



ADSA 2020

Virtual Annual Meeting

**Conference Information
and Scientific Program**

adsa.org/2020

2020 ADSA Annual Meeting Table of Contents

Welcome Letter	1
General Meeting Information	2
Special Events	4
ADSA Award Donors and Corporate Sponsorship	6
Exhibit Directory	7
Meeting Sponsors	10
Orientation to the Virtual Annual Meeting	13
Schedule of Events	15
2020 Program Committees	19
Scientific Program Table of Contents	22
Scientific Sessions	27
Author Index	106

<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 ADSA 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 a 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!

Student Affiliate Division Virtual Business Meeting **Monday, June 22** **9:30 – 10:00 am** **Live, recorded**

Join undergraduate students from across the country for the kickoff event of the meeting. Program includes a welcome from Student Affiliate Division officers, club roll call, and an overview of the next 2 days activities.

Opening Session **Monday, June 22** **10:00 – 10:30 am** **Prerecorded**

Join us at the Opening Session for an address by ADSA President Rafael Jiménez-Flores; an introduction to the new ADSA executive director, Catharine Perry, and comments about the exciting

scientific program that we have in store by the chair of the overall program committee, Mike VandeHaar.

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 agritourism 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
Lallemand Animal Nutrition
Leprino Foods

National Dairy Council
National Milk Producers Federation Dairy
Scholarship Fund
Novus International
Nutrition Professionals Inc.
Purina Animal Nutrition
Schreiber Foods
West Agro Inc.
Zinpro Corp.
Zoetis

ADSA Corporate Sustaining Members

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Darling Ingredients Inc.
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Elanco Animal Health
Global Agri-Trade Corporation
Grande Cheese Company

Lallemand Animal Nutrition
Pioneer
Quali Tech Inc.
Renaissance Nutrition Inc.
Zinpro Corp.
Zoetis
Zook Nutrition and Management Inc.

Graduate Student Division Sponsors

Bronze Level

Land O' Lakes/Purina
Zinpro Corp.

Donor Level

Bar Diamond
Dairy Nutrition and Management Consulting
Lallemand Animal Nutrition
Southeast Milk Inc.

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

Ajinomoto Animal Nutrition North America	8
American Dairy Science Association (ADSA)	8
American Registry of Professional Animal Scientists (ARPAS).....	8
Anpario Inc.	8
C-Lock Inc.	8
FASS Inc.....	8
Kemin Animal Nutrition and Health – North America	9
Nimrod Veterinary Products Ltd.	9
Sealpro by Connor Agriscience	9
Student Affiliate Division of ADSA	9
Stuhr Enterprises LLC	9

**A special thank you to our 2020
ADSA Annual Meeting Exhibitors!**

Exhibitor Directory

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.

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

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.

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 in 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.

It makes and markets two transition cow feed additives: ANION BOOSTER™ and GLUCOSE BOOSTER™. ANION BOOSTER™ is the most palatable anion additive available in the market and is commonly the BEST VALUE compared to other anion sources.

GLUCOSE BOOSTER™ is the most effective glucose precursor available in the market with recent research proving its efficacy at the U. of CA, Davis School of Veterinary Medicine and Research Center; Tulare, California.

Thank you to the 2020 ADSA Annual Meeting Sponsors!

Platinum Level



Gold Level



Silver Level



Bronze Level



United States Department of Agriculture
National Institute of Food and Agriculture

Donor Level



Contributor Level



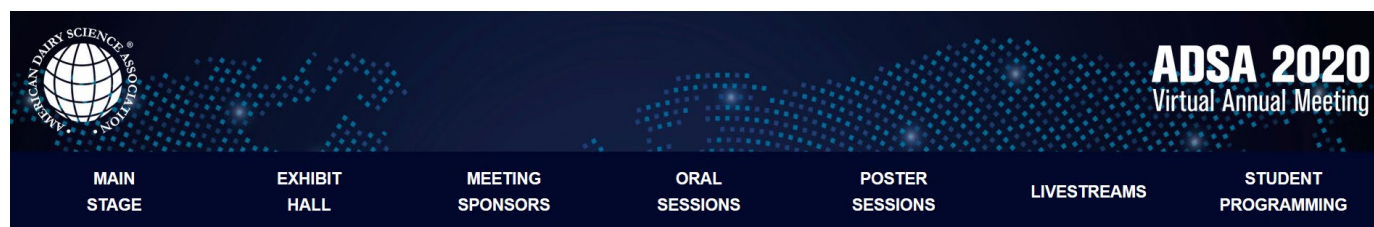
ADSA 2020 Virtual Annual Meeting

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](https://www.adsa.org) for updates.

Schedule of Events

Sunday, June 21		Location (tab)
9:00 am – 5:00 pm	National Animal Nutrition Program (NANP) Workshop (live via Zoom; separate registration required)	
5:00 pm – 5:45 pm	GSD Business Meeting and Open Forum (live, recorded)	Student Programming
8:00 pm – 9:00 pm	GSD Preconference Social: Online Trivia via Zoom	Student Programming
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
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 – 11:40 am	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@assoq.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

10:00 am – 11:00 am	SAD Small Group Mentoring Session 2 (advance sign-up required)	Student Programming
10:00 am – 11:00 am	GSD Morning Mix and Mingle (live)	Student Programming
10:30 am – 12:00 pm	Live individual text chats with Tuesday oral presenters (text chat boxes on individual recorded presentation page)	Oral Sessions
11:00 am – 12:00 pm	SAD Educational Workshop: Addressing Animal Rights Activists (prerecorded; live Q&A)	Student Programming
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 Tuesday oral presenters (see Livestream Schedule on page 17 for topics and times)	Livestream Rooms 1–6
1:00 pm – 2:00 pm	SAD Career Workshop: How to Find a Job During a Global Pandemic (prerecorded; live Q&A)	Student Programming
2:00 pm – 4:00 pm	Live individual text chats with Tuesday poster presenters (text chat boxes on individual recorded presentation page)	Poster Sessions
2:00 pm – 3:00 pm	GSD Career Insights Panel (live, recorded)	
2:30 pm – 3:30 pm	SAD Awards Ceremony (live, recorded)	Student Programming
3:45 pm – 4:30 pm	SAD Old and New Officer and Advisor Meeting	Student Programming
4:00 pm – 5:00 pm	Roundtable discussions with expert panels:	
	(1) Precision ag in the dairy industry – ideas for DC38	Livestream Room 1
	(2) Lipid metabolism – recap of DC36	Livestream Room 2
	(3) Online teaching: So now what?	Livestream Room 3
	(4) Genetic and genomic evaluation in 2020	Livestream Room 4
5:00 pm – 7:00 pm	ARPAS Exam: Contact ARPAS (arpas@assoqh.org) to secure your seat	
8:00 pm – 9:00 pm	GSD Evening Mix and Mingle (live on Zoom)	Student Programming
9:00 pm – 10:00 pm	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	Livestream Room 1
Wednesday, June 24		
9:00 am – 5:00 pm	Welcome desk (live)	Meeting homepage
10:00 am – 11:00 am	SAD Small Group Mentoring Session 3 (advance sign-up required)	Student Programming
10:30 am – 12:00 pm	Live individual text chats with Wednesday oral presenters (text chat boxes 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 Wednesday oral presenters (see Livestream Schedule on page 17 for topics and times)	Livestream Rooms 1–6
2:00 pm – 4:00 pm	Live individual text chats with Wednesday poster presenters (text chat boxes on individual recorded presentation page)	Poster Sessions
3:00 pm – 3:30 pm	Closing Session: Hear remarks from the outgoing (2019–2020) and incoming (2020–2021) ADSA presidents.	Main Stage
4:00 pm – 5:00 pm	Roundtable discussions with expert panels:	
	(1) Advances in dairy efficiency	Livestream Room 1
	(2) Natural bioactives in dairy production – recap of DC37	Livestream Room 2
	(3) Unmet needs for optimizing reproductive performance	Livestream Room 3
	(4) ADSA Foundation Scholar Lectures and discussion	Livestream Room 4
5:00 pm – 7:00 pm	ARPAS Exam: Contact ARPAS (arpas@assoqh.org) to secure your seat	
9:00 pm – 10:00 pm	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	Livestream Room 1

Livestream Schedule

Oral Sessions

	Block 1	Block 2		Block 3	Block 4	
	12:00–12:30 pm	12:30–1:00 pm		1:00–1:30 pm	1:30–2:00 pm	
Monday						
Room 1	Animal Health: Transition Cow 1 (39–44)	Animal Health: Transition Cow 2 (68–73)		Breeding and Genetics (118–123)	Breeding and Genetics (124–130)	
Room 2	Growth and Development (45–51)	Growth and Development (74–78)				
Room 3	Lactation Biology (52–56)	Lactation Biology (79–81)	Small Ruminant (94, 95)	Small Ruminant (112–117)	Ruminant Nutrition: Calves and Heifers (140–146)	
Room 4	Production, Management, and the Environment (57–61)	Production, Management, and the Environment (82–87)		Production, Management, and the Environment (101–106)	Production, Management, and the Environment (135–139)	
Room 5	Ruminant Nutrition: General (62–67)	Ruminant Nutrition: General (88–93)		Ruminant Nutrition: Gut Physiology (107–111)	Ruminant Nutrition: Gut Physiology (147–152)	
Room 6				Dairy Foods Processing (96–100)	Dairy Foods Processing (131–134)	
Tuesday						
Room 1	Breeding and Genetics (153–158)	Breeding and Genetics (193–198)		Animal Behavior and Well-Being (223–228)	Animal Behavior and Well-Being (257–260)	Extension Education (285, 286)
Room 2	Forages and Pastures (162–168)	Animal Health: Calves 1 (187–192)		Animal Health: Calves 2 (229–233)	Animal Health: Calves 3 (261–266)	
Room 3	Physiology and Endocrinology (169–174)	Physiology and Endocrinology (205–210)		Production, Management, and the Environment (234–238)	Production, Management, and the Environment (267–271)	
Room 4	Ruminant Nutrition: Carbohydrates and Lipids (175–180)	Ruminant Nutrition: Carbohydrates and Lipids (211–217)		Reproduction (239–245)	Reproduction (272–278)	
Room 5	Ruminant Nutrition: Gut Physiology (181–186)	Ruminant Nutrition: Gut Physiology (218–222)		Ruminant Nutrition: Carbohydrates and Lipids (252–256)	Ruminant Nutrition: General (279–284)	
Room 6	Dairy Foods: Dairy Products (159–161)	Dairy Foods: Dairy Products (199–204)		Ruminant Nutrition: General (246–251)		
Wednesday						
Room 1	Animal Behavior and Well-Being (287–292)	Animal Health: Transition Cow 3 (319–324)		Animal Health: Mastitis 1 (354–358)	Animal Health: Mastitis 2 (387–391)	
Room 2	Breeding and Genetics (293–298)	Breeding and Genetics (325–330)		Breeding and Genetics (359–363)	Production, Management, and the Environment (403–408)	
Room 3	Production, Management, and the Environment (305–310)	Production, Management, and the Environment (337–341)		Physiology and Endocrinology (375–380)	Physiology and Endocrinology (398–402)	
Room 4	Ruminant Nutrition: General (311–314)	Ruminant Nutrition: General (342–348)		Forages and Pastures (369–374)	Forages and Pastures (392–397)	
Room 5	Ruminant Nutrition: Protein/ Amino Acids (315–318)	Ruminant Nutrition: Protein/ Amino Acids (349–353)		Ruminant Nutrition: Gut Physiology (381–386)	Ruminant Nutrition: Gut Physiology (409–413)	
Room 6	Dairy Foods: Cheese (299–304)	Dairy Foods: Cheese (331–336)		Dairy Foods: Chemistry (364–368)		

Livestream Schedule

Roundtable Sessions: 4:00–5:00 pm

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

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

Day	Topic	Hosts
Monday	Lactation and ruminant nutrition	Lance Baumgard, Russ Hovey, Frank Dunshea, and Mike VandeHaar
Tuesday	Ruminant nutrition	Barry Bradford, Bill Weiss, Ian Sawyer, and Kristy DiGiacomo
Wednesday	Health, reproduction, and physiology	Ian Lean, Geoff Dahl, José Santos, and Heather White

Thank you to the ADSA 2020 Program Committees

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Michael Miller
Lorraine Sordillo
Dave Everett
Emma Wall
Trish Dawson

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Amber Adams-Progar
Alex Bach

Animal Health

Andres Contreras
Eduardo de Souza Ribeiro
Sabine Mann

Breeding and Genetics

Christine Baes
Francisco Peñagaricano
Daniela Lourenco
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Dairy Foods

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Forages and Pastures

Daryl Kleinschmit
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Luiz Ferraretto
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Growth and Development

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Sonia Vázquez Flores

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Milk Protein and Enzymes

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Beth Briczinski
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Federico Harte
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Christina Levendoski
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Physiology and Endocrinology

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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

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Scientific Program Table of Contents

Monday, June 22

	Abstract no.	Page no.
Undergraduate Student Competitions		
ADSA-SAD Dairy Foods Oral Competition	1–3	27
ADSA-SAD Dairy Production Oral Competition	4–7	27
ADSA-SAD Original Research Oral Competition	8, 9, 415, 416	27
ADSA-SAD Original Research Poster Competition	M1–M6, M137	28
Graduate Student Competitions		
ADSA Dairy Foods Oral Competition	10–18	28
ADSA Dairy Foods Poster Competition	M7–M12	29
ADSA Production MS Oral Competition	19–27	29
ADSA Production MS Poster Competition	M13–M19	30
ADSA Production PhD Oral Competition	28–38	31
ADSA Production PhD Poster Competition	M20–M29	32
Monday Oral Presentations		
Block 1		
Animal Health: Transition Cow 1	39–44	33
Growth and Development	45–51	33
Lactation Biology	52–56	34
Production, Management, and the Environment	57–61	34
Ruminant Nutrition: General	62–67	35
Block 2		
Animal Health: Transition Cow 2	68–73	36
Growth and Development	74–78	36
Lactation Biology	79–81	37
Production, Management, and the Environment	82–87	37
Ruminant Nutrition: General	88–93	38
Small Ruminant	94, 95	39
Block 3		
Dairy Foods Processing	96–100	39
Production, Management, and the Environment	101–106	39
Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion	107–111	40
Small Ruminant	112–117	41
Breeding and Genetics	118–123	41

Block 4

Breeding and Genetics..... 124–130..... 42

Dairy Foods Processing..... 131–134..... 42

Production, Management, and the Environment 135–139..... 43

Ruminant Nutrition: Calves and Heifers..... 140–146..... 43

Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion..... 147–152, 418..... 44

Monday Poster Presentations

Animal Health 1: Transition Cow M30–M42, M140..... 45

Dairy Foods 1 M43–M55..... 46

Growth and Development 1 M56–M74..... 47

Lactation Biology 1 M75–M87..... 48

Production, Management, and the Environment 1 M88–M102..... 49

Ruminant Nutrition: Calves and Heifers..... M103–M113..... 50

Ruminant Nutrition: General 1 M114–M135, M138, M139..... 51

Small Ruminant 1 M136..... 53

Roundtable Discussions

Room 2: Regulation of milk protein and fat synthesis..... 53

Room 3: Informal Calf session on automated milk feeding systems for dairy calves..... 53

Room 4: Assessing affective state as a measure of animal welfare..... 53

Room 5: Importance and relevance of science in dairy foods..... 53

Late-Night Live

Lactation and Ruminant Nutrition..... 53

Tuesday, June 23

Oral Presentations

Block 1

Breeding and Genetics..... 153–158..... 54

Dairy Foods: Dairy Products..... 159–161..... 54

Forages and Pastures..... 162–168..... 55

Physiology and Endocrinology 169–174..... 55

Ruminant Nutrition: Carbohydrates and Lipids..... 175–180..... 56

Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion..... 181–186..... 56

Block 2

Animal Health: Calves 1 187–192..... 57

Breeding and Genetics..... 193–198..... 58

Dairy Foods: Dairy Products..... 199–204..... 58

Physiology and Endocrinology 205–210..... 59

	Abstract no.	Page no.
Ruminant Nutrition: Carbohydrates and Lipids.....	211–217.....	60
Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion.....	218–222.....	60
Block 3		
Animal Behavior and Well-Being.....	223–228.....	61
Animal Health: Calves 2.....	229–233.....	61
Production, Management, and the Environment.....	234–238.....	62
Reproduction.....	239–245.....	63
Ruminant Nutrition: General.....	246–251.....	63
Ruminant Nutrition: Carbohydrates and Lipids.....	252–256, 419.....	64
Block 4		
Animal Behavior and Well-Being.....	257–260.....	65
Animal Health: Calves 3.....	261–266.....	65
Production, Management, and the Environment.....	267–271.....	66
Reproduction.....	272–278.....	66
Ruminant Nutrition: General.....	279–284.....	67
Extension Education.....	285–286.....	68
Roundtable: Lipid metabolism – recap of DC36.....	414.....	68
Roundtable: Online teaching: So now what?.....	421–423.....	68
Tuesday Poster Presentations		
Animal Behavior and Well-Being 1.....	T1–T15.....	69
Animal Health 2: Calves.....	T16–T29, T156.....	70
Dairy Foods 2.....	T30–T43.....	71
Extension Education 1.....	T44–T47.....	72
Forages and Pastures 1.....	T48–T55.....	72
Physiology and Endocrinology 1.....	T56–T70.....	73
Production, Management, and the Environment 2.....	T71–T85.....	74
Reproduction 1.....	T86–T102.....	75
Ruminant Nutrition: General 2.....	T103–T118.....	77
Ruminant Nutrition: Carbohydrates and Lipids.....	T119–T136.....	78
Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion.....	T137–T155.....	79
Roundtable Discussions		
Room 1: Precision ag in the dairy industry – ideas for DC38.....		81
Room 2: Lipid metabolism – recap of DC36.....	414.....	81
Room 3: Online teaching: So now what?.....	421–423.....	81
Room 4: Genetic and genomic evaluation in 2020.....		81

Late-Night Live

Ruminant Nutrition81

Wednesday, June 24

Oral Presentations

Block 1

Animal Behavior and Well-Being.....287–292.....82
 Breeding and Genetics.....293–298.....82
 Dairy Foods: Cheese.....299–304.....83
 Production, Management, and the Environment305–310.....84
 Ruminant Nutrition: General311–314.....84
 Ruminant Nutrition: Protein/Amino Acids.....315–318, 420.....85

Block 2

Animal Health: Transition Cow 3319–324.....85
 Breeding and Genetics.....325–330.....86
 Dairy Foods: Cheese.....331–336.....86
 Production, Management, and the Environment337–341.....87
 Ruminant Nutrition: General342–348.....87
 Ruminant Nutrition: Protein/Amino Acids.....349–353.....88

Block 3

Animal Health: Mastitis 1.....354–358.....89
 Breeding and Genetics.....359–363.....89
 Dairy Foods: Chemistry.....364–368.....90
 Forages and Pastures.....369–374.....90
 Physiology and Endocrinology375–380.....91
 Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion.....381–386.....91

Block 4

Animal Health: Mastitis 2.....387–391.....92
 Forages and Pastures.....392–397.....92
 Physiology and Endocrinology398–402.....93
 Production, Management, and the Environment403–408.....93
 Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion.....409–413.....94

Wednesday Poster Presentations

Animal Health 3: Mastitis.....W1–W9.....95
 Breeding and Genetics 1W10–W25.....95
 Dairy Foods 3.....W26–W40.....97
 Forages and Pastures 2W41–W49.....98

	Page no.
Production, Management, and the Environment 3.....	W50–W64..... 98
Ruminant Nutrition: General 3.....	W65–W101..... 100
Ruminant Nutrition: Protein/Amino Acids.....	W102–W124..... 102
 Roundtable Discussions	
Room 1: Advances in dairy efficiency.....	105
Room 2: Natural bioactives in dairy production – recap of DC37.....	105
Room 3: Unmet needs for optimizing reproductive performance.....	105
Room 4: ADSA Foundation Scholar in Dairy Foods.....	105
ADSA Foundation Scholar in Dairy Production.....	105
 Late-Night Live	
Health, Reproduction, and Physiology.....	105
 Author index.....	 106

Organization of the Scientific Program

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

- 4 **Gene sequencing of embryos.**
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.*
- 6 **Pain management for disbudding dairy calves.**
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.**
E. M. Wood*, M. Portnoy, D. M. Barbano, and K. F. Reed, *Cornell University, Ithaca, NY.*
- 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*¹, D. P. Compart², and U. Y. Anele¹, ¹*North Carolina Agricultural and Technical State University, Greensboro, NC,* ²*PMI, 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.**
R. Hollandsworth*¹, M. Killerby¹, S. T. R. Almeida², Z. X. Ma³, A. Y. Leon-Tinoco¹, B. C. Guimaraes², G. M. Opong¹, and J. J. Romero¹, ¹*University of Maine, Orono, ME,* ²*University of Lavras, Lavras, Brazil,* ³*University of Florida, Gainesville, FL.*
- 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*¹, A. A. Barragan¹, E. Hovingh¹, L. Byler¹, M. Martinez¹, S. Bas², J. Zug³, and S. Haan³, ¹*Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA,* ²*Phytobiotics Futterzusatzstoffe GmbH Bvd, Villa Maria, Córdoba, Argentina,* ³*Zugstead Farm, Mifflintown, PA.*
- M137 **On-farm assessment of insulin sensitivity from glucose responses to insulin infusion in neonatal dairy calves.**
N. P. Uzee*¹, C. C. Williams², E. L. Oberhaus², S. J. Blair², and B. S. Whitley¹, ¹*Louisiana State University, Baton Rouge, LA,* ²*LSU 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*¹, J. A. Lucey^{1,2}, and M. Molitor², ¹*University of Wisconsin, Madison, Madison, WI,* ²*Wisconsin Centre for Dairy Research, Madison, WI.*
- 11 **Application of lactose oxidase to control *Pseudomonas* spp. and delay age gelation in UHT milk.**
V. K. Rivera Flores*, T. A. DeMarsh, and S. D. Alcaine, *Cornell University, Ithaca, NY.*
- 12 **Improving the extraction of dairy phospholipids by the combined effect of ultrasound pretreatment and switchable solvents.**
K. Rathnakumar*¹, J. Ortega-Anaya², R. Jimenez-Flores², J. Reineke¹, and S. I. Martínez-Monteagudo¹, ¹*South Dakota State University, Brookings, SD,* ²*The Ohio State University, Columbus, OH.*
- 13 **Effect of cold plasma treatment on the functional properties of MPC 85.**
S. Raghunath*, T. Schoenfuss, K. Mallikarjunan, and G. Annor, *University of Minnesota-Twin Cities, Saint Paul, MN.*
- 14 **Shelf stability of milk protein gels created by pressure-assisted enzymatic gelation.**
L. Wang* and C. I. Moraru, *Cornell University, Ithaca, NY.*

- 15 **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.*
- 16 **Impact of milk protein type and concentration on the composition, physical, and sensory properties of low-fat, high-protein ice cream.**
L. R. Sipple*¹, D. M. Barbano², and M. A. Drake¹, ¹*North Carolina State University, Raleigh, NC*, ²*Cornell University, Ithaca, NY.*
- 17 **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.*
- 18 **Radiofrequency-assisted thermal process validation of dairy powder considering the effect of storage time.**
X. Wei*¹, B. Chaves¹, M.-G. Danao¹, S. Agarwal³, and J. Subbiah², ¹*University of Nebraska, Lincoln, NE*, ²*University of Arkansas, Fayetteville, AR*, ³*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. Choi¹, B. Rackerby*¹, S. Lee¹, R. Frojen¹, L. Goddik¹, S. Ha², and S. Park¹, ¹*Department of Food Science and Technology, Oregon State University, Corvallis, OR*, ²*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*¹, M. S. Molitor², S. Ikeda¹, and J. A. Lucey², ¹*Department of Food Science, University of Wisconsin-Madison, Madison, WI*, ²*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.**
D. Whitt*¹, B. G. Carter¹, D. M. Barbano², and M. A. Drake¹, ¹*North Carolina State University, Raleigh, NC*, ²*Cornell University, Ithaca, NY.*
- 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*¹, I. Lean², S. Aly¹, H. Golder², and H. Rossow¹, ¹*University of California-Davis, Davis, CA*, ²*Scibus, Camden, NSW, Australia.*

- 20 **Metabolomic profile differs between Holstein strains at grazing conditions during early and mid lactation.**
E. Jorge-Smeding*¹, D. Armand-Ugon², A. Mendoza², M. Carriquiry¹, and A. Astessiano¹, ¹*Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay*, ²*Programa de Producción de LecheUnidad de Lechería, Estación Experimental INIA La Estanzuela, Instituto Nacional de Investigación Agropecuaria, Colonia, Uruguay*.
- 21 **Simultaneous minimization of diet costs and phosphorus excretion on dairy farms.**
A. F. White* and L. E. Moraes, *The Ohio State University, Columbus, OH*.
- 22 **Predictive models for early diagnosis of metritis and clinical cure of dairy cows using behavioral parameters.**
V. R. Merenda*¹ and R. C. Chebel^{1,2}, ¹*Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL*, ²*Department of Animal Sciences, Institute of Food and Agricultural Sciences, Gainesville, FL*.
- 23 **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. Hiltz¹, M. N. Degenshein¹, A. Aguilar², H. Nielsen², A. H. Laarman³, and P. Rezamand¹, ¹*Department of Animal and Veterinary Science, University of Idaho, Moscow, ID*, ²*Lallemand Animal Nutrition, Milwaukee, WI*, ³*Agricultural Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*.
- 24 **Identifying factors associated with lameness and its impact on productivity in automated milking herds.**
R. D. Matson*¹, M. T. M. King¹, T. F. Duffield², D. E. Santschi³, K. Orsel⁴, E. A. Pajor⁴, G. B. Penner⁵, T. Mutsvangwa⁵, and T. J. DeVries¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, ²*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, ³*Lactanet, Sainte-Anne-de-Bellevue, QC, Canada*, ⁴*Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada*, ⁵*Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada*.
- 25 **Heat stress abatement for late-gestation dairy heifers improves thermoregulation and productivity.**
B. D. Davidson*, B. Dado-Senn, N. Rosa Padilla, T. F. Fabris, L. T. Casarotto, V. G. Ouellet, G. E. Dahl, and J. Laporta, *Department of Animal Sciences, University of Florida, Gainesville, FL*.
- 26 **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. Krogstad*¹, K. J. Herrick², and P. J. Kononoff¹, ¹*Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE*, ²*POET Nutrition, Sioux Falls, SD*.
- 27 **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. Batistel, *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.**
A. Schroeder* and M. Eastridge, *The Ohio State University, Columbus, OH*.
- M15 **Empirical modelling of vitamin B₁₂ duodenal flow in lactating dairy cows.**
V. Brisson*¹, C. L. Girard², J. A. Metcalfe³, D. S. Castagnino³, J. Dijkstra⁴, and J. L. Ellis¹, ¹*University of Guelph, Guelph, ON, Canada*, ²*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*, ³*Trouw 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. Eastridge², L. E. Moraes², and B. D. Enger¹, ¹*The Ohio State University, Department of Animal Sciences, OARDC, Wooster, OH*, ²*The Ohio State University, Department of Animal Sciences, Columbus, OH*.

- M18 **Effects of physically effective undigested neutral detergent fiber and rumen fermentable starch on lactation performance and total tract digestibility of lactating cows.**
K. M. Smith*¹, A. Obata², K. Hirano², H. Uchihori², S. Y. Morrison¹, J. W. Darrah¹, H. M. Dann¹, C. S. Ballard¹, M. D. Miller¹, and R. J. Grant¹, ¹Miner Institute, Chazy, NY, ²ZEN-NOH, Tokyo, Japan.
- M19 **Effects of probiotics, enzymes, and yeast combinations on ruminal fermentation in a dual-flow continuous culture system.**
S. Bennett*¹, J. A. Arce-Cordero¹, V. L. N. Brandao¹, J. R. Vinyard¹, B. Agostinho², H. F. Monteiro¹, L. Tomaz³, R. Lobo¹, and A. P. Faciola¹, ¹University of Florida, Gainesville, FL, ²State University of Maringá, Maringá, Paraná, Brazil, ³Sao Paulo State University, Sao Paulo, Sao Paulo, Brazil.

ADSA Production PhD Oral Competition

Chair: Dan Cooke

- 28 **Mitochondrial genome diversity and association of mitochondrial protein gene expression with energy metabolism in dairy cattle.**
J. Dorji*^{1,2}, C. J. Vander Jagt², J. B. Garner³, L. C. Maret², B. A. Mason², C. M. Reich², C. P. Prowse-Wilkins^{2,4}, R. Xiang^{2,4}, P. N. Ho², J. Pryce^{1,2}, B. G. Cocks^{1,2}, A. J. Chamberlain², I. M. MacLeod², and H. D. Daetwyler^{1,2}, ¹School of Applied Systems Biology, La Trobe University, Bundoora, Victoria, Australia, ²Agriculture Victoria, AgriBio, Centre for AgriBioscience, Bundoora, Victoria, Australia, ³Agriculture Victoria, Ellinbank Dairy Centre, Ellinbank, Victoria, Australia, ⁴Faculty of Veterinary & Agricultural Science, University of Melbourne, Parkville, Australia.
- 29 **Bioactivity of the endocannabinoid arachidonylethanolamide in cultured bovine endothelial cells.**
C. C. F. Walker* and L. M. Sordillo, Michigan State University, East Lansing, MI.
- 30 **Effect of feeding *Camelina sativa* cake on rumen microbiota and gene expression in follicular cells in dairy Italian Holstein Friesian heifers.**
F. Omodei Zorini*¹, M. Dell'Anno¹, G. Pennarossa¹, G. Morini², G. Ranzenigo³, V. Caprarulo¹, L. Rossi¹, P. Cremonesi⁴, B. Castiglioni⁴, F. Biscarini⁴, and G. Invernizzi¹, ¹Department of Health, Animal Science and Food Safety 'Carlo Cantoni', University of Milan, Milan, Italy, ²Department of Veterinary Medical Sciences, University of Parma, Parma, Italy, ³DVM, Varese, Italy, ⁴Institute for Biology and Biotechnology in Agriculture (IBBA), NRC, Lodi, Italy.
- 31 **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.
- 32 **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-Escola^{1,2}, B. N. Tate¹, J. T. Siegel Nieves¹, A. T. Richards¹, F. Wang^{1,3}, L. F. Wang^{1,4}, M. E. Van Amburgh¹, E. Grilli^{2,5}, and J. W. McFadden¹, 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.
- 33 **Feeding rumen-protected lysine prepartum increased energy-corrected milk in Holstein cows during early lactation.**
L. K. Fehlberg*¹, A. R. Guadagnin¹, B. L. Thomas¹, Y. Sugimoto², I. Shinzato², and F. C. Cardoso¹, ¹University of Illinois, Urbana, IL, ²Ajinomoto Co. Inc., Tokyo, Japan.
- 34 **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.
- 35 **Reproductive outcomes associated with delayed clinical cure of metritis in dairy cows.**
C. Figueiredo*¹, V. Merenda¹, E. de Oliveira², F. Lima², R. Chebel¹, K. Galvao¹, J. Santos¹, and R. Bisinotto¹, ¹University of Florida, Gainesville, FL, ²University of California, Davis, CA.
- 36 **Variation in bovine colostrum fat content is related to specific lipid species.**
R. N. Klopp*¹, A. Suarez-Trujillo¹, C. R. Ferreira², T. M. Casey¹, and J. P. Boerman¹, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN, ²Metabolite Profiling Facility, Bindley Bioscience Center, Purdue University, West Lafayette, IN.

- 37 **Effect of hyperketonemia on circadian patterns of blood metabolites and milk predicted constituents in dairy cows.**
C. Seely*¹, K. Bach¹, D. Barbano², and J. McArt¹, ¹*Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY*, ²*Department of Food Science, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY.*
- 38 **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.*
- ADSA Production PhD Poster Competition**
Chair: Benjamin Wenner
- M20 **Effects of precision feeding Holstein and Jersey heifers an increasing poultry fat inclusion on rumen fermentation parameters.**
S. M. Hussein*¹, S. Twyman¹, M. Toledo¹, O. Thomas¹, J. Echesabal¹, R. M. Stockler², M. J. Aguerre¹, and G. J. Lascano¹, ¹*Clemson University, Clemson, SC*, ²*Auburn University, Auburn, AL.*
- M21 **Effects of feeding rumen-protected lysine during the transition period on postpartum immunometabolic gene expression and morphology of uterine samples of Holstein cows.**
A. Guadagnin*¹, L. Fehlberg¹, B. Thomas¹, Y. Suginomoto², I. Shinzato², and F. Cardoso¹, ¹*University of Illinois, Department of Animal Sciences, Urbana, IL*, ²*Ajinomoto Co. Inc., Tokyo, Japan.*
- M22 **Effects of ruminally degraded protein and starch on gluconeogenic precursors in lactating cows.**
A. Hruby*, L. Campos, M. Li, J. Prestegard, and M. Hanigan, *Virginia Tech, Blacksburg, VA.*
- M23 **Stimulation of microbial protein synthesis by branched-chain volatile fatty acids 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, ¹*The Ohio State University, Columbus, OH*, ²*Zinpro Corporation, Eden Prairie, MN.*
- M24 **Effects of Enogen Feed corn silage and corn grain on nutrient digestibility, production, and enteric methane emission in lactating cows.**
L. Rebelo*¹, C. Lee¹, W. Weiss¹, and M. Eastridge², ¹*The Ohio State University, Wooster, OH*, ²*The Ohio State University, Columbus, OH.*
- M25 **Cooling dairy calves pre- and postnatally increases circulating serotonin and modulates immune function.**
M. G. Marrero*, B. Dado-Senn, S. L. Field, and J. Laporta, *University of Florida, Gainesville, FL.*
- M26 **Assessment of the colon transcriptome changes from pre- to post-weaning in calves fed elevated levels of milk.**
J. K. van Niekerk*¹, M. Middeldorp², L. L. Guan¹, and M. A. Steele^{1,3}, ¹*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, ²*Animal Nutrition Group, Wageningen University & Research, Wageningen, the Netherlands*, ³*Department of Animal Biosciences, Animal Science and Nutrition, University of Guelph, Guelph, ON, Canada.*
- M27 **Association between haptoglobin concentrations and disease incidence, milk production, and reproductive performance at the cow and herd level.**
A. L. Kerwin*¹, D. V. Nydam², W. S. Burhans³, S. K. Wall⁴, K. M. Schoenberg⁴, K. L. Perfield⁴, and T. R. Overton¹, ¹*Department of Animal Science, Cornell University, Ithaca, NY*, ²*Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY*, ³*Dairy-Tech Group, South Albany, VT*, ⁴*Elanco US Inc., Greenfield, IN.*
- M28 **Bacteria count differences in used bedding and bulk tank milk based on bedding type in five New York dairy farms.**
V. Alanis*¹, M. Zurakowski², D. Pawloski², D. Nydam¹, and P. Ospina¹, ¹*Cornell University, Ithaca, NY*, ²*Cornell University, Coleskill, NY.*
- M29 **Preference, feeding behavior, and in vitro fermentation characteristics of pelleted feeds containing different binders in growing primiparous Holstein cows.**
H. T. Hong*¹, H. C. Hung¹, K. R. Kerner¹, A. L. Peterson¹, S. Burkhardt², A. H. Laarman¹, and P. Rezamand¹, ¹*University of Idaho, Moscow, ID*, ²*Sustainable Fiber Technologies, Renton, WA.*

Monday Oral Presentations

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

- 39 **Effect of metritis on the pattern of behavioral, physiological, and performance parameters monitored by sensors in dairy cows.**
M. M. Pérez*, E. M. Cabrera, C. Rial, I. Foddanu, and J. O. Giordano, *Department of Animal Science, Cornell University, Ithaca, NY.*
- 40 **Induced endometritis affects production in early lactation.**
A. Husnain*, U. Arshad, M. B. Poindexter, R. Zimpel, A. Vieira-Neto, Z. Ma, K. C. Jeong, W. W. Thatcher, C. Nelson, J. J. Bromfield, and J. E. P. Santos, *University of Florida, Gainesville, FL.*
- 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. Nakagawa², A. Imaizumi², I. Shinzato², and T. Fujieda², ¹*University of Minnesota, Saint Paul, MN*, ²*Ajinomoto Co. Inc., Kawasaki, Japan.*
- 42 **The association of prepartum urine pH, and plasma total calcium at calving in Holstein dairy cows.**
P. Melendez*¹, J. Bartolome², C. Roeschmann³, B. Soto², A. Arevalos⁴, and J. Moller⁴, ¹*University of Georgia, Tifton, GA*, ²*National University of La Pampa, Gral. Pico, Argentina*, ³*University of Chile, Santiago, Chile*, ⁴*Fundo 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*¹, L. Fernandes¹, D. Poit¹, M. Celestino¹, V. S. Machado¹, M. A. Ballou¹, and R. C. Neves^{1,2}, ¹*Department of Veterinary Sciences, College of Agricultural Sciences and Natural Resources, Texas Tech University, Lubbock, TX*, ²*Department 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*¹, A. R. Rodríguez², H. A. Bustamante², L. K. Mamedova^{1,3}, and B. J. Bradford^{1,3}, ¹*Kansas State University, Manhattan, KS*, ²*Universidad Austral de Chile, Valdivia, Los Rios Region, Chile*, ³*Michigan State University, East Lansing, MI.*

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

- 45 **The effect of fecal microbiota transplants in pre-weaned dairy calves.**
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.*
- 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.*

- 48 **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.*
- 49 **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*¹, I. Yoon², and J. P. Boerman¹, ¹*Purdue University Department of Animal Sciences, West Lafayette, IN*, ²*Diamond V, Cedar Rapids, IA.*
- 50 **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*¹, J. M. Campbell², S. Williamson¹, and K. S. Thompson¹, ¹*California State University Fresno, Fresno, CA*, ²*APC Inc., Ankeny, IA.*
- 51 **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)

- 52 **Disruption of circadian clocks in the prepartum dry period negatively affect mammary development.**
K. Teeple*¹, A. Suarez-Trujillo¹, C. McCabe¹, J. Townsend², S. Donkin¹, K. Plaut¹, J. Boerman¹, and T. Casey¹, ¹*Department of Animal Sciences, Purdue University, West Lafayette, IN*, ²*College of Veterinary Medicine, Purdue University, West Lafayette, IN.*
- 53 **Light-dark phase shift circadian disruption does not affect cortisol and progesterone concentrations in periparturient dairy cows.**
A. Suarez-Trujillo*¹, J. Franco², T. Steckler¹, J. Boerman¹, K. Plaut¹, and T. M. Casey¹, ¹*Department of Animal Sciences, Purdue University, West Lafayette, IN*, ²*Metabolite Profiling Facility, Bindley Bioscience Center, Purdue University, West Lafayette, IN.*
- 54 **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.*
- 55 **Elevated circulating serotonin alters calcium metabolism in mid-late lactation dairy cows.**
M. K. Connelly*, H. P. Fricke, J. Kuehn, M. Klister, and L. L. Hernandez, *University of Wisconsin-Madison, Madison, WI.*
- 56 **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. Boutinaud*¹, E. Chanat¹, A. Leduc¹, S. Wiart¹, P. Debournoux¹, L. Balhoul², and S. Lemosquet¹, ¹*INRAE Agrocampus Ouest, PEGASE, Saint Gilles, France*, ²*Centre of Expertise and Research in Nutrition, Adisseo France S.A.S, Commeny, France.*

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

- 57 **Effects of exposure to heat stress during late gestation on the daily time budget of nulliparous Holstein heifers.**
I. M. Toledo*, V. Ouellet, B. D. Davidson, G. E. Dahl, and J. Laporta, *University of Florida, Gainesville, FL.*
- 58 **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 Autònoma de Barcelona, Barcelona, Spain.*

- 59 **Pasture housing increases heat stress in late pregnant heifers: Management challenges for productivity and health.**
I. M. Toledo*, B. D. Davidson, V. Ouellet, G. E. Dahl, and J. Laporta, *University of Florida, Gainesville, FL.*
- 60 **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.*
- 61 **Estimation of daily maximum temperature-humidity index thresholds affecting milk traits in Italian Brown Swiss.**
A. Maggolino*¹, G. Dahl², N. Bartolomeo³, A. Rossoni⁴, and P. De Palo¹, ¹*Department of Veterinary Medicine, University of Bari "A. Moro," Bari, Italy,* ²*Department of Animal Sciences, University of Florida, Gainesville, FL,* ³*Department of Biomedical Science and Human Oncology, University of Bari "A. Moro," Bari, Italy,* ⁴*Italian 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)**

- 62 **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*¹, D. Kleinschmit², and L. Moraes¹, ¹*The Ohio State University, Columbus, OH,* ²*Zinpro Corporation, Eden Prairie, MN.*
- 63 **Effect of supplementary source of selenium on animal performance during intramammary endotoxin challenge in lactating Holstein cows.**
K. M. Cruickshank*¹, B. Hatew², E. S. Ribeiro¹, and M. A. Steele¹, ¹*University of Guelph, Guelph, ON, Canada,* ²*University of Alberta, Edmonton, AB, Canada.*
- 64 **Impact of supplementary trace mineral source on health and reproduction in lactating dairy cows.**
B. Mion*¹, J. F. W. Spricigo¹, K. King¹, L. Ogilvie¹, O. Chiu¹, L. Lobe¹, B. Van Winters¹, E. Merry¹, S. LeBlanc², M. A. Steele¹, B. W. McBride¹, and E. S. Ribeiro¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada,* ²*Department of Population Medicine, University of Guelph, Guelph, ON, Canada.*
- 65 **Impact of supplementary trace mineral source on production, feed intake and efficiency, metabolism, and rumen parameters in dairy cows.**
B. Mion*¹, J. F. W. Spricigo¹, E. Cran¹, L. Ogilvie¹, K. King¹, S. Anan¹, D. Stratas¹, B. Smith¹, Y. Chen², L. L. Guan², T. J. DeVries¹, S. J. LeBlanc³, M. A. Steele¹, B. W. McBride¹, E. S. Ribeiro¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada,* ²*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada,* ³*Department of Population Medicine, University of Guelph, Guelph, ON, Canada.*
- 66 **Controlled trial of the effect of negative dietary cation-anion difference on postpartum health and culling of dairy cows.**
R. Couto Serrenho*¹, T. C. Bruinje¹, E. I. Morrison¹, T. J. DeVries², T. F. Duffield¹, and S. J. LeBlanc¹, ¹*Department of Population Medicine, University of Guelph, Guelph, ON, Canada,* ²*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.*
- 67 **Impact of supplementary trace mineral source on immune cell function of dairy cows and its association with postpartum diseases.**
L. Ogilvie*¹, J. F. W. Spricigo¹, B. Mion¹, B. Van Winters¹, M. A. Steele¹, B. W. McBride¹, S. J. LeBlanc², and E. S. Ribeiro¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada,* ²*Department of Population Medicine, 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)

- 68 **Relationship between nutrient metabolism during the periparturient period and health measures in a Pacific Northwest dairy herd.**
C. Y. Tsai*¹, H. H. Hung¹, T. Weber¹, W. J. Price², and P. Rezamand¹, ¹*Department of Animal and Veterinary Science, University of Idaho, Moscow, ID*, ²*Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID*.
- 69 **Hepatic differential gene expression of cows clustered by postpartum metabolites: A model for susceptibility to lipid-related metabolic disorders.**
R. Pralle*¹, W. Li², and H. White¹, ¹*Department of Dairy Science, University of Wisconsin, Madison, WI*, ²*Cell Wall Biology and Utilization Laboratory, USDA-ARS, Madison, WI*.
- 70 **Effect of metabolic and digestive disorders on patterns of behavioral, physiological, and performance parameters of lactating dairy cows.**
M. M. Perez*¹, E. M. Cabrera¹, C. Rial¹, D. V. Nydam², and J. O. Giordano¹, ¹*Department of Animal Science, Cornell University, Ithaca, NY*, ²*Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY*.
- 71 **Antimicrobial resistance in fecal commensal bacteria isolated from dairy cows in California.**
E. Abdelfattah*¹, P. Ekong¹, E. Okello^{1,2}, T. Chamchoy¹, B. Karle³, R. Black⁴, D. Sheedy¹, W. El-Ashmawy¹, D. Williams¹, D. Califano¹, L. Duran¹, J. Ongom¹, B. Byrne⁵, T. Lehenbauer^{1,2}, S. Aly^{1,2}, ¹*Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California, Tulare, CA*, ²*Department of Population Health & Reproduction, School of Veterinary Medicine, University of California, Davis, CA*, ³*Cooperative Extension, Division of Agriculture and Natural Resources, University of California, Orland, CA*, ⁴*Cooperative Extension, Division of Agriculture and Natural Resources, University of California, Santa Rosa, CA*, ⁵*Department of Pathology, Microbiology, and Immunology, School of Veterinary Medicine, University of California, Davis, CA*.
- 72 **Performance of the machine learning method XGBoost for prediction of clinical health disorders in lactating dairy cows.**
M. M. Pérez*¹, Y. You², Y. Wang², K. Q. Weinberger², D. V. Nydam³, and J. O. Giordano¹, ¹*Department of Animal Science, Cornell University, Ithaca, NY*, ²*Department of Computer Science, Cornell University, Ithaca, NY*, ³*Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY*.
- 73 **Performance of different machine learning methods for prediction of the health status of lactating dairy cows.**
M. M. Pérez*¹, Y. You², Y. Wang², K. Q. Weinberger², D. V. Nydam³, and J. O. Giordano¹, ¹*Department of Animal Science, Cornell University, Ithaca, NY*, ²*Department of Computer Science, Cornell University, Ithaca, NY*, ³*Department 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)

- 74 **Source of cobalt fed during late pregnancy to Holstein cows affects postnatal calf growth and innate immune function.**
A. S. Alharthi*^{1,2}, E. Abdel-Hamied³, H. Dai⁴, Y. Liang¹, V. Lopreiato⁵, A. A. Elolimy^{1,6}, M. T. Socha⁷, and J. J. Loor¹, ¹*Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL*, ²*Department of Animal Production, College of Food and Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia*, ³*Animal medicine department, Beni-Suef University, Beni-Suef, Egypt*, ⁴*College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, PR China*, ⁵*Department of Animal Sciences, Food and Nutrition Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy*, ⁶*Department of Animal Production, National Research Centre, Dokki, Giza, Egypt*, ⁷*Zinpro Corporation, Eden Prairie, MN*.
- 75 **The development of the fecal microbiome in Holstein dairy calves throughout the weaning transition.**
M. Hennessy*¹, B. Vecchiarelli¹, N. Indugu¹, J. Bender¹, C. Pappalardo¹, M. Leibstein², J. Toth¹, A. Katepalli³, S. Garapati⁴, and D. Pitta¹, ¹*University of Pennsylvania School of Veterinary Medicine, New Bolton Center Kennett Square, PA*, ²*Oceanside High School, Oceanside, NY*, ³*Northwest High School, Germantown, MD*, ⁴*Drexel University, Philadelphia, PA*.

- 76 **Early life indicators of future growth in Holstein dairy heifers.**
T. S. Steckler*¹, N. Lopez-Villalobos², and J. P. Boerman¹, ¹*Purdue University Department of Animal Sciences, West Lafayette, IN*, ²*School of Agriculture and Environment, Massey University, Palmerston North, New Zealand.*
- 77 **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. Alharthi^{2,3}, Y. Liang², H. Dai⁴, V. Lopreiato⁵, M. N. Corrêa¹, and J. J. Loores², ¹*NUPEEC (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*, ²*Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL*, ³*Department of Animal Production, College of Food and Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia*, ⁴*College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China*, ⁵*Department of Animal Sciences, Food and Nutrition, Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy.*
- 78 **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. Alharthi^{2,3}, H. Dai⁴, V. Lopreiato⁵, E. Abdel-Hamied⁶, M. N. Corrêa¹, M. T. Socha⁷, and J. J. Loores², ¹*NUPEEC (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*, ²*Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL*, ³*Department of Animal Production, College of Food and Agriculture Sciences, King Saud University, Riyadh, Saudi Arabia*, ⁴*College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China*, ⁵*Department of Animal Sciences, Food and Nutrition, Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy*, ⁶*Animal Medicine Department, Beni-Suef University, Beni-Suef, Egypt*, ⁷*Zinpro Corporation, Eden Prairie, MN.*

Lactation Biology

Chair: Theresa Casey, Purdue University

Room 3

12:30 – 12:40 PM (Monday block 2)

- 79 **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. Shangraw², R. O. Rodrigues², and F.-Q. Zhao¹, ¹*Department of Animal and Veterinary Sciences, University of Vermont, Burlington, VT*, ²*Division of Animal Sciences, University of Missouri, Columbia, MO.*
- 80 **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. Lyons³, W. F. Zandberg², and M. A. Steele¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, ²*Department of Chemistry, University of British Columbia, Kelowna, BC, Canada*, ³*Department of Biology, University of British Columbia, Kelowna, BC, Canada.*
- 81 **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, ¹*Department of Animal Science, The Pennsylvania State University, University Park, PA*, ²*Dairy 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)

- 82 **Cow longevity and culling on China dairy farms from 2013 to 2015.**
S. Liu*, J. Ma, and Z. Cao, *China Agricultural University, Beijing, China.*

- 83 **Use of bulk tank milk fatty acid profiles as an on-farm decision-support tool.**
D. Warner, R. Lacroix, R. K. Moore, D. M. Lefebvre, and D. E. Santschi*, *Lactanet, Sainte-Anne-de-Bellevue, QC, Canada.*
- 84 **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.*
- 85 **Evaluation of the GreenFeed method relative to the United States Pharmacopeia methodology validation guidelines.**
B. Garcia¹, S. Zimmerman*¹, and K. Schaefer², ¹*C-Lock Inc., Rapid City, SD*, ²*DSM Nutritional Products, Basel, Switzerland.*
- 86 **An environmental assessment of dairy farms in the eastern United States.**
C. A. Rotz¹, R. Stout*¹, M. Holly², and P. Kleinman¹, ¹*USDA-ARS, University Park, PA*, ²*University of Wisconsin-Green Bay, Green Bay, WI.*
- 87 **National consumer survey of dairy food preferences and purchase interest.**
M. Camire*¹, R. Bernier², R. Labbe², D. Bouchard², G. Shaler³, and L. Yeitz³, ¹*University of Maine, Orono, ME*, ²*Atlantic Corporation, Waterville, ME*, ³*University of Southern Maine, Portland, ME.*

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

- 88 **Effect of 25-hydroxyvitamin D3 [25-(OH)D3] on dairy cows.**
H. M. Golder* and I. J. Lean, *Scibus, Camden, NSW, Australia.*
- 89 **Bioefficacy of hydroxy-selenomethionine in dairy cows.**
N. L. Whitehouse*¹, J. R. Sexton¹, S. M. Hollister¹, L. H. P. Silva², S. M. Fredin³, and M. Briens¹, ¹*University of New Hampshire, Durham, NH*, ²*Adisseo USA Inc., Alpharetta, GA*, ³*Adisseo France SAS, Commeny, France.*
- 90 **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.*
- 91 **Inclusion of calcium-magnesium tetrahydroxide as a dietary source of inorganic Mg alters ruminal pH and fermentation in a dual-flow continuous culture system.**
J. A. Arce-Cordero*, H. F. Monteiro, V. L. N. Brandao, X. Dai, S. Bennett, J. Vinyard, and A. P. Faciola, *Department of Animal Sciences, University of Florida, Gainesville, FL.*
- 92 **Effects of reduced dietary cation and anion difference on production, nutrient digestibility, and urine pH in lactating cows.**
C. Lee*¹, J. E. Copelin¹, L. R. Rebelo¹, P. A. Dieter¹, W. P. Weiss¹, and T. Brown², ¹*Department of Animal Sciences, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH*, ²*Dairy Nutrition Plus, Ralston, IA.*
- 93 **Effects of dietary antioxidants and modulators of immune response on animal performance and metabolism of Holstein cows during heat stress.**
A. Ruiz Gonzalez*^{1,2}, W. Suissi², L. H. Baumgard³, P.-Y. Chouinard¹, R. Gervais¹, and D. E. Rico², ¹*Université Laval, Quebec, QC, Canada*, ²*CRSAD, Deschambault, QC, Canada*, ³*Iowa 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*¹, C. A. García Montes de Oca², N. Pescador-Salas², J. G. Estrada Flores³, J. Romero Bernal², L. E. Robles Jimenez², and M. González-Ronquillo³, ¹*Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark*, ²*Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma del Estado de México, Toluca, Estado de México, México*, ³*Instituto 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-García^{1,2}, N. Mehaba¹, X. Such¹, G. Caja¹, and A. A. K. Salama*¹, ¹*Research Group in Ruminants (G2R), Universitat Autònoma de Barcelona, Barcelona, Spain*, ²*Facultad 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*¹, A. Guri², Z. Gaygadzhiev³, and A. Wright¹, ¹*Department of Human Health and Nutritional Sciences, University of Guelph, Guelph, ON, Canada*, ²*Gay Lea Co-operative Foods Ltd, Hamilton, ON, Canada*, ³*Reckitt Benckiser, Evansville, IN*.
- 97 **Reconstitution properties of micellar casein powders with different calcium contents and their production.**
J. Schäfer¹, R. Kohlus¹, J. Hinrichs¹, and Z. Atamer*¹, ¹*Department of Soft Matter Science and Dairy Technology, Institute of Food Science and Biotechnology, University of Hohenheim, Stuttgart, Germany*, ²*Department 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.**
G. L. Voronin*, G. Ning, J. N. Coupland, R. Roberts, and F. M. Harte, *The Pennsylvania State University, University Park, PA*.

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*¹, D. M. Barbano², D. H. Poole¹, J. Odle¹, M. A. Drake¹, and S. H. Ward¹, ¹*North Carolina State University, Raleigh, NC*, ²*Cornell University, Ithaca, NY*.

- 102 **Milk fat and protein yield in Holstein California herds with different milk production levels.**
M. B. Abreu*^{1,2}, M. I. Marcondes¹, F. C. Ferreira², B. Verboort³, and N. Silva-Del-Río², ¹Universidade Federal de Vicosa, Vicosa, MG, Brazil, ²Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA, ³Agritech Analytics, Visalia, CA.
- 103 **Do biological and management causes of a short or long dry period induce the same effects on dairy cattle productivity?**
K. E. Olagaray*¹, M. W. Overton², and B. J. Bradford¹, ¹Kansas State University, Manhattan, KS, ²Elanco Animal Health, Greenfield, IN.
- 104 **Economics of capture of phosphorus from liquid dairy manure.**
J. Harrison*¹, K. Fullerton¹, E. Whitefield¹, K. Bowers², and S. Norberg³, ¹Washington State University, Puyallup, WA, ²Multiform Harvest, Seattle, WA, ³Washington State University, Pasco, WA.
- 106 **Economic impacts of feeding an immune modulator to multiparous dry Holstein dairy cows.**
L. T. Casarotto*¹, V. Ouellet¹, J. Laporta¹, J. D. Chapman², A. De Vries¹, and G. E. Dahl¹, ¹Department of Animal Sciences, University of Florida, Gainesville, FL, ²Phibro Animal Health Corporation, Teaneck, NJ.

Ruminant Nutrition: Gut Physiology, Fermentation, and Digestion

Chair: Jeff Firkins, The Ohio State University

Room 5

1:00 – 1:30 PM (Monday block 3)

- 107 **The effect of 3-nitrooxypropanol on ruminal microbial gene expression in dairy cows.**
D. Pitta*¹, A. Melgar², N. Indugu¹, V. Shabtai¹, M. Hennessy¹, B. Vecchiarelli¹, M. Kindermann³, N. Walker³, R. Thauer⁴, and A. Hristov³, 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.
- 108 **Temporal changes in total and metabolically active ruminal methanogens induced by 3-nitrooxypropanol in dairy cows.**
D. Pitta¹, A. Melgar², N. Indugu¹, C. Pappalardo*¹, M. Hennessy², B. Vecchiarelli¹, V. Shabtai¹, M. Kindermann³, N. Walker³, 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.
- 109 **Early life modulation of the gut microbiota and antibiotic resistance in calves fed oregano essential oil.**
P. P. Ray*¹, C. Rymer¹, D. Wilde², E. F. Lund², and A. C. Singer³, 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.
- 110 **Improving rumen microbial fermentation profile with natural active ingredients.**
R. Temmar¹, M. E. Rodriguez-Prado*¹, G. Forgeard², C. Rougier², and S. Calsamiglia¹, ¹Animal Nutrition and Welfare Service, Universitat Autònoma de Barcelona, Bellaterra, Spain, ²TECHNA France Nutrition, Coueron, France.
- 111 **Exploring synergistic interaction between essential oils in in vitro rumen microbial fermentation.**
R. Temmar¹, M. E. Rodriguez-Prado*¹, G. Forgeard², C. Rougier², and S. Calsamiglia¹, ¹Animal Nutrition and Welfare Service, Universitat Autònoma de Barcelona, Bellaterra, Spain, ²TECHNA France Nutrition, Coueron, France.

Small Ruminant
Chair: Guido Invernizzi, University of Milan
Room 3
1:00 – 1:30 PM (Monday block 3)

- 112 **Effect of protected dietary oils on dry matter intake, nutrient digestibility, and milk production in dairy goats.**
E. Vargas-Bello-Pérez*¹, R. Ayala-Hernández², N. Pescador-Salas², O. Castelán-Ortega², and M. González-Ronquillo², 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.
- 113 **Effect of dietary inclusion of sunflower seed silage (*Helianthus annuus*) on physical and sensory characteristics of sheep cheese.**
A. C. Narvaes-López¹, L. E. Robles-Jiménez¹, E. Cardoso-Gutiérrez¹, M. d. I. Á. Colín-Cruz¹, M. González-Ronquillo¹, and E. Vargas-Bello-Pérez*², 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.
- 114 **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.
- 115 **A high rumen degradable starch diet modulates jejunum microbiota and alters enterohepatic circulation of bile acids in dairy goats.**
J. Shen¹, X. Chen², L. Wang^{1,2}, J. Yao¹, and Y. Cao*^{1,2}, ¹Northwest A&F University, Yangling, Shaanxi, China, ²Harvard Medical School, Boston, MA.
- 116 **The effects of *Saccharomyces cerevisiae*-based products on the ruminal environment and performance of sheep submitted to dietary changes.**
L. Tavares, M. Araújo, J. Noschang, J. Halfen, A. Schmidt, A. Matos, M. Ollé, A. Barbosa, J. Feijó, C. Brauner*, M. Corrêa, E. Schmitt, F. Del Pino, and V. Rabassa, Núcleo de Pesquisa, Ensino e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil.
- 117 **Metabolic and productive characteristics of sensitive and heat-tolerant phenotypes of Murciano-Granadina dairy goats.**
S. Serhan¹, S. González-Luna*^{1,2}, B. Chaalia¹, X. Such¹, A. A. K. Salama¹, and G. Caja¹, ¹Group of Research in Ruminants (G2R), Universitat Autònoma de Barcelona, Bellaterra, Spain, ²F.E.S. Cuautitlan, Universidad nacional Autónoma de México, Cuautitlan, Mexico.

Breeding and Genetics
Chair: Christine Baes, University of Guelph
Room 1
1:00 – 1:30 PM (Monday block 3)

- 118 **Association between lifetime selection index predictions and lifetime performance.**
B. Fessenden*¹, D. Weigel², J. Osterstock¹, D. Galligan³, and F. Di Croce¹, ¹Zoetis Genetics, Kalamazoo, MI, ²Zoetis Outcomes Research, Kalamazoo, MI, ³University of Pennsylvania School of Veterinary Medicine, New Bolton Center, Kennett Square, PA.
- 119 **Conformation traits of Holstein cows and their association with the Pro;selection index.**
L. Alcantara*¹, C. Baes^{1,2}, G. Oliveira Junior¹, and F. Schenkel¹, ¹Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, ²Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland.
- 120 **Opportunity costs in beef-on-dairy breeding strategies.**
A. De Vries*, University of Florida, Gainesville, FL.
- 121 **The effect of synchronized breeding on genetic evaluations of fertility traits in dairy cattle: Preliminary analysis.**
C. Lynch*¹, G. A. Oliveira Junior¹, F. S. Schenkel¹, and C. F. Baes^{1,2}, ¹Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada, ²Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland.

- 122 **Implementation of national health trait evaluations in Jersey.**
K. L. Parker Gaddis*¹, L. M. Jensen², P. M. VanRaden³, J. H. Megonigal Jr.¹, E. L. Nicolazzi¹, H. D. Norman¹, 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.
- 123 **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)

- 124 **Genomic prediction of dairy bull fertility using X chromosome markers.**
H. A. Pacheco*¹, F. M. Rezende^{1,2}, and F. Peñagaricano¹, ¹University of Florida, Gainesville, FL, ²Universidade Federal de Uberlândia, Uberlândia, MG, Brazil.
- 125 **Variation in the timing of puberty in grazing Holstein-Friesian dairy heifers.**
N. Steele*¹, M. Stephen¹, A. Young¹, B. Kuhn-Sherlock¹, P. Amer², S. Meier¹, C. Phyn¹, and C. Burke¹, ¹DairyNZ Limited, Private Bag 3221, Hamilton, New Zealand, ²AbacusBio Limited, Dunedin, New Zealand.
- 126 **Alternative models for genetic analysis of pregnancy loss in dairy cattle.**
A. Sigdel*, R. S. Bisinotto, and F. Peñagaricano, University of Florida, Gainesville, FL.
- 127 **Targeted sequencing reveals deleterious mutations affecting dairy bull fertility.**
R. Abdollahi-Arpanahi*, H. A. Pacheco, and F. Peñagaricano, University of Florida, Gainesville, FL.
- 128 **Multiparous Holstein cow vaginal microbiome near parturition associated with neonatal fecal microbiome.**
C. E. Owens*, H. G. Huffard, A. I. Nin-Velez, A. J. Duncan, C. L. Teets, K. M. Daniels, K. F. Knowlton, and R. R. Cockrum, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- 129 **Investigating conception rate for beef service sires bred to dairy cows.**
T. M. McWhorter*¹, J. L. Hutchison², H. D. Norman³, J. B. Cole², G. C. Fok³, D. A. L. Lourenco¹, and P. M. VanRaden², ¹Department of Animal and Dairy Science, University of Georgia, Athens, GA, ²USDA Animal Genomics and Improvement Laboratory, Beltsville, MD, ³Council on Dairy Cattle Breeding, Bowie, MD.
- 130 **Across-country genomic prediction of bull fertility in Jersey dairy cattle.**
F. M. Rezende*¹, M. Haile-Mariam², J. E. Pryce², and F. Peñagaricano¹, ¹University of Florida, Gainesville, FL, ²Agriculture Victoria Research, Bundoora, VIC, Australia.

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

- 131 **Effect of pH on the morphology and tensile properties of milk protein-based electrospun fibers.**
S. Akkurt and P. Tomasula*, Dairy and Functional Foods Research Unit, USDA, Agricultural Research Service, Eastern Regional Research Center, Wyndmoor, PA.
- 132 **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.

- 133 **Understanding the switchable solvent extraction of phospholipids from dairy by-products.**
K. Rathnakumar* and S. I. Martinez-Monteaudo, *South Dakota State University, Brookings, SD.*
- 134 **Pilot-scale production of enriched phospholipid concentrate from whey protein phospholipid concentrate using enzymatic hydrolysis and microfiltration.**
A. V. Swaminathan*¹, M. Molitor², K. J. Burrington², D. Otter², and J. A. Lucey^{1,2}, ¹*University of Wisconsin-Madison, Madison, WI*, ²*Wisconsin 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)

- 135 **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*¹, T. Bresolin¹, L. G. Pereira^{2,1}, and J. R. R. Dorea¹, ¹*University of Wisconsin-Madison, Madison, WI*, ²*Embrapa Dairy Cattle, Juíz de Fora, MG, Brazil.*
- 136 **Inconsistency of precision dairy monitoring technologies measuring the same behaviors.**
B. W. Jones*^{1,2}, I. C. Tsai³, Y. M. Chang⁴, and J. M. Bewley⁵, ¹*Tarleton State University, Stephenville, TX*, ²*Texas A&M AgriLife Research, Stephenville, TX*, ³*DeLaval, Lansing, MI*, ⁴*University of London, London, UK*, ⁵*CowFocused Solutions, Elizabethtown, KY.*
- 137 **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.*
- 138 **Energy consumption on five Midwest dairy farms.**
K. Sharpe*, B. Heins, E. Buchanan, and M. Reese, *West Central Research and Outreach Center, Morris, MN.*
- 139 **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)

- 140 **Performance and digestibility of dairy calves fed milk replacer with all-milk protein or with 35% of vegetable proteins.**
M. García-Cuchma¹, J. L. Repetto¹, G. Antúnez², I. Dodera³, H. Pose³, A. Maggio¹, J. Dayuto¹, and C. Cajarville*¹, ¹*Departamento Producción Animal de Veterinaria (IPAV), Facultad de Veterinaria, UdelaR, Libertad, San José, Uruguay*, ²*Departamento de Salud en los Sistemas Pecuarios, Facultad de Veterinaria, UdelaR, Paysandú, Uruguay*, ³*Royal Agrifirm Uruguay Group, Juanicó, Canelones, Uruguay.*
- 141 ***Schizochytrium* sp. and lactoferrin improve intestinal health of dairy calves challenged with *Escherichia coli* K99.**
A. L. T. Zhu La¹, W. H. Liu¹, L. J. Ren¹, S. T. Gao¹, Z. T. Yu², D. P. Bu¹, and L. Ma*¹, ¹*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, ²*Department of Animal Sciences, The Ohio State University, Columbus, OH.*
- 142 **Effects of inclusion of a high-fat extruded pellet mixed with a conventional pellet in rearing calves.**
L. Amado*¹, L. N. Leal¹, H. van Laar^{1,2}, H. Berends¹, W. J. J. Gerrits², and J. Martín-Tereso¹, ¹*Trouw Nutrition, Amersfoort, the Netherlands*, ²*Wageningen University, Wageningen, the Netherlands.*
- 143 **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*^{1,2}, L. Leal², J. Wilms², H. Berends², M. A. Steele¹, and J. Martín-Tereso², ¹*University of Guelph, Guelph, ON, Canada*, ²*Trouw Nutrition, Amersfoort, the Netherlands.*

- 144 **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.*
- 145 **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*, B. Mion¹, J. F. W. Spricigo¹, B. Van Winters¹, B. W. McBride¹, S. J. LeBlanc², M. A. Steele¹, and E. S. Ribeiro¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, ²*Department of Population Medicine, University of Guelph, Guelph, ON, Canada.*
- 146 **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, ¹*University of California-Davis, Davis, CA*, ²*Scibus, Camdem, 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)

- 147 **Effects of probiotics on in vitro digestibility, rumen fermentation, methane and gas production from a corn silage-based TMR.**
A. Oyebade*, K. G. Arriola, H. Sultana, S. Lee, E. Duvalsaint, F. Amaro, I. Fernandez Marenchino, C. Nino De Guzman, L. Marroquin Pacheco, L. Ghedin Ghizzi, M. Reboucas Pupo, M. Agarussi, L. Ferraretto, A. Adesogan, D. Vyas, *University of Florida, Gainesville, FL.*
- 148 **Saccharomyces cerevisiae fermentation products reduce effects of subacute ruminal acidosis on CowPi-predicted functionalities of rumen microbiota in lactating dairy cows.**
J. Guo*¹, Z. Zhang³, I. Yoon², M. Zhou³, L. Guan³, E. Khafipour², and J. Plaizier¹, ¹*University of Manitoba, Winnipeg, MB, Canada*, ²*Diamond V, Cedar Rapids, IA*, ³*University of Alberta, Edmonton, AB, Canada.*
- 149 **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.*
- 150 **Effect of autochthonous Nepalese plants on ruminal methane production in vitro.**
R. Dhakal¹, E. Vargas-Bello-Pérez*¹, M. González-Ronquillo², and H. H. Hansen¹, ¹*Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark*, ²*Facultad de Medicina Veterinaria y Zootecnia, Instituto Literario 100, Universidad Autónoma del Estado de México, Toluca, Estado de México, México.*
- 151 **Effects of feeding a yeast culture product on performance, blood biomarkers, rumen fermentation, and rumen bacteria species in periparturient dairy cows.**
N. A. Carpinelli*¹, J. Halfen^{1,2}, S. D. L. Ramirez^{1,3}, E. Trevisi⁴, J. D. Chapman⁵, E. D. Sharman⁵, and J. S. Osorio¹, ¹*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, ²*Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil*, ³*Universidad de la Salle, Bogotá, DC, Colombia*, ⁴*Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Science, Italy*, ⁵*Phibro Animal Health Corporation, Teaneck, NJ.*
- 152 **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. Chapman³, E. D. Sharman³, J. L. Anderson¹, and J. S. Osorio¹, ¹*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, ²*Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Departamento de Clínica Veterinária, Universidade Federal de Pelotas, Pelotas, RS, Brazil*, ³*Phibro Animal Health Corporation, Teaneck, NJ.*
- 418 **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. Keunen², D. L. Renaud¹, L. L. Guan³, and M. A. Steele¹, ¹*University of Guelph, Guelph, ON, Canada*, ²*Mapleview Agri. Ltd., Mapleton, ON, Canada*, ³*University 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. Piñeiro², A. Garcia-Guerra³, A. E. Relling⁴, W. P. Weiss⁴, and G. M. Schuenemann¹, ¹*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, ²*Department of Animal Science, Texas A&M AgriLife Extension Service, Amarillo, TX*, ³*Department of Animal Sciences, The Ohio State University, Columbus, OH*, ⁴*Department 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. Carrari¹, J. H. Carneiro¹, J. C. S. Lourenço¹, G. F. M. Leão², and R. Almeida*¹, ¹*Universidade Federal do Paraná, Curitiba, PR, Brazil*, ²*Castrolanda 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. Halfen^{1,2}, S. D. L. Ramirez^{1,3}, and J. S. Osorio¹, ¹*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, ²*Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil*, ³*Universidad 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, A. Garcia-Guerra², J. Lakritz³, W. P. Weiss⁵, J. S. Velez⁴, D. Merchan⁴, and G. M. Schuenemann¹, ¹*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, ²*Department of Animal Sciences, The Ohio State University, Columbus, OH*, ³*Department of Veterinary Clinical Sciences, The Ohio State University, Columbus, OH*, ⁴*Aurora Organic Farms, Boulder, CO*, ⁵*Department of Animal Sciences, The Ohio State University, Wooster, OH.*
- M36 **Blood biomarkers through an ex vivo LPS challenge under ketotic conditions in periparturient dairy cows.**
N. A. Carpinelli*¹, J. Halfen^{1,2}, F. Rosa¹, E. Trevisi³, A. Minuti³, and J. S. Osorio¹, ¹*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, ²*Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil*, ³*Department 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. Martinez¹, L. Byler¹, S. Bas², J. Zug³, and S. Haan³, ¹*Department of Veterinary and Biomedical Sciences, Penn State University, University Park, PA*, ²*Phytobiotics Futterzusatzstoffe GmbH Bvd, Villa Maria, Córdoba, Argentina*, ³*Zugstead Farm, Mifflintown, 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.**
M. Garcia*, H. A. Roberts, S. A. Armstrong, J. D. Chapman, and D. J. McLean, *Phibro Animal Health Corporation, Teaneck, NJ.*
- 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. Li¹, X. Wang¹, J. Wu¹, Y. Liang², and J. J. Looor², ¹*Anhui Agricultural University, Hefei, Anhui, China*, ²*University 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.*

- M42 **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.*
- M140 **Plasma alpha-1-acid glycoprotein concentration is associated with key blood biomarkers and disease incidence during the transition period.**
W. E. Brown*¹, M. Garcia¹, L. K. Mamedova¹, K. R. Christman¹, M. G. Zenobi², C. R. Staples², B. M. Leno³, T. R. Overton³, B. K. Whitlock⁴, J. A. Daniel⁵, and B. J. Bradford^{1,6}, ¹*Kansas State University, Manhattan, KS*, ²*University of Florida, Gainesville, FL*, ³*Cornell University, Ithaca, NY*, ⁴*University of Tennessee, Knoxville, TN*, ⁵*Berry College, Mount Berry, GA*, ⁶*Michigan State University, East Lansing, MI.*

Dairy Foods 1

- M43 **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. Esposito^{2,1}, K. Dzama¹, P. Gouws¹, T. Rapisarda³, G. Belvedere³, and E. Raffrenato*^{2,1}, ¹*Stellenbosch University, Stellenbosch, South Africa*, ²*RUM&N Consulting, Reggio Emilia, Italy*, ³*Consorzio per la Ricerca nel settore della Filiera Lattiero-Casearia e dell'agroalimentare, Ragusa, Italy.*
- M44 **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, ¹*Siberian Research Institute of Cheese-Making, Federal Altai Scientific Centre of Agro-Bio Technologies, Barnaul, Russia*, ²*Tillamook County Creamery Association, Tillamook, OR.*
- M45 **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.*
- M46 **Liquid chromatography-tandem mass spectrometry analysis of glycomacropptide from whey protein isolate.**
Y. Qu*, B. J. Kim, and D. Dallas, *Oregon State University, Corvallis, OR.*
- M47 **Effect of inulin on the microbiological and organoleptic characteristics of synbiotic yogurt.**
D. G. Kamel*, *Dairy Science Department, Assiut University, Assiut, Egypt.*
- M48 **Microbial degradation of FD&C Red No. 40 in strawberry-flavored milk.**
C. Rush* and J. Waite-Cusic, *Oregon State University, Corvallis, OR.*
- M49 **Production and physico-chemical characterization of functional ice cream with whey and buttermilk powder.**
A. F. Cruz*¹, R. T. Pfrimer², L. Damasceno², D. S. Fernandes², L. A. F. Silva¹, E. S. Nicolau², and C. Gebara², ¹*School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil*, ²*Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.*
- M50 **Influence of protein content on acidity of fermented dairy beverages with buttermilk and gabiropa pulp (*Campomanesia xanthocarpa*).**
L. Damasceno*¹, R. T. Pfrimer¹, C. F. Cardoso², E. C. Nogueira³, E. S. Nicolau¹, and C. Gebara¹, ¹*Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil*, ²*School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil*, ³*School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil*, ⁴*Maroca Dairy Industry, Piranhas, Goiás, Brazil.*
- M51 **Comparing some genetic determinants associated with colonization of *Listeria* isolates within dairy plant environment.**
N. Singh*^{1,2}, S. Anand^{1,2}, J. Gonzalez², and B. Kraus³, ¹*Midwest Dairy Foods Research Center, Brookings, SD*, ²*South Dakota State University, Brookings, SD*, ³*Wells Enterprises Inc., Le Mars, IA.*
- M52 **Fermentation kinetics of dairy-relevant sugars in acid whey conditions by *Saccharomyces*, *Kluyveromyces*, and *Brettanomyces* species.**
V. K. Rivera Flores*, T. A. DeMarsh, and S. D. Alcaine, *Cornell University, Ithaca, NY.*
- M53 **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.*
- M54 **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.*

- M55 **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, ¹*Kansas State University, Manhattan, KS*, ²*Glanbia Nutritional, Twin Falls, ID*.

Growth and Development 1

- M56 **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. Bittar², and J. H. C. Costa¹, ¹*University of Kentucky, Lexington, KY*, ²*University of São Paulo, Piracicaba, SP, Brazil*.
- M57 **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*.
- M58 **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*.
- M59 **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, *Provimi North America, Brookville, OH*.
- M60 **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*¹, T. S. Dennis², J. D. Quigley², T. M. Hill², F. X. Suarez-Mena², K. M. Aragona², and M. A. Steele¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, ²*Provimi, Cargill Animal Nutrition, Brookville, OH*.
- M61 **Effects of transition milk on postnatal growth and health of neonatal calves.**
B. Van Soest*, M. Weber Nielsen, J. Laguna, Z. Zhou, A. Abuelo, and M. VandeHaar, *Michigan State University, East Lansing, MI*.
- M62 **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, Provimi, Cargill Animal Nutrition, Brookville, OH*.
- M63 **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, Provimi, Cargill Animal Nutrition, Brookville, OH*.
- M64 **Carcass characteristic of dairy bull calves fed different energy sources.**
E. R. Q. Vieira*¹, D. O. Cutrim², F. G. F. Castro³, J. N. M. Neiva¹, H. P. S. L. Rocha⁴, and R. A. Oliveira¹, ¹*Universidade Federal do Tocantins, Araguaína, Tocantins, Brazil*, ²*Instituto Federal do Tocantins, Pedro Afonso, Tocantins, Brazil*, ³*Agrocria Animal Nutrition and Seeds, Goiânia, Goiás, Brazil*, ⁴*Universidade Federal de Goiás, Goiânia, Goiás, Brazil*.
- M65 **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*.
- M66 **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. Williamson¹, and K. S. Thompson¹, ¹*California State University Fresno, Fresno, CA*, ²*APC Inc., Ankeny, IA*.
- M67 **Effects of feeding whole milk, waste milk and pasteurized waste milk on dairy bull calf performance.**
S. F. Vieira¹, H. C. Diniz Neto¹, J. P. Campolina*¹, S. G. Coelho¹, and M. M. Campos², ¹*Department of Animal Science, School of Veterinary Medicine, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil*, ²*Brazilian 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. Vieira¹, 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. Shabtay², M. Cohen-Zinder², U. Lipkin³, and C. Dechow¹, ¹Penn State University, University Park, PA, ²Newe 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*², 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. Drewery^{1,2}, ¹Grober Nutrition, Cambridge, ON, Canada, ²Texas State University, San Marcos, TX.
- M73 **Water delivery methods for neonatal calves during winter.**
F. X. Suarez-Mena*, T. S. Dennis, K. M. Aragona, T. M. Hill, J. D. Quigley, and R. L. Schlotterbeck, Nurture Research Center, Provim, Brookville, OH.
- M74 **Effects of milk replacer feeding rate and fat content on Jersey calves to 4 months of age.**
F. X. Suarez-Mena*, T. S. Dennis, K. M. Aragona, T. M. Hill, J. D. Quigley, and R. L. Schlotterbeck, Nurture Research Center, Provim, Brookville, OH.

Lactation Biology 1

- M75 **Sodium salicylate reduced transcript abundance of hypoxia-associated genes in MAC-T cells.**
C. M. Ylloja, 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. Jing¹, Y. F. Chen*¹, M. Z. Wang¹, L. Y. Hu¹, Q. Y. Xu¹, Z. N. Xi¹, and J. J. Loo², 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. Bertolín, 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. Li*¹, R. Laforest¹, L. Wright¹, J. Kim¹, P. Kedzierski¹, V. Osborne¹, J. Doelman^{1,2}, 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, Commeny, 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*^{1,2}, V. Ouellet², 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. Kelley¹, J. Williams¹, W. Price³, E. Peterson⁴, M. McGuire², and M. McGuire¹, ¹*Animal and Veterinary Sciences, University of Idaho, Moscow, ID*, ²*Margaret Ritchie School of Family and Consumer Sciences, University of Idaho, Moscow, ID*, ³*Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID*, ⁴*Erik L. Peterson Dairy, Filer, ID.*
- M84 **Evaluation of mammary gland involution in dairy cows during the dry period using a 3-dimensional scanner.**
J. Leite de Campos*, J. Strickland, J. Gandy, L. M. Sordillo, C. Robison, and P. L. Ruegg, *Michigan State University, East Lansing, MI.*
- 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-Renom¹, J. V. Carratalá², S. Parés¹, L. Sanchez-Garcia², N. Ferrer-Miralles^{2,3}, A. Villaverde^{2,3}, A. Bach*^{4,1}, E. Garcia-Fruitós¹, and A. Arís¹, ¹*Department of Ruminant Production, Institut de Recerca i Tecnologia Agroalimentàries (IRTA, Caldes de Montbui, Catalonia, Spain*, ²*Institut de Biotecnologia i de Biomedicina, Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Catalonia, Spain*, ³*Departament de Genètica i de Microbiologia, Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Catalonia, Spain*, ⁴*Institució 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. Kavazis², W. R. Hood², P. Villamediana¹, and A. L. Skibieli¹, ¹*University of Idaho, Moscow, ID*, ²*Auburn University, Auburn, AL.*
- M87 **An optimized laser capture microdissection protocol for intact RNA isolation from lipopolysaccharide treated mammary epithelial cells.**
R. K. Choudhary*¹, T. B. McFadden², E. M. Shangraw², R. O. Rodrigues², and F.-Q. Zhao¹, ¹*Department of Animal and Veterinary Sciences, University of Vermont, Burlington, VT*, ²*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.**
A. P. S. Franzoni*¹, F. C. Ferreira¹, J. S. Clay², and A. De Vries³, ¹*University of California, Davis, CA*, ²*Dairy Records Management Systems, Raleigh, NC*, ³*University of Florida, Gainesville, FL.*
- M90 **Mammary health program and subclinical mastitis in dairy farms in Córdoba, Argentina.**
C. Vissio^{1,2}, B. Mancilla¹, P. Turiello*¹, and A. Larriestra¹, ¹*UNRC, Río Cuarto, Córdoba, Argentina*, ²*IDAS UNRC-CONICET, Río Cuarto, Córdoba, Argentina.*
- M91 **Applying machine learning on feeding behavior data for estrus detection in dairy heifers.**
F. C. Cairo¹, L. G. R. Pereira*², M. M. Campos², T. R. Tomich², S. G. Coelho³, C. F. A. Lage³, A. P. Fonseca³, A. M. Borges³, and J. R. R. Dorea⁴, ¹*Universidade Estadual do Sudoeste da Bahia, Itapetinga, BA, Brazil*, ²*Brazilian Agricultural Research Corporation – Embrapa, Juiz de Fora, MG, Brazil*, ³*Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil*, ⁴*University of Wisconsin-Madison, Madison, WI.*
- M92 **A field case study: Body condition change and metabolic status of transition cows in a small dairy farm.**
M. Rosales Gallardo*¹ and A. A. Barragan², ¹*The Pennsylvania State University, Penn State Extension, Lancaster, PA*, ²*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. Valldecabres* and N. Silva-del-Río, *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. Nagle¹, A. J. Carpenter¹, T. J. DeVries¹, P. H. Luimes¹, M. Thimmanagari², J. DeBruyn², and A. Heeg², ¹University 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 heat stress on rumination activity and ruminal in situ degradability in dairy cows.**
G. G. Maia¹, L. G. B. Siqueira², C. O. P. Vasconcelos¹, T. R. Tomich², L. S. A. Camargo², J. P. P. Rodrigues³, R. A. Menezes⁴, L. C. Gonçalves⁴, B. F. Teixeira⁵, R. O. Grandó⁵, L. A. G. Nogueira¹, and L. G. R. Pereira*², ¹Universidade Federal Fluminense, Niterói, RJ, Brazil, ²Empresa Brasileira de Pesquisa Agropecuária - Embrapa, Juiz de Fora, MG, Brazil, ³Universidade Federal do Sul e Sudeste do Pará, Xinguara, PA, Brazil, ⁴Universidade Federal de Minas, Belo Horizonte, MG, Brazil, ⁵Instituto de Desenvolvimento do Alto Uruguai, Getúlio Vargas, RS, Brazil.
- M99 **Differences in total mixed ration dry matter percentage affect the feed intake and the milk yield of Holstein cows.**
V. S. Izquierdo*, C. Pizoni, J. P. Noschang, M. F. B. Savela, E. G. Malaguez, J. Halfen, E. Schmitt, B. S. Menezes, E. G. Xavier, A. A. Barbosa, C. C. Brauner, J. O. Feijó, V. R. Rabassa, F. A. B. Del Pino, M. N. Corrêa, *Núcleo de Pesquisa, Ensino e Extensão em Pecuária (NUPEEC), Departamento de Clínicas Veterinária, Universidade Federal de Pelotas, Pelotas, Rio Grande do Sul, Brazil.*
- 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-Escolà^{1,2}, B. N. Tate¹, J. T. Siegel Nieves¹, A. T. Richards¹, F. Wang^{1,3}, L. F. Wang^{1,4}, M. E. Van Amburgh¹, E. Grilli^{2,5}, and J. W. McFadden¹, 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, V. C. L. Moraes¹, D. L. Souza Netto¹, P. V. F. Correa¹, S. E. F. Guimaraes¹, G. M. Santos², and M. I. Marcondes*¹, ¹Universidade Federal de Vicosa, Vicosa, MG, Brazil, ²Univivica, Vicosa, 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. Ziegler², A. Mantey², E. Dufour*², and K. Mjoun³, 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*¹, 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. Coelho¹, A. L. Belli¹, L. G. R. Pereira², T. R. Tomich², W. A. Carvalho², 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. Coelho¹, A. L. Belli¹, F. S. Machado², L. G. R. Pereira², T. R. Tomich², S. F. Costa³, 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. Ziegler², A. Manthey^{*2}, 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. Ziegler^{*1}, 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. Ziegler^{*1}, H. Chester-Jones¹, and T. Marubashi², 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. Reis^{*1}, A. F. Toledo¹, A. P. Silva¹, A. M. Cezar¹, E. A. Fioruci¹, R. C. Silva¹, S. C. Dondé¹, L. Greco², and C. M. M. Bittar¹, ¹Dept. Of Animal Sciences, College of Agriculture Luiz de Queiroz (ESALQ), University of Sao Paulo, Piracicaba, Sao Paulo, Brazil, ²Ke-min 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. Tate^{*1}, A. B. P. Fontoura¹, V. Sáinz de la Maza-Escolà^{1,2}, J. T. Siegel Nieves¹, F. Wang^{1,3}, L. F. Wang^{1,4}, M. E. Van Amburgh¹, E. Grilli^{2,5}, and J. W. McFadden¹, 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.
- 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 Matos^{*1}, U. S. Londero¹, J. Halfen¹, V. R. Rabassa¹, E. Schmitt¹, R. A. Pereira², 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 Ibas, Porto Alegre, Rio Grande do Sul, Brazil.

Ruminant Nutrition: General 1

- M114 **Is dietary selenite transformed into elemental selenium by rumen micro-organisms? Comparison of mineral and organic selenium forms in cows.**
M. A. Hachemi^{*1}, E. Pinloche¹, M. De Marco¹, S. Fredin², 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. So^{*1}, A. Cherdthong¹, and A. P. Faciola², 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. Rendon^{*}, 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, ValKolor, in a low protein content diet.**
J. Ferguson^{*1}, L. Baker¹, J. Bender¹, J.-P. Ricaud², 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. Terré^{*1,3}, L. Morey², D. Sabrià³, and A. Bach^{4,1}, 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. Bu^{*}, State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, 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. Xu^{1,3}, Z. T. Yu², and D. P. Bu^{*1,4}, 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.**
M. J. Martin^{*1}, R. S. Pralle¹, R. L. Wallace², M. R. Borchers², S. R. DeNise², K. A. Weigel¹, and H. M. White¹, ¹University of Wisconsin Madison, Madison, WI, ²Zoetis, Kalamazoo, MI.
- M122 **Fatty acid metabolism may vary in dairy cows with high and low residual feed intake.**
M. J. Martin^{*1}, R. S. Pralle¹, K. A. Weigel¹, Z. Zhou², and H. M. White¹, 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^{*1,2}, G. Cañibe¹, M. Ceriani¹, A. Jasinsky¹, A. Casal¹, D. A. Mattiauda¹, A. Cassina², C. Quijano², and M. Carriquiry¹, ¹Departamento de Producción Animal y Pasturas, Facultad de Agronomía, 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. Norouzi¹, G. Desrousseaux^{*2}, B. Médina³, A. Kalantari⁴, and J.-F. Gabarrou², ¹Razavi Khorasan Agricultural and Natural Resources Research Center, Mashhad, Iran, ²Phodé, Terssac, 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^{*1}, H. Chester-Jones¹, and B. Heinz², 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^{*1}, M. Garcia-Roche¹, A. Mendoza², and M. Carriquiry¹, 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.**
L. P. Marroquin^{*}, K. G. Arriola, P. Tian, F. X. Amaro, C. A. Nino de Guzman, I. Fernandez, P. Schmidt, A. Oyebade, H. Sultana, S. Lee, E. J. C. Duvalsaint, M. M. C. N. Agarussi, and D. Vyas, *University of Florida, Gainesville, FL.*
- M130 **In vitro evaluation of two additives with different mode of action on rumen protein degradability.**
A. Alvarado¹, A. Britos¹, A. Pérez-Ruchel¹, F. Gadeyne², and C. Cajarville^{*1}, 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 glucosidase activity of exogenous enzymes.**
F. X. Amaro^{*}, H. Warman, K. G. Arriola, A. T. Adesogan, and D. Vyas, *University of Florida, Gainesville, FL.*
- M132 **Effect of direct-fed microbial on commercial dairy drylot.**
J. Lefler^{*1}, S. Minini¹, A. Morandi², and M. Embree¹, 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.**
G. Casarotto¹, A. Britos¹, S. Carro², I. Vieitez³, C. Dauber³, and C. Cajarville^{*1}, ¹Departamento de Producción Animal (IPAV), Facultad de Veterinaria, UdelaR, San José, Uruguay, ²Departamento de Ciencia y Tecnología de los Alimentos, Facultad de Veterinaria, UdelaR, Montevideo, Uruguay, ³Departamento de Ciencia y Tecnología de Alimentos (CYTAL), Facultad de Química, UdelaR, Montevideo, Uruguay.
- M134 **Influence of substrates on efficacy of exogenous glucoamylase on in vitro dry matter digestibility, pH, and gas production.**
L. Mu¹, K. G. Arriola¹, G. Hao¹, H. Sultana¹, A. Oyebade¹, F. X. Amaro¹, K. Almeida¹, C. Heinzen¹, J. O. Gusmao¹, C. A. Nino de Guzman¹, I. Fernandez¹, W. Li², S. Yu³, and D. Vyas^{*1}, ¹University of Florida, Gainesville, FL, ²DuPont Nutrition & Biosciences, Wilmington, DE, ³DuPont Nutrition & Biosciences, Aarhus, Denmark.

- M135 **Effects of calcium carbonate supplementation rate on metabolic acid-base status and feed intake of cows with compensated metabolic acidosis.**
H. Fujan^{*1}, T. Brown², L. K. Mamedova¹, and B. J. Bradford¹, ¹*Kansas State University, Manhattan, KS*, ²*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.**
D. C. Silva¹, J. P. Sacramento^{*4}, L. G. R. Pereira², J. A. M. Lima³, F. S. Machado², A. L. Ferreira³, T. R. Tomich², S. G. Coelho³, R. M. Mauricio⁴, and M. M. Campos², ¹*State University of Southwestern Bahia, Itapetinga, Bahia, Brazil*, ²*Brazilian Agricultural Research Corporation EMBRAPA Dairy Cattle, Juiz de Fora, MG, Brazil*, ³*Federal University of Minas Gerais, Belo Horizonte, MG, Brazil*, ⁴*Federal University of São João del Rei, São João del Rei, MG, Brazil*.
- 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. Bertolín, and M. Joy, *Ctr 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*¹, B. J. Heins², and C. D. Dechow¹, ¹*The Pennsylvania State University, University Park, PA*, ²*University 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*^{1,2}, M. Haile-Mariam¹, B. G. Cocks^{1,2}, I. MacLeod¹, and J. E. Pryce^{1,2}, ¹*Agriculture Victoria Research, Department of Jobs, Precincts and Regions, Melbourne, Australia*, ²*School 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*³, ¹*Faculty of Pharmaceutical and Food Science, Medellín, Colombia*, ²*Aoxlab S.A.A, Medellín, Colombia*, ³*Dairy 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*¹, M. Molitor³, K. Huang¹, C. Maravelias¹, J. Dumesic¹, S. Rankin², and G. Huber¹, ¹*Department of Chemical and Biological Engineering, University of Wisconsin-Madison, Madison, WI*, ²*Department of Food Science, University of Wisconsin-Madison, Madison, WI*, ³*Center 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.*

Forages and Pastures
Chair: Daryl Kleinschmit, Zinpro Corporation
Room 2
12:00 – 12:30 PM (Tuesday block 1)

- 162 **Meta-analysis of the effects of preservatives on hay spoilage II: Microbial inoculants.**
M. Killerby*¹, R. White², D. C. Reyes¹, A. Y. Leon-Tinoco¹, S. Rivera¹, H. Paz³, J. A. Jendza⁴, and J. J. Romero¹, ¹Animal and Veterinary Sciences, School of Food and Agriculture, University of Maine, Orono, ME, 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.
- 163 **The use of a silage inoculant for sustainable milk production.**
I. Eisner*¹, K. Witt¹, L. Vandaele², J. De Boever², and G. Copani¹, ¹Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark, ²Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Melle, Belgium.
- 164 **Fermentation parameters and microbiome dynamic of whole-plant corn silage inoculated with *Lactobacillus buchneri* or in combination with *Lactobacillus hilgardii* and *Pediococcus pentosaceus*.**
P. Drouin¹, R. Scuderi*¹, and E. Apper², ¹Lallemand Specialties, Milwaukee, WI, ²Lallemand SAS, Blagnac, France.
- 165 **Effect of microbial inoculation on fermentation profile and aerobic stability of rye silage harvested at different stages of maturity.**
I. Eisner*¹, K. Witt¹, V. Vrotniakienė², J. Jatkauskas², and G. Copani¹, ¹Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark, ²Institute of Animal Science of Lithuanian University of Health Sciences, Baisogala, Lithuania.
- 166 **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.
- 167 **The effects of a silage inoculant on fermentation parameters in big bales and mini-silos.**
I. Eisner*¹, K. Witt¹, V. Vrotniakienė², J. Jatkauskas², and G. Copani¹, ¹Chr. Hansen Animal Health and Nutrition, Hørsholm, Denmark, ²Institute of Animal Science of Lithuanian University of Health Sciences, Baisogala, Lithuania.
- 168 **Effect of lignosulfonates on the dry matter loss, nutritional composition, and microbial counts of high-moisture alfalfa silage.**
A. Y. Leon-Tinoco*¹, B. C. Guimarães², S. T. R. Almeida², D. C. Reyes¹, S. Rivera¹, R. Hollandsworth¹, M. Killerby¹, Z. X. Ma³, B. Perkins¹, S. L. Annis¹, C. Wu⁴, C. Knight¹, A. Lichtenwalner¹, D. Skonberg¹, J. J. Romero¹, ¹University of Maine, Orono, ME, ²University of Lavras, Lavras, Minas Gerais, Brazil, ³University of Florida, Gainesville, FL, ⁴University of Delaware, Newark, DE.

Physiology and Endocrinology
Chair: Ronaldo Cerri, University of British Columbia
Room 3
12:00 – 12:30 PM (Tuesday block 1)

- 169 **Physically effective neutral detergent fiber content modulates chewing activity, rumen fermentation, plasma metabolites, and performance.**
Y. Cao*^{1,2}, X. Chen², L. Wang^{1,2}, and J. Yao¹, ¹Northwest A&F University, Yangling, Shaanxi, China, ²Harvard Medical School, Boston, MA.
- 170 **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.
- 171 **Effects of hindgut acidosis in lactating dairy cows already experiencing systemic inflammation.**
M. A. Abeyta*, E. A. Horst, E. J. Mayorga, B. M. Goetz, S. J. Rodriguez-Jimenez, M. F. Caratzu, and L. H. Baumgard, Department of Animal Science, Iowa State University, Ames, IA.

- 172 **Effects of hindgut acidosis in feed-restricted dairy cows.**
M. A. Abeyta*, E. A. Horst, E. J. Mayorga, B. M. Goetz, S. J. Rodriguez-Jimenez, M. F. Caratzu, and L. H. Baumgard, *Department of Animal Science, Iowa State University, Ames, IA.*
- 173 **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.*
- 174 **Effects of antioxidant supplementation on metabolism and inflammatory biomarkers in heat-stressed dairy cows.**
M. A. Abeyta*¹, M. Al-Qaisi¹, E. A. Horst¹, E. J. Mayorga¹, S. J. Rodriguez-Jimenez¹, B. M. Goetz¹, S. Carta¹, H. Tucker², and L. H. Baumgard¹, ¹*Department of Animal Science, Iowa State University, Ames, IA,* ²*Novus International, St. Charles, MO.*

Ruminant Nutrition: Carbohydrates and Lipids
Chair: Joseph McFadden, Cornell University
Room 4
12:00 – 12:30 PM (Tuesday block 1)

- 175 **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.**
A. M. Burch*¹, J. de Souza², and A. L. Lock¹, ¹*Michigan State University, East Lansing, MI,* ²*Perdue AgriBusiness, Salisbury, MD.*
- 176 **Evaluation of sweet potato flour addition partially replacing corn on milk yield and metabolism of dairy cows.**
M. A. Ollé*¹, C. F. Demarco¹, L. Oliveira², C. A. Oliveira¹, J. B. Cardoso¹, A. E. Anjos¹, A. D. C. Matos¹, A. A. Barbosa¹, J. O. Feijó¹, V. R. Rabassa¹, E. Schmitt¹, M. N. Corrêa¹, F. A. B. Del Pino¹, and C. C. Brauner¹, ¹*Núcleo de Pesquisa, Ensino e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas (UFPel), Pelotas, RS, Brazil,* ²*IFSul Campus Visconde da Graça (CAVG), Pelotas, RS, Brazil.*
- 177 **Effect of high-amylase corn silage on lactational performance and enteric methane emission in dairy cows.**
S. F. C. Welchez*, H. Stefanoni, A. Melgar, C. F. A. Lage, S. E. Räisänen, D. Wasson, M. E. Fetter, and A. N. Hristov, *The Pennsylvania State University, University Park, PA.*
- 178 **Milk production and feed intake responses to increasing levels of palmitic acid supplementation in early lactation Holstein cows.**
P. D. French*¹ and M. J. Martin², ¹*PHD R&D LLC, Fort Atkinson, WI,* ²*University of Wisconsin, Madison, WI.*
- 179 **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.*
- 180 **Effects of timing of a calcium salt supplement containing palmitic and oleic acids on production responses of early lactation dairy cows.**
A. Pineda¹, J. de Souza*², J. Newbold³, R. M. Kirkland⁴, and A. L. Lock¹, ¹*Michigan State University, East Lansing, MI,* ²*Perdue AgriBusiness, Salisbury, MD,* ³*Scotland's Rural College, Dumfries, UK,* ⁴*Volac Wilmar Feed Ingredients, Royston, UK.*

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

- 181 **Impact of combinations of dietary palmitic, stearic, and oleic acids on rumen fermentation and fiber digestibility.**
O. Gonzalez¹, A. Sears¹, J. de Souza², and F. Batistel*¹, ¹*Department of Animal, Dairy and Veterinary Sciences, Utah State University, Logan, UT,* ²*Perdue Agribusiness, Salisbury, MD.*

- 182 **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.*
- 183 **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*², J. Romero¹, R. Klopp³, V. Richards⁴, F. Suarez-Mena⁵, T. Dennis⁵, T. Hill⁵, R. Causey¹, R. Schlotterbeck⁵, and G. Lascano³, ¹*Animal and Veterinary Sciences, SFA, University of Maine, Orono, ME*, ²*Department of Molecular and Biomedical Sciences, Orono, ME*, ³*Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC*, ⁴*Department of Biological Sciences, Clemson University, Clemson, SC*, ⁵*Nurture Research Center, ProVimi, Brookville, OH.*
- 184 **Effect of fat-embedded calcium gluconate on lactation performance and metabolism in dairy cattle.**
D. J. Seymour*, J. B. Daniel, J. Martín-Tereso, and J. Doelman, *Trouw Nutrition R&D, Amersfoort, the Netherlands.*
- 185 **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. Agarussi^{1,2}, V. P. Silva^{1,2}, A. P. Cervantes¹, Y. Jiang¹, L. F. Ferraretto¹, S. Yu³, W. Li⁴, A. T. Adesogan¹, and D. Vyas¹, ¹*University of Florida, Gainesville, FL*, ²*Universidade Federal de Vicosa, Vicosa, MG, Brazil*, ³*DuPont Nutrition & Biosciences, Aarhus, Denmark*, ⁴*DuPont Nutrition & Biosciences, Wilmington, DE.*
- 186 **Effects of a cashew nut shell extract on production and rumen dynamics in transition dairy cows.**
B. M. Goetz*¹, E. A. Horst¹, E. J. Mayorga¹, M. A. Abeyta¹, S. Rodriguez-Jimenez¹, S. Carta¹, C. Hikita³, T. Watanabe³, J. M. Lourenco², M. N. Carmichael², T. R. Callaway², and L. H. Baumgard¹, ¹*Iowa State University, Ames, IA*, ²*University of Georgia, Athens, GA*, ³*Idemitsu 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)

- 187 **Effects of a *Bacillus*-based direct-fed microbial on high- and low-health calf herds.**
S. R. Fensterseifer*¹, R. P. Arias¹, C. M. Peter¹, D. Haag¹, A. M. Lange², and E. A. Galbraith², ¹*United Animal Health Inc., Sheridan, IN*, ²*Microbial Discovery Group, Franklin, WI.*
- 188 **Feeding *Saccharomyces cerevisiae* fermentation products modulates immune function and reduces the severity of bovine respiratory syncytial virus infection in preweaned calves.**
A. Mahmoud^{1,2}, J. Slate¹, S. Hong¹, I. Yoon³, and J. McGill*¹, ¹*Iowa State University, Department of Veterinary Microbiology and Preventive Medicine, Ames, IA*, ²*Veterinary Quarantine of Alexandria, General Organization for Veterinary Services, Ministry of Agriculture and Land Reclamation, Alexandria, Egypt*, ³*Diamond V, Cedar Rapids, IA.*
- 189 **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.*
- 190 **Effect of colostrum replacer to ameliorate a disease bout in preweaned calves on an automated feeder.**
M. Cantor*¹, M. Woodrum Setser¹, D. Renaud², and J. H. Costa¹, ¹*University of Kentucky, Lexington, KY*, ²*University of Guelph, Guelph, ON, Canada.*
- 191 **Effects of different blood buffers administered in electrolyte solution to grain-fed veal calves experiencing diarrhea.**
D. R. Wood*¹, R. M. Blome¹, L. C. Ribeiro¹, A. J. Keunen², B. W. Keunen², and D. L. Renaud³, ¹*Animix, Juneau, WI*, ²*Mapleview Agri, Palmerston, ON, Canada*, ³*Department of Population Medicine, University of Guelph, Guelph, ON, Canada.*
- 192 **Production and bioactivity of anti-*Streptococcus equinus* antibodies.**
G. Balieiro Neto*¹, L. E. Ferreira², A. Daurea², and L. Bertelli², ¹*Animal Science Institute of Department of Agriculture and Food Supply, Ribeirão Preto, São Paulo, Brazil*, ²*Premix, 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 *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. Ariyaratne¹, K. Gedye², M. Correa-Luna¹, and D. J. Donaghy¹, ¹*School of Agriculture and Environment, Massey University, Palmerston North, New Zealand*, ²*School 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. Dias^{1,2}, A. Sigdel¹, and F. Peñagaricano¹, ¹*University of Florida, Gainesville, FL*, ²*Universidade 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. Houlahan*¹, C. F. Baes^{1,2}, F. Miglior¹, G. A. Oliveira Jr.¹, F. S. Schenkel¹, and T. C. S. Chud¹, ¹*Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada*, ²*Institute of Genetics, Vetsuisse Faculty, University of Bern, Bern, Switzerland*.
- 196 **Genetic parameters of passive transfer in Holstein calves.**
I. Haagen*¹, L. Hardie¹, B. Heins², and C. Dechow¹, ¹*The Pennsylvania State University, University Park, PA*, ²*University 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. Baes^{1,3}, and F. S. Schenkel¹, ¹*Center for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada*, ²*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, ³*Institute 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.**
D. E. Otter¹, C. T. Tay², R. B. Hashwam², K. G. Lim², M. B. Roque², H. Hardigaluh³, and A. Bienvenue*⁴, ¹*DEO Dairy Consulting, New Zealand*, ²*Food Innovation & Resource Centre, Singapore Polytechnic, Singapore*, ³*U.S. Dairy Export Council Singapore Ltd, Singapore*, ⁴*U.S. Dairy Export Council, Arlington, VA*.
- 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. Tari³, and B. Luhovyy*^{1,2}, ¹*Mount Saint Vincent University, Halifax, NS, Canada*, ²*Dalhousie University, Halifax, NS, Canada*, ³*University 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*.

Physiology and Endocrinology
Chair: Massimo Bionaz, Oregon State University
Room 3
12:30 – 1:00 PM (Tuesday block 2)

- 205 **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. Ma^{1,2}, D. N. Coleman¹, F. Liu^{1,3}, Y. Li^{1,4}, H. Y. Ding^{1,4}, 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.
- 206 **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. Ma^{1,2}, D. N. Coleman¹, F. Liu^{1,3}, Y. Li^{1,4}, H. Y. Ding^{1,4}, 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.
- 207 **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-Cortés⁶, and J. J. Loor¹, 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 of 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.
- 208 **Influence of cobalt source, folic acid and rumen-protected Methionine supplementation on performance, metabolism, and liver tissue 1-carbon metabolism biomarkers in periparturient Holstein cows.**
A. S. Alharthi*^{1,2}, V. Lopreiato³, R. Bucktrout¹, Y. Liang¹, A. A. Elolimy^{1,4}, H. Dai⁵, I. Martinez-Cortes⁶, M. T. Socha⁷, 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, 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.
- 209 **Rumen-protected methionine supply to cows during heat stress alters liver tissue protein abundance of mechanistic target of rapamycin.**
D. N. Coleman*¹, P. Totakul^{1,2}, N. Onjai-Uea^{1,3}, M. Vailati-Riboni¹, R. T. Pate¹, D. Luchini⁴, 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.
- 210 **Heat stress and rumen-protected methionine alter whole-blood mRNA abundance of transsulfuration and antioxidant pathway genes.**
D. N. Coleman*¹, M. G. Lopes^{1,2}, M. Vailati-Riboni¹, R. T. Pate¹, D. Luchini³, 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)

- 211 **Effects of precision feeding Holstein and Jersey heifers a gradual increase of dietary poultry fat on nutrient digestibility.**
S. M. Hussein^{*1}, S. Twyman¹, M. Toledo¹, O. Thomas¹, J. Echesabal¹, R. M. Stockler², M. J. Aguerre¹, and G. J. Lascano¹, ¹Clemson University, Clemson, SC, ²Auburn University, Auburn, AL.
- 212 **In vitro gas production detected differences among corn hybrids at silage maturities.**
N. Schlau^{*1}, D. R. Mertens², and D. Taysom¹, ¹Dairyland Laboratories Inc., Arcadia, WI, ²Mertens Innovation and Research LLC, Belleville, WI.
- 213 **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 Neto^{*1}, J. de Souza², A. M. Burch¹, and A. L. Lock¹, ¹Michigan State University, East Lansing, MI, ²Perdue Agri-Business, Salisbury, MD.
- 214 **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. Xu⁴, and D. P. Bu^{*1,5}, 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 Colnnovation Center of Animal Production Safety, CICAPS, Hunan, China.
- 215 **Profiles of odd- and branched-chain fatty acids in bovine colostrum and transition milk.**
H. S. Xin^{1,2}, Y. Xu², Y. H. Chen², G. Chen², and L. L. Guan^{*2}, 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.
- 216 **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.
- 217 **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 Neto^{*1}, 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)

- 218 **Effects of rumen-protected choline on hepatic metabolism during induction of fatty liver.**
U. Arshad^{*}, M. B. Poindexter, A. Husnain, R. Zimpel, M. C. Perdomo, A. Vieira-Neto, and J. E. P. Santos, University of Florida, Gainesville, FL.
- 219 **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. Poulin^{*2}, J. Romero¹, R. Klopp³, V. Richards⁴, F. Suarez-Mena⁵, T. Dennis⁵, T. Hill⁵, R. Causey¹, R. Schlotterbeck⁵, and G. Lascano³, 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.
- 220 **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. Myers^{*1}, F. Wang^{1,2}, C. Chang¹, A. N. Davis¹, J. E. Rico¹, B. N. Tate¹, L. F. Wang^{1,3}, and J. W. McFadden¹, ¹Cornell University, Ithaca, NY, ²China Agricultural University, Beijing, China, ³Henan Agricultural University, Zhengzhou, China.

221 **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, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, ²*Nurture Research Center, Provimi, Cargill Animal Nutrition, Brookville, OH*, ³*Dairy Science Program, Animal and Food Sciences, University of Kentucky, Lexington, KY*.

222 **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. Calvo², R. Lobo¹, K. Estes³, K. C. Jeong¹, and A. P. Faciola¹, ¹*Department of Animal Sciences, University of Florida, Gainesville, FL*, ²*Department of Animal Sciences, Maringa State University, Maringa, Parana, Brazil*, ³*Balchem 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)

223 **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*.

224 **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. Winder¹, M. Akins², T. Ollivett⁵, T. Kohlman⁶, H. Schlessler⁶, B. Schley⁶, S. Stuttgen⁶, and J. Versweyveld⁶, ¹*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, ²*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, ³*Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada*, ⁴*Department of Sociology and Anthropology, University of Guelph, Guelph, ON, Canada*, ⁵*School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI*, ⁶*Division of Extension, University of Wisconsin-Madison, Madison, WI*.

225 **Use of a shelter in group-housed calves shows consistency over time and is affected by disbudding.**
K. N. Gingerich*, E. E. Lindner, L. M. Coll-Roman, and E. K. Miller-Cushon, *University of Florida, Gainesville, FL*.

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

227 **Effects of two methods of castration on the growth and intake of dairy calves.**
E. Nogues*, M. A. G. von Keyserlingk, and D. M. Weary, *Animal Welfare Program, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada*.

228 **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)

229 **Fecal microbiome profiles of pre-weaned Jersey and Holstein calves with gastrointestinal disease.**
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*.

- 230 **Implementation of an antimicrobial-use algorithm for treatment of diarrheic calves: Impact on antimicrobial treatment and mortality rates.**
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.
- 231 **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. Roy³, H. Barkema⁴, E. de Jong⁴, K. McCubbin⁴, M. Fonseca⁵, L. Heider⁵, and D. Renaud¹, 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.
- 232 **Behavior activity derived from 3-dimensional accelerations to monitor diarrhea in neonatal dairy calves.**
T. C. Michelotti*¹, L. Drehmer^{1,2}, A. J. Triminio^{1,3}, 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.
- 233 **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. Queiroz¹, 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)**

- 234 **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.*
- 235 **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. Wattiaux¹, 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.
- 236 **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. Baurhoo^{1,2}, P. Seguin¹, and A. Mustafa¹, ¹McGill University, Saint Anne de Bellevue, QC, Canada, ²Belisle Solution Nutrition Inc., Saint-Mathias-sur-Richelieu, QC, Canada.
- 237 **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.
- 238 **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*^{1,2}, C. Millar¹, S. G. Moore¹, S. A. Holden¹, M. C. Lucy², and S. T. Butler¹, ¹Teagasc, Fermoy, Cork, Ireland, ²University 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. Sagheer¹, F. Ullah¹, M. Saleem¹, M. Nawaz¹, A. Riaz¹, U. Arshad*², and N. Ahmad¹, ¹Department of Theriogenology, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, Pakistan, ²Department 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.**
E. M. Schilkowsky, G. E. Granados, E. M. Sitko, M. Masello, M. M. Perez, and J. O. Giordano*, Cornell University, Ithaca, NY.
- 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.**
T. Valdes Arciniega*¹, I. M. R. Leão¹, E. Anta Galvan¹, T. O. Cunha¹, M. S. El Azzi^{1,2}, N. B. Cook¹, and J. P. N. Martins¹, ¹School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI, ²Universidade Federal de Lavras, Lavras, MG, Brazil.
- 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*¹, B. McMullen³, J. J. Parrish², and P. M. Fricke¹, ¹Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, ²Department of Animal Science, University of Wisconsin-Madison, Madison, WI, ³Bridgewater 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*¹, C. Teets¹, L. Martin², S. Hines³, G. Shewmaker⁴, M. de Haro-Marti⁵, and M. Chahine², ¹Virginia Tech, Blacksburg, VA, ²University of Idaho, Twin Falls, ID, ³University of Idaho, Jerome, ID, ⁴University of Idaho, Kimberly, ID, ⁵University 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.**
A. Gallo*¹, F. Ghilardelli¹, K. Witt², I. Eisner², A. Segura², and G. Copani², ¹Department of Animal Science, Food and Nutrition (DIANA), Università Cattolica del Sacro Cuore, Piacenza, Italy, ²Chr. Hansen Animal Health & Nutrition, Hørsholm, Denmark.

- 248 **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.
- 249 **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. Knight⁴, 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.
- 250 **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. Wu³, 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.
- 251 **Meta-analysis of the effects of preservatives on hay spoilage I: Chemical treatments.**
M. Killerby*¹, R. White², D. C. Reyes¹, A. Y. Leon-Tinoco¹, S. Rivera¹, H. Paz³, J. A. 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)

- 252 **A hybrid hepatic tissue model to highlight changes in peroxisome-proliferator activated receptor activity through the peripartum period.**
S. Busato*¹, A. M. Abdelatty^{2,1}, and M. Bionaz¹, ¹Oregon State University, Corvallis, OR, ²Cairo University, Cairo, Egypt.
- 253 **Effects of serine palmitoyltransferase inhibition by myriocin in ad libitum-fed and nutrient-restricted non-lactating ewes.**
A. N. Davis*¹, W. A. Myers¹, J. E. Rico¹, L. F. Wang^{1,2}, C. Chang¹, A. T. Richards¹, M. Moniruzzaman³, N. J. Haughey³, and J. W. McFadden¹, ¹Cornell University, Ithaca, NY, ²Henan Agricultural University, Zhengzhou, China, ³Johns Hopkins University, Baltimore, MD.
- 254 **Hepatic gene expression of gluconeogenic enzymes and its regulation in Holstein cows under two contrasting feeding strategies.**
G. Cañibe*¹, M. Garcia-Roche^{1,2}, D. A. Mattiauda¹, A. Cassina², C. Quijano², 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.
- 255 **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. Morales³, H. Leskinen⁴, P. C. Garnsworthy⁵, J. J. Looor⁶, and J. Romero⁷, 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, ³Departamento de 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.

- 256 **Differential fates for gluconeogenic precursors in diverging Holstein genotypes.**
M. Garcia-Roche*^{1,2}, G. Cañibe¹, D. Talmón³, A. Mendoza¹, C. Quijano², A. Cassina², and M. Carriquiry¹, ¹*Departamento de Producción Animal y Pasturas, Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay*, ²*Departamento de Bioquímica, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay*, ³*INIA La Estanzuela, Colonia, Uruguay*.
- 419 **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, ¹*Department of Animal Science, The Pennsylvania State University, University Park, PA*, ²*Department of Nutritional Sciences, The Pennsylvania State University, University Park, PA*, ³*Dairy 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)

- 257 **Impact of pre- and postnatal heat stress on dairy calf behavior.**
B. Dado-Senn*, K. N. Gingerich, K. C. Horvath, S. L. Field, E. K. Miller-Cushon, and J. Laporta, *University of Florida, Gainesville, FL*.
- 258 **A yearlong study: Effects of weather and animal characteristics on respiration rate in dairy cattle.**
G. Tresoldi*^{1,2}, M. Hejazi¹, and C. B. Tucker², ¹*College of Agriculture, California State University, Chico, CA*, ²*Center for Animal Welfare, Department of Animal Science, University of California, Davis, CA*.
- 259 **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, ¹*Escuela de Graduados, Facultad de Ciencias Veterinarias, Universidad Austral de Chile, Valdivia, Chile*, ²*Instituto de Ciencia Animal, Facultad de Ciencias Veterinarias, Universidad Austral de Chile, Valdivia, Chile*, ³*Instituto de Ciencias Clínicas Veterinarias, Facultad de Ciencias Veterinarias, Universidad Austral de Chile, Valdivia, Chile*.
- 260 **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)

- 261 **The cost of bovine respiratory disease in Holstein replacement heifers.**
M. Overton*, *Elanco Animal Health, Greenfield, IN*.
- 262 **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*¹, C. Y. Tsai², H. C. Hung¹, P. Rezamand¹, and W. J. Price², ¹*Department of Animal and Veterinary Science, University of Idaho, Moscow, ID*, ²*Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID*.
- 263 **Growth, rectal temperature, and health of male Holstein calves exposed to heat stress during pre-weaning.**
A. B. Montevecchio*¹, W. Frota¹, V. R. Merenda¹, J. G. Martin III², and R. C. Chebel¹, ¹*Department of Large Animal Clinical Sciences & Department of Animal Sciences, University of Florida, Gainesville, FL*, ²*Dairy Design Engineers, Gainesville, FL*.
- 264 **Passive immunity and colostrum management practices on Ontario dairy farms and auction facilities: A cross-sectional study.**
C. B. Winder*¹, J. Marshall¹, B. Tuer¹, R. Genore², and D. L. Renaud^{1,2}, ¹*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, ²*ACER Consulting, Guelph, ON, Canada*.

- 265 ***Lactobacillus animalis* LA51 and *Bacillus* sp. probiotics confer protection from the damaging effects of pathogenic *Clostridium perfringens* and *Escherichia coli* on the intestinal barrier.**
G. Copani*, O. C. M. Queiroz, and E. J. Boll, *Animal Health and Nutrition, Chr. Hansen A/S, Hørsholm, Denmark.*
- 266 **Effects of feeding *Saccharomyces cerevisiae* fermentation products on the health of Holstein dairy calves following a lipopolysaccharide (LPS) challenge.**
R. N. Klopp*¹, I. Yoon², and J. P. Boerman¹, ¹*Purdue University Department of Animal Sciences, West Lafayette, IN*, ²*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)

- 267 **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.*
- 268 **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, ¹*PHD R&D LLC, Fort Atkinson, WI*, ²*Iowa State University, Ames, IA.*
- 269 **Increase of feed efficiency in early lactation dairy cows using butafosfan associated or not with cyanocobalamin.**
C. Pizoni*, J. Halfen, V. S. Izquierdo, R. Klaus, E. dos Santos, L. V. Vieira, E. Schmitt, A. A. Barbosa, K. B. Cardoso, B. E. Velasquez, C. C. Brauner, J. O. Feijó, V. R. Rabassa, F. A. B. Del Pino, M. N. Corrêa, *Núcleo de Pesquisa, Ensino e Extensão em Pecuária (NU-PEEC), Departamento de Clínicas Veterinária, Universidade Federal de Pelotas, Pelotas, Rio Grande do Sul, Brazil.*
- 270 **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. Silva^{1,2}, R. Neves^{1,3}, M. Ballou¹, and V. Machado¹, ¹*Texas Tech University, Lubbock, TX*, ²*University of São Paulo, Pirassununga, São Paulo, Brazil*, ³*Purdue University, West Lafayette, IN.*
- 271 **Impact of heat stress and OmniGen-AF on performance and immunity of mid-lactation dairy cows.**
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, ¹*University of Georgia, Tifton, GA*, ²*Phibro Animal Health Corp, Teaneck, NJ.*

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

- 272 **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. Cardoso¹, ¹*University of Illinois, Department of Animal Sciences, Urbana, IL*, ²*Ajinomoto Co. Inc., Tokyo, Japan.*
- 273 **Does timing of AI affect P/AI in seasonal-calving, pasture-based lactating dairy cows inseminated with sex-sorted sperm?**
E. Drake^{1,2}, S.A. Holden¹, A.R. Cromie³, F. Randi⁴, P. Lonergan², and S.T. Butler*¹, ¹*Teagasc, Fermoy, Co. Cork, Ireland*, ²*University College Dublin, Dublin 4, Ireland*, ³*ICBF, Bandon, Co. Cork, Ireland*, ⁴*CEVA Sante Animale, Bordeaux, France.*
- 274 **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. Yousuf¹, A. G. Bajwa², and A. Riaz¹, ¹*Department of Theriogenology, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan*, ²*Department of Microbiology, Faculty of Veterinary Science, University of Veterinary and Animal Sciences, Lahore, Punjab, Pakistan.*

- 275 **Association between delayed clinical cure and culling in dairy cows diagnosed with metritis.**
C. Figueiredo*¹, V. Merenda¹, E. de Oliveira², F. Lima², R. Chebel¹, K. Galvao¹, J. Santos¹, and R. Bisinotto¹, ¹University of Florida, Gainesville, FL, ²University of California, Davis, CA.
- 276 **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.
- 277 **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.
- 278 **Dietary energy source effects on pregnancy rates and progesterone concentrations in heifers.**
T. Davis*, J. Stewart, C. Gleason, N. Diaz, Á. Sales, C. Timlin, Z. Seekford, A. Ealy, V. Mercadante, and R. White, Virginia Tech, Blacksburg, VA.

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

- 279 **Relationship between urinary energy and N excretion in lactating Jersey cows.**
D. L. Morris*¹, J. L. Firkins², W. P. Weiss³, and P. J. Kononoff¹, 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.
- 280 **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. Stefanoni¹, 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.
- 281 **New perspectives for metagenomic analysis: Rumen sampling via esophageal tube using a manual vacuum pump.**
F. E. Miccoli*^{1,2}, S. Ferreyra¹, S. Maresca³, S. López-Valiente³, P. Sueldo³, N. Juliano², R. A. Palladino^{1,4}, J. L. Danelón², and R. I. Galarza³, 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.
- 282 **Phytogenics improved colostrum quality when fed to close-up cows.**
E. Schwandt*¹, P. Gott¹, A. Tacconi², R. Murugesan¹, and S. Ramirez¹, ¹BIOMIN America Inc., Overland Park, KS, ²BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.
- 283 **Dietary phytogenics affect milk production in Holstein dairy cows.**
S. Ramirez*¹, P. Gott¹, A. Tacconi², and R. Murugesan¹, ¹BIOMIN America Inc., Overland Park, KS, ²BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.
- 284 **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*², E. A. Richer³, R. G. Slattery², C. W. Anderson², M. J. Rupp³, and K. M. Miller³, ¹*Michigan State University, E. Lansing, MI*, ²*University of Maryland, College Park, MD*, ³*Ohio State University Extension, Wauseon, OH.*

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.*

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 aut feeder.**
K. N. Gingerich*, B. A. Hoffman, E. E. Lindner, and E. K. Miller-Cushon, *University of Florida, Gainesville, FL.*
- T2 **Effects of early social contact on dairy calf reactivity to novelty following introduction to group housing.**
E. E. Lindner*, K. N. Gingerich, J. M. Rivera, and E. K. Miller-Cushon, *University of Florida, Gainesville, FL.*
- 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*¹, H. Chester-Jones¹, B. Ziegler², A. Manthey², and E. Dufour², ¹*University of Minnesota, Waseca, MN*, ²*Hubbard 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. Gingerich², and E. K. Miller-Cushon², ¹*Universidad Nacional de Córdoba, Córdoba, Argentina*, ²*University of Florida, Gainesville, FL.*
- T6 **Association between feed efficiency, milk production, rumen fermentation, and feed sorting behavior of lactating dairy cows.**
M. Agarussi, H. Guan*, K. G. Arriola, H. Sultana, I. Fernandez, C. Nino de Guzman, S. Lee, F. X. Amaro, A. Oyebade, L. F. Ferraretto, E. K. Miller-Cushon, and D. Vyas, *University of Florida, Gainesville, FL.*
- T7 **Association of feed intake with body condition loss during the dry period.**
R. R. Daros*^{1,2}, C. D. Havekes³, and T. J. DeVries³, ¹*Animal Welfare Program, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada*, ²*Graduate Program in Animal Science, School of Life Sciences, Pontificia Universidade Católica do Paraná, Curitiba, Paraná, Brazil*, ³*Department 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*¹, T. C. Wright², J. P. Cant¹, and V. R. Osborne¹, ¹*University of Guelph, Guelph, ON, Canada*, ²*Ontario 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.**
H. L. Sánchez-Rodríguez*, I. Colón-Rodríguez, A. Rivera-Camacho, G. Vázquez-Arnal, N. Pérez-Rosario, N. Cruz-González, K. Domenech-Pérez, and G. Muñoz-Colón, *University of Puerto Rico, Mayaguez Campus, Mayaguez, Puerto Rico.*
- T10 **Automatic shade and solar radiation exposure assessment in dairy cattle using light sensors.**
H. L. Sánchez-Rodríguez*, I. Colón-Rodríguez, A. Rivera-Camacho, N. Pérez-Rosario, K. Domenech-Pérez, and G. Muñoz-Colón, *University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico.*
- T11 **Can housing system affect automated estrus detection in Holstein dairy heifers?**
R. A. Figueiredo¹, G. Mazon*², and J. H. C. Costa², ¹*Embrapa Genetic Resources and Biotechnology, Brasilia, DF, Brazil*, ²*University 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.**
S. Franceschini*¹, J. Leblois², F. Lepot², C. Bertozzi², and N. Gengler¹, ¹*ULiège - Gembloux Agro-Bio Tech, Gembloux, Belgium*, ²*Association Wallonne de l'Élevage, Ciney, Belgium.*

- T15 **Estrus prediction model for dairy Gyr heifers.**
V. Vilela Andrade¹, P. Arrigucci Bernardes², R. Ribeiro Vicentini³, A. Penido Oliveira⁴, and L. El Faro Zadra*¹, ¹*Instituto de Zootecnia, Sertãozinho, SP, Brazil*, ²*Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil*, ³*Universidade Federal de Juiz de Fora, Juiz de Fora, MG, Brazil*, ⁴*Empresa de Pesquisa Agropecuária de Minas Gerais, Uberaba, MG, Brazil*.
- Animal Health 2: Calves**
- T16 **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*¹, C. Roeschmann², A. Baudo³, S. Tao¹, J. Bernard¹, P. Pinedo⁴, and F. Farcey⁵, ¹*University of Georgia, Tifton, GA*, ²*University of Chile, Santiago, Chile*, ³*Abraham Baldwin Agricultural College, Tifton, GA*, ⁴*Colorado State University, Fort Collins, CO*, ⁵*National University La Pampa, Gral. Pico, Argentina*.
- T17 **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*.
- T18 **The occurrence of diseases and their relationship with passive immune transfer in Holstein dairy calves submitted to individual management in southern Brazil.**
L. V. Vieira*, M. A. A. Weiller, J. P. Noschang, J. Halfen, L. F. Bragança, D. A. Moreira, C. Pizoni, J. O. Feijó, A. A. Barbosa, V. R. Rabassa, E. Schmitt, C. C. Brauner, F. A. B. Del Pino, and M. N. Corrêa, *Universidade Federal de Pelotas, Pelotas, Rio Grande do Sul, Brazil*.
- T19 **Antimicrobial use and decision making with respect to treatment of respiratory disease in Canadian dairy calves.**
T. Uyama*¹, D. Kelton¹, S. LeBlanc¹, D. Léger², S. Dufour³, J. Roy³, H. Barkema⁴, E. de Jong⁴, K. McCubbin⁴, M. Fonseca⁵, L. Heider⁵, and D. Renaud¹, ¹*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, ²*Centre for Food-borne, Environmental & Zoonotic Infectious Diseases, Public Health Agency of Canada, Guelph, ON, Canada*, ³*Faculté de médecine vétérinaire, Université de Montréal, St-Hyacinthe, QC, Canada*, ⁴*Department of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada*, ⁵*Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PEI, Canada*.
- T20 **The systemic inflammatory response to intramuscular endotoxin challenge in dairy heifers.**
T. M. Sullivan*^{1,3}, A. Sharma^{1,3}, K. Lamers^{1,3}, A. Canovas^{1,3}, B. Mallard^{2,3}, and N. A. Karrow^{1,3}, ¹*Ontario Agricultural College, Department of Animal Biosciences, Guelph, ON, Canada*, ²*Ontario Veterinary College, Department of Pathobiology, Guelph, ON, Canada*, ³*University of Guelph, Guelph, ON, Canada*.
- T21 **Using a rapid blood test to study the impact of heat stress on the immune status of first-time pregnant heifers and their calves.**
Q. T. Huo*¹, I. Toledo², B. Davidson², G. Dahl², and J. Laporta², ¹*University of Central Florida, Orlando, FL*, ²*University of Florida, Gainesville, FL*.
- T22 **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*.
- T23 **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*.
- T24 **Microbiome and resistome characterization of colostrum from selectively treated dry cows.**
A. K. Vasquez*¹, D. V. Nydam¹, C. Foditsch¹, L. Warnick¹, P. Morley², and E. Doster³, ¹*Cornell University, Ithaca, NY*, ²*Texas A&M, College Station, TX*, ³*Colorado State University, Fort Collins, CO*.
- T25 **The exfoliated fecal transcriptome (exfoliome) and its resemblance to the intestinal gene expression in dairy calves.**
F. Rosa¹, N. A. Carpinelli*¹, R. Mohan¹, F. C. Avaroma², S. Busato², M. Bionaz², A. Gomez³, and J. S. Osorio¹, ¹*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, ²*Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR*, ³*Department of Animal Sciences, University of Minnesota, Twin Cities, MN*.
- T26 **Colostrum management practices on New York dairy farms.**
T. A. Westhoff*¹, C. M. Ryan², T. R. Overton², and S. Mann¹, ¹*Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY*, ²*Department of Animal Science, Cornell University, Ithaca, NY*.

- T27 **Cocciostats and antimicrobials in the prevention and treatment of neonatal diarrhea in calves: Systematic review.**
C. Bernal-Cordoba*¹, R. Branco-Lopes¹, M. Abreu¹, E. D. Fausak², and N. Silva-del-Rio¹, ¹*Population Health and Reproduction, UC Davis School of Veterinary Medicine, Davis, CA*, ²*University Library, UC Davis, Davis, CA*.
- T28 **Predicting morbidity and mortality using automated milk feeders: A scoping review.**
J. L. Morrison*¹, C. B. Winder¹, J. H. C. Costa², M. A. Steele¹, and D. L. Renaud¹, ¹*University of Guelph, Guelph, ON, Canada*, ²*University of Kentucky, Lexington, KY*.
- T29 **Evaluation of a blend of botanicals, prebiotic, and organic selenium on *Cryptosporidium* naturally infected dairy calves.**
N. Ruest¹, B. Medina*², A. L. Wagner², and I. D. Girard², ¹*Clinique Vétérinaire Centre du Québec (CVCQ), Notre-Dame-du-Bon-Conseil, QC, Canada*, ²*Probiotech International Inc., St-Hyacinthe, QC, Canada*.

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 α_{s1} -casein on the yield of fat-free fresh cheese model.**
F. Pinto¹, J. L. Riveros², and R. A. Ibáñez*^{2,3}, ¹*Pontificia Universidad Católica de Chile, Facultad de Agronomía e Ingeniería Forestal, Escuela de Graduados, Santiago, Chile*, ²*Pontificia Universidad Católica de Chile, Facultad de Agronomía e Ingeniería Forestal, Departamento de Ciencias Animales, Santiago, Chile*, ³*University 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. Bensafi², ¹*Department of Food Science and Nutrition, California State University, Fresno, CA*, ²*Lyon Neuroscience Research Center, CNRS UMR5292, INSERM U1028, Université Claude Bernard Lyon 1, Lyon, France*, ³*Institute for Advanced Study in Toulouse, Université Toulouse 1 Capitole, Toulouse, France*, ⁴*Paul 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. Park¹, ¹*Fort Valley State University, Fort Valley, GA*, ²*Auburn University, Auburn, AL*, ³*University 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. Zhang², ¹*University of Wisconsin-Madison, Madison, WI*, ²*China Agricultural University, Beijing, China*.
- T35 **Using iso-conversional kinetics to study the effect of α -tocopherol on the oxidation of formulated milk powder.**
K. A. Alsaleem*^{1,2}, K. Muthukumarappan³, and S. I. Martinez-Monteagudo¹, ¹*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, ²*Food Science and Human Nutrition Department, Qassim University, Al-Qassim, Saudi Arabia*, ³*Agricultural 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. Ghelichkhan*², L. H. P. Silva², R. C. R. Tinini¹, J. G. Dessbesell¹, M. A. Zambom¹, and A. F. Brito², ¹*Universidade Estadual do Oeste do Paraná, Marechal Cândido Rondon, Brazil*, ²*University 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, ¹*Louisiana State University, Baton Rouge, LA*, ²*Louisiana State University Agricultural Center, Baton Rouge, LA*.
- T38 **Impact of butterfat content and composition on the quality of laminated pastries.**
S. Ramirez, T. Kongraksawech, 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. Anand^{1,2}, and B. Kraus³, ¹*Midwest Dairy Foods Research Center, Brookings, SD*, ²*South Dakota State University, Brookings, SD*, ³*Wells Enterprises Inc., Le Mars, IA*.
- T40 **Inhibition of *Listeria monocytogenes* by lactose oxidase in UHT skim milk.**
B. Flynn*, S. Kozak-Weaver, M. Lawton, and S. Alcaine, *Cornell University, Ithaca, NY*.

- T41 ***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.*
- T42 **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.*
- T43 **Development and characterization of whey-buttermilk fermented beverages with Gabiroba pulp (*Campomanesia xanthocarpa*).**
L. Damasceno*¹, R. T. Pfrimer¹, A. F. Cruz¹, C. F. Cardoso², T. V. de Almeida¹, E. Arnhold³, E. S. Nicolau¹, and C. Gebara¹, ¹*Food Research Center, School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil*, ²*School of Agronomy, Federal University of Goiás, Goiânia, Goiás, Brazil*, ³*School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil.*
- T156 **Association among serum IgG concentrations in newborn dairy heifers and fertility, milk yield, and survival to first lactation.**
A. Velasquez Munoz*¹, P. Pinedo¹, C. Shivley², N. Urie², and J. Lombard², ¹*Colorado State University, Fort Collins, CO*, ²*USDA–APHIS–Veterinary Services, Fort Collins, CO.*

Extension Education 1

- T44 **Texas dairy industry assessment of research, education, and service importance of the Southwest Regional Dairy Center.**
B. W. Jones*^{1,2}, ¹*Tarleton State University, Stephenville, TX*, ²*Texas A&M AgriLife Research, Stephenville, TX.*
- T45 **Wisconsin farmer-reported housing and milk-feeding practices for preweaned dairy calves.**
J. Van Os*¹, C. Winder², M. Akins¹, T. Kohlman³, T. Ollivett⁴, H. Schlessner³, B. Schley³, S. Stuttgart³, and J. Versweyveld³, ¹*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, ²*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, ³*Division of Extension, University of Wisconsin-Madison, Madison, WI*, ⁴*School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI.*
- T46 **Use of dairy advisory teams as a tool for improvement.**
L. A. Holden*, *The Pennsylvania State University, University Park, PA.*
- T47 **Evaluation of trainings provided to Central Texas dairy workers.**
J. A. Garcia Buitrago*¹, G. R. Hagevoort¹, J. Spencer², and J. Pineiro², ¹*New Mexico State University, Agricultural Science Center at Clovis, Clovis, NM*, ²*Texas A&M University, Texas AgriLife Extension, College Station, TX.*

Forages and Pastures 1

- T48 **Microbial community and fermentation dynamics of corn silage prepared with heat-resistant lactic acid bacteria in hot environment.**
H. Guan*¹, Y. Shuai¹, Y. Yan¹, Y. Cai^{1,2}, and X. Zhang¹, ¹*Sichuan Agricultural University, Chengdu, China*, ²*Japan International Research Center for Agricultural Science (JIRCAS), Tsukuba, Ibaraki, Japan.*
- T49 **Effect of microbial inoculation and storage length on fermentation profile, aerobic stability, and nutrient composition of whole-plant sorghum.**
E. C. Diepersloot*¹, M. R. Pupo¹, J. O. Gusmao^{1,2}, L. G. Ghizzi^{1,3}, A. Pesenti^{1,4}, C. Heinzen Jr.¹, C. L. McCary¹, S. A. Alessi¹, and L. F. Ferraretto¹, ¹*Department of Animal Sciences, University of Florida, Gainesville, FL*, ²*Department of Animal Science, Federal University of Lavras, Lavras, Minas Gerais, Brazil*, ³*Department of Animal Nutrition and Animal Production, University of São Paulo, Pirassununga, São Paulo, Brazil*, ⁴*Department of Animal Science, Food, and Nutrition, Catholic University of the Sacred Heart, Piacenza, Italy.*
- T50 **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.*
- T51 **Effects of *Lactobacillus hilgardii* 4785 and *L. buchneri* 40788 on the bacterial community of high-moisture corn.**
E. Benjamim da Silva*¹, R. M. Savage¹, M. L. Smith¹, S. A. Polukis¹, P. Drouin², and L. Kung Jr.¹, ¹*University of Delaware, Newark, DE*, ²*Lallemand Specialties Inc., Milwaukee, WI.*

- T52 **Evaluation of an enzymatic lignocellulolytic complex on corn silage fermentation profile.**
B. C. Agostinho*^{1,2}, L. M. Zeoula¹, L. F. Ferraretto², H. F. Monteiro², M. R. Pupo³, L. G. Ghizzi⁴, M. C. N. Agarussi², C. Heinzen Junior², J. R. Vinyard², S. L. Bennett², and A. P. Faciola², 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.
- T53 **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.**
C. Heinzen Jr.*¹, M. Agarussi, C. L. McCary, M. R. Pupo, L. G. Ghizzi, E. C. Diepersloot, B. A. Saylor, and L. F. Ferraretto, *Department of Animal Sciences, University of Florida, Gainesville, FL.*
- T54 **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.*
- T55 **Effects of sorghum hybrid, microbial inoculation, and storage length on fermentation profile, ruminal starch disappearance and aerobic stability of sorghum silage.**
E. M. Paula*¹, T. Fernandes^{1,2}, 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

- T56 **Neutrophil immune dysfunction induced by acetoacetic acid via TLR2/4-NF-κB signaling pathway in dairy cows.**
H. Ding*¹, Y. Li¹, S. Feng¹, J. Li¹, X. Wang¹, J. Wu¹, Y. Liang², and J. J. Loo², ¹Anhui Agricultural University, Hefei, Anhui, China, ²University of Illinois at Urbana-Champaign, Urbana, IL.
- T57 **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.*
- T58 **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*¹, N. Ma^{1,2}, D. N. Coleman¹, F. Liu^{1,3}, Y. Li^{1,4}, H. Y. Ding^{1,4}, F. F. Cardoso¹, F. C. Cardoso¹, and J. J. Loo¹, 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.
- T59 **Impacts of endocrine signals altered by heat stress on mammary gland gene expression during the dry period.**
V. Ouellet*, V. Lantigua, A. L. Skibieli, T. F. Fabris, J. Laporta, and G. E. Dahl, *Department of Animal Sciences, University of Florida, Gainesville, FL.*
- T60 **Comparison of ruminal and serum short-chain fatty acids concentrations in dairy cows with different levels of milk production.**
L. C. Caixeta*, B. O. Omontese, C. Chen, and Y. Guo, *University of Minnesota, Saint Paul, MN.*
- 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*^{1,2}, Y. Liang¹, D. N. Coleman¹, F. Liu^{1,3}, Y. Li^{1,4}, H. Ding^{1,4}, F. F. Cardoso¹, F. C. Cardoso¹, X. Shen², and J. J. Loo¹, ¹University of Illinois, Urbana, IL, ²Nanjing Agricultural University, Nanjing, Jiangsu, China, ³Henan Agricultural University, Zhengzhou, Henan, China, ⁴Anhui Agricultural University, Hefei, Anhui, China.

- T64 **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.
- T65 **Somatotropin increases plasma ceramide concentrations in relation to enhanced milk yield in Holstein dairy cows.**
A. N. Davis*¹, W. A. Myers¹, C. Chang¹, B. N. Tate¹, J. E. Rico¹, M. Moniruzzaman², N. J. Haughey², and J. W. McFadden¹, ¹Cornell University, Ithaca, NY, ²Johns Hopkins University, Baltimore, MD.
- T66 **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.*
- T67 **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. Totakul^{1,2}, N. Onjea-uea^{1,3}, Y. Liang¹, F. F. Cardoso¹, F. C. Cardoso¹, and J. J. Loo¹, 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.
- T68 **Effects of an immunomodulatory feed additive on biomarkers of inflammation and oxylipid profile in blood of transition cows.**
C. S. Takiya*¹, L. K. Mamedova^{1,2}, L. Sordillo², J. Gandy², M. Garcia³, E. E. Gulpepe⁴, D. E. Nuzback³, and B. J. Bradford^{1,2}, ¹Kansas State University, Manhattan, KS, ²Michigan State University, East Lansing, MI, ³Phibro Animal Health, Teaneck, NJ, ⁴Afyon Kocatepe University, Afyonkarahisar, Turkey.
- T69 **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. Mamedova^{1,3}, A. L. A. Scanavez¹, R. Rusk¹, L. G. D. Mendonça¹, M. Garcia⁴, D. E. Nuzback⁴, and B. J. Bradford^{1,3}, ¹Kansas State University, Manhattan, KS, ²Iowa State University, Ames, IA, ³Michigan State University, East Lansing, MI, ⁴Phibro Animal Health, Teaneck, NJ.
- T70 **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

- T71 **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 Vicosa, Vicosa, MG, Brazil.
- T72 **Evaluation of research needs and management practices on organic, grass-fed dairy farms in the United States.**
M. A. Snider*¹, S. E. Ziegler², H. M. Darby², K. J. Soder³, A. F. Brito⁴, B. Beidler⁵, S. Flack⁶, 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.
- T73 **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.
- T74 **Potentials and flaws of using 3-dimensional models to describe changes in energy reserves in dairy cattle.**
J. H. M. Viana¹, E. K. N. Arashiro², L. G. B. Siqueira³, and L. G. R. Pereira*³, ¹Embrapa Recursos Genéticos e Biotecnologia - Embrapa, Brasília, DF, Brazil, ²Universidade Federal Fluminense, Niterói, RJ, Brazil, ³Embrapa Gado de Leite, Juiz de Fora, MG, Brazil.

- T75 **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 Marti^{*1}, J. Wilson¹, S. Elmer², P. Williams³, and A. Kliskey³, ¹University of Idaho, Gooding, ID, ²University of Idaho, Twin Falls, ID, ³University of Idaho, Moscow, ID.
- T76 **Implementation of animal and herd phosphorus balance in the Ruminant Farm Systems (RuFaS) model.**
T. L. Hansen^{*1}, M. A. Sotirova¹, J. M. Tricarico², and K. F. Reed¹, ¹Cornell University, Ithaca, NY, ²Dairy Management Inc., Rosemont, IL.
- T77 **An integrated sensor network for monitoring pastured cattle health and location.**
B. R. dos Reis^{*} and R. R. White, *Virginia Tech, Blacksburg, VA.*
- T78 **A time-series analysis of increasing milk productivity and yearly seasonality.**
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.
- T79 **Thermoelectric energy harvesting for wearable precision agriculture technologies.**
B. R. dos Reis^{*1}, B. Poudel², S. Priya², and R. R. White¹, ¹Virginia Tech, Blacksburg, VA, ²Penn State University, University Park, PA.
- T80 **Control charts to monitor growth in dairy heifers.**
P. Turiello^{*1}, B. Mancilla¹, C. Vissio^{1,2}, and A. Larriestra¹, ¹UNRC, Río Cuarto, Córdoba, Argentina, ²IDAS UNRC-CONICET, Río Cuarto, Córdoba, Argentina.
- T81 **Concentration levels of butyrylcholinesterase in cows as an indicator of the use of agrochemicals in farms in Colombia.**
A. Celemin-Sarmiento^{*} and L. Bernal-Bechara, *Animal Science Research Group (ASRG), Animal Science Program, Faculty of Agricultural Sciences, La Salle University, Bogotá, Cundinamarca, Colombia.*
- T82 **Associations of milk production and quality with management and housing of robotic milking herds.**
R. D. Matson^{*1}, M. T. M. King¹, T. F. Duffield², D. E. Santschi³, K. Orsel⁴, E. A. Pajor⁴, G. B. Penner⁵, T. Mutsvangwa⁵, and T. J. DeVries¹, 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.
- T83 **Does 500 ohms accurately describe the electrical resistance of Idaho dairy cows?**
R. Norell^{*1}, M. de Haro Marti², J. Wilson³, M. Chahine³, J. Packham⁴, and K. Kruger³, ¹University of Idaho, Idaho Falls, ID, ²University of Idaho, Gooding, ID, ³University of Idaho, Twin Falls, ID, ⁴University of Idaho, Burley, ID.
- T84 **A dynamic model to predict herd consistency and milk deliveries of a dairy herd.**
A. S. Atzori^{*1} and A. Gallo², ¹Dipartimento di Agraria, University of Sassari, Sassari, Italy, ²Department of Animal Science, Food and Nutrition (DIANA), Università Cattolica del Sacro Cuore, Piacenza, Italy.
- T85 **Development of an identification system to recognize individual animals based on biometric facial features.**
R. E. P. Ferreira^{*1}, L. G. R. Pereira^{2,1}, T. Bresolin¹, G. J. M. Rosa¹, and J. R. R. Dorea¹, ¹University of Wisconsin-Madison, Madison, WI, ²Embrapa Dairy Cattle, Juiz de Fora, MG, Brazil.

Reproduction 1

- T86 **Association between automated body condition scores and fertility of Holstein cows.**
B. Klug¹, D. Manriquez¹, A. Ayyangar¹, A. DeVries², S. Granz³, and P. Pinedo^{*1}, ¹Colorado State University, Fort Collins, CO, ²University of Florida, Gainesville, FL, ³DeLaval, Tumba, Botkyrka, Sweden.
- T87 **Risk factors for early pregnancy loss in primiparous Holstein cows.**
E. Webster¹, D. Manriquez¹, P. Melendez², and P. Pinedo^{*1}, ¹Colorado State University, Fort Collins, CO, ²University of Georgia, Tifton, GA.
- T88 **Human chorionic gonadotropin (hCG) dose response 7 days after synchronization of ovulation in lactating Holstein cows I: Ovulatory response and serum progesterone concentrations.**
E. M. Cabrera^{*1}, M. R. Lauber¹, E. M. Peralta¹, T. R. Bilby², and P. M. Fricke¹, ¹Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, ²Merck Animal Health, Kenilworth, NJ.

- T89 **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. Lauber¹, E. M. Peralta¹, T. R. Bilby², and P. M. Fricke¹, ¹Department of Dairy Science, University of Wisconsin-Madison, Madison, WI, ²Merck Animal Health, Kenilworth, NJ.
- T90 **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 Faro*⁵, ¹Federal University of Juiz de Fora (UFJF), Juiz de Fora, MG, Brazil, ²Agricultural Research Company of Minas Gerais State (EPAMIG 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.
- T91 **Relationships between dietary composition and reproductive outcomes in cattle.**
T. Davis* and R. White, Virginia Tech, Blacksburg, VA.
- T92 **Assessment of the effects of intrauterine 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. Barragan*¹, J. Hamilton¹, 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.
- T93 **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.
- T94 **Association between age at first calving and economic performance of replacement dairy heifers.**
M. Masello*¹, M. M. Perez¹, G. E. Granados¹, M. L. Stangaferro^{1,2}, B. Ceglowski², M. J. Thomas², and J. O. Giordano¹, ¹Department of Animal Science, Cornell University, Ithaca, NY, ²Dairy Health and Management Services, Lowville, NY.
- T95 **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. L. Cunha^{1,2}, W. M. Coelho Jr¹, K. G. Pohler³, N. W. Dias⁴, V. R. G. Mercadante⁴, I. F. Canisso^{1,2}, and F. S. Lima^{1,5}, 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.
- T96 **Prediction of pregnancy probability at first service in multiparous dairy cows based on early lactation data.**
M. Stangaferro*^{1,2}, J. Giordano², M. Toledo³, and M. Wiltbank³, ¹Dairy Health and Management Services, Lowville, NY, ²Cornell University, Ithaca, NY, ³University of Wisconsin-Madison, Madison, WI.
- T97 **Effect of gonadotropin-releasing hormone (GnRH) seven days before pre-synchronization with simultaneous prostaglandin F_{2α} and GnRH on reproductive outcomes in Holstein dairy cows.**
A. Hubner*^{1,2}, P. Peixoto², J. Hillesheim³, I. Canisso^{1,2}, and F. Lima⁴, 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.
- T98 **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. Lucy¹, and S. T. Butler¹, ¹Teagasc, Fermoy, Cork, Ireland, ²University of Missouri, Columbia, MO.
- T99 **Characterization of ano-genital distance and its relationship to fertility in Holstein heifers.**
J. E. Carrelli*¹, M. Gobikrushanth¹, M. G. Colazo², and D. J. Ambrose^{2,1}, ¹Department of Agricultural, Food, and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Livestock Systems Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada.
- T100 **Repeatability of ano-genital distance measurements at different stages of the estrous cycle.**
I. Rajesh*¹, M. Gobikrushanth¹, J. E. Carrelli¹, and D. J. Ambrose^{1,2}, ¹Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada, ²Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada.

- T101 **Gene expression in the uterus of heifers challenged with lipopolysaccharide.**
J. Alvarado-Rincón, G. de Avila Ferronato, A. Stein Maffi, A. Amaral Barbosa, R. Klaus, J. Feijó, F. Del Pino, G. Bueno Luz, B. Garziera Gasperin, R. Gianella Mondadori, E. Schmitt*, V. Rohrig Rabassa, M. Nunes Correa, and C. Cassal Brauner, *Núcleo de Pesquisa, Ensino e Extensão em Pecuária, UFPel, Pelotas, RS, Brazil.*
- T102 **Association between postpartum health and subsequent detection of spontaneous estrus by activity monitors in dairy cows.**
T. C. Bruinje*, E. I. Morrison¹, R. Couto Serrenho¹, E. S. Ribeiro², D. Renaud¹, and S. J. LeBlanc¹, ¹*Department of Population Medicine, University of Guelph, Guelph, ON, Canada,* ²*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.*

Ruminant Nutrition: General 2

- T103 **Fumonisin esterase degrades fumonisins in lactating dairy cows.**
A. Gallo¹, A. Minuti¹, B. Doupovec², J. Faas*², G. Bichl², D. Schatzmayr², and E. Trevisi¹, ¹*Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Science, Università Cattolica del Sacro Cuore, Piacenza, Italy,* ²*BIOMIN Research Center, Tulln, Austria.*
- T104 **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, Newark, DE.*
- T105 **Ruminal dry matter, crude protein, and neutral detergent fiber degradation of whole-plant soybean silage.**
L. G. Ghizzi*^{1,3}, T. A. Del Valle², C. Heinzen³, M. R. Pupo³, L. F. Ferraretto³, and F. P. Rennó¹, ¹*University of São Paulo, Pirassununga, SP, Brazil,* ²*University of Pampa, Itaqui, Rio Grande do Sul, Brazil,* ³*University of Florida, Gainesville, FL.*
- T106 **Assessing milk response to branched-chain volatile fatty acids.**
K. E. Mitchell*¹, M. T. Socha², L. E. Moraes¹, Y. Roman Garcia¹, and J. L. Firkins¹, ¹*The Ohio State University, Columbus, OH,* ²*Zinpro Corporation, Eden Prairie, Minnesota.*
- T107 **The effects of cut height and fungicide application on whole-plant corn silage yield.**
F. F. Cardoso*¹, S. E. Kemp¹, R. Schmidt², and F. C. Cardoso¹, ¹*University of Illinois, Urbana, IL,* ²*Lallemand Animal Nutrition, Milwaukee, WI.*
- T108 **Effect of different levels of *Ascophyllum nodosum* meal on iodine metabolism in Jersey cows.**
M. Ghelichkhan*², L. H. P. Silva², R. C. R. Tinini¹, J. G. Dessbesell¹, M. A. Zambom¹, and A. F. Brito², ¹*Universidade Estadual do Oeste do Paraná, Marechal Cândido Rondon, Brazil,* ²*University of New Hampshire, Durham, NH.*
- T109 **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.*
- T110 **Effects of acute intravenous trimethylamine N-oxide infusion on the bovine lipidome and metabolome during early lactation.**
F. Wang^{1,2}, W. A. Myers*¹, C. Chang¹, A. N. Davis¹, J. E. Rico¹, B. N. Tate¹, L. F. Wang^{1,3}, and J. W. McFadden¹, ¹*Cornell University, Ithaca, NY,* ²*China Agricultural University, Beijing, China,* ³*Henan Agricultural University, Zhengzhou, China.*
- T111 **A dynamic approach for BCS prediction in NDS Professional.**
G. Esposito*^{1,2}, M. Shipandeni³, E. Raffrenato^{1,2}, and E. Melli¹, ¹*RUM&N, Reggio Emilia (RE), Italy,* ²*Department of Animal Sciences, Faculty of AgriSciences, Stellenbosch University, Stellenbosch (WC), South Africa,* ³*Department of Animal Science, University of Namibia, Windhoek, Namibia.*
- T112 **Effects of rumen-protected lysine fed to Holstein cows prepartum and the blood amino acids and metabolites profile on their calves.**
B. L. Thomas*¹, A. R. Guadagnin¹, L. K. Fehlberg¹, Y. Sugimoto², I. Shinzato², and F. C. Cardoso¹, ¹*University of Illinois, Urbana-Champaign, IL,* ²*Ajinomoto Co. Inc., Tokyo, Japan.*
- T113 **Effects of rumen-protected lysine fed to Holstein cows prepartum and the outcome on their calves.**
B. L. Thomas*¹, A. R. Guadagnin¹, L. K. Fehlberg¹, Y. Sugimoto², I. Shinzato², and F. C. Cardoso¹, ¹*University of Illinois, Urbana-Champaign, IL,* ²*Ajinomoto Co. Inc., Tokyo, Japan.*

- T114 **Effect of essential oils and amylase supplementation on productive performance of lactating dairy cows.**
A. Silva¹, C. S. Cortinhas^{*2}, T. S. Acedo², M. J. F. Morenz³, F. C. F. Lopes³, M. B. Arrigoni¹, M. H. Ferreira⁴, and T. L. Jaguaribe⁴,
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.**
A. Silva¹, C. S. Cortinhas^{*2}, T. S. Acedo², M. J. F. Morenz³, F. C. F. Lopes³, M. B. Arrigoni¹, M. H. Ferreira⁴, and T. L. Jaguaribe⁴,
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^{*1,2}, L. H. P. Silva¹, D. C. Reyes¹, L. G. R. Pereira³, and A. F. Brito¹, ¹University of New Hampshire, Durham, NH, 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.
- T117 **Energy partition in Holstein × Gyr lactating cows raised under tropical conditions.**
R. R. Silvi¹, M. R. Santos¹, J. P. Sacramento^{*2}, L. G. R. Pereira³, A. L. Ferreira³, F. S. Machado³, T. R. Tomich³, and M. M. Campos³,
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^{*1}, B. Doupovec¹, R. Nicole¹, A. Gallo², Q. Zebeli³, and D. Schatzmayr¹, 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.

Ruminant Nutrition: Carbohydrates and Lipids

- T119 **Ruminal degradability and bypass fraction of a coated omega-3 source.**
L. R. Royo^{*1}, T. de Evans², M. Puyalto¹, J. J. Mallo¹, 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^{*1}, 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^{*1}, L. H. P. Silva¹, Y. Geng², M. J. Lange³, N. Q. 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^{*1}, 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^{*1}, D. R. Mertens², 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. Khonkhaeng^{1,2}, 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. Fontoura¹, 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. Poczynek¹, A. M. Fillus¹, C. B. da Silva², F. S. Baptista³, L. B. Los³, L. F. Ferraretto⁴, and R. Almeida^{*1}, 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. Saunier¹, K. Murphy², G. L. Lascano¹, M. J. Aguerre¹, and T. C. Jenkins¹, 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. Myers¹, V. Sáinz de la Maza-Escolà^{1,2}, C. Chang¹, L. F. Wang^{1,3}, and J. W. McFadden¹, 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. Myers¹, R. Gervais², and J. W. McFadden¹, 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. Olmeda^{2,5}, L. M. Buraschi³, M. V. Dunleavy⁴, F. Bargo⁵, and R. A. Palladino^{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. Daniel², L. G. Silva³, G. M. Wachekowski¹, H. H. A. Costa⁴, and A. P. Faciola⁵, 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 Vale do Acaraú, 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. Jackson³, F. Evans⁴, 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.**
Y. Jiang^{*}, M. Garcia, H. A. Roberts, G. A. Blakeney, J. D. Chapman, and D. J. McLean, Phibro Animal Health Corporation, Teaneck, NJ.
- T139 **Effects of OmniGen Pro on performance, digestibility, and rumen fermentation of Holstein heifers.**
Y. Jiang^{*}, M. Garcia, H. A. Roberts, J. D. Chapman, and D. J. McLean, Phibro Animal Health Corporation, Teaneck, NJ.

- 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, ¹*Department of Animal Science, Cornell University, Ithaca, NY*, ²*Teagasc, 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. Chibisa¹, W. J. Price², M. A. McGuire¹, M. Chahine^{1,3}, and P. Rezamand¹, ¹*Department of Animal and Veterinary Science, University of Idaho, Moscow, ID*, ²*Statistical Programs, College of Agricultural and Life Sciences, University of Idaho, Moscow, ID*, ³*Twin 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.**
A. L. Kerwin^{*1}, K. M. Glosson², K. P. Zanzalari², and T. R. Overton¹, ¹*Department of Animal Science, Cornell University, Ithaca, NY*, ²*Phibro Animal Health Corp, Teaneck, NJ.*
- T143 **Characterization of the dairy cow rumen epimural microbiota under high-forage and high-starch diets.**
D. Sbardellati^{*1}, A. Fischer², K. Kalscheur², and G. Suen¹, ¹*Department of Bacteriology, University of Wisconsin-Madison, Madison, WI*, ²*USDA 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.**
L. E. Hernández-Castellano, L. L. Pereira dos Santos, and M. Larsen^{*}, *Dept. Animal Science, Aarhus University-Foulum, Tjele, Denmark.*
- T145 **The effects of supplementing a seaweed, *Asparagopsis taxiformis*, to dairy cows on bacteria-archaea interactions in the rumen.**
D. Pitta¹, H. Stefenoni², N. Indugu^{*1}, M. Hennessy¹, B. Vecchiarelli¹, R. Shah³, S. Garapati⁴, C. Yarish⁵, S. Welchez², S. Räisänen², D. Wasson², C. Lage², A. Melgar², M. Fetter², A. Hristov², ¹*University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA*, ²*The Pennsylvania State University, University Park, PA*, ³*University of Pennsylvania, Philadelphia, PA*, ⁴*Drexel University, Philadelphia, PA*, ⁵*University of Connecticut, Stamford, CT.*
- T146 **Effects of rumen hypomotility on microbial community composition.**
A. Palmonari, D. Cavallini^{*}, G. Canestrari, G. Buonaiuto, S. Speroni, L. Campidonico, F. Ghiaccio, A. Formigoni, and L. Mammi, *Department of Veterinary Sciences, University of Bologna, Ozzano Emilia, 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. Watanabe², and L. H. Baumgard¹, ¹*Iowa State University, Ames, IA*, ²*Idemitsu 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^{*1}, C. Hikita², T. Watanabe², T. C. Jenkins¹, G. J. Lascano¹, and M. J. Aguerre¹, ¹*Clemson University, Clemson, SC*, ²*Agri-Bio Business Department, Idemitsu Koscan 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. Melgar², N. Indugu^{*1}, V. Shabtai¹, M. Hennessy¹, B. Vecchiarelli¹, M. Kindermann³, N. Walker³, and A. Hristov², ¹*University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA*, ²*The Pennsylvania State University, University Park, PA*, ³*DSM 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^{*2}, B. Vecchiarelli¹, N. Indugu¹, S. Garapati³, J. Toth², L. Baker¹, and D. Pitta¹, ¹*University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA*, ²*Oceanside High School, Oceanside, NY*, ³*Drexel University, Philadelphia, PA.*
- T151 **Nitrogen metabolism of Holstein calves on high or low pre- and post-weaning feeding plan.**
G. Antunez^{*1}, C. Cajarville¹, C. Fernandez¹, L. Artus¹, J. Dayuto¹, F. Correa¹, G. Oleggini², and J. Repetto¹, ¹*Departamento Producción Animal de Veterinaria (IPAV), Facultad de Veterinaria, UdeLAR, Libertad, San José, Uruguay*, ²*CONAPROLE, 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. Panosso¹, V. Benetel Junior¹, L. R. Ghussn¹, V. C. Mufalo¹, A. P. Faciola², R. S. B. Pinheiro³, A. Berndt⁴, and I. C. S. Bueno¹, ¹*Universidade de São Paulo, Pirassununga, SP, Brazil*, ²*University of Florida, Gainesville, FL*, ³*Universidade Estadual Paulista, Ilha Solteira, SP, Brazil*, ⁴*Embrapa 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

Wednesday, June 24

Oral Presentations

Animal Behavior and Well-Being Chair: Melissa Cantor, University of Kentucky Room 1 12:00 – 12:30 PM (Wednesday block 1)

- 287 **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. Penner², H. W. Neave³, 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.
- 288 **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.
- 289 **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. Gabarrou², and T. J. DeVries¹, ¹Department of Animal Biosciences, Guelph, ON, Canada, ²Phodé, Terssac, France.
- 290 **Validation of an infrared camera for measuring ocular temperatures of veal calves.**
H. Goetz*¹, D. Kelton¹, J. Costa², C. Winder¹, and D. Renaud¹, ¹Department of Population Medicine, University of Guelph, Guelph, ON, Canada, ²Department of Animal and Food Sciences, University of Kentucky, Lexington, KY.
- 291 **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 Ashmawy¹, A. Gerry², H. Rossow^{1,3}, T. Lehenbauer^{1,3}, and S. Aly^{1,3}, 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.
- 292 **Daily milk losses associated with bunching, dairy cattle's protective behavior against stable flies (*Stomoxys calcitrans*), on a California dairy.**
W. R. ElAshmawy*^{1,2}, D. R. Williams¹, A. C. Gerry³, and S. S. Aly^{1,4}, 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.

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

- 293 **Methods to implement ancestor discovery in the US dairy cattle database.**
J. Nani*^{1,2}, J. Cole², and P. VanRaden², ¹Instituto Nacional de Tecnología Agropecuaria EEA Rafaela, Rafaela, SantaFe, Argentina, ²Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD.

- 294 **Bias of dairy sheep evaluations using BLUP and single-step genomic BLUP with metafounders and unknown parent groups.**
F. L. Macedo^{1,2}, O. F. Christensen³, J. M. Astruc⁴, I. Aguilar⁵, Y. Masuda⁶, and A. Legarra*¹, ¹INRA, Toulouse, France, ²UdelaR, Montevideo, Uruguay, ³Aarhus University, Aarhus, Denmark, ⁴IDELE, Toulouse, France, ⁵INIA, Montevideo, Uruguay, ⁶University of Georgia, Athens, GA.
- 295 **Parent and grandsire discovery in a rapidly expanding collection of genotypes.**
G. Wiggans*, Council on Dairy Cattle Breeding, Bowie, MD.
- 296 **Profiles of causative SNP in a genome-wide association study.**
I. Misztal*¹, I. Pocrnic^{1,2}, M. Perez-Enciso³, and D. A. L. Lourenco¹, ¹University of Georgia, Athens, GA, ²The Roslin Institute, Midlothian, United Kingdom, ³CRAG, Barcelona, Spain.
- 297 **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.
- 298 **Inbreeding depression due to different age classes of inbreeding on production and fertility traits in Canadian Holsteins.**
B. O. Mankanjuola*¹, C. Maltecca^{2,1}, F. Miglior^{3,1}, F. S. Schenkel¹, and C. F. Baes^{1,4}, 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)

- 299 **Impact of milk fat globule membrane materials on cheese made from reconstituted milk: Structure and volatile organic compounds.**
H. Zheng*^{1,2}, M. Arnold², K. Kilcawley³, T. Harding⁴, 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, ⁴Department of Materials Engineering, College of Engineering, California Polytechnic State University, San Luis Obispo, CA.
- 300 **Application of laser-induced breakdown spectroscopy technique for studying salt diffusion in model cheese matrices.**
P. Sharma*^{1,3}, M. Casado-Gavaldà², J. Sheehan¹, and C. Sullivan², ¹Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland, ²School of Food Science and Environmental Health, Technical University Dublin, Dublin, Ireland, ³Utah State University, Logan, UT.
- 301 **Modelling inward diffusion of salt in model cheese matrix using time-lapse confocal laser scanning microscopy.**
P. Sharma*^{1,3}, J. Sheehan¹, and J. Floury², ¹Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland, ²STLO, INRAE, Agrocampus Ouest, Rennes, France, ³Utah State University, Logan, UT.
- 302 **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.
- 303 **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.
- 304 **Effect of processing variables on viscoelastic properties and textural attributes of heat-acid coagulated milk product paneer.**
S. Hussain*¹, P. Sharma^{2,3}, and S. Hogan², ¹ICAR-National Dairy Research Institute, Karnal, Haryana, India, ²Teagasc Food Research Centre, Moorepark, Co. Cork, Ireland, ³Utah State University, Logan, UT.

Production, Management, and the Environment

Chair: Gail Carpenter, CSA Animal Nutrition

Room 3

12:00 – 12:30 PM (Wednesday block 1)

- 305 **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.*
- 306 **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.*
- 307 **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. Ferreira², ¹*Universidade Federal de Vicosa, Vicosa, MG, Brazil*, ²*Department of Population Health and Reproduction, University of California Davis, CA.*
- 308 **Beef semen management practices in California dairy herds.**
J. M. V. Pereira*^{1,2}, D. Bruno³, M. I. Marcondes¹, and F. C. Ferreira², ¹*Universidade Federal de Vicosa, Vicosa, MG, Brazil*, ²*Department of Population Health and Reproduction, University of California, Davis, CA*, ³*University of California Cooperative Extension, Fresno, CA.*
- 309 **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, ¹*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, ²*Department of Animal Science, Cornell University, Ithaca, NY.*
- 310 **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. Borges¹, and L. S. d. A. Camargo³, ¹*Departamento de Clínica e Cirurgia Veterinárias, Escola de Veterinária, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil*, ²*Departamento de Patologia e Clínica Veterinária, Faculdade de Veterinária, Universidade Federal Fluminense, Niterói, RJ, Brazil*, ³*Laboratório de Reprodução Animal, Embrapa Gado de Leite, Juiz de Fora, MG, Brazil.*

Ruminant Nutrition: General

Chair: Paul Kononoff, University of Nebraska

Room 4

12:00 – 12:30 PM (Wednesday block 1)

- 311 **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. Martín-Tereso², and M. A. Steele¹, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, ²*Trouw Nutrition Research and Development, Amersfoort, the Netherlands.*
- 312 **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.*
- 313 **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. Pierce², A. G. Fahey², and F. J. Mulligan¹, ¹*School of Veterinary Medicine, University College Dublin, Belfield, Dublin, Ireland*, ²*School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland.*
- 314 **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. Lemay¹, M. Thimmanagari², T. J. DeVries¹, and A. J. Carpenter³, ¹*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, ²*Ontario Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada*, ³*CSA 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*¹, ¹*Animal Nutrition and Welfare Service, Univeristat Autonoma de Barcelona, Bellaterra, Spain,* ²*Universidade 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. Wang*¹, H. Y. Liu¹, M. R. Ma², and J. X. Liu¹, ¹*Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, China,* ²*College 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.*
- 420 **Estimating gastrointestinal tissue use of postruminally absorbed amino acids using a stable isotope-based approach.**
J. M. Prestegard*, 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 peripartur dairy cows.**
N. A. Carpinelli*¹, J. Halfen^{1,2}, R. Mohan¹, E. Trevisi³, J. D. Chapman⁴, E. D. Sharman⁴, and J. S. Osorio¹, ¹*Dairy and Food Science Department, South Dakota State University, Brookings, SD,* ²*Núcleo de Ensino, Pesquisa e Extensão em Pecuária (NUPEEC), Universidade Federal de Pelotas, Pelotas, RS, Brazil,* ³*Department of Animal Sciences, Food and Nutrition (DIANA), Faculty of Agriculture, Food and Environmental Science, Italy,* ⁴*Phibro 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. Ster², and P. Lacasse^{2,1}, ¹*Université de Sherbrooke, Sherbrooke, QC, Canada,* ²*Agriculture 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. Gott*¹, E. G. Hendel¹, S. M. Ramirez², U. Hofstetter², and G. R. Murugesan¹, ¹*BIOMIN America Inc., Overland Park, KS,* ²*BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.*
- 323 **Recent mycotoxin contamination trends in US corn grain and corn by-product feeds.**
P. N. Gott*¹, E. G. Hendel¹, S. M. Ramirez², U. Hofstetter², and G. R. Murugesan¹, ¹*BIOMIN America Inc., Overland Park, KS,* ²*BIOMIN Holding GmbH, Getzersdorf, Lower Austria, Austria.*

- 324 **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)

- 325 **Genomic predictions for milk yield of crossbred dairy cattle.**
Y. Steyn*¹, D. Gonzalez-Pena², N. Vukasinovic², D. Lourenco¹, I. Misztal¹, and S. DeNise², ¹University of Georgia, Athens, GA, ²Zoetis, Kalamazoo, MI.
- 326 **Genetic and non-genetic factors associated with lactation length in seasonal-calving dairy cow pasture-based systems.**
M. Williams*^{1,2}, C. P. Murphy², R. D. Sleator², M. M. Judge¹, S. C. Ring³, 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.
- 327 **β -Casein A2 genetics of organic Holstein dairy cows across the Midwest and Northeast.**
B. J. Heins*¹, G. M. Pereira¹, L. C. Hardie², and C. D. Dechow², ¹University of Minnesota, Morris, MN, ²Pennsylvania State University, State College, PA.
- 328 **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. Hardie², and C. D. Dechow², ¹University of Minnesota, Morris, MN, ²Pennsylvania State University, State College, PA.
- 329 **ProCROSS calves compared with Holstein calves for calving traits in two research herds.**
G. M. Pereira*^{1,2}, L. B. Hansen¹, and B. J. Heins^{2,1}, ¹University of Minnesota, Saint Paul, MN, ²West-Central Research and Outreach Center, Morris, MN.
- 330 **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. Heins^{2,1}, 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)

- 331 **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, FARA, University of Liège, Liège, Belgium.
- 332 **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.

- 333 **Physical and sensorial characteristics of raw milk cheeses and pasteurized milk cheeses from sheep supplemented with sunflower seed silage.**
E. Cardoso-Gutiérrez¹, A. C. Narvaes-López¹, L. E. Robles-Jiménez¹, M. d. I. Á. Colín-Cruz¹, M. González-Ronquillo¹, and E. Vargas-Bello-Pérez^{*2}, 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.
- 334 **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.*
- 335 **Manufacture of designer milk powder for recombined cheeses.**
S. Sen^{*1}, S. Govindasamy-Lucey², J. J. Jaeggi², M. E. Johnson², J. A. Lucey^{1,2}, and M. Molitor², ¹University of Wisconsin-Madison, Madison, WI, ²Wisconsin Center for Dairy Research, Madison, WI.
- 336 **Impact of lactose standardization and curd types on the properties of direct-salted Gouda cheese.**
Y. Gong^{*1}, S. Govindasamy-Lucey², J. J. Jaeggi², M. E. Johnson², and J. A. Lucey^{1,2}, 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)

- 337 **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.*
- 338 **Effects of milk replacer feeding rate and frequency on metabolic responses of dairy calves during summer and winter.**
R. M. Orellana Rivas*, T. Rodrigues, J. Silveira, V. Lacerda, J. Gao, D. Ferreira de Araújo, J. Souza, T. N. Marins, J. K. Bernard, and S. Tao, *University of Georgia, Tifton, GA.*
- 339 **Effects of milk replacer feeding rate and frequency on basal metabolism and abomasal emptying of dairy calves during summer and winter.**
R. M. Orellana Rivas*, T. Rodrigues, J. Silveira, V. Lacerda, J. Gao, D. Ferreira de Araújo, J. Souza, T. N. Marins, J. K. Bernard, and S. Tao, *University of Georgia, Tifton, GA.*
- 340 **Can the threshold on absolute fat residual improve the reliability of milk mid-infrared-predicted traits without using reference values?**
L. Zhang^{*1}, 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, Shiji-azhuang, China, ³Valorisation of Agricultural Products Department, Walloon Agricultural Research Centre, Gembloux, Belgium.
- 341 **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)

- 342 **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. Fan¹, X. Dai², J. Arce-Cordero¹, B. C. Agostinho^{1,3}, R. R. Lobo¹, A. L. J. Lelis⁴, V. L. N. Brandão¹, A. Faccenda³, A. S. Avila⁵, R. Restelatto⁶, L. G. Silva⁷, K. C. Jeong¹, and A. P. Faciola¹, ¹Department of Animal Sciences, University of Florida, Gainesville, FL, ²U.S. Dairy Forage Research Center, ARS-USDA, Madison, WI, ³Departamento de Zootecnia, Universidade Estadual de Maringá, Maringá, PR, Brazil, ⁴Departamento de Zootecnia, Universidade de São Paulo, São Paulo, SP, Brazil, ⁵Departamento de Zootecnia, Universidade Estadual do Oeste do Paraná, Marechal Cândido Rondon, PR, Brazil, ⁶Departamento de Zootecnia, Universidade Federal do Paraná, Curitiba, PR, Brazil, ⁷Departamento de Zootecnia, Universidade Estadual Paulista, Jaboticabal, SP, Brazil.
- 343 **In situ rumen degradability and intestinal digestibility of rumen-protected choline sources.**
C. Faturi², F. Francia¹, M. E. Rodriguez-Prado*¹, and S. Calsamiglia¹, ¹Animal Nutrition and Welfare Service, Univeristat Autònoma de Barcelona, Bellaterra, Spain, ²Universidade Federal Rural de la Amazonia, Belem, Brazil.
- 344 **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'Neil¹, S. Bas², F. R. B. Ribeiro², and J. A. D. R. N. Appuhamy¹, ¹Department of Animal Science, Iowa State University, Ames, IA, ²Phytobiotics North America LLC, Cary, NC.
- 345 **Effects of an isoquinoline alkaloids-based product on performance milk yield and components of lactating dairy cows.**
C. Audonnet*¹, N. Cebren², J. Poyedessus², L. Leleu², H. Bezille¹, S. Bas³, and G. Foucras², ¹Feeddeal SAS, Bourgbarré, France, ²IHAP, Université de Toulouse, INRAE, ENVT, Toulouse, France, ³Phytobiotics Futterzusatzstoffe GmbH, Eltville, Germany.
- 346 **Effects of rumen protected choline supplementation during electric heat blanket induced heat stress.**
H. T. Holdorf*¹, K. A. Estes², B. A. Barton², and H. M. White¹, ¹University of Wisconsin-Madison, Madison, WI, ²Balchem Corporation, New Hampton, NY.
- 347 **Effects of an immunomodulatory feed additive on performance of transition cows.**
C. S. Takiya*¹, L. K. Mamedova^{1,2}, M. Garcia³, D. E. Nuzback³, and B. J. Bradford^{1,2}, ¹Kansas State University, Manhattan, KS, ²Michigan State University, East Lansing, MI, ³Phibro Animal Health, Teaneck, NJ.
- 348 **Effects of non-toxigenic clostridia oral supplementation on production, health, and metabolism of Holstein cows.**
F. Cardoso*¹, T. Rehberger², J. Thompson², A. Smith², M. Griffin², and F. Cardoso¹, ¹University of Illinois, Urbana, IL, ²Arm & 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)

- 349 **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.*
- 350 **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. Wattiaux¹, ¹University of Wisconsin-Madison, Madison, WI, ²USDA-ARS, U.S. Dairy Forage Research Center, Madison, WI.
- 351 **Assessing essential amino acid availability from microbial and rumen undegraded protein in lactating dairy cows.**
X. Huang*¹, P. Yoder^{1,2}, L. Campos¹, E. Huang¹, and M. Hanigan¹, ¹Virginia Tech, Blacksburg, VA, ²Perdue AgriBusiness LLC, Salisbury, MD.

352 **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. Lange³, N. Q. 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.

353 **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)

354 **Evaluation of the cost of mastitis by *Streptococcus uberis* and the profitability of vaccination protocols.**
A. M. Mesa and S. Calsamiglia*, *Animal Nutrition and Welfare Service, Univeritat Autònoma de Barcelona, Bellaterra, Spain.*

355 **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.*

356 **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.*

357 **Partial budget analysis of selective dry cow therapy strategies.**
A. K. Vasquez¹, S. M. Rowe*², S. M. Godden², P. J. Gorden³, A. Lago⁴, E. Royster², J. Timmerman², M. J. Thomas⁵, R. A. Lynch¹, and D. V. Nycham¹, 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.

358 **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. Okello^{1,3}, D. R. Williams¹, R. J. Anderson⁴, B. Karle⁵, T. W. Lehenbauer^{1,3}, and S. S. Aly^{1,3}, 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)

359 **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.*

360 **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.

- 361 **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.*
- 362 **Accuracy of indirect predictions based on prediction error covariance from single-step genomic BLUP.**
D. Lourenco*¹, I. Aguilar², A. Legarra³, A. Garcia¹, Y. Masuda¹, S. Tsuruta¹, and I. Misztal¹, ¹*University of Georgia, Athens, GA,* ²*INIA, Las Brujas, Canelones, Uruguay,* ³*INRA, Castanet Tolosan, France.*
- 363 **Development and validation of a medium-density chip array for bovine.**
N. Deeb*¹, C. Neis², and S. Firgens², ¹*STGenetics, Navasota, TX,* ²*Genetic Visions, Middleton, WI.*

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

- 364 **Characterization of a commercial whey protein hydrolysate and its use as a binding agent in whey protein isolate agglomeration process: A preliminary study.**
B. Zaitoun*¹, J. Amamcharla¹, and N. Palmer², ¹*Kansas State University, Manhattan, KS,* ²*Glanbia Nutritionals, Twin Falls, ID.*
- 365 **Interaction of strawberry phenolic compounds with milk proteins.**
R. Singh* and R. Bajaj, *NDRI, Karnal, Haryana India.*
- 366 **Measurement of lactose in “lactose-free” products.**
D. Mangan, R. Ivory*, E. Delaney, C. Cornaggia, and B. V. McCleary, *Megazyme, Bray, County Wicklow, Ireland.*
- 367 **Influence of ionic environment on acidified micellar casein gels.**
D. Wilbanks*¹, J. Lucey¹, and S. Rahimi², ¹*University of Wisconsin-Madison, Madison, WI,* ²*Arla Foods, Aarhus, Viby J, Denmark.*
- 368 **Modeling the effect of temperature and water activity on thermal resistance of *Salmonella* in dairy powders.**
X. Wei*¹, B. Chaves¹, M.-G. Danao¹, S. Agarwal³, and J. Subbiah², ¹*University of Nebraska, Lincoln, NE,* ²*University of Arkansas, Fayetteville, AR,* ³*Mars Wrigley, Chicago, IL.*

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

- 369 **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.*
- 370 **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*¹, E. C. Diepersloot¹, L. G. Ghizzi^{1,2}, J. O. Gusmao^{1,3}, C. Heinzen Jr.¹, C. L. McCary¹, M. R. Pupo¹, H. Sultana¹, and L. F. Ferraretto¹, ¹*Department of Animal Sciences, University of Florida, Gainesville, FL,* ²*Department of Animal Nutrition and Animal Production, University of São Paulo, Pirassununga, São Paulo, Brazil,* ³*Department of Animal Science, Federal University of Lavras, Lavras, Minas Gerais, Brazil.*
- 371 **Fiber digestion kinetics of summer annual grasses with or without brown midrib genotype.**
G. Ferreira*¹, A. I. Silva-Reis^{1,2}, A. A. Pereyra^{1,3}, and C. L. Teets¹, ¹*Department of Dairy Science, Virginia Tech, Blacksburg, VA,* ²*Facultad de Ciencias Agrarias, Universidad Nacional del Nordeste, Corrientes, Corrientes, Argentina,* ³*Facultad 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. McLean², C. Lafreniere³, S. Bittman⁴, and J. C. Plaizier¹, ¹University of Manitoba, Winnipeg, MB, Canada, ²Dalhousie University, Truro, NS, Canada, ³Université du Québec en Abitibi-Temiscamingue, 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. Zebeli², 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. Li², W. Yang², C. Xia², H. Zhang², 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. Harvatine², ¹South Dakota State University, Brookings, SD, ²The Pennsylvania State University, University Park, PA.
- 380 **Glucose infusion during heat stress restores normoglycemia but does not improve milk production.**
J. Stewart*¹, H. Newberne, A. Arneson, M. Harrod, V. Negron-Perez, H. Haines, J. Jordan, R. White, A. Ealy, S. El-Kadi, R. Rhoads, and M. Rhoads, Virginia Tech, Blacksburg, VA.

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. Mammi¹, G. Canestrari¹, S. Speroni¹, G. Buonaiuto¹, L. Campidonico¹, F. Ghiaccio¹, A. Palmognari¹, E. Valle², and A. Formigoni¹, ¹Department of Veterinary Sciences, University of Bologna, Ozzano Emilia, Italy, ²Department of Veterinary Sciences, University of Turin, Grugliasco, Italy.

- 382 **Development of an in vitro assay to determine the intestinal digestion of lipids in ruminants.**
J. R. Vinyard*¹, E. Sarmikasoglou¹, S. L. Bennett¹, J. Arce-Cordero¹, G. Aines², K. Estes², C. Zimmerman², and A. P. Faciola¹, ¹Department of Animal Sciences, University of Florida, Gainesville, FL, ²Balchem Corporation, New Hampton, NY.
- 383 **Alterations in ruminal and fecal microbial communities of dairy cows during ketosis.**
Q. Wang*¹, W. Bao¹, Y. Cui¹, J. J. Loo², B. Gao¹, Y. Ren¹, 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.
- 384 **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.
- 385 **Gas production kinetics of in situ washout and remaining fractions.**
N. Schlau*¹, D. R. Mertens², L. F. Ferraretto³, and D. Taysom¹, ¹Dairyland Laboratories Inc., Arcadia, WI, ²Mertens Innovation and Research LLC, Belleville, WI, ³Department of Animal Sciences, University of Florida, Gainesville, FL.
- 386 **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)

- 387 **Effect of treatment at dry-off with intramammary antibiotics, internal teat sealants, or both on the health of dairy cows.**
W. R. ElAshmawy*^{1,2}, E. Okello^{1,3}, D. R. Williams¹, R. J. Anderson⁴, P. Rossitto¹, J. D. Champagne¹, K. Tonooka¹, K. Glenn¹, B. Karle⁵, T. W. Lehenbauer^{1,3}, and S. S. Aly^{1,3}, 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.
- 388 **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.
- 389 **Pattern of behavioral, physiological, and performance parameters before and after clinical diagnosis of mastitis.**
M. M. Pérez*¹, 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.
- 390 **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. Kelton³, H. W. Barkema⁴, 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.
- 391 **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.*

Forages and Pastures
Chair: Daryl Kleinschmit, Zinpro Corporation
Room 4
1:30 – 2:00 PM (Wednesday block 4)

- 392 **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, ¹*Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Minas Gerais, Brazil*, ²*McGill University, Sainte-Anne-de-Bellevue, Quebec, Canada*.
- 393 **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. Tychon⁴, F. Lebeau¹, and H. Soyeurt¹, ¹*TERRA, ULiege, Liege, Belgium*, ²*Departement de gestion veterinaire des Ressources Animales (DRA) / Nutrition des animaux domestiques, ULiege, Liege, Belgium*, ³*Fundamental and Applied Research for Animals and Health (FARAH), ULiege, Liege, Belgium*, ⁴*Departement des sciences et gestion de l'environnement (Arlon Campus Environnement), ULiege, Liege, Belgium*.
- 394 **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, ¹*Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR*, ²*Department of Crop and Soil Sciences, Oregon State University, Corvallis, OR*.
- 395 **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}, ¹*Department of Animal and Rangeland Sciences, Oregon State University, Corvallis, OR*, ²*Department of Plants, Soils, and Climate, Utah State University, Logan, UT*, ³*Lethbridge Research and Development Centre, Agriculture and Agri-Food, Lethbridge, AB, Canada*, ⁴*Division of Plant Sciences, University of Missouri, Columbia, MO*.
- 396 **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, ¹*University of New Hampshire, Durham, NH*, ²*Chinese Academy of Agricultural Sciences, Beijing, China*, ³*Auburn University, Auburn, AL*, ⁴*USDA-Agricultural Research Service, Pasture Systems and Watershed Management Research Unit, University Park, PA*.
- 397 **Chicory and plantain-dominated forb pasture improves health and rumen N efficiency in lactating dairy cows.**
H. Ford^{*1}, S. Busato¹, E. Trevisi², Y. Gultekin¹, M. Bionaz¹, and S. Ates¹, ¹*Oregon State University, Corvallis, OR*, ²*Università Cattolica del Sacro Cuore, Piacenza, Italy*.

Physiology and Endocrinology
Chair: Ronaldo Cerri, University of British Columbia
Room 3
1:30 – 2:00 PM (Wednesday block 4)

- 398 **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*.
- 399 **Response to LPS challenge after intravenous amino acid infusion in postpartum dairy cows.**
T. L. Chandler^{*}, T. A. Westhoff, C. R. Seely, J. E. Cha, M. E. Van Amburgh, T. R. Overton, and S. Mann, *Cornell University, Ithaca, NY*.
- 400 **Intravenous amino acid infusion in early postpartum dairy cows: Effects on performance, blood metabolites, and serum hormones.**
T. L. Chandler^{*1}, T. A. Westhoff¹, J. E. Cha¹, A. L. Lock², T. R. Overton¹, and S. Mann¹, ¹*Cornell University, Ithaca, NY*, ²*Michigan State University, East Lansing, MI*.
- 401 **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. Virkler¹, A. Weld¹, J. M. Melvin¹, M. R. Wettstein¹, M. F. Oswald¹, C. G. Geary¹, R. D. Watters¹, R. Lynch², and D. V. Nysdam¹, ¹*Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY*, ²*Department of Animal Science, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY*.

- 402 **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. Cunha*¹, L. R. Statz¹, R. R. Domingues², J. P. N. Andrade^{1,2}, M. C. Wiltbank², and J. P. N. Martins¹, ¹*School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI*, ²*Department 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)

- 403 **Characterizing the microbiota of recycled bedding sand on a Wisconsin dairy farm.**
H. Pilch¹, A. Steinberger*², G. Suen², N. Aulik³, D. Sockett³, and C. Czuprynski¹, ¹*Department of Pathobiological Sciences, University of Wisconsin-Madison, Madison, WI*, ²*Department of Bacteriology, University of Wisconsin-Madison, Madison, WI*, ³*Wisconsin Veterinary Diagnostic Laboratory, Madison, WI*.
- 404 **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. Lee¹, ¹*Department of Animal Sciences, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH*, ²*Department of Animal Sciences, The Ohio State University, Columbus, OH*, ³*Zinpro Corporation, Eden Prairie, MN*.
- 405 **Successful strategies to reduce enteric methane emission from ruminants: A meta-analysis.**
C. Arndt*¹, A. N. Hristov², W. J. Price³, S. C. McClelland⁴, A. Pelaez², S. F. C. Welchez², J. Oh⁵, A. Bannink⁶, A. R. Bayat⁷, L. A. Crompton⁸, J. Dijkstra⁶, M. A. Eugène⁹, M. Kreuzer¹⁰, M. McGee¹¹, C. Martin¹², ¹*Universidad Nacional Agraria, La Molina, Lima, Peru*, ²*The Pennsylvania State University, University Park, PA*, ³*University of Idaho, Moscow, ID*, ⁴*Colorado State University, Fort Collins, CO*, ⁵*Cargill Korea, Seoul, South Korea*, ⁶*Wageningen University and Research, Wageningen, the Netherlands*, ⁷*Natural Resources Institute Finland, Finland*, ⁸*University of Reading, Reading, UK*, ⁹*INRAE, Saint Genès-Champagnelle, France*, ¹⁰*University of California, Davis, CA*, ¹¹*ETH Zurich, Zürich, Switzerland*, ¹²*Teagasc, AGRIC, Grange, Ireland*.
- 406 **Altering the ruminal microbiota in dairy calves using rumen contents dosing.**
M. Cox*¹, P. Weimer^{2,1}, A. Steinberger¹, J. Skarlupka¹, and G. Suen¹, ¹*Department of Bacteriology, University of Wisconsin-Madison, Madison, WI*, ²*US Dairy Forage Research Center, USDA Agricultural Research Service, Madison, WI*.
- 407 **Effects of *Asparagopsis taxiformis* and oregano leaves on methane emission, rumen fermentation, and lactational performance of dairy cows.**
H. A. Stefanoni*¹, S. E. Räisänen¹, S. F. Welchez¹, D. E. Wasson¹, C. F. Lage¹, A. Melgar¹, M. E. Fetter¹, M. Hennessy², B. Vecchiarelli², J. Bender², D. Pitta², C. Yarish³, and A. N. Hristov¹, ¹*The Pennsylvania State University, University Park, PA*, ²*University of Pennsylvania, Kennett Square, PA*, ³*University of Connecticut, Storrs, CT*.
- 408 **Survey of perceptions and practices of antimicrobial drug use in preweaned California dairy calves.**
E. Okello*^{1,2}, D. Williams¹, R. Pereira², T. Lehenbauer^{1,2}, and S. Aly^{1,2}, ¹*Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California, Davis, Tulare, CA*, ²*Department 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)

- 409 **High-throughput phenotyping of rumen microbial contents using buccal swabs.**
J. Young¹, R. Tassinari², K. Kalscheur¹, J. McClure¹, P. Weimer^{1,4}, A. Fischer³, G. Suen⁴, and D. Bickhart*¹, ¹*USDA DFRC, Madison, WI*, ²*Federal University of Goias, Goiania, Brazil*, ³*Institute De L'Élevage, Lyon, France*, ⁴*University of Wisconsin, Madison, WI*.

- 410 **Differences in methanogenesis pathways and microbial diversity in the rumen of low- and high-methane-yield phenotype dairy cows.**
D. Pitta*¹, H. Stefanoni², N. Indugu¹, M. Hennessy¹, B. Vecchiarelli¹, V. Shabtai¹, C. Welchez², S. Räisänen², D. Wasson², A. Melgar², M. Fetter², and A. Hristov², ¹University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, ²The Pennsylvania State University, University Park, PA.
- 411 **Experimental cases of rumen hypomotility.**
D. Cavallini*^{1,2}, F. Boffo¹, L. Mammi¹, G. Canestrari¹, S. Speroni¹, G. Buonaiuto¹, L. Campidonico¹, F. Ghiaccio¹, A. Palmonari¹, E. Valle², and A. Formigoni¹, ¹Department of Veterinary Sciences, University of Bologna, Ozzano Emilia, Italy, ²Department of Veterinary Sciences, University of Turin, Grugliasco, Italy.
- 412 **Evaluating the relationship between in vitro and in situ starch degradation rates.**
C. B. Gleason*¹, L. M. Beckett², B. R. dos Reis¹, M. B. Hall³, and R. R. White¹, ¹Virginia Tech, Blacksburg, VA, ²Purdue University, West Lafayette, IN, ³US Dairy Forage Research Center, USDA ARS, Madison, WI.
- 413 **A network analysis of continuous culture fermentation data.**
S. Sujani*¹, B. Wenner², J. L. Firkins², and R. R. White¹, ¹Virginia Polytechnic Institute and State University, Blacksburg, VA, ²The Ohio State University, Columbus, OH.

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

- W1 **Hoof-impact and slide measurements for common Ontario dairy farm floorings.**
J. E. French*¹, J. J. Thomason², T. C. Wright¹, and V. R. Osborne³, 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.
- W2 **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 Animal Sciences, Chinese Academy of Agricultural Sciences, Beijing, China.*
- W3 **Identifying factors associated with lameness and its impact on productivity in automated milking herds.**
R. D. Matson*¹, M. T. M. King¹, T. F. Duffield², D. E. Santschi³, K. Orsel⁴, E. A. Pajor⁴, G. B. Penner⁵, T. Mutsvangwa⁵, and T. J. DeVries¹, 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.
- W4 **Screening stable flies and house flies as potential vectors of digital dermatitis in dairy cattle.**
R. Thibodeaux*¹, J. Brady², S. Swiger³, and B. Jones^{1,2}, ¹Tarleton State University, Stephenville, TX, ²Texas A&M Agrilife Research, Stephenville, TX, ³Texas A&M Agrilife Extension, Stephenville, TX.
- W5 **Skin transcriptome affected by digital dermatitis in lactating dairy cows.**
F. Rosa¹, N. A. Carpinelli*¹, J. T. R. Carvalho^{1,2}, K. Mjoun³, and J. S. Osorio¹, ¹Dairy and Food Science Department, South Dakota State University, Brookings, SD, ²Animal Science Department, Universidade Federal de Lavras, Brazil, ³Alltech Inc., Brookings, SD.
- W6 **Transcriptional alterations due to sole ulcer revealed via RNA-seq analysis of corium tissue in lactating dairy cows.**
F. Rosa¹, N. A. Carpinelli*¹, J. T. R. Carvalho^{1,2}, K. Mjoun³, and J. S. Osorio¹, ¹Dairy and Food Science Department, South Dakota State University, Brookings, SD, ²Animal Science Department, Universidade Federal de Lavras, Brazil, ³Alltech Inc., Brookings, SD.
- W7 **Case study: Do low-risk cows in a data-driven selective dry-cow program remain low risk at a subsequent dry-off?**
A. K. Vasquez*^{1,2}, M. López Benavides², M. J. Thomas³, and D. V. Nydam¹, ¹Cornell University, Ithaca, NY, ²DeLaval Manufacturing, Kansas City, MO, ³Dairy Health & Management Services, Lowville, NY.

- W8 **Dry-off antibiotic use in dairy cattle to cure intramammary infections: A systematic review and network meta-analysis.**
C. McMullen*¹, J. Sargeant¹, D. Kelton¹, A. O'Connor², C. Reedman¹, and C. Winder¹, ¹*Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada*, ²*Department of Large Animal Clinical Sciences, College of Veterinary Medicine, Michigan State University, East Lansing, MI.*
- W9 **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, ¹*Département de Biologie, Faculté des Sciences, Université de Sherbrooke, Sherbrooke, QC, Canada*, ²*Département de Sciences Cliniques, Faculté de Médecine Vétérinaire, Université de Montréal, St-Hyacinthe, QC, Canada*, ³*Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, Qc, Canada.*

Breeding and Genetics 1

- W10 **Genomic predictions for wellness traits in crossbred dairy cattle.**
D. Gonzalez Pena*, N. Vukasinovic, J. Brooker, C. Przybyla, and S. DeNise, *Zoetis, Portage, MI.*
- W11 **Genomic predictions for crossbred animals with single-step genomic BLUP.**
D. Gonzalez Pena*¹, N. Vukasinovic¹, J. Brooker¹, C. Przybyla¹, Y. Steyn², and S. DeNise¹, ¹*Zoetis, Portage, MI*, ²*University of Georgia, Athens, GA.*
- W12 **Genetic parameters of horn fly resistance in pastured Holstein cattle.**
B. L. Basiel*¹, L. C. Hardie¹, B. J. Heins², and C. D. Dechow¹, ¹*Pennsylvania State University, University Park, PA*, ²*University of Minnesota, St. Paul, MN.*
- W13 **Associations between predictions of Lifetime Net Merit and profitability of dairy cows.**
G. L. Pezzella*¹, C. D. Dechow², and A. De Vries¹, ¹*University of Florida, Gainesville, FL*, ²*The Pennsylvania State University, University Park, PA.*
- W14 **Predictions of daily total sperm production of Holstein and Jersey bulls using health and management data.**
A. Quick*¹, J. Meronek², and K. Weigel¹, ¹*University of Wisconsin, Department of Dairy Science, College of Agricultural & Life Sciences, Madison, WI*, ²*ABS Global Inc., DeForest, WI.*
- W15 **A recessive *IL17RA* frameshift variant in Holstein cattle with psoriasis-like skin alterations and immunodeficiency.**
I. M. Häfliger*¹, M. Sickinger², M. Holsteg³, L. M. Raeder⁴, M. Henrich⁴, S. Marquardt⁵, C. Drögemüller¹, and G. Lühken⁶, ¹*Institute of Genetics, University of Bern, Bern, Switzerland*, ²*Clinic for Ruminants (Internal Medicine and Surgery), Justus-Liebig University Giessen, Giessen, Germany*, ³*Animal Health Service, Chamber of Agriculture of North Rhine-Westphalia, Bad Sassendorf, Germany*, ⁴*Institute of Veterinary Pathology, Justus-Liebig University Giessen, Giessen, Germany*, ⁵*Veterinary Sharing Practice Dr. Siegfried Marquardt and Peter Walter, Goch, Germany*, ⁶*Institute of Animal Breeding and Genetics, Justus-Liebig University Giessen, Giessen, Germany.*
- W16 **Beyond studying genetic diversity: How can pedigree and genomic data help us assign individuals to breeds?**
H. Wilmot*¹, J. Bormann², and N. Gengler¹, ¹*ULiège - Gembloux Agro-Bio Tech, Gembloux, Belgium*, ²*ASTA, Luxembourg, Luxembourg.*
- W17 **Genetic and environmental changes in dairy traits revealed from a genetic base update.**
H. D. Norman*¹, P. M. VanRaden², and J. W. Dürr¹, ¹*Council on Dairy Cattle Breeding, Bowie, MD*, ²*Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD.*
- W18 **Predicted feed efficiency index applied to Italian Holstein Friesian cattle population.**
F. Omodei Zorini*¹, R. Finocchiaro², G. Savoini¹, G. Invernizzi¹, and M. Cassandro³, ¹*Department of Health, Animal Science and Food Safety 'Carlo Cantoni', University of Milan, Milan, Italy*, ²*Italian Holstein and Jersey Association (ANAFIJ), Research and Development Office, Cremona, Italy*, ³*Department of Agronomy, Food, Natural resources, Animals and Environment, University of Padua, Padua, Italy.*
- W19 **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.*
- W20 **Genome changes due to selection in US dairy cattle.**
E. Freebern*¹, J. Jiang², J. B. Cole³, P. M. VanRaden³, and L. Ma¹, ¹*University of Maryland, College Park, MD*, ²*North Carolina State University, Raleigh, NC*, ³*Animal Genomics and Improvement Laboratory, Beltsville, MD.*

- W21 **Changes in early milk composition has subsequent effects on microbial composition of the rumen.**
A. Nin-Velez*¹, J. Duncan¹, H. Cunningham-Hollinger², K. Austin², 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.
- W22 **Relationship between milk production and indicator traits of robustness in first-parity Holstein cows.**
C. H. F. Zago Dias*¹, L. El Faro², M. L. Santana Jr³, R. A. Teixeira¹, A. A. Valotto⁴, and L. T. Dias¹, 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.
- W23 **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. Jones^{1,2}, and J. N. Waddell¹, ¹Tarleton State University, Stephenville, TX, ²Texas A&M AgriLife Research, Stephenville, TX.
- W24 **Predicting feed intake and health events using sensor data in lactating Holstein cows.**
C. J. Siberski*¹, M. S. Mayes¹, P. J. Gorden², A. Copeland², M. Healey¹, B. M. Goetz¹, H. Beiki¹, 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.
- W25 **Can metafounders improve inbreeding estimation?**
Z. G. Vitezica*^{1,2}, I. Aguilar³, J. M. Astruc⁴, and A. Legarra¹, ¹INRAE, Toulouse, France, ²INPT, Toulouse, France, ³INIA, Montevideo, Uruguay, ⁴IDELE, Toulouse, France.

Dairy Foods 3

- W26 **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.
- W27 **Inhibition of *Listeria monocytogenes* in queso fresco by topical application of lactose oxidase.**
K. Jencarelli*, S. Kozak, M. Lawton, and S. Alcaine, Cornell University, Ithaca, NY.
- W28 **Is the presence of biogenic amines a cause of slits and cracks in cheese?**
I. Panguripan*¹, R. A. Ibanez², K. Houck², S. Govindasamy-Lucey², M. E. Johnson², and J. A. Lucey^{1,2}, ¹University of Wisconsin-Madison, Department of Food Science, Madison, WI, ²University of Wisconsin-Madison, Center for Dairy Research, Madison, WI.
- W29 **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.
- W30 **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.
- W31 **Effect of heat treatments in the degradation of antibiotics in milk.**
D. Escobar*¹, R. Pelaggio¹, S. Moreno¹, G. Cardozo¹, E. De Torres³, F. Rey¹, and L. Olazabal², ¹Latitud, Fundación LATU, Montevideo, Uruguay, ²Laboratorio Tecnológico del Uruguay, Montevideo, Uruguay, ³Campo experimental N°2, Facultad de Veterinaria, UdelaR, San Jose, Uruguay.
- W32 **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.
- W33 **Sensory evaluation of gabiropa (*Campomanesia xanthocarpa*) whey-buttermilk fermented beverages.**
L. Damasceno*¹, R. T. Pfrimer¹, K. Merz¹, C. F. Cardoso², J. C. R. S. More¹, E. Arnhold³, C. S. Prado¹, 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.
- W34 **Developing probiotic butter by incorporating encapsulated probiotic organisms.**
S. Minj^{1,2} 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. Jha^{1,2}, N. Singh^{*1,2}, and S. Anand^{1,2}, 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. Aryana², 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, ²Variety 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. Sacramento^{2,1}, D. C. R. Gomez¹, 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 Paula^{1,2}, M. R. Pupo¹, L. G. Ghizzi^{1,3}, 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-Sánchez², O. I. Santana^{2,3}, M. López-Calderón¹, E. Ochoa-Martínez², and F. Díaz*⁴, ¹FAZ-UJED, 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. Meyer¹⁰, and R. Poppenga¹¹, 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.

W48 **Corn silage quality index: An index combining milk yield and silage nutritional and fermentation parameters.**
R. M. H. Tharangani¹, Y. K. Chen¹, L. S. Zhao¹, L. Ma¹, P. J. Kononoff², W. P. Weiss³, and D. P. Bu^{*1,4}, ¹State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China, ²Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE, ³Department of Animal Sciences, Ohio Agricultural Research and Development Center, Ohio State University, Wooster, OH, ⁴CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China.

W49 **Brown midrib (BMR) forage sorghum or BMR pearl millet silage support similar production when fed along with corn silage.**
J. K. Bernard* and S. Tao, *University of Georgia, Tifton, GA.*

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. Baurhoo^{1,2}, P. Seguin¹, 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. Fehlberg*¹, A. R. Guadagnin¹, B. L. Thomas¹, Y. Sugimoto², 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. Fehlberg*¹, A. R. Guadagnin¹, B. L. Thomas¹, Y. Sugimoto², 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. Silva², E. C. Nogueira³, E. S. Nicolau⁴, C. Gebara⁴, and L. A. F. Silva¹, ¹School of Veterinary Medicine and Animal Science, Federal University of Goiás, Goiânia, Goiás, Brazil, ²State University of Goiás, São Luís 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. LeBlanc^{1,2}, C. Franze^{1,2}, E. M. Mackey^{1,3}, and C. A. Njombwa^{1,4}, ¹Louisiana State University Agricultural Center, Baton Rouge, LA, ²Louisiana State University Sea Grant, Baton Rouge, LA, ³Washington State University, Puyallup, WA, ⁴Lunyangwa Agricultural Research Station, Mzuzu, Malawi.

W57 **Effects of particulate matter on health and production of dairy cattle.**

A. A. Anderson*, P. Rezamand, A. Ahmadzadeh, and A. L. Skibieli, *University of Idaho, Moscow, ID.*

W58 **Organic additives in diet of dairy cows can reduce the conventional antiparasitics to control ticks.**

L. Ferreira*¹, 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. Penry⁵, N. Chrystal², M. Gorocica*³, and L. O. Tedeschi⁴, 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, ⁵Anexa Veterinary Services, Morrinsville, New Zealand.

- W61 **Differences in methane production, yield, and intensity and its effects on metabolism of dairy heifers.**
L. T. C. Ornelas¹, D. C. Silva¹, T. R. Tomich², M. M. Campos², F. S. Machado², R. M. Maurício³, A. L. Ferreira^{2,3}, and L. G. R. Pereira^{*2}, ¹Universidade Estadual do Sudoeste da Bahia, Itapetinga, BA, Brazil, ²Brazilian Agricultural Research Corporation – Embrapa, Juiz de Fora, MG, Brazil, ³Universidade Federal de São João del-Rei, São João del-Rei, MG, Brazil.
- W62 **Effects of virginiamycin on milk yield and ruminal pH of lactating dairy Holsteins cows.**
M. Gorocica^{*1}, M. A. Iglesias², R. R. Gonzalez², and L. O. Tedeschi³, ¹Phibro Animal Health Corporation, Teaneck, NJ, ²PB Animal Health de Mexico, Guadalajara, Mexico, ³Texas A&M University, College Station, TX.
- W63 **Using activity and rumination data to early predict anaplasmosis in dairy calves.**
V. A. Teixeira¹, G. M. Souza², L. D. Ferreira¹, T. R. Tomich³, T. Bresolin^{*4}, M. M. Campos³, A. M. Q. Lana¹, S. G. Coelho¹, J. A. G. Silveira¹, A. U. Carvalho¹, E. J. Facury Filho¹, L. G. R. Pereira^{3,4}, and J. R. R. Dorea⁴, ¹Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil, ²Universidade Federal de Lavras, Lavras, MG, Brazil, ³Brazilian Agricultural Research Corporation – Embrapa, Juiz de Fora, MG, Brazil, ⁴University of Wisconsin, Madison, WI.
- W64 **Effect of heifers rearing manner during liquid milk nutrition on their growth and maze behavior after 12 months.**
J. Broucek^{*}, M. Uhrincat, P. Kisac, and A. Hanus, *National Agricultural and Food Centre, Luzianky, Slovakia.*

Ruminant Nutrition: General 3

- W65 **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.
- W67 **The use of reduced levels of organic minerals in diets for transition dairy cows.**
G. Silva¹, M. Dias¹, N. Grigoletto¹, T. Del Valle², A. Nunes¹, P. Curti¹, P. Vittorazzi Junior¹, T. Silva¹, C. Takiya³, J. Pettigrew⁴, A. Koontz⁵, L. Costa e Silva⁵, and F. Rennó^{*1}, ¹University of São Paulo, Pirassununga, SP, Brazil, ²Unipampa, Itaqui, RS, Brazil, ³Kansas State University, Manhattan, KS, ⁴James Pettigrew Consulting, Nicholasville, KY, ⁵Alltech Inc., Nicholasville, KY.
- W68 **The effect of a sanguinarine supplementation on feed intake, weight gain, hematology, and serum chemistry of calves.**
H. K. J. P. Wickramasinghe^{*1}, N. Stepanchenko¹, C. A. Kaya², J. V. V. Silva¹, S. Bas³, F. R. B. Ribeiro³, and J. A. D. R. N. Appuhamy¹, ¹Department of Animal Science, Iowa State University, Ames, IA, ²Dicle University, Diyarbakir, Turkey, ³Phytobiotics North America LLC, Cary, NC.
- W69 **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.*
- W70 **Models to predict enteric methane emissions from cows fed different forage sources.**
R. Manconi¹, A. S. Atzori^{*1}, and J. A. D. R. N. Appuhamy², ¹Dipartimento di Agraria, University of Sassari, Sassari, Italy, ²Iowa State University, Ames, IA.
- W71 **Lactational performance in dairy cows receiving a rumen-protected B-vitamin blend during lactation: Meta-analysis of 65 studies.**
E. Evans², H. Leclerc^{*1}, and E. Santin¹, ¹Jefo, St-Hyacinthe, QC, Canada, ²Technical Advisory Services, Bowmanville, ON, Canada.
- W72 **Replacing soybean meal with canola meal reduced enteric methane production and improved milk production in dairy cows.**
C. Benchaar¹, F. Hassanat^{*1}, G. Gilson², and K. A. Beauchemin³, 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.
- W73 **Canola meal in dairy cow diets: Effect on nitrogen utilization.**
F. Hassanat^{*1}, G. Gilson², K. A. Beauchemin³, and C. Benchaar¹, 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.
- W74 **Comparison of cow health and performance in 244 European dairy farms before and during OmniGen-AF supplementation.**
R. Garcia-Gonzalez^{*1}, J. Chapman², D. McLean², and L. Ely³, ¹Phibro Animal Health, Wavre, Belgium, ²Phibro Animal Health, Teaneck, NJ, ³University of Georgia, Athens, GA.

- W75 **Effect of dietary supplementation of polyunsaturated fatty acids on intake, digestibility, milk production, and milk fatty acids of dairy sheep: A meta-analysis.**
A. A. Pech-Cervantes*¹, I. M. Ogunade², C. A. Sandoval-Castro³, Z. M. Estrada-Reyes¹, A. Oliveira⁴, D. Vyas⁵, and A. T. Adesogan⁵, 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 Environmental Sciences, Federal University of Mato Grosso, Mato Grosso, Sinop, Brazil, ⁵Department of Animal Sciences, University of Florida, Gainesville, FL.
- W76 **Evaluation of the relationship between ruminal pH and milk de novo fatty acid proportion in early-lactating dairy cows.**
R. Fukumori*¹, W. Shi², S. Oikawa¹, and M. Oba², ¹Rakuno Gakuen University, Ebetsu, Hokkaido, Japan, ²University of Alberta, Edmonton, AB, Canada.
- W77 **Lactational performance in dairy cows receiving a rumen-protected B-vitamin blend replacing unprotected biotin during lactation: Meta-analysis of 13 studies.**
E. Evans², H. Leclerc*¹, and E. Santin¹, ¹Jefo, St-Hyacinthe, QC, Canada, ²Technical Advisory Services, Bowmanville, ON, Canada.
- W78 **Effects of two levels of starch and monensin on performance of mid-lactation dairy cows.**
P. Piantoni*, M. A. Messman, B. D. Strang, C. J. Canale, and G. F. Schroeder, Cargill Animal Nutrition Innovation Center, Elk River, MN.
- W79 **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.
- W80 **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*², H. Leclerc¹, and E. Santin¹, ¹Jefo, St-Hyacinthe, QC, Canada, ²Technical Advisory Services, Bowmanville, ON, Canada.
- W81 **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.
- W82 **Milk fatty acid profile in dairy cows fed soybean meals and oil versus canola meal and oil.**
C. F. A. Lage*¹, S. E. Räisänen¹, H. Stefanoni¹, A. Melgar¹, X. Chen², J. Oh³, D. M. Kniffen¹, R. A. Fabin⁴, and A. N. Hristov¹, 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.
- W83 **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*¹, M. Pupo^{1,2}, B. C. Agostinho^{1,3}, S. Bennett¹, J. Vinyard¹, L. Tomaz^{1,4}, R. Lobo^{1,5}, J. A. Cordeiro¹, Y. Jiang¹, K. G. Ariola², A. Faciola², A. T. Adesogan¹, and D. Vyas¹, ¹University of Florida, Gainesville, FL, ²Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, SP, Brazil, ³Universidade Estadual de Maringá, Maringa, PR, Brazil, ⁴Universidade Estadual Paulista, Botucatu, SP, Brazil, ⁵Universidade de Sao Paulo, Pirassununga, SP, Brazil.
- W84 **Impact of concentrate allowance on the behavior and production of dairy cows milked in a free-traffic automated milking system.**
A. J. Schwanke*¹, K. M. Dancy¹, G. B. Penner², and T. J. DeVries¹, ¹Department of Animal Biosciences, Guelph, ON, Canada, ²Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada.
- W85 **Potential measurement of daily oxygen consumption and carbon dioxide, methane, and heat production using a spot gas sampling technique in cattle.**
C. Lee*¹, K. A. Beauchemin², K. Nichols³, D. L. Morris⁴, J. Dijkstra³, P. J. Kononoff⁴, and D. Vyas⁵, 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.
- W86 **Responses in milk performance and feed intake of transition dairy cows supplemented with coated choline chloride.**
L. S. Royo*¹, M. Puyalto¹, J. J. Mallo¹, G. Elocoso², J. Ragues², and A. Bach^{3,4}, ¹Norel 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.
- W87 **Evaluation of high-quality alfalfa silage in a high-forage diet for lactating dairy cows.**
C. M. Engel*¹, D. K. Combs¹, and K. F. Kalscheur², 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. Stefanoni¹, S. Welch¹, C. Lage¹, S. Räisänen¹, A. Melgar¹, M. Fetter¹, C. Yarish², 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. Sypereck², 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.**
T. Silva, L. Ghizzi, G. Silva, A. Nunes, M. Dias, N. Grigoletto, L. Gheller, J. Marques, T. Del Valle, L. Sakamoto, L. Fernandes, and F. Rennó*, *University of São Paulo, Pirassununga, SP, Brazil.*
- 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. Koontz³, 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. Koontz³, L. Costa e Silva³, 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. Mamedova^{1,2}, D. E. Schimek³, S. E. Schuling³, and B. J. Bradford^{1,2}, 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. Benvenuti¹, D. G. Mayer¹, and D. G. Barber¹, 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. Baumgard³, P.-Y. Chouinard¹, D. Santschi⁴, R. Gervais¹, and D. E. Rico², 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. Miller², J. P. N. Andrade¹, C. Julien³, S. Emanuele³, S. Bertics¹, R. D. Shaver¹, 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. Ogunade², A. Oyebade³, D. Vyas³, and A. T. Adesogan³, 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.**
N. Pathak, H. Guan, K. G. Arriola*, C. Nino de Guzman, I. Fernandez, F. X. Amaro, A. Oyebade, L. F. Ferraretto, and D. Vyas, *University of Florida, Gainesville, FL.*
- 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.

Ruminant Nutrition: Protein/Amino Acids

- W102 **Effect of Turbovivo phytochemicals on soybean meal protein degradation using in vitro method.**
V. Ballard*¹, F. Robert¹, M. Mireaux¹, and A. Boudon², ¹Groupe CCPA, Janzé, France, ²INRAE, Agrocampus Ouest, PEGASE, Saint-Gilles, France.
- W103 **Lactational performance of dairy cows supplemented with N-acetyl-L-methionine.**
S. E. Räisänen*¹, X. Zhu^{2,3}, C. F. A. Lage¹, M. E. Fetter¹, H. A. Stefanoni¹, A. Melgar¹, D. E. Wasson¹, S. F. Welchez¹, J. S. Eun⁴, J. Park⁴, and A. N. Hristov¹, 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, CJ Blossom Park, Suwon, Korea.
- W104 **Treatment of soybean meal to improve protein utilization by dairy cows.**
A. Klop¹, M. Aoun², J. Ricaud², and G. van Duinkerken*¹, ¹Wageningen Livestock Research, Wageningen, the Netherlands, ²Idena, Sautron, France.
- W105 **Evaluation of an underivatized compared with a derivatized method to quantify bovine plasma amino acids via liquid chromatography electrospray mass spectrometry.**
M. Z. Toledo*¹, Y. Agarwal¹, C. Nienow³, D. Luchini², S. I. Arriola Apelo¹, and M. C. Wiltbank¹, ¹University of Wisconsin-Madison, Madison, WI, ²Adisseo, Alpharetta, GA, ³Shimadzu 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. Stangaferro², R. S. Gennari¹, P. L. J. Monteiro Jr.¹, M. M. Perez², M. Masello², M. E. Van Amburgh², D. Luchini³, R. D. Shaver¹, J. O. Giordano², and M. C. Wiltbank¹, ¹University of Wisconsin-Madison, Madison, WI, ²Cornell University, Ithaca, NY, ³Adisseo, Alpharetta, GA.
- W107 **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. Showman², H. K. J. P. Wickramasinghe¹, N. Stepanchenko¹, M. J. O. Hidalgo¹, M. A. Perera², and J. A. D. R. N. Appuhamy¹, ¹Department of Animal Science, Iowa State University, Ames IA, ²W. M. Keck Metabolomics Research Laboratory, Iowa State University, Ames IA.
- W108 **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. Ribeiro¹, E. J. Askel¹, I. F. Carrari¹, M. Poczynek¹, F. Lopes², J. S. Osorio³, and R. Almeida¹, ¹Universidade Federal do Paraná, Curitiba, PR, Brazil, ²Adisseo South America, São Paulo, SP, Brazil, ³South Dakota State University, Brookings, SD.
- W109 **An 8-hour hyperinsulinemic-euglycemic clamp is insufficient to alter milk production in lactating dairy cows.**
V. L. Psczolkowski^{1,2}, H. Hu², J. Zhang^{2,3}, M. K. Connelly², A. S. Munsterman⁴, and S. I. Arriola Apelo*^{2,1}, ¹Endocrinology and Reproductive Physiology Graduate Training Program, University of Wisconsin-Madison, Madison, WI, ²Department of Animal and Dairy Sciences, University of Wisconsin-Madison, Madison, WI, ³Department of Animal Science, China Agricultural University, Beijing, China, ⁴Department of Surgical Sciences, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI.
- W110 **Durability evaluation of a rumen-protected choline supplement during mill and farm handling.**
H. Diaz*, M. Sellers, S. McGregor, J. Albrecht, O. Drehmel, and J. Linn, *Milk Specialties Global, Eden Prairie, MN.*
- W111 **Plasma amino acid response to casein or acid casein hydrolysate in Holstein calves.**
E. A. Petzel*, S. Acharya, E. A. Bailey, and D. W. Brake, *Division of Animal Sciences, University of Missouri, Columbia, MO.*
- W112 **Estimated postruminal bioavailability of rumen-protected lysine using plasma area under the curve methodology.**
V. M. R. Malacco*^{1,3}, P. Doane², R. B. Reis³, L. Beckett¹, S. Hielger¹, N. Briggs¹, C. McCabe¹, A. Torres¹, and S. S. Donkin¹, ¹Department of Animal Sciences, Purdue University, West Lafayette, IN, ²Archer Daniels Midland Company, Decatur, IL, ³Department of Animal Sciences, College of Veterinary Medicine, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil.
- W113 **Can ε-polylysine provide metabolizable lysine to cattle?**
E. A. Petzel*, S. Acharya, E. A. Bailey, and D. W. Brake, *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. Psczolkowski^{1,2}, H. Hu², B. D. Brown⁵, S. J. Halderson², J. Zhang⁴, A. S. Munsterman³, and S. I. Arriola Apelo*^{2,1}, ¹Endocrinology and Reproductive Physiology Graduate Training Program, University of Wisconsin-Madison, Madison, WI, ²Department of Animal and Dairy Sciences, University of Wisconsin-Madison, Madison, WI, ³Department of Surgical Sciences, School of Veterinary Medicine, University of Wisconsin-Madison, Madison, WI, ⁴Department of Animal Science, China Agricultural University, Beijing, China, ⁵Tuskegee University, Tuskegee, AL.

- W115 **Evaluation of branched-chain amino acid inclusion in milk replacers on growth and health of Holstein calves.**
S. Y. Morrison*¹, H. Gauthier¹, A. Obata², K. Hirano², and H. Uchihori², ¹*William H. Miner Agricultural Research Institute, Chazy, NY*, ²*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.**
L. Bahloul*¹ and P. Schmidely², ¹*Centre of Expertise and Research in Nutrition, Adisseo France S.A.S, Commentry, France*, ²*Université Paris-Saclay, INRAE, AgroParisTech, UMR Modélisation Systémique Appliquée aux Ruminants, Paris, France*.
- W117 **Variations in protein digestibility of blood meal, feather meal, and a rumen-protected lysine prototype within and across laboratories.**
K. A. Estes*^{1,2}, P. S. Yoder^{1,3}, C. Stoffel⁴, and M. D. Hanigan¹, ¹*Virginia Tech, Blacksburg, VA*, ²*Balchem Corporation, New Hampton, NY*, ³*Perdue AgriBusiness LLC, Salisbury, MD*, ⁴*Papillon Agriculture Company, Easton, MD*.
- W118 **Identification of dietary and physiological factors potentially impeding responses of lactating dairy cows to dietary fortification in metabolizable methionine: A meta-analysis.**
L. Bahloul*¹ and C. Loncke², ¹*Centre of Expertise and Research in Nutrition, Adisseo France S.A.S, Commentry, France*, ²*Université Paris-Saclay, INRAE, AgroParisTech, UMR Modélisation Systémique Appliquée aux Ruminants, Paris, France*.
- 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. Ross¹, and M. E. Van Amburgh¹, ¹*Cornell University, Ithaca, NY*, ²*Adisseo, Alpharetta, GA*.
- W120 **Performances and plasma energetic parameters in lactating dairy goats fed 3 levels of metabolizable methionine.**
P. Schmidely¹ and L. Bahloul*², ¹*Université Paris-Saclay, INRAE, AgroParisTech, UMR Modélisation Systémique Appliquée aux Ruminants, Paris, France*, ²*Centre 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.**
L. R. Royo*, M. Puyalto, and J. J. Mallo, *Norel SA, Madrid, Spain*.
- 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. Chanut¹, and L. Bahloul*³, ¹*INRAE, Agrocampus Ouest, PEGASE, Saint-Gilles, France*, ²*Université Laval, Quebec, QC, Canada*, ³*Center 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*¹, S. K. Cronin¹, J. Mateos², D. Martinez del Olmo², F. Valdez³, and T. F. Gressley¹, ¹*University of Delaware, Department of Animal and Food Sciences, Newark, DE*, ²*Kemin Animal Nutrition and Health, Herentals, Belgium*, ³*Kemin 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

Author Index

Numbers following names refer to abstract numbers. A number alone indicates an oral presentation; an M preceding the number indicates a Monday poster, a T indicates a Tuesday poster, and a W indicates a Wednesday poster. Orals are listed first, followed by Monday, Tuesday, and Wednesday posters in numeric order.

The author index is created directly and automatically from the submitted abstracts. If an author's name is entered differently on multiple abstracts, the entries in this index will reflect those discrepancies. Efforts have been made to make this index consistent; however, error from author entry contributes to inaccuracies.

- A**
- Abdelatty, A. M., 252
Abdelfattah, E., 71, 291
Abdel-Hamied, E., 74, 78
Abdollahi-Arpanahi, R., 127
Abeyta, M. A., 171, 172, 174, 186, 398, T57, T147
Abou-Rjeileh, U., 179, 416
Abraham, A., T5
Abreu, M., T27
Abreu, M. B., 102
Abuelo, A., 378
Abuelo Sebio, A., 51, M61
Acedo, T. S., T114, T115
Acharya, S., 182, W111, W113
Adams, L. M., 3
Adesogan, A. T., 147, 185, M131, W75, W83, W99
Agarussi, M., 147, T6, T53
Agarussi, M. C. N., 185, T52
Agarussi, M. M. C. N., M129
Agarwal, S., 18, 368
Agarwal, Y., W105
Agostinho, B. C., W83
Aguerre, M. J., 211, M20, T122, T129, T148, W41
Aguilar, A., 23
Aguilar, I., 294, 362, W25
Aguirre-Villegas, H. A., 235
Agustinho, B., M19
Agustinho, B. C., 342, T52
Ahmad, N., 240
Ahmadzadeh, A., W57
Aines, G., 382
Akbarifakhrabadi, M., 203
Akers, R. M., 415
Akins, M., 224, T45
Akkurt, S., 131
Alanis, V., M28
Albrecht, J., W110
Alcaine, S., T40, W27, W37
Alcaine, S. D., 11, M52
Alcantara, L., 119
Alessi, S. A., T49
Alharthi, A., 207
Alharthi, A. S., 74, 77, 78, 208
Al-Khudhair, A., 360, W19
Allen, J., M44
Allen, S. C., 101
Almeida, K., M134
Almeida, R., M32, T127, W108
Almeida, S. T. R., 168, 248, 249, 250, M5
Al-Qaisi, M., 174
Alsaleem, K. A., T35
Altaf, M., 355
Alvarado, A., M130
Alvarado-Rincón, J., T101
Aly, S., 19, 71, 146, 291, 408
Aly, S. S., 292, 358, 387
Amado, L., 142
Amamcharla, J., 201, 364, M7, M12, M53, M55, W32
Amaral Barbosa, A., T101
Amaro, F., 147
Amaro, F. X., 185, M129, M131, M134, T6, W83, W100
Ambrose, D. J., T99, T100
Amer, P., 125
Amil, A., 288
Ampe, B., 318
Anan, S., 65
Anand, S., M51, T39, W34, W35
Anderson, A. A., W57
Anderson, C. W., 286
Anderson, J. L., 152
Anderson, R. J., 358, 387
Andrade, J. P. N., 402, W98
Anele, U. Y., M4
Angima, G., W38
Anini, Y., 203
Anjos, A. E., 176
Annis, S., 249
Annis, S. L., 168, 248, 250
Annor, G., 13
Anta Galvan, E., 242
Antunes, S. L., T128
Antunez, G., T151
Antúnez, G., 140
Aoun, M., M117, W104
Apper, E., 164
Appuhamy, J. A. D. R. N., 344, W68, W70, W107
Aragona, K., M59
Aragona, K. M., 221, M60, M62, M63, M73, M74
Arashiro, E. K. N., T74
Araújo, M., 116
Arce-Cordero, J., 342, 382
Arce-Cordero, J. A., 91, 222, M19
Arealos, A., 42
Arias, R. P., 187
Arís, A., M85
Ariyathne, H. B. P. C., 193
Armand-Ugon, D., 20
Armfelt, M., M38
Armstrong, S. A., M39
Arndt, C., 405
Arneson, A., 380
Arnett, A., 234
Arnhold, E., T43, W33
Arnold, M., 299
Arrigoni, M. B., T114, T115
Arrigucci Bernardes, P., T15
Arriola, K. G., 147, 185, M129, M131, M134, T6, W83, W100
Arriola Apelo, S. I., W105, W109, W114
Arroyo, L., 230
Arshad, U., 40, 218, 240
Artus, L., T151
Aryana, K., T37, W39
Askel, E. J., M32, W108
Asmus, J., W101
Astessiano, A., 20
Astruc, J. M., 294, W25
Atamer, Z., 97
Ates, S., 394, 395, 397
Atzori, A. S., T84, W70
Audonnet, C., 345
Aulik, N., 403
Austin, K., W21
Avais, M., 355
Avaroma, F. C., T25
Avila, A. S., 342
Ayala-Hernández, R., 112
Ayemele Gnetegha, A., M120
Ayyangar, A., T86
- B**
- Babu, K. S., 201
Bach, A., M85, M118, W86
Bach, K., 37
Bacigalupo, P., 378

Baes, C., 119, 121, 153, 195, 198, 298
 Bahloul, L., M79, W116, W118, W120, W123
 Baila, C., M136
 Bailey, E. A., 182, W111, W113
 Bajaj, R., 365
 Bajwa, A. G., 274
 Baker, L., M117, T150
 Bakker, S. A., 80
 Baldin, M., T125
 Baldwin, S., 260
 Balhoul, L., 56
 Balieiro Neto, G., 192
 Ballard, C. S., 260, M18, T13
 Ballard, V., W102
 Ballou, M., 270
 Ballou, M. A., 43
 Bannink, A., 405
 Bao, W., 383
 Baptista, F. S., T127
 Barbano, D., 37
 Barbano, D. M., 8, 15, 16, 101, 114, M11, W55
 Barber, D. G., W95
 Barbosa, A., 116
 Barbosa, A. A., 176, 269, M99, M113, T18
 Bargo, F., T135
 Barkema, H., 231, T19
 Barkema, H. W., 390
 Barragan, A. A., M6, M37, M92, T92
 Bartolome, J., 42
 Bartolomeo, N., 61
 Barton, B. A., 346
 Bas, S., 344, 345, M6, M37, T92, W68
 Basiel, B. L., W12
 Batistel, F., 181, M13
 Baudo, A., T16
 Baumgard, L. H., 93, 171, 172, 174, 186, 398, T57, T147, W24, W96
 Baurhoo, B., 236, W50
 Bayat, A. R., 405
 Beauchemin, K., 395
 Beauchemin, K. A., W72, W73, W85
 Beckett, L., 54, W112
 Beckett, L. M., 412
 Beidler, B., T72
 Beiki, H., W24
 Belli, A. L., M106, M107
 Belvedere, G., M43
 Benchaar, C., W72, W73
 Bender, J., 75, 407, M117, T150, T153
 Benetel Junior, V., T154
 Benjamim da Silva, E., T51
 Bennett, S., 91, M19, W83
 Bennett, S. L., 382, T52
 Bensafi, M., T32
 Bentaib, A., 331
 Benvenuto, M. A., W95
 Berends, H., 142, 143
 Bergeron, R., 289
 Bernal-Bechara, L., T81
 Bernal-Cordoba, C., T27
 Bernard, J., T16
 Bernard, J. K., 271, 338, 339, W49, W59
 Berndt, A., T154
 Bernier, R., 87
 Berry, D. P., 326
 Bertelli, L., 192, W58
 Bertics, S., W98
 Bertolin, J., M136
 Bertolin, J. R., M77
 Bertozzi, C., T14
 Bewley, J. M., 136
 Bezille, H., 345
 Bichl, G., T103
 Bickhart, D., 409
 Bienvenue, A., 200
 Bilby, T. R., T88, T89
 Bilderback, D., 285
 Bill, H. M., W101
 Binda, R. M., 271, W59
 Binggeli, S., W123
 Bionaz, M., 31, 252, 321, 394, 395, 397, M41, M42, T25
 Biscarini, F., 30
 Bisinotto, R., 35, 275
 Bisinotto, R. S., 126
 Bittar, C. M. M., M56, M111
 Bitter, A. K., 6
 Bittman, S., 372
 Black, R., 71
 Blair, S. J., M137
 Blakeney, G. A., T138
 Blanch, M., M105
 Blanchard, A. R., 315
 Blanco, M., M77, M136
 Blome, R. M., 191
 Blouin, R., 320
 Boerman, J., 52, 53
 Boerman, J. P., 27, 36, 49, 76, 173, 266, M58, M102
 Boffo, F., 411
 Bogado Pascottini, O., M33
 Bohlen, J., 2, 5, 9
 Boll, E. J., 265
 Bolton, J., 249
 Bomberger, R., T124, T133
 Bonfá, C. S., 373, 392
 Bonilla, K., M53
 Borchers, M. R., M121
 Borges, A. M., M91
 Borges, Á. M., 310
 Bormann, J., W16
 Bosworth, S., 166, T54
 Bouchard, D., 87
 Boudon, A., W102
 Boutinaud, M., 56, M79, W123
 Bowers, K., 104
 Bowman, C., 384
 Bradford, B. J., 44, 103, 347, 374, M75, M135, M140, T68, T69, W94
 Brady, E. L., 313
 Brady, J., W4
 Bragança, L. F., T18
 Brake, D. W., 182, W111, W113
 Branco Lopes, R., 144
 Branco-Lopes, R., T27
 Brandao, V. L. N., 91, M19
 Brandão, V. L. N., 342
 Brauner, C., 116
 Brauner, C. C., 176, 269, M99, M113, T18
 Brenna, J. T., 214
 Bresolin, T., 135, T85, W63
 Briens, M., 89, M114
 Briggs, N., W112
 Brisson, G., W30
 Brisson, V., M15
 Brito, A. F., 352, 396, T36, T72, T108, T116, T121, T137, W43, W88
 Britos, A., M130, M133
 Bromfield, J. J., 40
 Brooker, J., 156, W10, W11
 Brost, K. N., W65
 Brostaux, Y., 340
 Broucek, J., M101, T3, W64
 Brouk, M. J., 374
 Brown, B. D., W114
 Brown, B. M., M82
 Brown, T., 92, M135
 Brown, W. E., 374, M140
 Bruinje, T. C., 66
 Bruinje, T. C., T102
 Bruno, D., 308
 Bu, D. P., 141, 214, M119, M120, W48
 Buchanan, E., 138, 139
 Buchilina, A., T37, W39
 Bucktrout, R., 207, 208
 Bueno, I. C. S., T154
 Bueno Luz, G., T101
 Buonaiuto, G., 381, 411, T146
 Buraschi, L. M., T135
 Burch, A. M., 175, 213
 Burhans, W. S., M27
 Burke, C., 125
 Burkhardt, S., M29
 Burrington, K. J., 134
 Busato, S., 31, 252, 321, 397, M42, T25
 Buse, K., T134
 Buss, L. N., 418
 Bustamante, H. A., 44
 Butler, S. T., 239, 277, T98
 Butler, S. T., 273
 Byler, L., M6, M37, T92
 Byrne, B., 71

C

- Cabrera, E. M., 39, 70, 389, T88, T89
Cabrera, V. E., 306, 309, T78
Caetano, D. B. S., W54
Cai, Y., T48
Cairo, F. C., M91
Caixeta, L., 41, 388
Caixeta, L. C., T60
Caja, G., 58, 95, 117
Cajjarville, C., 140, M130, M133, T151
Califano, D., 71
Callaway, T. R., 186
Calsamiglia, S., 110, 111, 316, 343, 354
Calvo, B., 222
Camargo, L. S. A., 310, M98
Camire, M., 87
Cammack, K., W21
Campbell, J. M., 50, M66
Campidonico, L., 381, 411, T146
Campler, M. R., T12
Campolina, J. P., M67, M68, M106, M107
Campos, I., 153
Campos, L., 351, 420, M22
Campos, M. M., M67, M68, M91, M106, M107, M138, T117, W61, W63
Canale, C. J., W78
Cancino-Padilla, N., 255
Canestrari, G., 381, 411, T146
Cangiano, L. R., 418
Cañibe, G., 254, 256, M124
Canisso, I., T97
Canisso, I. F., T95
Canny, G. M., W23
Canovas, A., 153, T20
Cant, J., M78
Cant, J. P., T8
Cantor, M., 190
Cantor, M. C., M56
Cantor, M. D., 233
Cao, Y., 115, 169
Cao, Z., 48, 82
Caprarulo, V., 30
Caratzu, M. F., 171, 172
Cardoso, C. F., M50, T43, W33
Cardoso, F., 272, 348, M21
Cardoso, F. C., 33, 205, 206, 209, 210, T58, T63, T67, T107, T112, T113, W52, W53
Cardoso, F. F., 205, 206, T58, T63, T67, T107
Cardoso, J. B., 176
Cardoso, K. B., 269
Cardoso-Gutiérrez, E., 113, 333
Cardozo, G., W31
Carmichael, M. N., 186
Carmona-Flores, L., 394
Carneiro, J. H., M32, W108
Carpenter, A. J., 314, M96
Carpinelli, N., 152
Carpinelli, N. A., 151, 232, 319, M34, M36, T25, W5, W6
Carrari, I. F., M32, T127, W108
Carratalá, J. V., M85
Carrelli, J. E., T99, T100
Carriquiry, M., 20, 254, 256, 288, M124, M128
Carro, M. D., T119
Carro, S., M133
Carta, S., 174, 186, 398, T57, T147
Carter, B. G., M11
Carter, J. G., M82
Cartes, D., 259
Carvalho, L. d. R., 310
Carvalho, A. U., W63
Carvalho, B. C. d., 310
Carvalho, J. T. R., W5, W6
Carvalho, W. A., M106
Casado-Gavalda, M., 300
Casal, A., M124
Casarotto, G., M133
Casarotto, L. T., 25, 106
Casasús, I., M77, M136
Casey, T., 52, 54
Casey, T. M., 27, 36, 53, 173
Cassal Brauner, C., T101
Cassandro, M., W18
Cassina, A., 254, 256, M124
Castagnino, D. S., M15
Castelán-Ortega, O., 112
Castiglioni, B., 30
Castro, F. G. F., M64
Causey, R., 183, 219, 248
Cavallini, D., 381, 411, M65, T146
Cebeci, S., 202
Cebron, N., 345
Ceglowski, B., T94
Celemin-Sarmiento, A., T81
Celestino, M., 43, 270
Ceriani, M., M124
Cervantes, A. P., 185
Cezar, A. M., M111
Cha, J. E., 399, 400
Chaalía, B., 58, 117
Chahine, M., 246, T83, T141
Chamberlain, A. J., 28
Chamchoy, T., 71
Champagne, J. D., 387
Chanat, E., 56, W123
Chandler, T. L., 399, 400
Chang, C., 220, 253, T65, T110, T130
Chang, R. X., W69
Chang, Y. M., 136
Chapman, J., 152, W74
Chapman, J. D., 106, 151, 271, 319, M39, T138, T139, W59
Chaves, B., 18, 368
Chebel, R., 35, 275
Chebel, R. C., 22, 263
Chen, C., T60
Chen, G., 215
Chen, X., 115, 169, W82
Chen, Y., 65
Chen, Y. F., M76
Chen, Y. H., 215
Chen, Y. K., W48
Cherdthong, A., M115
Cheruiyot, E. K., 158
Chesini, R., W90, W92, W93
Chester-Jones, H., M104, M108, M109, M110, M127, T4
Chibisa, G. E., T141
Chiu, O., 64
Choi, J., M8
Choudhary, R. K., 79, 377, M87
Chouinard, P.-Y., 93, W96
Christensen, O. F., 294
Christman, K. R., M140
Chrystal, N., W60
Chud, T. C. S., 195, 198
Clark, N., W46
Clay, J. S., M89
Cockrum, R., 4, W21
Cockrum, R. R., 128
Cocks, B. G., 28, 158
Coelho, S. G., M67, M68, M91, M106, M107, M138, W63
Coelho Jr, W. M., T95
Coffin, D., 249
Cohen-Zinder, M., M70
Colazo, M. G., T99
Colberg, A., T50
Cole, J., 293
Cole, J. B., 129, W19, W20
Coleman, D. N., 205, 206, 209, 210, T58, T63, T67
Colín-Cruz, M. d. I. Á., 113, 333
Colinet, F., 340
Coll-Roman, L. M., 225
Coloma-García, W., 95
Colón-Rodríguez, I., M57, T9, T10
Combs, D. K., W87
Compart, D. P., M4
Compton, C., T148
Concolino, A., 381
Connelly, M. K., 55, W109
Cook, N. B., 242
Copani, G., 163, 165, 167, 233, 247, 265
Copeland, A., W24
Copelin, J. E., 92, 404
Cordeiro, J. A., W83
Cornaggia, C., 366
Correa, A., M93
Correa, F., T151
Correa, P. V. F., M103
Corrêa, M., 116
Corrêa, M. N., 77, 78, 176, 269, M99, M113, T18

Correa-Luna, M., 193
 Cortinhas, C. S., T114, T115
 Costa, H. H. A., T136
 Costa, J., 290
 Costa, J. C. H., M88
 Costa, J. H., 190, 221
 Costa, J. H. C., 3, M56, T11, T12, T28
 Costa, S. F., M107
 Costa e Silva, L., W67, W92, W93
 Coupland, J. N., 100
 Couto Serrenho, R., 66, T102
 Cox, M., 406
 Cran, E., 65
 Cremonesi, P., 30
 Cresci, R., M105
 Crews, A., 2
 Cromie, A.R., 273
 Crompton, L. A., 405
 Cronin, S. K., W124
 Cruickshank, J., W38
 Cruickshank, K. M., 63
 Crumel, X. L., M4
 Cruz, A. F., M49, T43, W54
 Cruz-González, N., T9
 Cruz-Morales, S., 90
 Cueva, S. F., 280
 Cui, Y., 383
 Cui, Y. Z., W69
 Cullens, F., 378
 Cunha, L. L., T95
 Cunha, T. O., 242, 402
 Cunningham, D. M., W122
 Cunningham-Hollinger, H., W21
 Curti, P., W67, W90
 Curtin, C., W26
 Cutrim, D. O., M64
 Czuprynski, C., 403

D

da Silva, C. B., T127
 da Silva, C. M., T154
 Dado-Senn, B., 25, 60, 257, M25
 Daetwyler, H. D., 28
 Dahl, G., 61, T21
 Dahl, G. E., 25, 57, 59, 60, 106, M80, T59
 Dai, H., 74, 77, 78, 208
 Dai, X., 91, 222, 312, 342
 Dallago, G. M., 373, 392
 Dallas, D., M46
 Dall'Olio, M., M65
 Damasceno, L., M49, M50, T43, W33
 Danao, M.-G., 18, 368
 Dancy, K. M., 287, W84
 Danelón, J. L., 281
 Daniel, J. A., M140
 Daniel, J. B., 184
 Daniel, J. L. P., T136
 Daniels, K. M., 128, 415

Dann, H. M., M18, W55
 Darby, H. M., T72
 Daros, R. R., T7
 Darrah, J. W., M18
 Dattolico, N. Q., 352, T121
 Daube, G., 331
 Dauber, C., M133
 Daurea, A., 192, W58
 Davidson, B., T21
 Davidson, B. D., 25, 57, 59
 Davis, A. N., 220, 253, T65, T110
 Davis, T., 278, T91
 Davy, J., W46
 Dayuto, J., 140, T151
 de Almeida, T. V., T43
 de Assis Lage, C., 280
 de Avila Ferronato, G., T101
 De Boever, J., 163, 318
 De Campeneere, S., 318
 de Evans, T., T119
 de Guzman, C. A. Nino, M129, M134
 de Guzman, C. Nino, T6
 de Haro Marti, M., T83
 de Haro Martí, M. E., T75
 de Haro-Marti, M., 246
 de Jong, E., 231, T19
 De La Guardia, V. M., W79
 De Marco, M., M114
 de Matos, A. D. C., M113
 de Oliveira, E., 35, 275
 De Palo, P., 61
 de Paula, E. M., W44
 de Souza, J., 175, 180, 181, 213, 217, T120
 De Torres, E., W31
 De Vries, A., 106, 120, M89, T71, W13
 Dean, K., 248
 Debournoux, P., 56
 DeBruyn, J., M96
 Dechow, C., 196, M70, T66
 Dechow, C. D., 154, 327, 328, W12, W13
 Deeb, N., 234, 297, 363
 Degenshein, M. N., 23
 Dehareng, F., 340
 Del Pino, F., 116, T101
 Del Pino, F. A. B., 176, 269, M99, M113, T18
 Del Valle, T., W67, W91
 Del Valle, T. A., T105
 Delaney, E., 366
 Dell'Anno, M., 30
 Demarco, C. F., 176
 DeMarsh, T. A., 11, M52
 DeMers, G. M., 1
 Demontier, É., W9
 DeNise, S., 156, 325, W10, W11
 DeNise, S. R., M121
 Dennis, T., 183, 219, M59
 Dennis, T. S., 221, M60, M62, M63, M73, M74
 DePeters, E., W46
 DePeters, E. J., W101

Desrousseaux, G., 289, M126
 Dessbesell, J. G., T36, T108
 DeVries, A., T86
 DeVries, T. J., 24, 65, 66, 226, 287, 289, 314, 390, 391, M96, T7, T82, W3, W84
 Dhakal, R., 90, 150
 Di Croce, F., 118
 Dias, L. T., 194, W22
 Dias, M., W67, W90, W91, W92, W93
 Dias, N. W., T95
 Diaz, H., W110
 Diaz, N., 278
 Díaz, F., M139, W45
 Diepersloot, E. C., 370, T49, T53, W44
 Dieter, P. A., 92
 Dijkstra, J., 405, M15, W85
 Dillard, S. L., 396, W43
 Dineen, M., T140
 Ding, H., M40, T56, T63
 Ding, H. Y., 205, 206, T58
 Diniz Neto, H. C., M67, M68
 Dixon, P., W24
 Doane, P., W112
 Dodera, I., 140
 Doelman, J., 184, M78
 Domenech-Pérez, K., T9, T10
 Domenech-Pérez, K. I., M57
 Domingues, R. R., 402
 Donaghy, D. J., 193
 Dondé, S. C., M111
 Donkin, S., 52
 Donkin, S. S., 54, W112
 Dorea, J. R. R., 135, M91, T85, W63
 Dorji, J., 28
 dos Reis, B. R., 238, 412, T77, T79
 dos Santos, E., 269
 dos Santos Neto, J. M., 213, 217, T128
 Doster, E., T24
 Doupovec, B., T103, T118
 Downing, T., 394
 Doyen, A., W30
 Doyle, R. C., 239, 277, T98
 Drackley, J. K., W65
 Drake, E., 273
 Drake, M. A., 16, 101, M11
 Drehmel, O., W110
 Drehmer, L., 232
 Drewery, M., M72
 Drögemüller, C., W15
 Drouin, P., 164, T51
 Dubé-Duquette, A., W9
 Duffield, T. F., 24, 66, 189, 226, T82, W3
 Dufour, E., M104, M108, M109, T4
 Dufour, S., 231, 390, T19
 Dufrasne, I., 393
 Dumesic, J., 160
 Duncan, A. J., 128
 Duncan, J., W21
 Dunleavy, M. V., T135

Duplessis, M., M123
Duran, L., 71
Dürr, J. W., W17
DuvalSaint, E., 147
DuvalSaint, E. J. C., M129
Dzama, K., M43

E

Ealy, A., 278, 380
Easton, Z., 238
Eastridge, M., M2, M14, M24
Eastridge, M. L., M17
Echesabal, J., 211, M20
Echeverry-Munera, J., 143
Eckelkamp, E., 7, 285
Eisner, I., 163, 165, 167, 247
Ekong, P., 71
El Ashmawy, W., 291
El Azzi, M. S., 242
El Faro, L., T90, W22
El Faro Zadra, L., T15
ElAshmawy, W. R., 292, 358, 387
El-Ashmawy, W., 71
El-Kadi, S., 380
Ellis, J. L., M15
Elmer, S., T75
Elocoso, G., W86
Elolimy, A. A., 74, 208
Elomily, A., 207
Ely, L., W74
Emanuele, S., W98
Embree, M., M132
Endres, M., 41, 223
Endres, M. I., 137, 267
Engel, C. M., W87
Enger, B. D., M3, M17
Enger, K. M., M3, M17
Erb, S. J., 170
Erickson, D., 276
Escobar, D., W31
Esposito, G., M43, T111
Estes, K., 222, 382
Estes, K. A., 346, W117
Estrada Flores, J. G., 94
Estrada-Reyes, Z. M., W75
Eugène, M. A., 405
Eun, J. S., W103
Evans, E., W71, W77, W80
Evans, F., T137

F

Faas, J., 375, T103, T118
Fabin, R. A., W82
Fabris, T. F., 25, M80, T59
Faccenda, A., 342
Faciola, A., W83

Faciola, A. P., 91, 222, 342, 382, M19, M115,
T52, T136, T154
Facury Filho, E. J., W63
Fahey, A., T73
Fahey, A. G., 313
Fan, P., 222, 342
Farcey, F., T16
Faturi, C., 316, 343
Fausak, E. D., T27
Favorit, V. R., M86
Fehlberg, L., 272, M21
Fehlberg, L. K., 33, T112, T113, W52, W53
Feijó, J., 116, M113, T101
Feijó, J. O., 176, 269, M99, T18
Feng, S., M40, T56
Fensterseifer, S. R., 187
Ferguson, J., M117
Fernandes, D. S., M49
Fernandes, L., 43, 270, 388, W91
Fernandes, T., T55
Fernandez, C., T151
Fernandez, I., M129, M134, T6, W100
Fernandez Marenchino, I., 147
Ferraretto, L., 147, T55
Ferraretto, L. F., 185, 370, 385, T6, T49, T52,
T53, T105, T127, W44, W100
Ferrari, A., T131
Ferraris, Q., T38
Ferreira, A. L., M138, T117, W61
Ferreira, C. R., 36
Ferreira, F. C., 102, 307, 308, M89
Ferreira, F. J., 373, 392
Ferreira, G., 246, 369, 371
Ferreira, L., W58
Ferreira, L. D., W63
Ferreira, L. E., 192
Ferreira, M. H., T114, T115
Ferreira, R. E. P., 135, T85
Ferreira de Araújo, D., 338, 339
Ferrer, J., M77
Ferrer-Miralles, N., M85
Ferreira, S., 281
Ferris, T. A., 286
Ferro, P., 41
Fessenden, B., 118
Fetter, M., 410, T145, W89
Fetter, M. E., 177, 280, 407, W103, W122
Feuerbach, C. M., W98
Field, S., T61
Field, S. L., 257, M25
Figueiredo, C., 35, 275
Figueiredo, R. A., T11
Fillus, A. M., M32, T127
Finocchiaro, R., W18
Fiol, C., 288
Fioruci, E. A., M111
Firgens, S., 363
Firkins, J. L., 279, 386, 404, 413, M23, T106
Fischer, A., 409, T143

Fischer-Tlustos, A. J., 80
Flack, S., T72
Floury, J., 301
Flynn, B., T40
Foddanu, I., 39
Foditsch, C., T24
Fok, G. C., 129
Fonseca, A. P., M91
Fonseca, M., 231, T19
Fontoura, A. B. P., 32, M100, M112, T126
Ford, H., 397, M41, M42
Forero, L., W46
Forgeard, G., 110, 111
Formigoni, A., 381, 411, M65, T146
Foucras, G., 345
France, A. E., 390
France, T. L., M88
Franceschini, S., T14
Francia, F., 316, 343
Franco, J., 53
Franze, C., W56
Franzoni, A. P. S., M89
Fredin, S., M114, T125, W119
Fredin, S. M., 89, 324
Freebern, E., W20
French, J. E., W1
French, P. D., 178, 268
Fricke, H. P., 55
Fricke, P. M., 245, T88, T89
Fringer, M., 50, M66
Frojen, R., M8
Frongia, A., M105
Frota, W., 263
Fujan, H., M135
Fujieda, T., 41
Fuka, D., 238
Fukumori, R., W76
Fullerton, K., 104

G

Gabarrou, J.-F., 289, M126
Gadeyne, F., M130
Galarza, R. I., 281
Galbraith, E. A., 187
Galligan, D., 118
Gallo, A., 247, T84, T103, T118
Galvao, K., 35, 275
Gambonini, F., W122
Gandy, J., M84, T68
Gandy, J. C., 38
Gao, B., 383
Gao, H. Y., W69
Gao, J., 271, 338, 339, W59
Gao, S. T., 141, M119
Garapati, S., 75, M71, T145, T150
Garcia, A., M139, 362
Garcia, B., 85

- Garcia, M., 271, 347, M39, M140, T68, T69, T138, T139, W59
- Garcia, Y. Roman, T106
- Garcia Buitrago, J. A., T47
- García Montes de Oca, C. A., 94
- Garcia-Cano, I., 17
- García-Cano, I., M9
- García-Cuchma, M., 140
- Garcia-Fruitós, E., M85
- Garcia-Gonzalez, R., W74
- Garcia-Guerra, A., M31, M35
- Garcia-Roche, M., 254, 256, M124, M128
- Garner, A. M., 80
- Garner, J. B., 28
- Garnsworthy, P. C., 255
- Garziera Gasperin, B., T101
- Gauthier, H., W115
- Gaygadhiev, Z., 96
- Geary, C. G., 401
- Gebara, C., M49, M50, T43, W33, W54
- Gedye, K., 193
- Geiger, A. J., 415
- Geldsetzer-Mendoza, C., 255
- Geng, Y., 352, 396, T121, W43
- Gengler, N., 340, T14, W16
- Gennari, R. S., W106
- Genore, R., 264
- Gérard, A., 331
- Gerrits, W. J. J., 142
- Gerry, A., 291
- Gerry, A. C., 292
- Gervais, R., 93, T126, T132, W96
- Ghaffar, A., 355
- Ghedin Ghizzi, L., 147
- Ghelichkhan, M., 396, T36, T108, W43
- Gheller, L., W91
- Ghiaccio, F., 381, 411, T146
- Ghilardelli, F., 247
- Ghizzi, L., W90, W91, W92, W93
- Ghizzi, L. G., 370, T49, T52, T53, T105, W44
- Ghussn, L. R., T154
- Gianella Mondadori, R., T101
- Gifre-Renom, L., M85
- Gilson, G., W72, W73
- Gingerich, K. N., 225, 257, T1, T2, T5
- Giordano, J., T96
- Giordano, J. O., 39, 70, 72, 73, 241, 243, 244, 276, 389, T93, T94, W106
- Girard, C. L., M15, M123
- Girard, I. D., T29
- Giusti, M. M., 17
- Gleason, C., 278
- Gleason, C. B., 412
- Glenn, K., 387
- Gleysteen, T., T153
- Glosson, K. M., T142
- Gobikrushanth, M., T99, T100
- Godden, S. M., 357
- Goddik, L., M8, W38
- Goetz, B. M., 171, 172, 174, 186, 398, T57, T147, W24
- Goetz, H., 290
- Golder, H., 19, 146
- Golder, H. M., 88
- Gomez, A., T25
- Gomez, D., 230
- Gomez, D. C. R., W43
- Gonçalves, L. C., M98
- Gong, Y., 336
- Gonzalez, J., M51
- Gonzalez, O., 181
- Gonzalez, R. R., W62
- Gonzalez Pena, D., W10, W11
- Gonzalez-Luna, S., 58
- González-Luna, S., 117
- Gonzalez-Pena, D., 156, 325
- González-Ronquillo, M., 94, 112, 113, 150, 333
- Gorden, P. J., 357, W24
- Gorocica, M., W60, W62
- Gott, P., 282, 283
- Gott, P. N., 322, 323
- Gouws, P., M43
- Govindasamy-Lucey, S., 303, 335, 336, W28
- Granados, G. E., 241, 243, 244, T93, T94
- Granados-Niño, J., W45
- Grando, R. O., M98
- Grant, R. J., 260, M18, W47
- Granz, S., T86
- Gray, M., 9
- Greco, L., M111
- Greco, L. F., T128
- Green, S., 260
- Greenwood, S. L., T72
- Grelet, C., 340
- Gressley, T. F., W124
- Griffin, M., 348
- Grigoletto, N., W67, W90, W91, W92, W93
- Grilli, E., 32, M100, M112
- Guadagnin, A., 272, M21
- Guadagnin, A. R., 33, T112, T113, W52, W53
- Guan, H., T6, T48, W100
- Guan, L., 148
- Guan, L. L., 65, 215, 418, M26
- Guimaraes, B. C., M5
- Guimaraes, I., 388
- Guimaraes, S. E. F., M103
- Guimarães, B. C., 168, 248, 249, 250
- Gultekin, Y., 397
- Gultepe, E. E., T68
- Guo, J., 148
- Guo, Y., T60
- Guri, A., 96
- Gusmao, J. O., 370, M134, T49
- Haag, D., 187
- Haagen, I., 196, M70
- Haan, S., M6, M37, T92
- Hachemi, M. A., M114
- Hackl, M., 375
- Hackmann, T., 384
- Häfliger, I. M., W15
- Hagevoort, G. R., T47
- Hailemariam, D., 198
- Haile-Mariam, M., 130, 158
- Haines, H., 380
- Halderson, S. J., W114
- Halfen, J., 116, 151, 152, 269, 319, M34, M36, M99, M113, T18
- Hall, M. B., 149, 412
- Hamilton, J., M6, M37, T92
- Hammam, A. R. A., 334, M45
- Han, L., T66
- Han, Z., M94
- Hanigan, M., 351, 420, M22, W117
- Hansen, H. H., 90, 150
- Hansen, L. B., 329, 330
- Hansen, T. L., T76
- Hanus, A., M101, T3, W64
- Hao, G., M134
- Hardie, L., 196
- Hardie, L. C., 154, 327, 328, W12
- Hardigaluh, H., 200
- Harding, T., 299
- Hardy, N. R., M3, M17
- Harms, E., 374
- Harper, J., W46
- Harrison, J., 104
- Harrod, M., 380
- Harsch, B., 418
- Harte, F. M., 100
- Hartel, R., T34
- Harvatine, K., 81, 237, 379, 414, 419, T124, T125, T133
- Hashwam, R. B., 200
- Hassanat, F., W72, W73
- Hatew, B., 63
- Haughey, N. J., 253, T65
- Havekes, C. D., T7
- Hayes, M., M69
- Healey, M., W24
- Heeg, A., M96
- Heguy, J., W46
- Heguy, J. M., W101
- Heider, L., 231, T19
- Heimsoth, J., 374
- Heins, B., 138, 139, 196
- Heins, B. J., 154, 305, 327, 328, 329, 330, 337, W12
- Heinz, B., M127
- Heinzen, C., M134, T105
- Heinzen Jr., C., 370, T49, T53, W44
- Heinzen Junior, C., T52
- Hejazi, M., 258

H

Ha, S., M8

Hendel, E. G., 322, 323
Hendley, C. L., W23
Hennessy, M., 75, 107, 108, 407, 410, M71, T145, T149, T150, T153
Henrich, M., W15
Herlihy, M. M., 277
Hernandez, L. L., 55
Hernández-Castellano, L. E., 46, 47, T144, T152
Herrick, K. J., 26
Heuer, C., 297
Hidalgo, M. J. O., W107
Hielger, S., W112
Hikita, C., 186, T147, T148
Hill, T., 183, 219, M59
Hill, T. M., 221, M60, M62, M63, M73, M74
Hillesheim, J., T97
Hillis, M., 9
Hiltz, R. L., 23
Hines, S., 246
Hinrichs, J., 97, 99
Hirano, K., M18, W115
Hist, E. M., M3
Ho, P. N., 28
Hoffman, B. A., T1
Hoffmann, G., T64
Hofstetter, U., 322, 323
Hogan, S., 304
Holden, L. A., T46
Holden, S. A., 239
Holden, S.A., 273
Holdorf, H. T., 170, 346
Hollandsworth, R., 168, 248, 249, 250, M5
Hollis, M. W., M82
Hollister, S. M., 89, 315, 324, 353
Holly, M., 86
Holsteg, M., W15
Hong, H. T., M29
Hong, S., 188
Hood, W. R., M86
Horst, E. A., 171, 172, 174, 186, 344, 398, T57, T147
Horvath, K. C., 257
Houck, K., W28
Houlahan, K., 195
Hovingh, E., M6, M37, T92
Hristov, A., 107, 108, 410, T145, T149
Hristov, A. N., 177, 280, 405, 407, W82, W89, W103, W122
Hruby, A., 420, M22
Hu, H., W109, W114
Hu, L. Y., M76
Huang, E., 351
Huang, K., 160
Huang, X., 351, 420, T120, W42
Huber, G., 160
Hubner, A., T97
Hubner, A. M., T95
Huffard, H. G., 128

Hung, H. C., 23, 262, M29, T141
Hung, H. H., 68
Huo, Q. T., T21
Husnain, A., 40, 218
Hussain, S., 304
Hussein, S. M., 211, M20
Hutchison, J. L., 129

I

Ibanez, R. A., W28
Ibáñez, R. A., 302, T31
Ibarra-Sánchez, L. A., 332
Iglesias, M. A., W62
Ijaz, M., 355
Ikeda, S., M10
Imaizumi, A., 41
Indugu, N., 75, 107, 108, 410, M71, T145, T149, T150, T153
Invernizzi, G., 30, W18
Isenberg, B. J., W88
Ison, K. A. D., W95
Ivory, R., 366
Izquierdo, V. S., 269, M99

J

Jackson, B. P., T137
Jaeggi, J., 303
Jaeggi, J. J., 335, 336
Jaguaribe, T. L., T114, T115
Jasinsky, A., M124
Jatkauskas, J., 165, 167
Jencarelli, K., W27
Jendza, J. A., 162, 251
Jenkins, T. C., T122, T129, T148
Jensen, L. M., 122
Jeong, K. C., 40, 222, 342
Jha, S., W35
Jiang, H., 303, M94
Jiang, J., W20
Jiang, Y., 185, T138, T139, W83
Jimenez-Flores, R., 12, 17
Jiménez-Flores, R., M9
Jing, Y. J., M76
Johnson, J., 234, T30, W26
Johnson, K., 237
Johnson, M., 303
Johnson, M. E., 335, 336, W28
Jones, B., W4
Jones, B. W., 136, T44, W23
Jordan, J., 380
Jorge-Smeding, E., 20
Joy, M., M136
Judge, M. M., 326
Juliano, N., 281, T135
Julien, C., W98

K

Kalantari, A., M126
Kale, C., 203
Kalscheur, K., 409, T143
Kalscheur, K. F., 312, W87, W97
Kamalanathan, S., 198
Kamel, D. G., 161, M47
Karcher, E. L., 421
Karle, B., 71, 358, 387, W46
Karrow, N. A., T20
Kashif Iqbal, M., 355
Kaske, M., T64
Katepalli, A., 75
Kathirvel, P., 204
Kavazis, A. N., M86
Kaya, C. A., W68
Kedzierski, P., M78
Kelley, T., M83
Kelton, D., 231, 290, T19, W8
Kelton, D. F., 189, 390
Kemp, S. E., T107
Kendall, D., 297
Kenneally, J., T98
Kerner, K. R., M29
Kerns, B. K., 324
Kerr, A., M72
Kersbergen, R., 250
Kerwin, A. L., M27, T142
Keunen, A. J., 191, 418
Keunen, B. W., 191
Khafipour, E., 148
Khonkhaeng, B., T124
Kilcawley, K., 299
Killerby, M., 162, 168, 248, 249, 250, 251, M5
Kim, B. J., M46
Kim, D., 185
Kim, J., M78
Kindermann, M., 107, 108, T149
King, K., 64, 65
King, M. T. M., 24, 391, T82, W3
Kirk, D. J., 271, W59
Kirkland, R. M., 180
Kisac, P., M101, T3, W64
Klaus, R., 269, M113, T101
Kleinman, P., 86
Kleinschmit, D., 62
Kliskey, A., T75
Klister, M., 55
Klop, A., W104
Klopp, R., 183, 219
Klopp, R. N., 36, 49, 266
Klug, B., T86
Kniffen, D. M., W82
Knight, C., 168, 249, 250
Knowlton, K. F., 128
Kochendoerfer, N., 114
Kohlman, T., 224, T45
Kohlus, R., 97

Kohn, R., M116, T155
Koltes, J. E., W24
Kong, W., 332
Kongraksawech, T., T38
Kononoff, P., T134
Kononoff, P. J., 26, 279, W48, W85
Koontz, A., W67, W92, W93
Körzendörfer, A., 99
Kozak, S., W27
Kozak-Weaver, S., T40
Kramer, L. M., W24
Kraus, B., M51, T39
Kreuzer, M., 405
Krogstad, K. C., 26
Kruger, K., T83
Kuehnl, J., 55
Kuhn-Sherlock, B., 125
Kung Jr., L., M125, T51, T104
Kurban, D., 390

L

Laarman, A. H., 23, M29
Labbe, R., 87
Lacasse, P., 320
Lacerda, V., 338, 339
Lacroix, R., 83
Laforest, R., M78
Lafreniere, C., 372
Lage, C., T145, W89
Lage, C. F., 407
Lage, C. F. A., 177, M91, W82, W103
Lago, A., 357
Laguna, J., M61
Lakritz, J., M35
Lamberson, W., W21
Lamers, K., T20
Lana, A. M. Q., W63
Lange, A. M., 187
Lange, M. J., 352, T121
Lantigua, V., T59
LaPierre, P. A., W119
Laporta, J., 25, 57, 59, 60, 106, 257, M25, M80, T21, T59, T61
Larmer, S., 123
Larriestra, A., M90, T80
Larsen, M., T144, T152
Larsen, T., 46, 47
Larson, R. A., 235
Lascano, G., 183, 219
Lascano, G. J., 211, M20, T148
Lascano, G. L., T122, T129
Latham, E. A., W88
Lauber, M. R., 245, T88, T89
Lawton, M., T40, W27
Leal, L., 143
Leal, L. N., 142, 311
Leal-Yepes, F., M69

Lean, I., 19, 146
Lean, I. J., 88
Leão, G. F. M., M32
Leão, I. M. R., 242
Lebeau, F., 393
LeBlanc, B. D., W56
LeBlanc, S. J., 64, 65, 66, 67, 145, 231, M33, T19, T102
Leblois, J., T14
Leclerc, H., W71, W77, W80
Leduc, A., 56, M79, W123
Lee, C., 92, 386, 404, M23, M24, W85
Lee, S., 147, M8, M129, T6
Lefebvre, D. M., 83
Lefler, J., M132
Legarra, A., 294, 362, W25
Léger, D., 231, T19
Lehenbauer, T., 71, 291, 408
Lehenbauer, T. W., 358, 387
Lei, L., 214
Leibstein, M., 75, M71, T150
Leite de Campos, J., M84
Lejeune, P., 393
Leleu, L., 345
Lelis, A. L. J., 342
Lemay, B., M96
Lemay, B. R., 314
Lemosquet, S., 56, M79, W123
Leno, B. M., M140
Leon-Tinoco, A. Y., 162, 168, 248, 249, 250, 251, M5
Lepot, F., T14
LeShure Ratiff, S., T155
Leskinen, H., 255
Lessire, F., 393
Letelier, P., 350
Li, B., M78
Li, C. F., 340
Li, J., M40, T56
Li, M., 309, 376, M22, T78
Li, W., 69, 185, 306, M134
Li, Y., 205, 206, M40, T56, T58, T63
Liang, Y., 74, 77, 205, 206, 207, 208, M40, T56, T58, T63, T67
Lichtenwalner, A., 168, 248, 250
Licon, C. C., T32
Lile, D., W46
Lim, K. G., 200
Lima, F., 35, 275, T97
Lima, F. S., T95
Lima, J. A. M., M138
Lima, M., W58
Lindner, E. E., 225, T1, T2
Lindsay, M., 160
Linn, J., W110
Lipkin, U., M70
Lissemore, K. D., 226
Liu, F., 205, 206, T58, T63

Liu, G. E., 359
Liu, H. Y., 317
Liu, J. X., 317
Liu, S., 48, 82
Liu, W. H., 141, M119
Liu, X., T50, T104
Liu, X. J., M125
Lobe, L., 64
Lobo, R., 222, M19, W83
Lobo, R. R., 342, T154
Lobón, S., M136
Lock, A. L., 175, 179, 180, 213, 216, 217, 400, 416
Lombard, J., T156
Loncke, C., W118
Londero, U. S., M113
Lonergan, P., 273
Long, N. M., T122
Loor, J. J., 74, 77, 78, 205, 206, 207, 208, 209, 210, 255, 383, M40, M76, T56, T58, T63, T67
Lopes, F., W108
Lopes, F. C. F., T114, T115
Lopes, M. G., 77, 78, 210
López Benavides, M., W7
López-Calderón, M., W45
López-Valiente, S., 281
Lopez-Villalobos, N., 76, 193
Lopreiato, V., 74, 77, 78, 207, 208
Los, L. B., T127
Lott, T., W36
Lourenco, D., 325, 362
Lourenco, D. A. L., 129, 296
Lourenco, J. M., 186
Lourenço, J. C. S., M32
Lu, T., 332
Luc, E. K., W51
Lucey, J. A., 10, 134, 303, 335, 336, 367, M10, W28
Lucey, P., 19, 146
Luchini, D., 209, 210, W105, W106
Lucier, J.-F., W9
Lucy, M. C., 239, 277, T98
Lühken, G., W15
Luhovyy, B., 203, 204
Luimes, P. H., M96
Lund, E. F., 109
Lund, P., T152
Lundgren, C., 234
Lynch, C., 121
Lynch, M. B., 313
Lynch, R., 401
Lynch, R. A., 357
Lyons, S. M., 80

M

Ma, J., 48, 82

Ma, L., 141, 214, M119, M120, W20, W48
 Ma, M. R., 317
 Ma, N., 205, 206, T58, T63
 Ma, Z., 40, 249
 Ma, Z. X., 168, 248, 250, M5
 MacAdam, J., 395
 MacEachern, E., 204
 Macedo, F. L., 294
 Machado, A. F., M103
 Machado, D., T128
 Machado, F. S., M107, M138, T117, W61
 Machado, V., 270, 388
 Machado, V. S., 43
 Mackey, E. M., W56
 MacLeod, I., 158
 MacLeod, I. M., 28
 Macon, D., W46
 Macrina, A., T66
 Magalhães, M. A., 373, 392
 Maggio, A., 140
 Maggiolino, A., 61
 Mahmoud, A., 188
 Maia, G. G., M98
 Makanjuola, B. O., 298
 Malacco, V. M. R., W112
 Malaguez, E. G., M99
 Mallard, B., T20
 Mallikarjunan, K., 13
 Mallo, J. J., T119, W86, W121
 Malouin, F., W9
 Maltecca, C., 298
 Mamedova, L. K., 44, 347, M75, M135,
 M140, T68, T69, W94
 Mammi, L., 381, 411, T146
 Mancilla, B., M90, T80
 Manconi, R., W70
 Mangan, D., 366
 Mann, S., 399, 400, T26
 Manriquez, D., M30, T86, T87
 Manthey, A., M104, M108, M109, T4
 Mao, Y., M94
 Maravelias, C., 160
 Marchetti, S., M65
 Marcondes, M. I., 102, 307, 308, M103, T71
 Maresca, S., 281
 Marett, L. C., 28
 Marins, T. N., 271, 338, 339, W59
 Martinson, K. L., 423
 Marquardt, S., W15
 Marques, J., W91
 Marrero, M., T61
 Marrero, M. G., M25
 Marrero-Perez, M., M80
 Marroquin, L. P., M129
 Marroquin Pacheco, L., 147
 Marshall, J., 264
 Martin, C., 405
 Martin, L., 246
 Martin, M. J., 178, M121, M122
 Martin, N., T41, W36
 Martin III, J. G., 263
 Martinez, M., M6, M37, T92
 Martinez-Cortes, I., 208
 Martinez-Cortés, I., 207
 Martinez-Monteaquedo, S. I., 12, 133, 159,
 199, T35
 Martinez del Olmo, D., W124
 Martini, A., M65
 Martins, J. P. N., 242, 402
 Martin-Tereso, J., 143
 Martín-Tereso, J., 142, 184, 311
 Marubashi, T., M110
 Masello, M., 241, 243, 244, 276, T94, W106
 Mason, B. A., 28
 Masuda, Y., 294, 361, 362
 Matamala, F., 259
 Matamoros, C., 81, 379, 419
 Mateos, J., W124
 Matos, A., 116
 Matos, A. D. C., 176
 Matson, R. D., 24, 391, T82, W3
 Matteau, C., 236, W50
 Mattiauda, D. A., 254, M124
 Maurício, R. M., M138, W61
 Mayer, D. G., W95
 Mayes, M. S., W24
 Mayorga, E. J., 171, 172, 174, 186, 398, T57,
 T147
 Mazon, G., 3, T11, T12
 McArt, J., 37
 McBride, B. W., 64, 65, 67, 145
 McCabe, C., 52, W112
 McCabe, C. J., 27, 173, M102
 McCarthy, B., T140
 McCary, C. L., 370, T49, T53, W44
 McCleary, B. V., 366
 McClelland, S. C., 405
 McClure, J., 409
 McClure, M., 157
 McConnel, C. S., 45, 229, T22
 McCubbin, K., 231, T19
 McDermott, J., M116
 McFadden, J. W., 32, 220, 253, M100, M112,
 T65, T110, T126, T130, T132
 McFadden, T. B., 79, 377, M87
 McGee, M., 405
 McGehee, C., 4
 McGill, J., 188
 McGill, J. L., T69
 McGillin, M., W37
 McGinnis, J., 374
 McGregor, S., W110
 McGuire, M., M83
 McGuire, M. A., T141
 McKay, B. J., W60
 McLain, K. A., 353
 McLean, D., W74
 McLean, D. J., 271, M39, T138, T139, W59
 McLean, N., 372
 McMullen, B., 245
 McMullen, C., W8
 McWhorter, T. M., 129
 Medina, B., T29
 Médina, B., M126
 Megonigal Jr., J. H., 122
 Mehaba, N., 95
 Mehmetoglu, A. C., 202
 Meier, S., 125
 Melendez, P., 42, T16, T87
 Melgar, A., 107, 108, 177, 280, 407, 410,
 T145, T149, W82, W89, W103
 Melli, E., T111, T131
 Mellinger, C., T50
 Mellinger, C. A., M125, T104
 Mellors, S. C., 311
 Melo, A. T. O., T137
 Melvin, J. M., 401
 Mendonça, L. G. D., T69
 Mendonça, R., W58
 Mendoza, A., 20, 256, M128
 Menezes, B. S., M99
 Menezes, R. A., M98
 Menichetti, B. T., M31, M35
 Menta, P., 270
 Menta, P. R., 43
 Mercadante, V., 278
 Mercadante, V. R. G., T95
 Merchan, D., M35
 Merenda, V., 35, 275
 Merenda, V. R., 22, 263
 Meronek, J., W14
 Merry, E., 64
 Mertens, D. R., 212, 385, T123
 Merz, K., W33
 Mesa, A. M., 354
 Meschiatti, M. A. P., T128
 Messman, M. A., W78
 Metcalf, J. A., M15
 Metzger, L. E., 98, 334, M45, T42
 Meunier-Goddik, L., T38, W40
 Meyer, D., W46
 Miccoli, F. E., 281
 Michelotti, T. C., 232
 Middeldorp, M., M26
 Miglior, F., 195, 198, 298
 Millar, C., 239
 Miller, K. M., 286
 Miller, M. D., M18, W47
 Miller, M. J., 332
 Miller, S., W98
 Miller-Cushon, E. K., 225, 257, T1, T2, T5, T6
 Milora, N., 233
 Miltenburg, C., 224
 Minegishi, K., 305

- Minini, S., M132
 Minj, S., W34
 Minuti, A., M36, T103
 Mion, B., 64, 65, 67, 145
 Mireaux, M., W102
 Mishra, A., 98, T33, T42, W29
 Misztal, I., 296, 325, 361, 362
 Mitchell, K. E., 386, M23, T106
 Mitloehner, F. M., 84
 Miura, M., 352, T121
 Miyagusuku-Cruzado, G., 17
 Mjoun, K., M104, M108, W5, W6
 Moeser, A., 51
 Mohan, R., 319, T25, T62, T70
 Molitor, M., 10, 134, 160, 335
 Molitor, M. S., M10
 Moller, J., 42
 Moniruzzaman, M., 253, T65
 Monteiro, H. F., 91, 222, 342, M19, T52
 Monteiro Jr., P. L. J., W106
 Montevecchio, A. B., 263
 Moore, R. K., 83
 Moore, S. G., 239
 Moraes, L., 62
 Moraes, L. E., 21, M17, M97, T106
 Moraes, N., 41
 Moraes, V. C. L., M103
 Morales, M. S., 255
 Morandi, A., M132
 Moraru, C. I., 14
 Moratorio, M., 288
 More, J. C. R. S., W33
 Moreira, D. A., T18
 Moreira, V. R., W56
 Moreno, S., W31
 Morenz, M. J. F., T114, T115
 Morey, L., M118
 Morgan, M. C., M88
 Morini, G., 30
 Morley, P., T24
 Morrill, K., 356
 Morris, D., T134
 Morris, D. L., 279, W85
 Morrison, E. I., 66, T102
 Morrison, J. L., T28
 Morrison, S. Y., M18, W115
 Mosher, M., 7
 Moyer, N., T50
 Moyer, N. A., M125, T104
 Mu, L., M134
 Mufalo, V. C., T154
 Mulligan, F., T73
 Mulligan, F. J., 313
 Muñiz-Colón, G., T9, T10
 Munsterman, A. S., W109, W114
 Muratori, T., M70
 Murphy, C. P., 326
 Murphy, K., T122, T129
 Murphy, S., W36
 Murugesan, G. R., 322, 323
 Murugesan, R., 282, 283
 Musina, O., M44
 Mustafa, A., 236, W50
 Muthukumarappan, K., T35
 Mutsvangwa, T., 24, T82, W3
 Myers, W. A., 220, 253, T65, T110, T130, T132
- ## N
- Nagle, R., M96
 Nagle, R. L., 314
 Nakagawa, K., 41
 Nani, J., 293
 Narvaes-López, A. C., 113, 333
 Nascimento, A., W58
 Naumann, H., 395
 Nawaz, M., 240, 274
 Neave, H. W., 287
 Negrao, J. A., M80
 Negreiro, A. N., 179, 216, 416
 Negron-Perez, V., 380
 Nehme, M. M., T109
 Neis, C., 363
 Neiva, J. N. M., M64
 Nelson, C., 40
 Nelson, E., 224
 Neu, A. E., 423
 Neupane, M., 155
 Neves, R., 270
 Neves, R. C., 43
 Newberne, H., 380
 Newbold, J., 180
 Nichols, K., W85
 Nickmilder, C., 393
 Nicolau, E. S., M49, M50, T43, W33, W54
 Nicolazzi, E. L., 122
 Nicole, R., T118
 Nielsen, H., 23
 Nienow, C., W105
 Niles, M. T., T72
 Ning, G., 100
 Nino De Guzman, C., 147, W100
 Nin-Velez, A., W21
 Nin-Velez, A. I., 128
 Njombwa, C. A., W56
 Nogueira, E. C., M50, W54
 Nogueira, L. A. G., M98
 Nogueira, E., 227
 Norberg, S., 104
 Norell, R., T83
 Norman, H. D., 122, 129, W17
 Norouzi, M., M126
 Noschang, J., 116
 Noschang, J. P., M99, T18
 Noyes, N., 388
 Null, D. J., 360, W19
 Nunes, A., W67, W90, W91, W92, W93
 Nunes Correa, M., T101
 Nuzback, D. E., 347, T68, T69
 Nyamakwere, F., M43
 Nydam, D., M28
 Nydam, D. V., 70, 72, 73, 357, 389, 401, M27, T24, W7
 Nyuydze, C. K., 199
- ## O
- Oba, M., W76
 Obata, A., M18, W115
 Oberhaus, E. L., M137
 Ochoa-Martínez, E., W45
 O'Connell, J. R., 360
 O'Connor, A., W8
 Odle, J., 101
 Oduyelu, C. T., 415
 Ogilvie, L., 64, 65, 67, 145
 Ogunade, I. M., W75, W99
 Oh, J., 405, W82
 Oikawa, S., W76
 Okello, E., 71, 358, 387, 408
 Olagaray, K. E., 103
 Olazabal, L., W31
 Oleggini, G., T151
 Oliveira, A., W75
 Oliveira, A. P., T90
 Oliveira, C. A., 176
 Oliveira, D. E. P., 373, 392
 Oliveira, L., 176
 Oliveira, R. A., M64
 Oliveira Junior, G., 119
 Oliveira Junior, G. A., 121, 195
 Ollé, M., 116
 Ollé, M. A., 176
 Ollivett, T., 224, T45
 Olmeda, M. F., T135
 Olowookere, T., 203
 Olson, K., 157
 Olver, D. R., 1
 Ominski, K. H., 372
 Omodei Zorini, F., 30, W18
 Omontese, B. O., T60
 O'Neil, M. R., 344
 Ongom, J., 71
 Onjai-Uea, N., 209
 Onjea-uea, N., T67
 Opgenorth, J., T17
 Oppong, G. M., M5
 Orellana, R. M., 271, W59
 Orellana Rivas, R. M., 338, 339
 Ornelas, L. T. C., W61
 Orquera, K., M77
 Orsel, K., 24, T82, W3
 Ortega-Anaya, J., 12
 Osborne, V., M78
 Osborne, V. R., T8, W1
 Oskey, M., W41

Osorio, J. S., 151, 152, 232, 319, M34, M36,
T23, T25, T62, T70, W5, W6, W108
Osorio-Arias, J., 159
Ospina, P., M28
Osterstock, J., 118
Oswald, M. F., 401
Ott, E., M44
Ott, T. L., W122
Otter, D., 134
Otter, D. E., 200
Ouellet, V., 57, 59, 60, 106, M80, T59
Ouellet, V. G., 25
Overton, M., 261, M38
Overton, M. W., 103
Overton, T. R., 399, 400, M27, M140, T26,
T142
Owens, C. E., 128
Oyebade, A., 147, M129, M134, T6, W99,
W100
Ozturk, M., 202
Ozturk, O., 202

P

Pacheco, H. A., 124, 127
Packham, J., T83
Padilla, L., M13
Padilla, N. Rosa, 25
Padua, F. H., 289
Paiva, D., 270
Pajor, E. A., 24, T82, W3
Palladino, R. A., 281, T135
Palmer, N., 364, M55
Palmonari, A., 381, 411, T146
Pan, Y., 84
Panguripan, I., W28
Panosso, L. L., T154
Pape, A., W55
Pape, A. E., 260, T13
Pappalardo, C., 75, 108, M71, T153
Parazza, P., M65
Parés, S., M85
Park, J., W103
Park, S., M8, W38
Park, T., M120
Park, Y. W., T33, W29
Parker Gaddis, K. L., 122
Parrish, J. J., 245
Parrish, L. M., 45, 229, T22
Parsons, C. L. M., 415
Paswan, R., T33, W29
Pate, R. T., 209, 210
Pathak, N., W100
Pattamanont, P., T71
Paula, E. M., T55, T136
Paulus Compart, D. M., 280, W65
Pawloski, D., M28
Paz, H., 162, 251
Paz, H. A., W79

Pech-Cervantes, A. A., W75, W99
Pedrozo, M., 288
Peiter, M., 137, 267
Peixoto, P., T97
Peixoto, P. M., T95
Pelaez, A., 405
Pelaggio, R., W31
Peña, O. M., T122, T129
Peña-Bermúdez, Y. A., T154
Peñagaricano, F., 124, 126, 127, 130, 194,
T109
Peñagaricano, F., T61
Penido Oliveira, A., T15
Pennarossa, G., 30
Penner, G. B., 24, 287, T82, W3, W84
Penry, J. F., W60
Peralta, E. M., T88, T89
Perdomo, M. C., 218
Pereira, G. M., 327, 328, 329, 330
Pereira, J. M. V., 307, 308
Pereira, L. G., 135
Pereira, L. G. R., M91, M98, M106, M107,
M138, T74, T85, T116, T117, W61, W63
Pereira, R., 408
Pereira, R. A., M113
Pereira dos Santos, L. L., T144
Perera, M. A., W107
Pereyra, A. A., 371
Perez, M. M., 70, 241, T93, T94, W106
Pérez, M. M., 39, 72, 73, 243, 244, 389
Perez-Enciso, M., 296
Pérez-Martínez, A., 159
Pérez-Rosario, N., T9, T10
Pérez-Ruchel, A., M130
Perfield, K. L., M27
Perkins, B., 168, 248, 249, 250
Perttu, R., 223
Pescador-Salas, N., 94, 112
Pesenti, A., T49
Pessoa, C. M. B., 271, W59
Peter, C. M., 187
Peters, R. R., 286
Peterson, A. L., M29
Peterson, C. B., 84
Peterson, E., M83
Peterson, H., M83
Pettigrew, J., W67, W92, W93
Petzel, E. A., 182, W111, W113
Pezzella, G. L., W13
Pfrimer, R. T., M49, M50, T43, W33
Phebus, R., M53
Phillips, H. N., 137, 267
Phyn, C., 125
Piantoni, P., W78
Pierce, K. M., 313
Pierce, R., T133
Pierron, D., T32
Pighetti, G. M., W51
Pilch, H., 403

Pineda, A., 180
Pinedo, P., M30, T16, T86, T87, T156
Pineiro, J., T47
Piñeiro, J. M., M31
Pinheiro, R. S. B., T154
Pinloche, E., M114
Pinto, F., 302, T31
Pitta, D., 75, 107, 108, 407, 410, M71, M117,
T145, T149, T150, T153
Pizoni, C., 269, M99, T18
Plaizier, J., 148
Plaizier, J. C., 372
Plastow, G., 198
Plaut, K., 52, 53
Plett, C., 372
Pocrnic, I., 296
Poczynek, M., M32, T127, W108
Pohler, K. G., T95
Poindexter, M. B., 40, 218
Poit, D., 43
Pollesel, M., M65
Polukis, S. A., T51
Poole, D. H., 101
Poppenga, R., W46
Portnoy, M., 8, 15
Pose, H., 140
Poudel, B., T79
Poulin, A., 183, 219, 248
Poyedessus, J., 345
Prado, C. S., W33
Pralle, R., 69
Pralle, R. S., 170, M121, M122
Prestegaard, J., 420, M22
Price, W., M83
Price, W. J., 68, 262, 405, T141
Priya, S., T79
Prokop, L., T64
Provin, A., W81
Prowse-Wilkins, C. P., 28
Pryce, J., 28
Pryce, J. E., 130, 158
Przybyla, C., 156, W10, W11
Pszczolkowski, V. L., W109, W114
Pupo, M., W83
Pupo, M. R., 370, T49, T52, T53, T105, W44
Putman, A. K., 38
Puyalto, M., T119, W86, W121

Q

Qian, C., M53
Qian, M., T38
Qu, Y., M46
Quanz, S. T., 44, W94
Queiroz, O., 233
Queiroz, O. C. M., 265
Quick, A., W14
Quigley, J., M59

Quigley, J. D., 221, M60, M62, M63, M73, M74
Quijano, C., 254, 256, M124

R

Rabassa, V., 116
Rabassa, V. R., 176, 269, M99, M113, T18
Rackerby, B., M8
Raeder, L. M., W15
Raffrenato, E., M43, T111, T131
Rafiee Tari, N., 96
Raghunath, S., 13
Ragues, J., W86
Rahimi, S., 367
Räisänen, S., 410, T145, W89
Räisänen, S. E., 177, 280, 407, W82, W103
Rajesh, I., T100
Ramirez, S., 282, 283, T38
Ramirez, S. D. L., 151, M34
Ramirez, S. M., 322, 323
Randi, F., 273
Rankin, S., 160
Ranzenigo, G., 30
Rapisarda, T., M43
Rapp, K. J., T5
Rathnakumar, K., 12, 133
Rathod, G., M12, W32
Ratiff, S. L., M116
Rauton, A., 5
Ray, P. P., 109
Razafindrazaka, H., T32
Rebelo, L., M24
Rebelo, L. R., 92
Reboucas Pupo, M., 147
Redding, L., M71
Reed, K. F., 8, 309, 341, T76, T78
Reedman, C., W8
Reedman, C. N., 226
Reese, M., 138, 139
Rehberger, T., 348
Rehman, A., 355
Reich, C. M., 28
Reichler, S., T41
Reineke, J., 12, 199
Reis, M. E., M56, M111
Reis, R. B., W112
Reis, S. F., T137
Reisinger, N., 375
Relling, A. E., M31
Ren, L. J., 141
Ren, Y., 276, 383
Renaud, D., 190, 224, 230, 231, 290, 418, T19, T102
Renaud, D. L., 189, 191, 264, T28
Rendon, M. E., M116
Rennó, F., W67, W90, W91, W92, W93
Rennó, F. P., T105

Repetto, J., T151
Repetto, J. L., 140
Restelatto, R., 342
Reta-Sánchez, D., W45
Rey, F., W31
Reyes, D. C., 162, 168, 251, T116, W88
Rezamand, P., 23, 68, 262, M29, T141, W57
Rezende, F. M., 124, 130
Rha, R., M116
Rhoads, M., 380
Rhoads, R., 380
Rial, C., 39, 70, 389
Riaz, A., 240, 274
Ribeiro, D. R., W108
Ribeiro, E. S., 63, 64, 65, 67, 145, T102
Ribeiro, F. R. B., 344, W68
Ribeiro, L. C., 191
Ribeiro, L. d. S., 310
Ribeiro, T., 270
Ribeiro Vicentini, R., T15
Ricaud, J., W104
Ricaud, J.-P., M117
Richards, A. T., 32, 253, M100
Richards, V., 183, 219
Richer, E. A., 286
Rico, D. E., 93, W96
Rico, J. E., 220, 253, T65, T110, T126, T130, T132
Riesgaard, B., T38
Ring, S. C., 326
Rivera, J. M., T2
Rivera, S., 162, 168, 251
Rivera Flores, V. K., 11, M52
Rivera-Camacho, A., T9, T10
Riveros, J. L., 302, T31
Rizvi, S. S. H., 132
Robert, F., W102
Roberts, H. A., M39, T138, T139
Roberts, R., 100
Robertson, H. C., 324
Robison, C., M84
Robles Jimenez, L. E., 94
Robles-Jiménez, L. E., 113, 333
Rocha, H. P. S. L., M64
Rocha-Mendoza, D., 17
Rodrigue, S., W9
Rodrigues, J. P. P., M98
Rodrigues, R. O., 79, 377, M87
Rodrigues, T., 338, 339
Rodriguez, Z., 41
Rodriguez, A. R., 44
Rodriguez-Jimenez, S., 186, 398, T57, T147
Rodriguez-Jimenez, S. J., 171, 172, 174
Rodriguez-Prado, M. E., 110, 111, 316, 343
Roeschmann, C., 42, T16
Rohrig Rabassa, V., T101
Rojas-Moreno, D. A., T154
Roman-Garcia, Y., 62
Romero, J., 183, 219, 255

Romero, J. J., 162, 168, 248, 249, 250, 251, M5
Romero Bernal, J., 94
Roohinejad, S., M44
Roque, M. B., 200
Rosa, F., M36, T23, T25, T62, W5, W6
Rosa, G. J. M., T85
Rosales Gallardo, M., M92
Ross, A., T38
Ross, D. A., W119
Rossi, L., 30
Rossi, R. M., 378
Rossitto, P., 387
Rossoni, A., 61
Rossow, H., 19, 146, 291
Rotz, C. A., 86
Rougier, C., 110, 111
Rowe, S. M., 357
Roy, J., 231, T19
Roy, J.-P., W9
Royo, L. R., T119, W121
Royo, L. S., W86
Royster, E., 357
Ruegg, P. L., M84
Ruest, N., T29
Ruiz Gonzalez, A., 93
Ruiz-González, A., W96
Rupp, M. J., 286
Rush, C., M48, W40
Rusk, R., T69
Russo, K. N., W65
Ryan, C. M., T26
Rymer, C., 109

S

Sabrià, D., M118
Sacramento, J. P., M138, T116, T117, W43
Sagheer, M., 240, 274
Sahin, M., 394
Sáinz de la Maza-Escolà, V., 32, M100, M112, T130
Sajith Babu, K., M7
Sakamoto, L., W91
Salama, A. A. K., 58, 95, 117
Saleem, M., 240, 274
Sales, Á., 278
Salfer, I., 81, 237, 379, 419
Salter, R., 228
Samarasinghe, M. B., 46, 47
Sanchez, W., 237
Sánchez-Duarte, J., M139, W45
Sanchez-Garcia, L., M85
Sánchez-Rodríguez, H. L., M57, T9, T10
Sandoval-Castro, C. A., W75
Santana, O. I., W45
Santana Jr, M. L., W22
Santin, E., W71, W77, W80

Santos, F. A. P., T128
 Santos, G. M., M103
 Santos, J., 35, 275
 Santos, J. E. P., 40, 218, T109
 Santos, M. R., T117
 Santschi, D., W96
 Santschi, D. E., 24, 83, T82, W3
 Saraceni, J., 224
 Sargeant, J., W8
 Sarmikasoglou, E., 382
 Saunier, S., T122, T129
 Savage, R. M., T51
 Savela, M. F. B., M99
 Savoini, G., W18
 Saylor, B. A., 370, T53
 Sbardellati, D., T143
 Scanavez, A. L. A., T69
 Schaefer, K., 85
 Schäfer, J., 97
 Schatzmayr, D., T103, T118
 Schenkel, F., 119, 153
 Schenkel, F. S., 121, 195, 198, 298, M16
 Schexnayder, S., 285
 Schilkowsky, E. M., 241
 Schimek, D. E., W94
 Schlau, N., 212, 385, T123
 Schlessner, H., 224, T45
 Schley, B., 224, T45
 Schlotterbeck, R., 183, 219
 Schlotterbeck, R. L., M73, M74
 Schmidely, P., W116, W120
 Schmidt, A., 116
 Schmidt, P., M129
 Schmidt, R., T107
 Schmitt, E., 116, 176, 269, M99, M113, T18,
 T101
 Schneider, L. G., W51
 Schoenberg, K. M., M27
 Schoenfuss, T., 13
 Schohr, T., W46
 Schroeder, A., M14
 Schroeder, G. F., W78
 Schuenemann, G. M., M31, M35
 Schuling, S. E., W94
 Schwandt, E., 282
 Schwanke, A. J., 287, W84
 Scillieri Smith, J., 356
 Scott, A., 372
 Scott, J., M116
 Scuderi, R., 164
 Sears, A., 181, M13
 Seekford, Z., 278
 Seely, C., 37
 Seely, C. R., 399
 Seguin, P., 236, W50
 Segura, A., 233, 247
 Sehested, J., 46, 47
 Sellers, M., W110
 Selover, B., M54, T30, W26
 Sen, A., 285
 Sen, S., 335
 Sepúlveda-Varas, P., 259
 Serhan, S., 58, 117
 Sewalem, A., 157
 Sexton, J. R., 89
 Seymour, D. J., 184
 Sgambati, E., M2
 Shabtai, V., 107, 108, 410, T149
 Shabtay, A., M70
 Shah, R., T145
 Shaler, G., 87
 Shangraw, E. M., 79, 377, M87
 Sharma, A., T20
 Sharma, P., 300, 301, 304
 Sharman, E. D., 151, 152, 319
 Sharpe, K., 138, 139
 Sharpe, K. T., 337
 Shaver, R. D., W98, W106
 Shearer, G., 419
 Sheedy, D., 71
 Sheehan, J., 300, 301
 Shen, J., 115
 Shen, X., T63
 Shepardson, R., 419
 Shewmaker, G., 246
 Shi, W., W76
 Shinzato, I., 33, 41, 272, M21, T112, T113,
 W52, W53
 Shipandeni, M., T111
 Shively, C., T156
 Showman, L., W107
 Shuai, Y., T48
 Shugart, C. S., 268
 Siberski, C. J., W24
 Sickinger, M., W15
 Siddique, A., T33
 Siegel Nieves, J. T., 32, M100, M112
 Sigdel, A., 126, 194
 Siliveru, K., M55
 Silva, A., T114, T115
 Silva, A. P., M111
 Silva, D. C., M138, W54, W61
 Silva, G., W67, W90, W91, W92, W93
 Silva, J. V. V., 344, W68, W107
 Silva, L. A. F., M49, W54
 Silva, L. G., 342, T136
 Silva, L. H. P., 89, 315, 324, 352, 353, 396,
 T36, T108, T116, T121, T137, W43, W88
 Silva, R. C., M111
 Silva, T., 270, W67, W90, W91, W92, W93
 Silva, V. P., 185
 Silva-del-Rio, N., T27
 Silva-Del-Rio, N., 102, 144, M93, M95
 Silva-Reis, A. I., 371
 Silveira, J., 338, 339
 Silveira, J. A. G., W63
 Silvi, R. R., T117
 Sindic, M., 331
 Singer, A. C., 109
 Singh, N., M51, T39, W35
 Singh, R., 365
 Sipple, L. R., 16
 Siqueira, L. G. B., M98, T74
 Sischo, W. M., 45, 229, T22
 Sitko, E., 243, 244
 Sitko, E. M., 241
 Skarlupka, J., 406
 Skibiel, A. L., M86, T59, W57
 Skonberg, D., 168, 248, 250
 Slanzon, G. S., 45, 229, T22
 Slate, J., 188
 Slattery, R. G., 286
 Sleator, R. D., 326
 Smith, A., 348
 Smith, B., 65
 Smith, K. M., M18
 Smith, M. L., T51
 Smith, M. S., W124
 Smith, W. A., W47
 Smith, W. B., W23
 Snider, M. A., T72
 So, S., M115
 Soares, R. A. N., M16
 Socha, M. T., 74, 78, 208, 386, 404, M23,
 T106
 Sockett, D., 403
 Soder, K. J., 396, T72, W43
 Sordillo, L., T68
 Sordillo, L. M., 29, 38, 378, M84, T17
 Sotirova, M. A., T76
 Soto, B., 42
 Souza, G. M., W63
 Souza, J., 338, 339
 Souza Netto, D. L., M103
 Soyeurt, H., 340, 393
 Spencer, J., T47
 Speroni, S., 381, 411, T146
 Spitzer, A., 79
 Spricigo, J. F. W., 64, 65, 67, 145
 Squires, E. J., M16
 Stackhouse, J., W46
 Stancil, B., W41
 Stangaferro, M., T96
 Stangaferro, M. L., T94, W106
 Staples, C. R., M140
 Statz, L. R., 402
 Stauder, A., 375
 Steckler, T., 53
 Steckler, T. S., 76, M58
 Steele, M. A., 63, 64, 65, 67, 80, 143, 145,
 221, 311, 418, M26, M60, T28
 Steele, N., 125
 Steelreath, M. R., 23
 Stefanoni, H., 177, 410, T145, W82, W89
 Stefanoni, H. A., 280, 407, W103
 Stein Maffi, A., T101
 Steinberger, A., 403, 406

Stepanchenko, N., 344, W68, W107
Stephen, M., 125
Ster, C., 320, W9
Stern, M. D. 423
Stewart, J., 278, 380
Steyn, Y., 325, W11
Stockler, R. M., 211, M20
Stoffel, C., W117
Stothard, P., 198
Stout, R., 86
Strang, B. D., W78
Strappini, A., 259
Stratas, D., 65
Strickland, J., M84
Stuttgen, S., 224, T45
Stypinski, J., T50
Stypinski, J. D., M125, T104
Suarez, F., M59
Suarez-Mena, F., 183, 219
Suarez-Mena, F. X., 221, M60, M62, M63,
M73, M74
Suarez-Trujillo, A., 27, 36, 52, 53, 173
Subbiah, J., 18, 368
Subbiah Prabhakaran, G., 10
Such, X., 58, 95, 117
Sudhakaran, P., M72
Sueldo, P., 281
Suen, G., 403, 406, 409, T143
Sugimoto, Y., 33, 272, T112, T113, W52, W53
Suginomoto, Y., M21
Suissi, W., 93, W96
Sujani, S., 413
Sullivan, C., 300
Sullivan, M. L., 149
Sullivan, T. M., T20
Sultana, H., 147, 370, M129, M134, T6, T55
Sun, L. L., 214
Suprabha Raj, A., M55
Swaminathan, A. V., 134
Swanson, K. L., W101
Swartz, T. H., M75
Swiger, S., W4
Syperreck, M., W90

T

Tacconi, A., 282, 283
Takiya, C., W67
Takiya, C. S., 347, T68, T69
Talmón, D., 256, M128
Tao, S., 271, 338, 339, T16, W49, W59
Tari, N., 203
Tassinari, M., M65
Tassinari, R., 409
Tate, B. N., 32, 220, M100, M112, T65, T110,
T130
Tavares, L., 116
Tay, C. T., 200

Taysom, D., 212, 385, T123
Tebbe, A. W., 34, 349
Tedde, A., 393
Tedeschi, L. O., W60, W62
Teepie, K., 52
Teets, C., 246
Teets, C. L., 128, 369, 371
Teixeira, B. F., M98
Teixeira, R. A., 194, W22
Teixeira, V. A., W63
Temmar, R., 110, 111
Terré, M., M105, M118
Tharangani, R. M. H., W48
Thatcher, W. W., 40
Thauer, R., 107
Thevakumaran, S., 236, W50
Thibodeaux, R., W4
Thimmanagari, M., 314, M96
Thimmapuram, J., 54
Thomas, B., 272, M21
Thomas, B. L., 33, T112, T113, W52, W53
Thomas, M. J., 357, T94, W7
Thomas, O., 211, M20
Thomason, J. J., W1
Thompson, J., 348
Thompson, K. S., 50, M66
Thonney, M. L., 114
Tian, P., M129
Timlin, C., 278
Timmerman, J., 357
Tinini, R. C. R., T36, T108
Toledo, A. F., M111
Toledo, I., T21
Toledo, I. M., 57, 59
Toledo, M., 211, M20, T96
Toledo, M. Z., W98, W105, W106
Tomasula, P., 131
Tomaz, L., M19, W83
Tomich, T. R., M91, M98, M106, M107, M138,
T117, W61, W63
Tonooka, J., 291
Tonooka, K., 387
Toro, G., 234
Torres, A., W112
Totakul, P., 209, T67
Toth, J., 75, M71, T150, T153
Touhami, S., W30
Townsend, J., 52
Tresoldi, G., 258
Trevisi, E., 151, 319, 397, M36, T103
Tricarico, J. M., T76
Triminio, A. J., 232
Trmcic, A., W36
Trombetta, S. C., 45, 229, T22
Trout Fryxell, R. T., W51
Tsai, C. Y., 68, 262, T141
Tsai, I. C., 136
Tsuruta, S., 361, 362

Tucker, C. B., 258
Tucker, H., 174, W81
Tuer, B., 264
Turiello, P., M90, T80
Tverdy, B. J., 262
Twyman, S., 211, M20
Tychon, B., 393

U

Ubeyitogullari, A., 132
Uchihori, H., M18, W115
Uddin, M. E., 235
Ugarte Marin, M. B., T5
Uhrincat, M., M101, T3, W64
Ujita, A., T90
Ullah, F., 240
Ungerfeld, R., 288
Urie, N., T156
Uyama, T., 231, T19
Uzee, N. P., M137

V

Vahl, C. I., 374
Vailati-Riboni, M., 209, 210
Valdes Arciniega, T., 242
Valdez, F., W124
Valdecabres, A., M95
Valle, E., 381, 411
Valotto, A. A., W22
Van Amburgh, M. E., 32, 399, M100, M112,
T140, W106, W119
Van Coillie, E., 331
Van De Grift, D., W38
van Duinkerken, G., W104
van Laar, H., 142
van Niekerk, J. K., M26
Van Os, J., 224, 228, T45
Van Soest, B., 51, M61
Van Tassell, C. P., 155
Van Wesemael, D., 318
Van Winters, B., 64, 67, 145
Vanacker, N., 320
Vandaele, L., 163, 318
VandeHaar, M., 51, M61
VandeHaar, M. J., T17
Vandekerckhove, E., 318
Vandenboer, E., 203
Vander Jagt, C. J., 28
VanRaden, P., 293
VanRaden, P. M., 122, 129, 155, 360, W17,
W19, W20
Vardhanabhuti, B., M1
Vargas, G., M16
Vargas-Bello-Pérez, E., 90, 94, 112, 113, 150,
255, 333
Vasconcelos, C. O. P., M98

Vasquez, A. K., 357, T24, W7
Vázquez-Arnal, G., T9
Vecchiarelli, B., 75, 107, 108, 407, 410, M71,
T145, T149, T150, T153
Vega, D., M53
Vega-Castro, O., 159
Velasquez, B. E., 269
Velasquez Munoz, A., T156
Velez, J. S., M35
Ventura, B., 223
Verboort, B., 102
Verdú, M., M105
Veroneze, R., T90
Versweyveld, J., 224, T45
Vestergaard, M., 46, 47
Viana, J. H. M., T74
Vicentini, R. R., T90
Vieira, E. R. Q., M64
Vieira, L. V., 269, M113, T18
Vieira, S. F., M67, M68
Vieira-Neto, A., 40, 218
Vieitez, I., M133
Vilela Andrade, V., T15
Villadecabres, A., M93
Villamediana, P., M86
Villaverde, A., M85
Vinyard, J., 91, W83
Vinyard, J. R., 382, M19, T52
Virkler, P. D., 401
Vissio, C., M90, T80
Vitezica, Z. G., W25
Vittorazi Junior, P., W90, W92, W93
Vittorazzi Junior, P., W67
von Keyserlingk, M. A. G., 227
von Konigslow, T. E., 189
Voronin, G. L., 100
Vrotniakiene, V., 165, 167
Vukasinovic, N., 156, 325, W10, W11
Vyas, D., 147, 185, M129, M131, M134, T6,
W75, W83, W85, W99, W100

W

Wachekowski, G. M., T136
Waddell, J. N., W23
Wagner, A. L., T29
Waite-Cusic, J., M48, M54, T30, T38, W26,
W40
Walker, C. C. F., 29
Walker, N., 107, 108, T149
Wall, S. K., M27
Wallace, M., T73
Wallace, R. L., M121
Walsh, D., T73
Wang, D. M., 317
Wang, F., 32, 220, M100, M112, T110
Wang, J., W2
Wang, L., 14, 115, 169

Wang, L. F., 32, 220, 253, M100, M112, T110,
T130
Wang, M. Z., M76
Wang, Q., 383
Wang, X., M40, T56
Wang, Y., 72, 73, T34
Ward, R., T120, W42
Ward, S. H., 101
Warman, H., M131
Warner, D., 83
Warnick, L., T24
Wasson, D., 177, 410, T145
Wasson, D. E., 280, 407, W89, W103
Watanabe, T., 186, T147, T148
Watters, R. D., 401
Wattiaux, M. A., 235, 350, 422
Weary, D. M., 227
Weber, T., 68
Weber Nielsen, M., 51, M61
Webster, E., T87
Weese, J. S., 230
Wei, X., 18, 368
Wei, Z. H., 317
Weigel, D., 118
Weigel, K., W14
Weigel, K. A., M121, M122
Weiller, M. A. A., T18
Weimer, P., 406, 409
Weinberger, K. Q., 72, 73
Weisbjerg, M. R., T152
Weiss, W., M24
Weiss, W. P., 34, 92, 279, 349, M31, M35, W48
Welboren, A. C., 311
Welchez, C., 410
Welchez, S., T145, W89
Welchez, S. F., 407, W103
Welchez, S. F. C., 177, 405
Weld, A., 401
Wenceslau, R. R., 310
Wenner, B., 413
Wenner, B. A., 386, M23
Westberry, S., 297
Westhoff, T. A., 399, 400, T26
Weststeyn, M., 299
Wettstein, M. R., 401
White, A. F., 21, M97
White, H., 69
White, H. M., 170, 346, M121, M122
White, R., 162, 251, 278, 380, T91
White, R. R., 238, 412, 413, T77, T79
Whitefield, E., 104
Whitehouse, N. L., 89, 315, 324, 352, 353,
T121
Whitley, B. S., M137
Whitlock, B. K., M140
Whitt, D., M11
Wiat, S., 56
Wickramasinghe, H. K. J. P., 344, W68, W107

Wiedemann, S., T64
Wiedmann, M., T41, W36
Wieland, M., 401
Wiggans, G., 295
Wilachai, K., 207
Wilbanks, D., 367
Wilde, D., 109
Wilder, A., 166, T54
Williams, C. C., 6, M137
Williams, D., 71, 291, 408
Williams, D. R., 292, 358, 387
Williams, J., M83
Williams, J. E., T141
Williams, M., 326
Williams, P., T75
Williamson, S., 50, M66
Wilmot, H., W16
Wilms, J., 143, 311
Wilson, A. M., T8
Wilson, J., T75, T83
Wilson, R., 395
Wiltbank, M., T96
Wiltbank, M. C., 402, W98, W105, W106
Winder, C., 224, 290, T45, W8
Winder, C. B., 189, 226, 264, T28
Winston, D., 4
Witt, K., 163, 165, 167, 247
Wolfe, C. W., 122
Wood, D. R., 191
Wood, E. M., 8, 341
Woodrum Setser, M., 190
Wright, A., 96
Wright, L., M78
Wright, T. C., T8, W1
Wu, C., 168, 248, 249, 250
Wu, H., W2
Wu, J., 48, M40, T56
Wu, Z. H., 214

X

Xavier, E. G., M99
Xi, Z. N., M76
Xia, C., 376
Xiang, R., 28
Xie, S., 54
Xie, Y. Y., 317
Xin, H. S., 215
Xu, C., 376, 383, W69
Xu, J., M1
Xu, J. C., 214, M120
Xu, Q. Y., M76
Xu, Y., 204, 215

Y

Yan, Y., T48
Yang, Q., 271, W59

Yang, W., 376
Yang, Z., M94
Yao, J., 115, 169
Yao, K. Y., 317
Yarish, C., 407, T145, W89
Yaseen, M., 274
Yeitz, L., 87
Yemis, O., 202
Ylioja, C. M., M75
Yoder, P., 351, W42
Yoder, P. S., W117
Yohe, T. T., 221, 418, M60
Yoo, R. K. H., 80
Yoon, I., 49, 148, 188, 266
You, Y., 72, 73
Young, A., 125
Young, J., 409
Yousuf, M. R., 274
Yu, S., 185, M134
Yu, Z. T., 141, M120

Z

Zago Dias, C. H. F., W22
Zaitoun, B., 364, M55
Zambom, M. A., 352, T36, T108, T121
Zandberg, W. F., 80
Zang, Y., 352, 396, T121
Zanton, G. I., 284, 350
Zanzalari, K. P., T142
Zebeli, Q., 375, T118
Zenobi, M. G., M140
Zeoula, L. M., T52
Zhang, B., 376, 384
Zhang, H., 376, M94
Zhang, J., W109, W114
Zhang, L., 340, M9, T34
Zhang, X., T48
Zhang, Z., 148
Zhao, F.-Q., 79, 377, M87
Zhao, L. S., W48
Zhao, Y., 84

Zheng, H., 299
Zheng, N., W2
Zheng, Q., M69
Zhou, J., 48
Zhou, M., 148
Zhou, Z., M61, M122
Zhu, X., W103
Zhu, Y., M10
Zhu La, A. L. T., 141, M119
Ziegler, B., M104, M108, M109, T4
Ziegler, D., M104, M108, M109, M110, M127, T4
Ziegler, S. E., T72
Zimmerman, C., 382
Zimmerman, S., 85
Zimpel, R., 40, 218
Zug, J., M6, M37, T92
Zurakowski, M., M28



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