,3, J. Sheehan1, and J. Flory4, 1Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland, 2School of Food Science and Environmental Health, Technical University Dublin, Dublin, Ireland, 3Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland, 4Utah State University, Logan, UT.

Modelling inward diffusion of salt in model cheese matrix using time-lapse confocal laser scanning microscopy.
P. Sharma*,1,3, J. Sheehan1, and J. Flory4, 1Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland, 2Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland, 3STLO, INRAE, Agrocampus Ouest, Rennes, France, 4Utah State University, Logan, UT.

Effect of late lactation on the physicochemical and sensory properties of semi-hard goat cheese with reduced-fat content.
F. Pinto1, J. L. Riveros2, and R. A. Ibáñez*,2,3, 1Pontificia Universidad Católica de Chile, Facultad de Agronomía e Ingeniería Forestal, Escuela de Graduados, Santiago, Chile, 2Pontificia Universidad Católica de Chile, Facultad de Agronomía e Ingeniería Forestal, Departamento de Ciencias Animales, Santiago, Chile, 3University of Wisconsin-Madison, Center for Dairy Research, Madison, WI.

Comparison of curd washing and lactose standardization for manufacture of Colby cheese.
H. Jiang*, S. Govindasamy-Lucey, J. Jaeggi, M. Johnson, and J. A. Lucey, Center for Dairy Research, Madison, WI.

Effect of processing variables on viscoelastic properties and textural attributes of heat-acid coagulated milk product paneer.
S. Hussain*,1, P. Sharma2,3, and S. Hogan1, 1ICAR-National Dairy Research Institute, Karnal, Haryana, India, 2Teagasc Food Research Centre, Moorepark, Co. Cork, Ireland, 3Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland, 4Utah State University, Logan, UT.
Estrus prediction of cows and heifers with an activity and rumination monitoring system in an organic grazing and a low-input conventional dairy herd.
B. J. Heins* and K. Minegishi, University of Minnesota, St. Paul, MN.

Revealing the effects of reproduction and turnover rate on farm profitability through herd structure dynamics.
W. Li* and V. E. Cabrera, University of Wisconsin-Madison, Madison, WI.

Trends in the use of beef semen in dairy herds in the western United States.
J. M. V. Pereira*1,2, M. I. Marcondes1, and F. C. Ferreira3, 1Universidade Federal de Vicsa, Vicsa, MG, Brazil, 2Department of Population Health and Reproduction, University of California Davis, CA.

Beef semen management practices in California dairy herds.
J. M. V. Pereira*1,2, D. Bruno1, M. I. Marcondes1, and F. C. Ferreira3, 1Universidade Federal de Vicsa, Vicsa, MG, Brazil, 2Department of Population Health and Reproduction, University of California Davis, CA, 3University of California Cooperative Extension, Fresno, CA.

An application of the Ruminant Farm System Model (RuFaS): The use of a combination of sexed and beef semen on dairy herds.
M. Li*1, V. E. Cabrera1, and K. F. Reed2, 1Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, 2Department of Animal Science, Cornell University, Ithaca, NY.

Daily vaginal temperature in Girolando cows from three different genetic compositions under natural heat stress.
L. d. R. Carvalheira*1, R. R. Wenceslau1, L. d. S. Ribeiro2, B. C. d. Carvalho3, Á. M. Borges4, and L. S. d. A. Camargo3, 1Departamento de Clínica e Cirurgia Veterinárias, Escola de Veterinária, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil, 2Departamento de Patologia e Clínica Veterinária, Faculdade de Veterinária, Universidade Federal Fluminense, Niterói, RJ, Brazil, 3Laboratório de Reprodução Animal, Embrapa Gado de Leite, Juiz de Fora, MG, Brazil.

Gastrointestinal morphology of preweaned dairy calves fed whole milk powder or a high-fat milk replacer.
S. C. Mellors*1, A. C. Welboren1, J. Wilms2, L. N. Leal2, J. Martin-Tereso3, and M. A. Steele1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Trouw Nutrition Research and Development, Amersfoort, the Netherlands.

Effect of residual feed intake on nutrient digestion and milk production of lactating Holstein cows fed high and low starch diets.
X. Dai* and K. F. Kalscheur, U.S. Dairy Forage Research Center, USDA-ARS, Madison, WI.

The effects of nutritional management in early lactation and dairy cow genotype on milk production and metabolic status.
E. L. Brady*1, M. B. Lynch2, K. M. Pierce3, A. G. Fahey3, and F. J. Mulligan1, 1School of Veterinary Medicine, University College Dublin, Belfield, Dublin, Ireland, 2School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland.

Feeding behavior of lactating dairy cows fed switchgrass (Panicum virgatum) as a replacement for wheat straw in a total mixed ration.
R. L. Nagle*1, B. R. Lemay2, M. Thimmanagari3, T. J. DeVries1, and A. J. Carpenter1, 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada, 3CSA Animal Nutrition, Dayton, OH.
Ruminant Nutrition: Protein/Amino Acids  
Chair: Johan Osorio, South Dakota State University  
Room 5  
12:00 – 12:30 PM (Wednesday block 1)

315 Using plasma sulfur amino acid concentrations to differentiate the metabolizable methionine contributions of rumen-protected methionine products.  
N. L. Whitehouse*, A. R. Blanchard, S. M. Hollister, and L. H. P. Silva, University of New Hampshire, Durham, NH.

316 In situ rumen degradability and intestinal digestibility of rumen-protected lysine products.  
F. Francia1, C. Faturi2, M. E. Rodriguez-Prado1, and S. Calsamiglia**, 1Animal Nutrition and Welfare Service, Univeristat Autonoma de Barcelona, Bellaterra, Spain, 2Universidad Federal Rural de la Amazonia, Belem, Brazil.

317 Lactation performance and nitrogen utilization of dairy cows on diets including unfermented or fermented yellow wine lees mix.  
K. Y. Yao1, Z. H. Wei1, Y. Y. Xie1, D. M. Wang1, H. Y. Liu1, M. R. Ma2, and J. X. Liu3, 1Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, China, 2College of Agriculture and Bioengineering, Jinhua Polytechnic, Jinhua, China.

318 The effect of a low protein diet, with and without amino acid supplementation, on the performance of lactating dairy Holstein cows.  
L. Vandaele*, E. Vandekerckhove, D. Van Wesemael, J. De Boever, B. Ampe, and S. De Campeneere, Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Melle, Belgium.

319 Estimating gastrointestinal tissue use of postruminally absorbed amino acids using a stable isotope-based approach.  
J. M. Prestegaard*, X. Huang, A. C. Hruby, L. M. Campos, and M. D. Hanigan, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Animal Health: Transition Cow 3  
Chair: Andres Contreras, Michigan State University  
Room 1  
12:30 – 1:00 PM (Wednesday block 2)

319 Effects of yeast culture supplementation on systemic and polymorphonuclear leukocyte mRNA biomarkers of inflammation and liver function in peripartal dairy cows.  
N. A. Carpinelli1,2, J. Halfen1,2, R. Mohan1, E. Trevisi4, J. D. Chapman6, E. D. Sharman6, and J. S. Osorio7, 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil, 3Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Science, Italy, 4Phibro Animal Health Corporation, Teaneck, NJ.

320 Effect of different fatty acids on the proliferation and cytokine production of peripheral blood mononuclear cells (PBMC) of dairy cows.  
N. Vanacker*1,2, R. Blouin1, C. Ster1, and P. Lacasse2,1, 1Université de Sherbrooke, Sherbrooke, QC, Canada, 2Agriculture and Agrifood Canada, Sherbrooke, QC, Canada.

321 Selenium-biofortified alfalfa hay supplementation modulates liver and macrophage gene expression in periparturient dairy cows.  
S. Busato* and M. Bionaz, Oregon State University, Corvallis, OR.

322 Mycotoxins in forage-based feeds from the United States and Canada.  
P. N. Gott1, E. G. Hendel1, S. M. Ramirez2, U. Hofstetter2, and G. R. Murugesan1, 1BIOMIN America Inc., Overland Park, KS, 2BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.

323 Recent mycotoxin contamination trends in US corn grain and corn by-product feeds.  
P. N. Gott1, E. G. Hendel1, S. M. Ramirez2, U. Hofstetter2, and G. R. Murugesan1, 1BIOMIN America Inc., Overland Park, KS, 2BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.
Effects of supplemental mycotoxin deactivator on lactation performance of Holstein cows fed natural mixed mycotoxin contaminated feed.
N. L. Whitehouse*, 1 H. C. Robertson1, B. K. Kerns1, S. M. Hollister1, L. H. P. Silva1, and S. M. Fredin2, 1University of New Hampshire, Durham, NH, 2Adisseo USA Inc., Alpharetta, GA.

Breeding and Genetics
Chair: Daniela Lourenco, University of Georgia
Room 2
12:30 – 1:00 PM (Wednesday block 2)

Genomic predictions for milk yield of crossbred dairy cattle.
Y. Steyn*, 1 D. Gonzalez-Pena2, N. Vukasinovic2, D. Lourenco1, I. Misztal3, and S. DeNise2, 1University of Georgia, Athens, GA, 2Zoetis, Kalamazoo, MI.

Genetic and non-genetic factors associated with lactation length in seasonal-calving dairy cow pasture-based systems.
M. Williams*1, 2 C. P. Murphy3, R. D. Sleator3, M. M. Judge1, S. C. Ring1, and D. P. Berry1, 1Department of Animal Bioscience, Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland, 2Department of Biological Sciences, Cork Institute of Technology, Bishopstown, Co. Cork, Ireland, 3Irish Cattle Breeding Federation, Bandon, Co. Cork, Ireland.

β-Casein A2 genetics of organic Holstein dairy cows across the Midwest and Northeast.
B. J. Heins*1, G. M. Pereira1, L. C. Hardie1, and C. D. Dechow2, 1University of Minnesota, Morris, MN, 2Pennsylvania State University, State College, PA.

Genetic traits and β-casein A2 of Holstein and crossbred dairy cattle in an organic and low-input dairy herd.
B. J. Heins*1, G. M. Pereira1, L. C. Hardie1, and C. D. Dechow2, 1University of Minnesota, Morris, MN, 2Pennsylvania State University, State College, PA.

ProCROSS calves compared with Holstein calves for calving traits in two research herds.
G. M. Pereira*1, 2 L. B. Hansen1, and B. J. Heins2, 1University of Minnesota, Saint Paul, MN, 2West-Central Research and Outreach Center, Morris, MN.

ProCROSS and Grazecross calves compared with Holstein calves for calving traits in a low-input dairy herd.
G. M. Pereira*1, 2 L. B. Hansen1, and B. J. Heins2, 1University of Minnesota, St. Paul, MN, 2West-Central Research and Outreach Center, Morris, MN.

Dairy Foods: Cheese
Chair: Rani Govindasamy-Lucey, Wisconsin Center for Dairy Research
Room 6
12:30 – 1:00 PM (Wednesday block 2)

What is the fate of Listeria monocytogenes in various types of Belgian artisanal cheeses?
A. Gérard*, 1 E. Van Coillie2, A. Bentaib3, G. Daube4, and M. Sindic1, 1Laboratory of Quality and Safety of Agro-Food Products, Gembloux Agro-Bio Tech, University of Liège, Gembloux, Belgium, 2Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Technology and Food Science Unit, Melle, Belgium, 3Quality Partner sa, Herstal, Belgium, 4Faculty of Veterinary Medicine, Food Science Department, FARAH, University of Liège, Liège, Belgium.

Efficacy of bioengineered nisin derivatives H27/31K in combination with phage endolysin PlyP100 to eliminate Listeria monocytogenes in queso fresco.
L. A. Ibarra-Sánchez*, W. Kong, T. Lu, and M. J. Miller, University of Illinois at Urbana-Champaign, Urbana, IL.
Physical and sensorial characteristics of raw milk cheeses and pasteurized milk cheeses from sheep supplemented with sunflower seed silage.
E. Cardoso-Gutiérrez¹, A. C. Narvaez-López², L. E. Robles-Jiménez², M. d. l. Á. Colin-Cruz², M. González-Ronquillo², and E. Vargas-Bello-Pérez*. ¹Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, México, ²Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg, Denmark.

Manufacture of culture-based acid curd using micellar casein concentrate.
A. R. A. Hammam* and L. E. Metzger, Dairy and Food Science Department, South Dakota State University, Brookings, SD.

Manufacture of designer milk powder for recombined cheeses.
S. Sen*, S. Govindasamy-Lucey¹, J. J. Jaeggi², M. E. Johnson², J. A. Lucey¹², and M. Molitor², ¹University of Wisconsin-Madison, Madison, WI, ²Wisconsin Center for Dairy Research, Madison, WI.

Impact of lactose standardization and curd types on the properties of direct-salted Gouda cheese.
Y. Gong**, S. Govindasamy-Lucey¹, J. J. Jaeggi², M. E. Johnson², and J. A. Lucey¹², ¹University of Wisconsin-Madison, Madison, WI, ²Wisconsin Center for Dairy Research, Madison, WI.

Production, Management, and the Environment
Chair: Gail Carpenter, CSA Animal Nutrition
Room 3
12:30 – 1:00 PM (Wednesday block 2)

Evaluation of calf body weight with a partial-weigh scale on an automatic calf feeder.
B. J. Heins* and K. T. Sharpe, University of Minnesota, Morris, MN.

Effects of milk replacer feeding rate and frequency on metabolic responses of dairy calves during summer and winter.

Effects of milk replacer feeding rate and frequency on basal metabolism and abomasal emptying of dairy calves during summer and winter.

Can the threshold on absolute fat residual improve the reliability of milk mid-infrared-predicted traits without using reference values?
L. Zhang*, C. F. Li², F. Dehareng³, C. Grelet³, F. Colinet¹, N. Gengler¹, Y. Brostaux¹, and H. Soyeurt¹, ¹TERRA Teaching and Research Centre, University of Liège-Gembloux Agro-Bio Tech, Gembloux, Belgium, ²Hebei Livestock Breeding Station, Shijiazhuang, China, ³Valorisation of Agricultural Products Department, Walloon Agricultural Research Centre, Gembloux, Belgium.

Assessment of within- and between-day variability of individual cow milk urea nitrogen.
K. F. Reed* and E. M. Wood, Cornell University, Ithaca, NY.
Ruminant Nutrition: General
Chair: Paul Kononoff, University of Nebraska
Room 4
12:30 – 1:00 PM (Wednesday block 2)

Effects of *Lactobacillus plantarum* as direct-fed microbials on the ruminal microbial community composition using a dual-flow continuous culture system.
H. F. Monteiro*,1 P. Fan3, X. Dai2, J. Arce-Cordero1, B. C. Agustinho1,3 R. R. Lobo1, A. L. J. Lelis3, V. L. N. Brandão1, A. Facenda3, A. S. Avila2, R. Restelatto6, L. G. Silva2, K. C. Jeong1, and A. P. Faciola1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 1U.S. Dairy Forage Research Center, ARS-USDA, Madison, WI, 1Departamento de Zootecnia, Universidade Estadual de Maringá, Maringa, PR, Brazil, 1Departamento de Zootecnia, Universidade de São Paulo, São Paulo, SP, Brazil, 1Departamento de Zootecnia, Universidade Estadual do Oeste do Paraná, Marechal Cândido Rondon, PR, Brazil, 1Departamento de Zootecnia, Universidade Federal do Paraná, Curitiba, PR, Brazil, 1Departamento de Zootecnia, Universidade Estadual Paulista, Jaboticabal, SP, Brazil.

In situ rumen degradability and intestinal digestibility of rumen-protected choline sources.
C. Faturi1, F. Francia1, M. E. Rodriguez-Prado1, and S. Calsamiglia1, 1Animal Nutrition and Welfare Service, Universtat Autonoma de Barcelona, Bellaterra, Spain, 1Universidade Federal Rural de la Amazonia, Belem, Brazil.

The effect of sanguinarine supplementation on villus height and crypt depth in calves.
N. Stepanchenko*,1 H. K. J. P. Wickramasinghe1, E. A. Horst1, J. V. V. Silva1, M. R. O’Neill1, S. Bas2, F. R. B. Ribeiro1, and J. A. D. R. N. Appuhamy1, 1Department of Animal Science, Iowa State University, Ames, IA, 1Phytobiotics North America LLC, Cary, NC.

Effects of an isoquinoline alkaloids-based product on performance milk yield and components of lactating dairy cows.
C. Audonnet*,1 N. Cebron2, J. Poyedessus2, H. Bezille1, S. Bas3, and G. Foucras3, 1IHAP, Université de Toulouse, INRAE, ENVT, Toulouse, France, 2Phytobiotics Futterzusatzstoffe GmbH, Eltville, Germany.

Effects of rumen protected choline supplementation during electric heat blanket induced heat stress.
H. T. Holdorf*,1 K. A. Estes1, B. A. Barton1, and H. M. White1, 1University of Wisconsin-Madison, Madison, WI, 2Balchem Corporation, New Hampton, NY.

Effects of an immunomodulatory feed additive on performance of transition cows.
C. S. Takiya*,1 L. K. Mamedova1,2 M. Garcia1, D. E. Nuzback3, and B. J. Bradford1,2, 1Kansas State University, Manhattan, KS, 2Michigan State University, East Lansing, MI, 3Phibro Animal Health, Teanace, NJ.

Effects of non-toxigenic clostridia oral supplementation on production, health, and metabolism of Holstein cows.
F. Cardoso*,1 T. Rehberger1, J. Thompson1, A. Smith1, M. Griffin1, and F. Cardoso1, 1University of Illinois, Urbana, IL, 1Arm & Hammer Animal and Food Production, Waukesha, WI.

Ruminant Nutrition: Protein/Amino Acids
Chair: Johan Osorio, South Dakota State University
Room 5
12:30 – 1:00 PM (Wednesday block 2)

Effects of rumen undegradable protein and amino acid sources and replacing either forage or non-forage fiber sources in postpartum cows on body composition.
A. W. Tebbe* and W. P. Weiss, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH.

Effect of dietary crude protein level on lactation performance, feed efficiency, and nitrogen use efficiency of dairy cows at different stages of lactation.
P. Letelier*,1 G. I. Zanton2, and M. A. Wattiaux3, 1University of Wisconsin-Madison, Madison, WI, 1USDA-ARS, U.S. Dairy Forage Research Center, Madison, WI.

Assessing essential amino acid availability from microbial and rumen undegraded protein in lactating dairy cows.
X. Huang*,1 P. Yoder1,2 L. Campos1, E. Huang1, and M. Hanigan1, 1Virginia Tech, Blacksburg, VA, 1Perdue AgriBusiness LLC, Salisbury, MD.
Dietary energy source and rumen-protected amino acids: Effects on milk production and plasma amino acid concentrations in dairy cows.
Y. Zang*, 1 L. H. P. Silva1, Y. Geng2, M. J. Lange1, N. O. Dattolico1, N. L. Whitehouse1, M. Miura4, M. A. Zambom3, and A. F. Brito1,
1University of New Hampshire, Durham, NH, 2Chinese Academy of Agricultural Sciences, Beijing, China, 3Universidade Estadual do Oeste do Paraná, Marechal Cândido Rondon, Brazil, 4Ajinomoto Co. Inc., Kawasaki-shi, Japan.

Using the plasma amino acid dose-response method to validate the bioavailability of methionine and lysine in Smartamine ML.
N. L. Whitehouse*, 1 S. M. Hollister1, L. H. P. Silva1, and K. A. McLain2, 1University of New Hampshire, Durham, NH, 2University of Nebraska-Lincoln, Lincoln, NE.

Animal Health: Mastitis 1
Chair: Vengai Mavangira, Michigan State University
Room 1
1:00 – 1:30 PM (Wednesday block 3)

Evaluation of the cost of mastitis by Streptococcus uberis and the profitability of vaccination protocols.

Molecular characterization of methicillin-resistant Staphylococcus aureus (MRSA) and associated risk factors with the occurrence of goat mastitis.
M. Ijaz*, M. Altaf, M. Kashif Iqbal, A. Rehman, M. Avais, and A. Ghaffar, University of Veterinary & Animal Sciences, Lahore, Punjab, Pakistan.

Assessing the risk of subclinical intramammary infection in non-clinical quarter(s) by test day somatic cell count or clinical symptoms.
K. Morrill* and J. Scillieri Smith, Cornell University, Ithaca, NY.

Partial budget analysis of selective dry cow therapy strategies.
A. K. Vasquez1, S. M. Rowe*, 2 S. M. Godden2, P. J. Gorden1, A. Lago4, E. Royster2, J. Timmerman1, M. J. Thomas1, R. A. Lynch1, and D. V. Nydam1, 1Cornell University, Ithaca, NY, 2University of Minnesota, St. Paul, MN, 3Iowa State University, Ames, IA, 4Dairy Experts, Tulare, CA, 5Dairy Health & Management Services, Lowville, NY.

Effect of treatment at dry-off with intramammary antibiotics, internal teat sealants, or both on milk production in dairy cows.
W. R. ElAshmawy*, 1, 2, E. Okello1, 2, D. R. Williams1, R. J. Anderson1, B. Karle5, T. W. Lehenbauer1, 3, and S. S. Aly1, 3, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California-Davis, Tulare, CA, 2Department of Internal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Cairo University, Giza, Egypt, 3Department of Population Health & Reproduction, School of Veterinary Medicine, University of California-Davis, Davis, CA, 4Animal Health Branch, California Department of Food Agriculture, Sacramento, CA, 5Cooperative Extension, Division of Agriculture and Natural Resources, University of California, Orland, CA.

Breeding and Genetics
Chair: Paul VanRaden, USDA
Room 2
1:00 – 1:30 PM (Wednesday block 3)

Comprehensive analyses of 723 transcriptomes enhance genetic and biological interpretations for complex traits in cattle.
G. E. Liu*, Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD.

Imputation and investigation of sequence genotypes for 6,735,530 variants of 39,048 Holsteins.
A. Al-Khudhair*, 1, J. R. O’Connell2, D. J. Null1, and P. M. VanRaden1, 1USDA/Animal Genomics and Improvement Laboratory, Beltsville, MD, 2The University of Maryland School of Medicine, Baltimore, MD.
Genomic prediction with single-step genomic BLUP using a subset of genotypes in US Holstein.
Y. Masuda*, S. Tsuruta, and I. Misztal, University of Georgia, Athens, GA.

Accuracy of indirect predictions based on prediction error covariance from single-step genomic BLUP.
D. Lourenco*1, I. Aguilar2, A. Legarra3, A. Garcia3, Y. Masuda3, S. Tsuruta3, and I. Misztal3, 1University of Georgia, Athens, GA,
2INIA, Las Brujas, Canelones, Uruguay, 3INRA, Castanet Tolosan, France.

Development and validation of a medium-density chip array for bovine.
N. Deeb*, C. Neis*, and S. Furgens*, 1STgenetics, Navasota, TX, 2Genetic Visions, Middleton, WI.

Dairy Foods: Chemistry
Chair: Don Otter, Wisconsin Center for Dairy Research
Room 6
1:00 – 1:30 PM (Wednesday block 3)

B. Zaitoun*, J. Amamcharla1, and N. Palmer2, 1Kansas State University, Manhattan, KS, 2Glanbia Nutritional, Twin Falls, ID.

Interaction of strawberry phenolic compounds with milk proteins.
R. Singh* and R. Bajaj, NDRI, Karnal, Haryana India.

Measurement of lactose in “lactose-free” products.

Influence of ionic environment on acidified micellar casein gels.
D. Wilbanks*, J. Lucey1, and S. Rahimi2, 1University of Wisconsin-Madison, Madison, WI, 2Arla Foods, Aarhus, Viby J, Denmark.

Modeling the effect of temperature and water activity on thermal resistance of Salmonella in dairy powders.
X. Wei*, B. Chaves1, M.-G. Danao1, S. Agarwal2, and J. Subbiah3, 1University of Nebraska, Lincoln, NE, 2University of Arkansas, Fayetteville, AR, 3Mars Wrigley, Chicago, IL.

Forages and Pastures
Chair: Daryl Kleinschmit, Zinpro Corporation
Room 4
1:00 – 1:30 PM (Wednesday block 3)

Effect of drought stress on fiber digestibility of corn for silage.
G. Ferreira* and C. L. Teets, Department of Dairy Science, Virginia Tech, Blacksburg, VA.

Effect of forage processor roll-gap settings and storage length on the fermentation profile, nitrogen fractions, and kernel processing score of whole-plant corn silage harvested at different maturities.
B. A. Saylor*, E. C. Diepersloot1, L. G. Ghizzi2,3, J. O. Gusmao2,3, C. Heinzen Jr1, C. L. McCary1, M. R. Pupo1, H. Sultana1, and L. F. Ferraretto1, 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Department of Animal Nutrition and Animal Production, University of São Paulo, Pirassununga, São Paulo, Brazil, 3Department of Animal Science, Federal University of Lavras, Lavras, Minas Gerais, Brazil.

Fiber digestion kinetics of summer annual grasses with or without brown midrib genotype.
G. Ferreira*, A. I. Silva-Reis1, A. A. Pereyra2,3, and C. L. Teets1, 1Department of Dairy Science, Virginia Tech, Blacksburg, VA, 2Facultad de Ciencias Agrarias, Universidad Nacional del Nordeste, Corrientes, Corrientes, Argentina, 3Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina.
372 Relationships between fiber contents and in vitro dry matter digestibility of alfalfa and grass silages. C. Plett*1, A. Scott1, K. H. Ominski1, N. McLean1, C. Lafreniere1, S. Bittman1, and J. C. Plaizier1, 1University of Manitoba, Winnipeg, MB, Canada, 2Dalhousie University, Truro, NS, Canada, 3Université du Québec en Abitibi-Témiscamingue, Rouyn-Noranda, QC, Canada, 4Agriculture and Agri-Food Canada, Agassiz, BC, Canada.

373 The content of lignin and hemicellulose of silages from different genotypes of sorghum biomass. F. J. Ferreira1, D. E. P. Oliveira1, G. M. Dallago*2, C. S. Bonfá1, and M. A. Magalhães1, 1Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, MG, Brazil, 2McGill University, Sainte-Anne-de-Bellevue, QC, Canada.

374 Effects of pre-cutting round hay bales during baling on forage quality and processing time. W. E. Brown*1, E. Harms2, J. Heimsoth2, J. McGinnis2, C. I. Vahl1, B. J. Bradford1, and M. J. Brouk1, 1Kansas State University, Manhattan, KS, 2John Deere Corporation, Olathe, KS.

Physiology and Endocrinology
Chair: Angel Abuelo, Michigan State University
Room 3
1:00 – 1:30 PM (Wednesday block 3)

375 Blood microRNA profile differs between primiparous and multiparous cows fed a high-concentrate diet. N. Reisinger*1, A. Stauder2, M. Hackl3, J. Faas1, and Q. Zebeli1, 1BIOMIN Research Center, Tulln, Austria, 2Institute of Animal Nutrition and Functional Plant Compounds, Department for Farm Animals and Veterinary Public Health, Vetmeduni Vienna, Vienna, Austria, 3TAmiRNA GmbH, Vienna, Austria.

376 Fatty acid-induced ORAI1 facilitates endoplasmic reticulum stress through mitochondrial dysfunction in calf hepatocytes. B. Zhang1, M. Li1, W. Yang2, C. Xia1, H. Zhang1, and C. Xu*2, 1College of Life Science and Technology, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang, China, 2College of Animal Science and Veterinary Medicine, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang, China.

377 Healthy mammary quarters neighboring LPS-infused quarters undergo hypogalactia associated with transcriptional changes in immune and metabolic genes. E. M. Shangraw*1, R. O. Rodrigues1, R. K. Choudhary2, F.-Q. Zhao2, and T. B. McFadden1, 1University of Missouri, Columbia, MO, 2University of Vermont, Burlington, VT.

378 Changes in biomarkers of metabolic stress during late gestation of dairy cows associated with colostrum volume. R. M. Rossi*1, F. Cullens, P. Bacigalupo, L. M. Sordillo, and A. Abuelo, Michigan State University, East Lansing, MI.

379 Glucose tolerance appears to follow a daily rhythm in dairy cows. I. Salfer*1,2, C. Matamoros2, and K. Harvatine3, 1South Dakota State University, Brookings, SD, 2The Pennsylvania State University, University Park, PA.


Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion
Chair: Diwakar Vyas, University of Florida
Room 5
1:00 – 1:30 PM (Wednesday block 3)

381 Factors influencing fiber digestibility in dairy cows. D. Cavallini*1,2, A. Concolino1, L. Mammì1, G. Canestrari1, S. Speroni1, G. Buonaiuto1, L. Campidoni1, F. Ghiacono1, A. Palmonari2, E. Valle2, and A. Formigoni1, 1Department of Veterinary Sciences, University of Bologna, Ozzano Emilia, Italy, 2Department of Veterinary Sciences, University of Turin, Grugliasco, Italy.
Development of an in vitro assay to determine the intestinal digestion of lipids in ruminants.

Alterations in ruminal and fecal microbial communities of dairy cows during ketosis.
Q. Wang*1, W. Bao1, Y. Cui1, J. J. Loor1, B. Gao1, Y. Ren3, and C. Xu1, 1College of Animal Science and Veterinary Medicine, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang, China, 2Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.

A new pathway for forming acetate during fermentation in bacteria.
B. Zhang*1, C. Bowman1, and T. Hackmann1, 1University of California-Davis, Davis, CA, 2University of Florida, Gainesville, FL.

Gas production kinetics of in situ washout and remaining fractions.
N. Schlau*1, D. R. Mertens2, L. F. Ferraretto3, and D. Tayson1, 1Dairyland Laboratories Inc., Arcadia, WI, 2Mertens Innovation and Research LLC, Belleville, WI, 3Department of Animal Sciences, University of Florida, Gainesville, FL.

Stimulation of microbial protein synthesis by branched-chain volatile fatty acids (BCVFA) in dual-flow cultures varying in forage and PUFA concentrations.
K. E. Mitchell*1, B. A. Wenner1, C. Lee1, M. T. Socha2, and J. L. Firkins1, 1The Ohio State University, Columbus, OH, 2Zinpro Corporation, Eden Prairie, MN.

Animal Health: Mastitis 2
Chair: Vengai Mavangira, Michigan State University
Room 1
1:30 – 2:00 PM (Wednesday block 4)

Effect of treatment at dry-off with intramammary antibiotics, internal teat sealants, or both on the health of dairy cows on USDA-certified organic herds.
W. R. ElAshmawy*1,2, E. Okello1,3, D. R. Williams1, R. J. Anderson4, P. Rossitto1, J. D. Champagne1, K. Tonooka1, K. Glenn1, B. Karle5, T. W. Lehenbauer1,3, and S. S. Aly1,3, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California-Davis, Tulare, CA, 2Department of Internal Medicine and Infectious Diseases, Faculty of Veterinary Medicine, Cairo University, Giza, Egypt, 3Department of Population Health & Reproduction, School of Veterinary Medicine, University of California-Davis, Davis, CA, 4Animal Health Branch, California Department of Food Agriculture, Sacramento, CA, 5Cooperative Extension, Division of Agriculture and Natural Resources, University of California, Orland, CA.

Impact of subclinical mastitis detected in the first month of lactation on milk yield, fertility, and culling of dairy cows on USDA-certified organic herds.
L. Fernandes*1, I. Guimaraes1, N. Noyes2, L. Caixeta2, and V. Machado1, 1Texas Tech University, Lubbock, TX, 2University of Minnesota, St. Paul, MN.

Pattern of behavioral, physiological, and performance parameters before and after clinical diagnosis of mastitis.
M. M. Pérez*1, E. M. Cabrera2, C. Rial1, D. V. Nydam2, and J. O. Giordano1, 1Department of Animal Science, Cornell University, Ithaca, NY, 2Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY.

Impact of dry-off management in robotic milking systems on milking behavior, milk yield, and somatic cell count.
A. E. France*1, S. Dufour2, D. F. Kelton1, H. W. Barkeama4, D. Kurban2, and T. J. DeVries1, 1Department of Animal Biosciences, Guelph, ON, Canada, 2Faculté de Médecine Vétérinaire, Université de Montréal, Saint-Hyacinthe, QC, Canada, 3Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 4Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada.

Cow health and dairy farmer mental health in herds with robotic milking systems.
M. T. M. King, R. D. Matson, and T. J. DeVries*, Department of Animal Biosciences, Guelph, ON, Canada.
The evaluation of the potential of biomass sorghum silage added with sugarcane.  
D. E. P. Oliveira¹, F. J. Ferreira¹, G. M. Dallago*², C. S. Bonfá¹, and M. A. Magalhães¹, ¹Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Minas Gerais, Brazil, ²McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada.

Prediction of compressed sward height of Walloon pastures from sentinel-2 images using machine learning algorithms.  
C. Nickmilder*¹, A. Tedde¹, P. Lejeune¹, I. Dufrasne², F. Lessire³, B. Tycho³, F. Lebeau¹, and H. Soyeurt¹, ¹TERRA, ULiege, Liege, Belgium, ²Département de gestion veterinaire des Ressources Animales (DRA) / Nutrition des animaux domestiques, ULiege, Liege, Belgium, ³Fundamental and Applied Research for Animals and Health (FARAH), ULiege, Liege, Belgium, ⁴Département des sciences et gestion de l environnement (Arlon Campus Environnement), ULiege, Liege, Belgium.

Effects of diversity and spatial separation of pastures on milk yields, N partitioning, and methane emissions in dairy cows.  
L. Carmona-Flores*¹, M. Bionaz¹, T. Downing¹, M. Sahin², and S. Ates¹, ¹Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR, ²Department of Crop and Soil Sciences, Oregon State University, Corvallis, OR.

Milk production, nitrogen utilization, and methane emission of dairy cows grazing grass, forb, and legume-based pastures.  
R. Wilson¹, M. Bionaz¹, J. MacAdam², K. Beauchemin³, H. Naumann⁴, and S. Ates*¹, ¹Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR, ²Department of Plants, Soils, and Climate, Utah State University, Logan, UT, ³Lethbridge Research and Development Centre, Agriculture and Agri-Food, Lethbridge, AB, Canada, ⁴Division of Plant Sciences, University of Missouri, Columbia, MO.

Ruminal metabolism and plasma amino acids in Jersey cows grazing forage canola.  
L. H. P. Silva*¹, Y. Zang¹, M. Ghelichkhan¹, Y. Geng², S. L. Dillard³, K. J. Soder⁴, and A. F. Brito¹, ¹University of New Hampshire, Durham, NH, ²Chinese Academy of Agricultural Sciences, Beijing, China, ³Auburn University, Auburn, AL, ⁴USDA-Agricultural Research Service, Pasture Systems and Watershed Management Research Unit, University Park, PA.

Chicory and plantain-dominated forb pasture improves health and rumen N efficiency in lactating dairy cows.  
H. Ford*¹, S. Busato¹, E. Trevisi¹, Y. Gultekin¹, M. Bionaz¹, and S. Ates¹, ¹Oregon State University, Corvallis, OR, ²Università Cattolica del Sacro Cuore, Piacenza, Italy.

Effects of LPS administration and subsequent nutrient restriction on metabolism in lactating dairy cows.  
S. Rodriguez-Jimenez*, E. A. Horst, E. J. Mayorga, M. A. Abeyta, B. M. Goetz, S. Carta, and L. H. Baumgard, Iowa State University, Ames, IA.

Response to LPS challenge after intravenous amino acid infusion in postpartum dairy cows.  

Intravenous amino acid infusion in early postpartum dairy cows: Effects on performance, blood metabolites, and serum hormones.  
T. L. Chandler*¹, T. A. Westhoff, J. E. Cha¹, A. L. Lock¹, T. R. Overton¹, and S. Mann¹, ¹Cornell University, Ithaca, NY, ²Michigan State University, East Lansing, MI.

The effect of manual forestripping on teat tissue condition and milking performance in Holstein dairy cows milked 3 times daily.  
M. Wieland*¹, P. D. Virkler², A. Weld¹, J. M. Melvin¹, M. R. Wettstein¹, M. F. Oswald¹, C. G. Geary¹, R. D. Watters¹, R. Lynch², and D. V. Nydam¹, 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.
Effect of human chorionic gonadotropin treatment on d 7 or d 7 and 13 of the estrous cycle on luteal and follicular dynamics in non-inseminated lactating Holstein cows.
T. O. Cunha1, R. Statz1, R. R. Domingues2, J. P. N. Andrade1,3, M. C. Wiltbank2, and J. P. N. Martins1, 1School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI, 2Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.

Production, Management, and the Environment
Chair: Gail Carpenter, CSA Animal Nutrition
Room 2
1:30 – 2:00 PM (Wednesday block 4)

Characterizing the microbiota of recycled bedding sand on a Wisconsin dairy farm.
H. Pilch1, A. Steinberger2*, G. Suen3, N. Aulik4, D. Sockett5, and C. Czuprynski6, 1Department of Pathobiological Sciences, University of Wisconsin-Madison, Madison, WI, 2Department of Bacteriology, University of Wisconsin-Madison, Madison, WI, 3Wisconsin Veterinary Diagnostic Laboratory, Madison, WI.

Effects of 2-hydroxy-(4-methylthio) butanoic acid and isoacids on rumen fermentation, production, and milk fatty acid during mild milk fat depression in lactating cows.
J. E. Copelin*1, J. L. Firkins2, M. T. Socha3, and C. Lee3, 1Department of Animal Sciences, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH, 2Department of Animal Sciences, The Ohio State University, Columbus, OH, 3Zinpro Corporation, Eden Prairie, MN.

Successful strategies to reduce enteric methane emission from ruminants: A meta-analysis.
C. Arndt1*, A. N. Hristov1, W. J. Price2, S. C. McClelland3, A. Pelaez4, S. F. C. Welchez5, J. Oh6, A. Bannink6, A. R. Bayat7, L. A. Crompton8, J. Dijkstra9, M. A. Eugène10, M. Kreuzer10, M. McGee11, C. Martin12, 1Universidad Nacional Agraria, La Molina, Lima, Peru, 2The Pennsylvania State University, University Park, PA, 3University of Idaho, Moscow, ID, 4Colorado State University, Fort Collins, CO, 5Cargill Korea, Seoul, South Korea, 6Wageningen University and Research, Wageningen, the Netherlands, 7Natural Resources Institute Finland, Finland, 8University of Reading, Reading, UK, 9INRAE, Saint Genès-Champanelle, France, 10University of California, Davis, CA, 11ETH Zurich, Zürich, Switzerland, 12Teagasc, AGRIC, Grange, Ireland.

Altering the ruminal microbiota in dairy calves using rumen contents dosing.
M. Cox1*, P. Weimer2,3, A. Steinberger1, J. Skarlupka1, and G. Suen1, 1Department of Bacteriology, University of Wisconsin-Madison, Madison, WI, 2US Dairy Forage Research Center, USDA Agricultural Research Service, Madison, WI.

Effects of Asparagopsis taxiformis and oregano leaves on methane emission, rumen fermentation, and lactational performance of dairy cows.
H. A. Stefenoni1*, S. E. Räsänen1, S. F. Welchez1, D. E. Wasson1, C. F. Lage1, A. Melgar1, M. E. Fetter1, M. Hennessy2, B. Vecchiarelli3, J. Bender4, D. Pitta2, C. Yarish1, and A. N. Hristov1, 1The Pennsylvania State University, University Park, PA, 2University of Pennsylvania, Kennett Square, PA, 3University of Connecticut, Storrs, CT.

Survey of perceptions and practices of antimicrobial drug use in preweaned California dairy calves.
E. Okello*1,2, D. Williams1, R. Pereira1, T. Lehenbauer1,2, and S. Aly1,2, 1Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California, Davis, Tulare, CA, 2Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, Davis, CA.

Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion
Chair: Diwakar Vyas, University of Florida
Room 5
1:30 – 2:00 PM (Wednesday block 4)

High-throughput phenotyping of rumen microbial contents using buccal swabs.
J. Young1, R. Tassinari2, K. Kalscheur3, J. McClure3, P. Weimer4, A. Fischer5, G. Suen6, and D. Bickhart*1, 1USDA DFRC, Madison, WI, 2Federal University of Goias, Goiania, Brazil, 3Institute De L’elevage, Lyon, France, 4University of Wisconsin, Madison, WI.
Wednesday Poster Presentations

Wednesday poster presenters will be available for individual live text chats from 2:00 to 4:00 pm. To interact with a presenter, navigate to the recorded presentation page.

Animal Health 3: Mastitis

Hoof-impact and slide measurements for common Ontario dairy farm floorings.
J. E. French*, J. J. Thomason*, T. C. Wright, and V. R. Osborne; 1Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada, 2Department of Biomedical Sciences, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, 3Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.

Detecting the bacterial variation of recycled manure solids for use as bedding in freestalls.
H. Wu*, N. Zheng, and J. Wang, Laboratory of Quality and Safety Risk Assessment for Dairy Products of Ministry of Agriculture and Rural Affairs, Institute of Agricultural Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.

Identifying factors associated with lameness and its impact on productivity in automated milking herds.
R. D. Matson*, M. T. M. King, T. F. Duffield, D. E. Santschi, K. Orsel, E. A. Pajor, G. B. Penner, T. Mutsvangwa, and T. J. DeVries; 1Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada, 2Department of Population Medicine, University of Guelph, Guelph, ON, Canada, 3Lactanet, Sainte-Anne-de-Bellevue, QC, Canada, 4Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada, 5Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

Screening stable flies and house flies as potential vectors of digital dermatitis in dairy cattle.
R. Thibodeaux*, J. Brady, S. Swiger, and B. Jones; 1Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX, 3Texas A&M AgriLife Extension, Stephenville, TX.

Skin transcriptome affected by digital dermatitis in lactating dairy cows.
F. Rosa; 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Animal Science Department, Universidade Federal de Lavras, Brazil, 3Alltech Inc., Brookings, SD.

Transcriptional alterations due to sole ulcer revealed via RNA-seq analysis of corium tissue in lactating dairy cows.
F. Rosa; 1Dairy and Food Science Department, South Dakota State University, Brookings, SD, 2Animal Science Department, Universidade Federal de Lavras, Brazil, 3Alltech Inc., Brookings, SD.

Case study: Do low-risk cows in a data-driven selective dry-cow program remain low risk at a subsequent dry-off?
Dry-off antibiotic use in dairy cattle to cure intramammary infections: A systematic review and network meta-analysis.
C. McMullen*, J. Sargeant1, D. Kelton1, A. O’Connor2, C. Reedman1, and C. Winder1, 1Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada, 2Department of Large Animal Clinical Sciences, College of Veterinary Medicine, Michigan State University, East Lansing, MI.

Characterization of serine-aspartate rich (Sdr) proteins in Staphylococcus aureus isolates from bovine intramammary infections in Canada.
A. Dubé-Duquette*1, É. Demontier1, J.-F. Lucier1, S. Rodrigue1, J.-P. Roy2, C. Ster3, and F. Malouin1, 1Département de Biologie, Faculté des Sciences, Université de Sherbrooke, Sherbrooke, QC, Canada, 2Département de Sciences Cliniques, Faculté de Médecine Vétérinaire, Université de Montréal, St-Hyacinthe, QC, Canada, 3Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada.

Breeding and Genetics 1

Genomic predictions for wellness traits in crossbred dairy cattle.

Genomic predictions for crossbred animals with single-step genomic BLUP.
D. Gonzalez Pena*, N. Vukasinovic, J. Broker, C. Przybyla, Y. Steyn, and S. DeNise, Zoetis, Portage, MI, University of Georgia, Athens, GA.

Genetic parameters of horn fly resistance in pastured Holstein cattle.
B. L. Basiel*1, L. C. Hardie1, B. J. Heins2, and C. D. Dechow1, Pennsylvania State University, University Park, PA, University of Minnesota, St. Paul, MN.

Associations between predictions of Lifetime Net Merit and profitability of dairy cows.
G. L. Pezzella*1, C. D. Dechow1, and A. De Vries1, University of Florida, Gainesville, FL, The Pennsylvania State University, University Park, PA.

Predictions of daily total sperm production of Holstein and Jersey bulls using health and management data.
A. Quick*, J. Meronek1, and K. Weigel1, University of Wisconsin, Department of Dairy Science, College of Agricultural & Life Sciences, Madison, WI, ABS Global Inc., DeForest, WI.

A recessive IL17RA frameshift variant in Holstein cattle with psoriasis-like skin alterations and immunodeficiency.
I. M. Häfliger*1, M. Sickinger2, M. Holsteg1, L. M. Raeder3, M. Henrich4, S. Marquardt5, C. Drögemüller5, and G. Lühken6, 1Institute of Genetics, University of Bern, Bern, Switzerland, 2Clinic for Ruminants (Internal Medicine and Surgery), Justus-Liebig University Giessen, Giessen, Germany, 3Animal Health Service, Chamber of Agriculture of North Rhine-Westphalia, Bad Sassendorf, Germany, 4Institute of Veterinary Pathology, Justus-Liebig University Giessen, Giessen, Germany, 5Veterinary Sharing Practice Dr. Siegfried Marquardt und Peter Walter, Goch, Germany, 6Institute of Animal Breeding and Genetics, Justus-Liebig University Giessen, Giessen, Germany.

Beyond studying genetic diversity: How can pedigree and genomic data help us assign individuals to breeds?
H. Wilmot*1, J. Bormann2, and N. Gengler2, 1ULiège - Gembloux Agro-Bio Tech, Gembloux, Belgium, 2ASTA, Luxembourg, Luxembourg.

Genetic and environmental changes in dairy traits revealed from a genetic base update.
H. D. Norman*1, P. M. VanRaden2, and J. W. Dürr3, Council on Dairy Cattle Breeding, Bowie, MD, Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD.

Predicted feed efficiency index applied to Italian Holstein Friesian cattle population.
F. Omodei Zorini*1, R. Finocchiaro1, G. Savoini2, G. Invernizzi1, and M. Cassandro3, Department of Health, Animal Science and Food Safety ‘Carlo Cantoni’, University of Milan, Milan, Italy, Italian Holstein and Jersey Association (ANAFIJ), Research and Development Office, Cremona, Italy, Department of Agronomy, Food, Natural resources, Animals and Environment, University of Padua, Padua, Italy.

Quality control to improve properties of sequence genotypes from different sources.
D. J. Null*, J. B. Cole, A. Al-Khudhair, and P. M. VanRaden, USDA Animal Genomics and Improvement Laboratory, Beltsville, MD.

Genome changes due to selection in US dairy cattle.
E. Freebern*1, J. Jiang2, J. B. Cole1, P. M. VanRaden1, and L. Ma1, University of Maryland, College Park, MD, North Carolina State University, Raleigh, NC, Animal Genomics and Improvement Laboratory, Beltsville, MD.
Changes in early milk composition has subsequent effects on microbial composition of the rumen.
A. Nin-Veléz*,1, J. Duncan2, H. Cunningham-Hollinger2, K. Austin3, K. Cammack2, W. Lamberson3, and R. Cockrum1, 1Virginia Polytechnic Institute and State University, Blacksburg, VA, 2University of Wyoming, Laramie, WY, 3University of Missouri, Columbia, MO.

Relationship between milk production and indicator traits of robustness in first-parity Holstein cows.
C. H. F. Zago Dias4,5, L. El Faro6, M. L. Santana Jr7, R. A. Teixeira8, A. A. Valotto3, and L. T. Dias5, 1Universidade Federal do Paraná, Curitiba, Paraná, Brazil, 2Instituto de Zootecnia, Sertãozinho, São Paulo, Brazil, 3Universidade Federal de Rondonópolis, Rondonópolis, Mato Grosso, Brazil, 4Associação Paranaense dos Criadores de Bovino da Raça Holandesa, Curitiba, Paraná, Brazil.

Evaluating the correlation of digital dermatitis infection and genetic variants to predict gene resistance in Holstein cattle.
G. M. Canny*,1, C. L. Hendley1, W. B. Smith1, B. W. Jones1,2, and J. N. Waddell1, 1Tarleton State University, Stephenville, TX, 2Texas A&M AgriLife Research, Stephenville, TX.

Predicting feed intake and heath events using sensor data in lactating Holstein cows.
C. J. Siberski*,1, M. S. Mayes2,3, P. J. Gorden3, A. Copeland2, M. Healey3, B. M. Goetz2, H. Beiki3, L. M. Kramer1, L. H. Baumgard1, P. Dixon3, and J. E. Koltes1, 1Department of Animal Science, Iowa State University, Ames, IA, 2Veterinary Diagnostic & Production Animal Medicine, Iowa State University, Ames, IA, 3Department of Statistics, Iowa State University, Ames, IA.

Can metafounders improve inbreeding estimation?
Z. G. Vitezica*1,2, I. Aguilar3, J. M. Astruc4, and A. Legarra4, 1INRAE, Toulouse, France, 2INPT, Toulouse, France, 3INIA, Montevideo, Uruguay, 4IDELE, Toulouse, France.

Dairy Foods 3

Comprehensive multi-day and cross-facility evaluation of the industrial Cheddar cheese production environment microbiome.
J. Johnson*, B. Selover, C. Curtin, and J. Waite-Cusic, Oregon State University, Corvallis, OR.

Inhibition of Listeria monocytogenes in queso fresco by topical application of lactose oxidase.

Is the presence of biogenic amines a cause of slits and cracks in cheese?
I. Panguripan*,1, R. A. Ibanez2, K. Houck3, S. Govindasamy-Lucey2, M. E. Johnson3, and J. A. Lucey1,3, 1University of Wisconsin-Madison, Department of Food Science, Madison, WI, 2University of Wisconsin-Madison, Center for Dairy Research, Madison, WI.

Survivability of Salmonella pathogens in powder goat milk stored under refrigeration and room temperatures for 6 months.
R. Paswan*,1, A. Mishra2, and Y. W. Park1, 1Fort Valley State University, Fort Valley, GA, 2University of Georgia, Athens, GA.

Effect of ultra-high-pressure homogenization and pH on buttermilk.
S. Touhami*, A. Doyen, and G. Brisson, Department of Food Sciences, Dairy Research Center (STELA), Institute of Nutrition and Functional Foods (INAF), Université Laval, Quebec, QC, Canada.

Effect of heat treatments in the degradation of antibiotics in milk.

Elucidation of the effect of static and stirring heating conditions on the fibrillation of native whey proteins.
G. Rathod* and J. Amamcharla, Kansas State University, Manhattan, KS.

Sensory evaluation of gabiroba (Campomanesia xanthocarpa) whey-buttermilk fermented beverages.
L. Damasceno*1, R. T. Pfirmer1, K. Merz1, C. F. Cardoso2, J. C. R. S. Morei, E. Arnholdi, C. S. Prado2, E. S. Nicolau1, and C. 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.

Developing probiotic butter by incorporating encapsulated probiotic organisms.
S. Minj1,2 and S. Anand*,1,2, 1Midwest Dairy Foods Research Center, Brookings, SD, 2South Dakota State University, Brookings, SD.
W35  Types of Bacillus endospores in milk protein concentrate and milk protein isolate.
    S. Jha1,2, N. Singh1,2, and S. Anand1,2; 1Midwest Dairy Foods Research Center, Brookings, SD, 2South Dakota State University, Brookings, SD.

W36  Psychrotolerant spore-forming bacterial spoilage of HTST milk pasteurized for 20 seconds at 75, 85, or 90°C and stored at different temperatures.
    T. Lott*, N. Martin, S. Murphy, A. Trmcic, and M. Wiedmann, Cornell University, Ithaca, NY.

W37  Selective survival of dairy cultures to high-pressure processing by leveraging freeze-drying and encapsulation.
    M. McGillin* and S. Alcaine, Cornell University, Ithaca, NY.

W38  The effect of following organic or conventional dairy farming practices on the raw milk microbiome.
    D. Van De Grift*, G. Angima, L. Goddik, J. Cruickshank, and S. Park, Oregon State University, Corvallis, OR.

W39  Microbial counts of camel milk probiotic drinkable yogurt as affected by monk fruit sweetener.
    A. Buchilina*1 and K. Aryana; 1Louisiana State University, Baton Rouge, LA, 2Louisiana State University Agricultural Center, Baton Rouge, LA.

W40  Industry survey: The diversity of rework practices in fluid milk and dairy powder production.
    C. Rush*, J. Waite-Cusic, and L. Meunier-Goddik, Oregon State University, Corvallis, OR.

Forages and Pastures 2

W41  Yield and quality of conventional and brown midrib (BMR) pearl millet with different establishment dates or harvested at different maturities.
    M. Oskey1, B. Stancil2, and M. J. Aguerre*1; 1Department of Animal and Veterinary Science, Clemson University, Clemson, SC, 2Varity Testing and SC Crop Improvement, Clemson University, Clemson, SC.

W42  Evaluation of individual amino acids (AA) and factors that affect the AA profile in corn silage over a 2-year period.
    X. Huang*1, P. Yoder2, and R. Ward1; 1Cumberland Valley Analytical Services, Waynesboro, PA, 2Perdue AgriBusiness LLC, Salisbury, MD.

W43  Milk production and composition in Jersey cows grazing forage canola.
    L. H. P. Silva*1, J. P. Sacramento1,2, D. C. R. Gomez2, Y. Geng3, M. Ghelichkhan1, S. L. Dillard4, K. J. Soder5, and A. F. Brito1; 1University of New Hampshire, Durham, NH, 2Universidade Federal de São João del Rei, São João del Rei, MG, Brazil, 3Chinese Academy of Agricultural Sciences, Beijing, China, 4Auburn University, Auburn, AL, 5USDA-Agricultural Research Service, Pasture Systems and Watershed Management Research Unit, University Park, PA.

W44  Effect of different measurement methods on predicted dry matter content in whole-plant corn forage and silage.
    E. C. Diepersloot*1, E. M. de Paula1,2, M. R. Pupo1, G. Ghizzi1,2, C. Heinzen Jr.1, C. L. McCary1, and L. F. Ferraretto1; 1Department of Animal Sciences, University of Florida, Gainesville, FL, 2Instituto de Zootecnia, Centro APTA Bovinos de Corte, Sertãozinho, São Paulo, Brazil, 3Department of Animal Nutrition and Animal Production, University of São Paulo, Pirassununga, São Paulo, Brazil.

W45  Yield and nutritive value of sorghum silage cut at different harvesting heights.
    J. Granados-Niño1, J. Sánchez-Duarte2, D. Reta-Sánchez3, O. I. Santana1,2, M. López-Calderón1, E. Ochoa-Martínez2, and F. Díaz*4; 1FAZ-UEJED, Venecia, Gómez Palacio, Durango, México, 2INIFAP, Matamoros, Coahuila, México, 3INIFAP, Aguascalientes, México, 4Dairy Research Center, dellait, Brookings, SD.

W46  A survey of wildfire ash impacts on California’s forage crops.
    B. Karle*1, L. Forero2, J. Davy3, J. Harper4, D. Macon5, J. Heguy6, N. Clark7, J. Stackhouse8, T. Schohr9, D. Lile9, E. DePeters10, D. Meyer11, and R. Poppenga12; 1University of California Cooperative Extension, Orland, CA, 2University of California Cooperative Extension, Redding, CA, 3University of California Cooperative Extension, Red Bluff, CA, 4University of California Cooperative Extension, Ukiah, CA, 5University of California Cooperative Extension, Auburn, CA, 6University of California Cooperative Extension, Modesto, CA, 7University of California Cooperative Extension, Hanford, CA, 8University of California Cooperative Extension, Eureka, CA, 9University of California Cooperative Extension, Quincy, CA, 10University of California Department of Animal Science, Davis, CA, 11University of California Animal Health and Food Safety Laboratory, Davis, CA.

W47  Relationship of undigested and physically effective neutral detergent fiber with dry matter intake and energy-corrected milk yield of Holstein cows.
    M. D. Miller*, W. A. Smith, and R. J. Grant, William H. Miner Agricultural Research Institute, Chazy, NY.
**Production, Management, and the Environment 3**

**W50**

Evaluating silage quality of perennial forages seeded with annual sudangrass or sorghum-sudangrass hybrids as companion crop.

S. Thevakumaran*1, C. Matteau2, B. Baurhoo1,2, P. Seguin2, and A. Mustafa1, 1McGill University, Saint Anne De Bellevue, QC, Canada, 2Belisle Solution Nutrition Inc., Saint-Mathias-sur-Richelieu, QC, Canada.

**W51**

*Staphylococcus* mastitis pathogens are present in milk and horn fly populations.

E. K. Luc*, L. G. Schneider, R. T. Trout Fryxell, and G. M. Pighetti, *The University of Tennessee, Knoxville, TN.

**W52**

Feeding rumen-protected lysine prepartum and postpartum affected plasma metabolites and amino acids in Holstein cows.

L. K. Fehlberg1, A. R. Guadagnin1, B. L. Thomas1, Y. Sugimoto1, I. Shinzato2, and F. C. Cardoso1, 1University of Illinois, Urbana, IL, 2Ajinomoto Co. Inc., Tokyo, Japan.

**W53**

Feeding rumen-protected lysine prepartum enhanced plasma indicators of liver function and increased oxidative burst capacity postpartum in Holstein cows.

L. K. Fehlberg1, A. R. Guadagnin1, B. L. Thomas1, Y. Sugimoto1, I. Shinzato2, and F. C. Cardoso1, 1University of Illinois, Urbana, IL, 2Ajinomoto Co. Inc., Tokyo, Japan.

**W54**

Inappropriate use of antimicrobials on dairy farms in midwestern Brazil and their potential risk to public health.

A. F. Cruz*1, D. B. S. Caetano1, D. C. Silva1, E. C. Nogueira1, E. S. Nicolau1, C. Gebara1, and L. A. F. Silva1, 1School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, 2State University of Goiás, São Luiz de Montes Belos, Goiás, Brazil, 3Maroca Dairy Industry, Piranhas, Goiás, Brazil, 4Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.

**W55**

Milk fatty acid metrics and their relationship to milk fat and true protein concentrations in tanks from US Jersey herds.

H. M. Dann*1, A. Pape1, and D. M. Barbano2, 1William H. Miner Agricultural Research Institute, Chazy, NY, 2Cornell University, Ithaca, NY.

**W56**

A survey of manure management in Louisiana dairy farms.

V. R. Moreira*1, B. D. LeBlanc1,2, C. Franze1,2, E. M. Mackey1,2, and C. A. Njombwa1,4, 1Louisiana State University Agricultural Center, Baton Rouge, LA, 2Louisiana State University Sea Grant, Baton Rouge, LA, 3Washington State University, Puyallup, WA, 4Lunyaigwa Agricultural Research Station, Mzuzu, Malawi.

**W57**

Effects of particulate matter on health and production of dairy cattle.

A. A. Anderson*, P. Rezamand, C. Ahmadzadeh, and A. L. Skibiel, University of Idaho, Moscow, ID.

**W58**

Organic additives in diet of dairy cows can reduce the conventional antiparasitics to control ticks.

L. Ferreira1, A. Daurea1, L. Bertelli1, A. Nascimento2, M. Lima2, and R. Mendonça2, 1Premix, Ribeirão Preto, SP, Brazil, 2Universidade de Franca, Franca, SP, Brazil.

**W59**

Effects of heat stress and OmniGen-AF on physiological and inflammatory responses of mid-lactation dairy cows to intravenous lipopolysaccharide infusion.

T. N. Marins*1, J. Gao1, Q. Yang1, R. M. Binda1, C. M. B. Pessoa1, R. M. Orellana1, J. K. Bernard1, M. Garcia2, D. J. McLean2, J. D. Chapman2, D. J. Kirk2, and S. Tao1, 1University of Georgia, Tifton, GA, 2Phibro Animal Health Corp, Teaneck, NJ.

**W60**

The use of OmniGen-AF in New Zealand dairy herds: An observational study.

B. J. McKay1, J. F. Penny1, N. Chryst1, M. Gorocica*1,4, and L. O. Tedeschi1, 1Dairy Production Systems LTD, Hamilton, New Zealand, 2Complete Feed Solutions LTD, Auckland, New Zealand, 3Phibro Animal Health Corporation, Teaneck, NJ, 4Texas A&M University, College Station, TX, 3Anexa Veterinary Services, Morrinsville, New Zealand.
Ruminant Nutrition: General 3

Health and growth in Holstein calves fed blends of yeast products, phytogens, and direct-fed microbials in milk replacer and starter.
K. N. Brost*1, D. M. Paulus Compart2, K. N. Russo2, and J. K. Drackley1, 1University of Illinois Urbana Champaign, Urbana, IL, 2Land O’Lakes Inc, Arden Hills, MN.

The use of reduced levels of organic minerals in diets for transition dairy cows.
G. Silva1, M. Dias1, N. Grigolotto1, T. Del Valle1, A. Nunes1, P. Curti1, P. Vittorazzi Junior1, T. Silva1, C. Takiya1, J. Pettigrew4, A. Koontz2, L. Costa e Silva3, and F. Rennó*5, 1University of São Paulo, Pirassununga, SP, Brazil, 2Unipampa, Itaquí, RS, Brazil, 3Kansas State University, Manhattan, KS, 4James Pettigrew Consulting, Nicholasville, KY, 5Alltech Inc., Nicholasville, KY.

The effect of a sanguinarine supplementation on feed intake, weight gain, hematology, and serum chemistry of calves.
H. K. J. P. Wickramasinghe*1, N. Stepanenko1, C. A. Kaya2, J. V. V. Silva3, S. Bas4, F. R. B. Ribeiro5, and J. A. D. R. N. Appuharny2, 1Department of Animal Science, Iowa State University, Ames, IA, 2Dicile University, Diyarbakir, Turkey, 3Phytobiotics North America LLC, Cary, NC.

Effect of *Pogostemon cablin* extract on proliferation and differentiation of 3T3-L1 preadipocytes and improve insulin resistance.
H. Y. Gao, C. Xu*, Y. Z. Cui, and R. X. Chang, Heilongjiang Bayi Agricultural University, Daqing, Heilongjiang, China.

Models to predict enteric methane emissions from cows fed different forage sources.
R. Manconi1, A. S. Atzori*1, and J. A. D. R. N. Appuharny4, 1Dipartimento di Agraria, University of Sassari, Sassari, Italy, 2Iowa State University, Ames, IA.

E. Evans2, H. Leclerc*3, and E. Santini1, 1Jefo, St-Hyacinthe, QC, Canada, 2Technical Advisory Services, Bowmanville, ON, Canada.

Replacing soybean meal with canola meal reduced enteric methane production and improved milk production in dairy cows.
C. Benchhaar4, F. Hassanat*5, G. Gilson2, and K. A. Beauchemin3, 1Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, 2Université de l’Agriculture de Laval, Sainte-Geneviève de Batiscan, QC, Canada, 3Università degli Studi di Milano, Dipartimento di Scienze Agrarie e Ambientali, Milano, Italy, 4Agriculture and Agri-Food Canada, Lethbridge Research and Development Centre, Lethbridge, AB, Canada.

Canola meal in dairy cow diets: Effect on nitrogen utilization.
F. Hassanat*5, G. Gilson2, K. A. Beauchemin3, and C. Benchhaar4, 1Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada, 2Università degli Studi di Milano, Dipartimento di Scienze Agrarie e Ambientali, Milano, Italy, 3Agriculture and Agri-Food Canada, Lethbridge Research and Development Centre, Lethbridge, AB, Canada.

Comparison of cow health and performance in 244 European dairy farms before and during OmniGen-AF supplementation.
Effect of dietary supplementation of polyunsaturated fatty acids on intake, digestibility, milk production, and milk fatty acids of dairy sheep: A meta-analysis.
1Agricultural Research Station, Fort Valley State University, Fort Valley, GA, 2College of Agriculture, Communities, and the Environment, Kentucky State University, Frankfort, KY, 3Faculty of Veterinary Medicine and Animal Science, Autonomous University of Yucatan, Merida, Yucatan, Mexico, 4Institute of Agriculture and Environmetal Sciences, Federal University of Mato Grosso, Mato Grosso, Sinop, Brazil, 5Department of Animal Sciences, University of Florida, Gainesville, FL.

Evaluation of the relationship between ruminal pH and milk de novo fatty acid proportion in early-lactating dairy cows.
R. Fukumori*, W. Shi, S. Oikawa, and M. Oba, 1Rakuno Gakuen University, Ebetsu, Hokkaido, Japan, 2University of Alberta, Edmonton, AB, Canada.

Lactational performance in dairy cows receiving a rumen-protected B-vitamin blend replacing unprotected biotin during lactation: Meta-analysis of 13 studies.
E. Evans, H. Leclerc*, and E. Santin, 1Jefo, St-Hyacinthe, QC, Canada, 2Technical Advisory Services, Bowmanville, ON, Canada.

Effects of two levels of starch and monensin on performance of mid-lactation dairy cows.

Feeding frequency effect on behavioral patterns and bacterial community composition in Holstein and Jersey cows.
V. M. De La Guardia* and H. A. Paz, Animal and Dairy Sciences Department, Mississippi State University, Starkville, MS.

Lactational performance in dairy cows receiving a rumen-protected B-vitamin blend during lactation: Regression analysis to evaluate yield, lactation number and days in milk.
E. Evans*, H. Leclerc*, and E. Santin, 1Jefo, St-Hyacinthe, QC, Canada, 2Technical Advisory Services, Bowmanville, ON, Canada.

Benefit of zinc methionine hydroxy analog chelate to increasing tissue enrichment with dietary antagonism in Holstein calves.
H. Tucker* and A. Provin, Novus International, St Charles, MO.

Milk fatty acid profile in dairy cows fed soybean meals and oil versus canola meal and oil.
1The Pennsylvania State University, State College, PA, 2University of Ulster, Belfast, United Kingdom, 3Cargill Animal Nutrition, Technology Application Manager, Seoul, South Korea, 4Fabin Bros. Farms, Indiana, PA.

Effects of different levels of aflatoxin B1 on ruminal digestibility, fermentation profile, and N efficiency of a lactating dairy cow diet using a dual-flow continuous culture system.
F. X. Amaro*, M. Pupo, B. C. Agostinho, S. Bennett, J. Vinyard, L. Tomaz, R. Lobo, J. A. Cordeiro, Y. Jiang, K. G. Arriola, A. Faciola, A. T. Adesogan, and D. Vyas,
1University of Florida, Gainesville, FL, 2Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, SP, Brazil, 3Universidade Estadual de Maringá, Maringá, PR, Brazil, 4Universidade Estadual Paulista, Botucatu, SP, Brazil, 5Universidade de Sao Paulo, Pirassununga, SP, Brazil.

Impact of concentrate allowance on the behavior and production of dairy cows milked in a free-traffic automated milking system.
A. J. Schwanke*, K. M. Dancy, G. B. Penner, and T. J. DeVries,
1Department of Animal Biosciences, Guelph, ON, Canada, 2Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.

Potential measurement of daily oxygen consumption and carbon dioxide, methane, and heat production using a spot gas sampling technique in cattle.
C. Lee*, K. A. Beauchemin, K. Nichols, D. L. Morris, J. Dijkstra, P. J. Kononoff, and D. Vyas,
1Department of Animal Sciences, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH, 2Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada, 3Animal Nutrition Group, Wageningen University and Research, Wageningen, the Netherlands, 4Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, 5Department of Animal Sciences, University of Florida, Gainesville, FL.

Responses in milk performance and feed intake of transition dairy cows supplemented with coated choline chloride.
L. S. Royo*, M. Puyalto, J. J. Mallo, G. Elocoso, J. Ragues, and A. Bach,
1Novel SA, Madrid, Spain, 2Blanca from the Pyrenees, Hostalets de Tost, Spain, 3ICREA, Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain, 4Department of Ruminant Production, IRTA, Caldes de Montbui, Spain.

Evaluation of high-quality alfalfa silage in a high-forage diet for lactating dairy cows.
C. M. Engel*, D. K. Combs, and K. F. Kalscheur,
1University of Wisconsin, Madison, Madison, WI, 2US Dairy Forage Research Center, USDA-ARS, Madison, WI.
W88  Effects of ground flaxseed on ruminal microbiome composition in Jersey cows during the grazing season.
D. C. Reyes*1, E. A. Latham2, L. H. P. Silva1, B. J. Isenberg1, and A. F. Brito1, 1University of New Hampshire, Durham, NH, 2Bezoar Laboratories, Bryan, TX.

W89  Investigating the effectiveness of macroalgae species on methane production and rumen fermentation in vitro.
D. E. Wasson*1, H. Stefenoni1, S. Welchez2, C. Lage1, S. Räisänen2, A. Melgar3, M. Fetter1, C. Yarishi2, and A. N. Hristov1, 1The Pennsylvania University, University Park, PA, 2The University of Connecticut, Storrs, CT.

W90  Effects of increasing biocholine levels on productive performance of dairy cows.
A. Nunes1, L. Ghizzi1, G. Silva1, M. Dias1, T. Silva1, N. Grigoletto1, R. Chesini1, P. Vittorazi Junior1, P. Curti1, M. Syperreck2, and F. Rennó*1, 1University of São Paulo, Pirassununga, SP, Brazil, 2Nutriquest Tecnofeed Animal Nutrition Ltda, Campinas, SP, Brazil.

W91  Productive performance of dairy cows feed with soybean silage and oat silage.

W92  Natural additives increase production performance of dairy cows during the summer.
N. Grigoletto1, M. Dias1, G. Silva1, L. Ghizzi1, A. Nunes1, T. Silva1, R. Chesini1, P. Vittorazi Junior1, J. Pettigrew2, L. Costa e Silva3, A. Koontz2, and F. Rennó*1, 1University of São Paulo, Pirassununga, SP, Brazil, 2James Pettigrew Consulting, Nicholasville, KY, 3Alltech Inc., Nicholasville, KY.

W93  Effects of the addition of organic acids on TMR and feeding frequency on productive performance of dairy cows.
M. Dias1, G. Silva1, L. Ghizzi1, N. Grigoletto1, T. Silva1, A. Nunes1, R. Chesini1, P. Vittorazi Junior1, J. Pettigrew2, A. Koontz2, L. Costa e Silva1, and F. Rennó*1, 1University of São Paulo, Pirassununga, SP, Brazil, 2James Pettigrew Consulting, Nicholasville, KY, 3Alltech Inc., Nicholasville, KY.

W94  Effects of a flavonoid-rich extract on plasma sirtuin 1 and metabolic biomarkers in mid-lactation Holstein cows.
S. T. Quanz*1, L. K. Mamedova1,2, D. E. Schimek3, S. E. Schuling1, and B. J. Bradford1,2, 1Kansas State University, Manhattan, KS, 2Michigan State University, East Lansing, MI, 3NutriQuest, Mason City, IA.

W95  The effect of fiber properties on intake in a sub-tropical partial mixed ration dairy system.
K. A. D. Ison*1,2, M. A. Benvenutti1, D. G. Mayer1, 1Queensland Department of Agriculture and Fisheries, Gatton, QLD, Australia, 2The University of Queensland, Gatton, QLD, Australia.

W96  Effects of dietary antioxidants and modulators of immune response on milk fatty acids as determined by mid-infrared spectroscopy in Holstein cows during heat stress.
A. Ruiz-González*1,2, W. Suissi2, L. H. Baumgard2, P-Y. Chouinard1, D. Santschi3, R. Gervais1, and D. E. Rico1, 1Université Laval, Quebec, QC, Canada, 2CRSAD, Deschambault, QC, Canada, 3Iowa State University, Ames, IA, 4Lactanet, Ste-Anne de Bellevue, QC, Canada.

W97  Evaluation of brown midrib sorghum silage in the diets of lactating dairy cows.
K. F. Kalscheur*, US Dairy Forage Research Center, USDA-ARS, Madison, WI.

W98  Effect of dietary supplementation with live yeast on lactation performance and milk fatty acid profile in high-producing dairy cows.
M. Z. Toledo*1, C. M. Feuerbach1, S. Miller3, J. P. N. Andrade1, C. Julien3, S. Emanuele3, S. Bertics1, R. D. Shaver3, and M. C. Wiltbank1, 1University of Wisconsin-Madison, Madison, WI, 2Tuskegee University, Tuskegee, AL, 3Phileo Lesaffre Animal Care, Marcq-en-Barœul, FRA.

W99  Meta-analysis of the effect of direct-fed bacteria on intake, digestibility, milk production, and ruminal fermentation of lactating dairy cows.
A. A. Pech-Cervantes*1, I. M. Ogunde2, A. Oyebade1, D. Vyas3, and A. T. Adesogan4, 1Agricultural Research Station, Fort Valley State University, Fort Valley, GA, 2Division of Food and Animal Science, Kentucky State University, Frankfort, KY, 3Department of animal sciences, University of Florida, Gainesville, FL.

W100  Comparison of rumen fermentation and microbiome of rumen samples collected via cannula or stomach tube in lactating dairy cows.

W101  Nutritional composition of almond hulls for dairy cows.
E. J. DePeters*1, K. L. Swanson1, H. M. Bill1, J. Asmus2, and J. M. Heguy3, 1University of California-Davis, Davis, CA, 2January Innovation, Lodi, CA, 3UC Cooperative Extension, Modesto, CA.
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Effect of Turbovib phytochemicals on soybean meal protein degradation using in vitro method.
V. Ballard* 1, F. Robert 2, M. Mireaux 3, and A. Boudon 4, Groupe CCPA, Janze, France, 1INRAE, Agrocampus Ouest, PEGASE, Saint-Gilles, France.

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Lactational performance of dairy cows supplemented with N-acetyl-l-methionine.
S. E. Raisaenen 1, X. Zhu 2, 3, C. F. A. Lage 1, M. E. Fetter 1, H. A. Stefenoni 1, A. Melgar 1, D. E. Wasson 1, S. F. Welchez 1, J. S. Eun 4, J. Park 1, and A. N. Hristov 1, 1The Pennsylvania State University, University Park, PA, 2Institute of Subtropical Agriculture, Chinese Academy of Sciences, Changsha, Hunan, China, 3University of Chinese Academy of Sciences, Beijing, China, 4Institute of Biotechnology, CI Blossom Park, Suwon, Korea.

W104
Treatment of soybean meal to improve protein utilization by dairy cows.
A. Klopi 1, M. Aoun 1, J. Ricaut 2, and G. van Duinkerken* 1, Wageningen Livestock Research, Wageningen, the Netherlands, 2Idena, Sautron, France.

W105
Evaluation of an underutilized compared with a derivatized method to quantify bovine plasma amino acids via liquid chromatography electrospray mass spectrometry.
M. Z. Toledo* 1, Y. Agarwal 1, C. Nienow 2, D. Luchini 1, S. I. Arriola Apelo 2, and M. C. Wiltbank 1, University of Wisconsin-Madison, Madison, WI, Adisseo, Alpharetta, GA, Shimadzu Scientific Instruments Inc., Columbia, MD.

W106
Effect of feeding rumen-protected methionine pre- and postpartum on health, herd exit dynamics, and time to pregnancy in multiparous dairy cows.
M. Z. Toledo 1, M. L. Stangaferro 1, R. S. Gennari 1, P. L. J. Monteiro Jr. 1, M. M. Perez 1, M. Masello 1, M. E. Van Amburgh 1, D. Luchini 1, R. D. Shaver 1, J. O. Giordano 1, and M. C. Wiltbank 1, University of Wisconsin-Madison, Madison, WI, Cornell University, Ithaca, NY, Adisseo, Alpharetta, GA.

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Elucidating the effects of branched-chain amino acid availability on lactose synthesis rates using mammary tissue slices and isotope-labeled glucose.
J. V. V. Silva 1, L. Showman 2, H. K. J. P. Wickramasinghe 1, N. Stepanchenko 1, M. J. O. Hidalgo 1, M. A. Perera 2, and J. A. D. R. N. Appuhamy 1, Department of Animal Science, Iowa State University, Ames IA, W. M. Keck Metabolomics Research Laboratory, Iowa State University, Ames IA.

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Effect of rumen-protected methionine supplementation and its relationship with lipid metabolism in high-producing dairy cows with different dietary energy concentrations.
J. H. Carneiro* 1, D. R. Ribeiro 1, E. J. Askel 1, I. F. Carrari 1, M. Poczynek 1, F. Lopes 2, J. S. Osorio 3, and R. Almeida 2, Universidade Federal do Paraná, Curitiba, PR, Brazil, Adisseo South America, Brookings, SD.

W109
An 8-hour hyperinsulinemic-euglycemic clamp is insufficient to alter milk production in lactating dairy cows.
V. L. Pszczolowski 1, 2, 3, H. Hu 1, J. Zhang 1, 2, 4, M. K. Connelly 2, 3, A. S. Munsterman 4, S. I. Arriola Apelo 2, 4, 5, Endocrinology and Reproductive Physiology Graduate Training Program, University of Wisconsin-Madison, Madison, WI, Department of Animal and Dairy Sciences, University of Wisconsin-Madison, Madison, WI, Department of Animal Science, China Agricultural University, Beijing, China, Department of Surgical Sciences, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI.

W110
Durability evaluation of a rumen-protected choline supplement during milk and farm handling.
H. Diaz* 1, M. Sellers 1, S. McGregor 1, J. Albrect 1, O. Drehmel 1, and J. Linn 1, Milk Specialties Global, Eden Prairie, MN.

W111
Plasma amino acid response to casein or acid casein hydrolysate in Holstein calves.
E. A. Petzel 1, S. Acharya 1, E. A. Bailey 1, and D. W. Brake 1, Division of Animal Sciences, University of Missouri, Columbia, MO.

W112
Estimated postprandial bioavailability of rumen-protected lysine using plasma area under the curve methodology.
V. M. R. Malacco 1, 2, 3, P. Doane 1, R. B. Reis 1, L. Beckett 1, S. Hielger 1, N. Briggs 3, C. McCabe 1, A. Torres 1, and S. S. Donkin 1, 2, 1Milk Specialties Global, Eden Prairie, MN, 2Division of Animal Sciences, University of Missouri, Columbia, MO, 3Department of Animal Sciences, University of Missouri, Columbia, MO.

W113
Can ε-polylysine provide metabolizable lysine to cattle?
E. A. Petzel* 1, S. Acharya 1, E. A. Bailey 1, and D. W. Brake 1, Division of Animal Sciences, University of Missouri, Columbia, MO.

W114
Energy source conditions the milk response to TOR amino acids in dairy cows.
V. L. Pszczolowski 1, 2, 3, H. Hu 1, B. D. Brown 1, S. J. Halderson 1, J. Zhang 1, A. S. Munsterman 3, and S. I. Arriola Apelo 2, 5, Endocrinology and Reproductive Physiology Graduate Training Program, University of Wisconsin-Madison, Madison, WI, Department of Animal and Dairy Sciences, University of Wisconsin-Madison, Madison, WI, Department of Animal Science, China Agricultural University, Beijing, China, Tuskegee University, Tuskegee, AL.
W115 Evaluation of branched-chain amino acid inclusion in milk replacers on growth and health of Holstein calves.
S. Y. Morrison*, H. Gauthier†, A. Obata‡, K. Hirano‡, and H. Uchihori§, †William H. Miner Agricultural Research Institute, Chazy, NY, ‡ZEN-NOH National Federation of Agricultural Cooperative Association, Tokyo, Japan.

W116 Performance and metabolic responses to rumen-protected methionine supplementation in lactating dairy goats fed two levels of metabolizable protein diets.

W117 Variations in protein digestibility of blood meal, feather meal, and a rumen-protected lysine prototype within and across laboratories.

W118 Identification of dietary and physiological factors potentially impeding responses of lactating dairy cows to dietary fortification in metabolizable methionine: A meta-analysis.

W119 Effects of differing dietary starch and digestible amino acid supply on amino acid efficiency and lactation performance in dairy cattle.
P. A. LaPierre*1, S. Fredin2, D. A. Ross3, and M. E. Van Amburgh1, 1Cornell University, Ithaca, NY, 2Adisseo, Alpharetta, GA.

W120 Performances and plasma energetic parameters in lactating dairy goats fed 3 levels of metabolizable methionine.
P. Schmidely1 and L. Bahloul*1, 1Université Paris-Saclay, INRAE, AgroParisTech, UMR Modélisation Systémique Appliquée aux Ruminants, Paris, France, 2Centre of Expertise and Research in Nutrition, Adisseo France S.A.S, Commentry, France.

W121 Effects of the supplementation with coated methionine on performance of dairy cows.

W122 Effect of calving on plasma amino acid concentration in dairy cows.
M. E. Fetter*, D. M. Cunningham, F. Gambonini, T. L. Ott, and A. N. Hristov, Department of Animal Science. The Pennsylvania State University, University Park, PA.

W123 Methionine supplementation at low and adequate net energy supply in lactating dairy goats.
S. Lemosquet1, M. Boutinaud1, A. Leduc1, S. Binggeli2, E. Chanat1, and L. Bahloul*1, 1INRAE, Agrocampus Ouest, PEGASE, Saint-Gilles, France, 2Université Laval, Quebec, QC, Canada, 3Centre of Expertise and Research in Nutrition, Adisseo, France S.A.S, Commentry, France.

W124 Evaluating plasma methionine in response to feeding three rumen-protected methionine products.
M. S. Smith*, S. K. Cronin1, J. Mateos1, D. Martinez del Olmo1, F. Valdez4, and T. F. Gressley*, 1University of Delaware, Department of Animal and Food Sciences, Newark, DE, 2Kemin Animal Nutrition and Health, Herentals, Belgium, 4Kemin Industries Inc., Des Moines, IA.
Roundtable Discussions
Livestreams 4:00 – 5:00 PM

Room 1: Advances in dairy efficiency
Moderator: Dary Kleinschmidt, Zinpro Corp.

Room 2: Natural bioactives in dairy production – recap of DC37
Moderator: Todd Callaway, University of Georgia

Room 3: Unmet needs for optimizing reproductive performance
Moderator: Alan Ealy, Virginia Tech
Sponsored by Zoetis and Merck Animal Health

Room 4: ADSA Foundation Scholar in Dairy Foods: Lecture and discussion
Presenter: Sam Alcaine, Cornell University

Room 5: ADSA Foundation Scholar in Dairy Production: Lecture and discussion
Presenter: Michael Steele, University of Guelph

Late-Night Live
Livestream Room 1 from 9:00 to 10:00 PM

Health, Reproduction, and Physiology
Ian Lean, Geoff Dahl, José Santos, and Heather White
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