2017 ADSA Annual Meeting
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https://www.adsa.org/2017/

Important Message

In the event that protestors interrupt the meetings, please ignore them. Their goal is to attract attention and any attention you give them will only help their cause. Convention staff have a plan in place to handle these situations, and they depend on our cooperation. If members of the media approach you for an interview about the disturbance, please politely decline and direct them to the convention's media room, where spokespersons will be available.

Thank you for your cooperation.

Welcome to ADSA 2017!

On behalf of the American Dairy Science Association®, we welcome you to Pittsburgh, Pennsylvania, and the 2017 ADSA Annual Meeting: Integrating Dairy Science Globally. We have a week full of dairy science, and many opportunities exist for networking and socializing with old and new friends. Join us on Sunday night for the opening session and keynote address by Ethan Schutz. Ethan is president of The Schutz Company, and "helps people navigate the human side of business". He will be presenting material from *The Human Element*. The opening session will be followed by a reception for all attendees. The reception will have a great selection of finger foods and a cash bar—and it's a great opportunity to network. Please plan to stay a while and talk with your colleagues. Pre-meeting events include three workshops that require a registration fee: Helping Students Learn, The Impact of Raw Milk on Dairy Products, and Nutrition Models. Additional pre-meeting events are the Lactation Symposium, a Graduate Student Symposium featuring Ethan Schutz; and the late-breaking abstracts session. After the meeting, we will have the Mixed Models workshop and the Teagasc/Moorepark University College Cork Cheese Symposium. These post-meeting events are well worth the ticket fees.

More than 1,300 abstracts were submitted and 20 symposia are scheduled for the meeting. This meeting is truly all dairy. Please take time to peruse the program and use the MyProgram app and the schedule at a glance to plan out your week. We know you can't be everywhere at once, so we are recording all of the symposia at this meeting to be made available to you later. This means that you can make plans to see some now and see some later. On that note, there are a lot of posters too! We are offering poster presenters the ability to upload a digital version of their poster, and posters uploaded in this way will be available for viewing by attendees at any time during the meeting at kiosks in the poster area. If you are a poster presenter, please plan to share your poster this new, additional, and optional way.

As well as our days, our evenings throughout the meeting are busy. In addition to the Sunday Opening Reception and Monday Awards Program and Ice Cream Social, we have several receptions scattered throughout the program. Make sure to attend the Dale Bauman Recognition Symposium, Informal Milk Quality Session, or the Informal Calf Reception during the week. The evening programs have been designed to help you interact with other dairy scientists.

We are grateful to the many people involved in making this meeting a success, especially our exhibitors and sponsors. Their support is essential to the quality program that makes ADSA the most comprehensive gathering of dairy scientists in the world. A list of exhibitors and sponsors of this year's meeting is available in this program book. Please take time to thank them if you see them during the meeting. And please make sure to take plenty of time to peruse the exhibits in the exhibit hall.

The ADSA Annual Meeting program committee has worked very hard to organize an excellent program. Our thanks to the overall program committee: Ignacio Ipharraguerre (overall chair), Cathy Williams, Mike Brouk, Tom McFadden, Trish Dawson, and Stephanie Clark for their efforts in bringing forth this outstanding program. We also thank the many others who contributed to this huge undertaking, including all the section chairs, the FASS staff, the ADSA Board of Directors, and the ADSA executive director, Peter Studney.

Finally, thank you for attending ADSA 2017 and making it a successful meeting. This meeting is absolutely dependent on people sharing their recent science. There is no other way to get personal, deep, and interesting feedback on your work from experts in research execution and field application. The meetings are an important complement to the *Journal of Dairy Science* for the growth and development of individual science papers and for the individual scientists that make up our community. For many of you, this will be your first all-dairy meeting, so the scale is a bit more intimate. I am sure you will find the meetings both intellectually and socially stimulating. Now let's get to it!

Lou Armentano
ADSA President

General Meeting Information

Location

The 2017 ADSA Annual Meeting will be held at the David L. Lawrence Convention Center and surrounding hotels in Pittsburgh. The post-conference Teagasc Moorepark/University College Cork Cheese Symposium will be held at the Omni William Penn Hotel.

Schedule of Events

Pre-conference symposia and workshops are scheduled for Sunday, June 25, and the opening session will be held on Sunday evening; scientific sessions will begin Monday morning, June 26, and run through noon on Wednesday, June 28. Post-conference symposia will be held on Wednesday afternoon and Thursday; please check the scientific program starting on page 41.

Opening Session

Please join us at the opening session for a keynote address by Ethan Schutz, president of The Schutz Company, titled *Can't We Just Get Along? Keys to Working Well with People*. After the session, join us for a book signing and food and drink at the opening reception.

Program Format for 2017

Poster sessions (Monday and Tuesday)	7:30 am – 9:30 am
Morning scientific sessions	9:30 am – 12:30 pm
Lunch break	12:30 pm – 2:00 pm
Afternoon scientific sessions (Monday and Tuesday)	2:00 pm – 5:00 pm

Meeting rooms will be equipped for electronic presentations and preloaded sessions. Free Wi-Fi is available in all public areas.

Registration Hours

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

Saturday, June 24	3:00 pm – 5:00 pm
Sunday, June 25	7:00 am – 7:00 pm
Monday, June 26	6:30 am – 5:15 pm
Tuesday, June 27	7:00 am – 5:15 pm
Wednesday, June 28	7:00 am – 12:00 pm

Important Phone Numbers

Omni William Penn Hotel	(412) 281-7100
Pittsburgh Marriott City Center	(412) 471-4000
Westin Pittsburgh	(412) 281-3700
Drury Plaza Pittsburgh	(412) 281-2900

Media Room

A media room (Room 335) will be available throughout the meeting to provide a space for media representatives to work. Meeting press releases will be available there. Complimentary registration is available for members of the media. For more information, please contact adsa@adsa.org.

Media Check-In

Please check in at the Registration Desk in the concourse of the David L. Lawrence Convention Center.

Hospitality Lounge

The hospitality lounge will be located in Room 332 in the Convention Center. This lounge will offer attendees an area to relax, network, and catch up with friends.

Business Center

There is a FedEx Office located close to the David L. Lawrence Convention Center, at 960 Penn Avenue; phone (412) 391-2014. Use of their services is at your own expense.

Job Resource Center and Interview Room

The Job Resource Center is located in the exhibit hall. Job announcements and CVs will be organized into the following categories for posting: Animal Behavior and Well-Being; Animal Health; Animal Breeding; Extension; Food Safety; Food Science; Forages and Pastures; Genetics; Growth and Development; International Animal Agriculture; Lactation; Pharmacology and Toxicology; Physiology and Endocrinology; Production and Management; Ruminant Nutrition; and Teaching.

An interview room (Room 336) is available for company representatives to interview candidates during the meeting. Reservations are required, so please visit https://secure.fass.org/ADSA17_interview_room_reservations.asp for more information and to book a time. We will publish your reserved days/times, a brief description, and instructions to potential candidates for contacting you on the ADSA mobile website at m.adsa.org. It is the responsibility of the employers and potential candidates to make arrangements to meet. Note: you must be registered for the 2017 ADSA annual meeting to make interview room reservations.

Camera, Video Camera, and Cell Phone Policy

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

ARPAS Continuing Education Units

The 2017 ADSA Annual Meeting has been approved for up to 21 continuing education units (CEUs) for the American Registry of Professional Animal Scientists (ARPAS) certification requirements. Check the schedule of events for times and location of the ARPAS exams.

Social Media

Follow the ADSA Annual Meeting on Twitter (@ADSAMtg) using the official conference hashtag, #ADSA2017. Tweet about interesting posters and presentations, social events, or fun things to do and see while in Pittsburgh.

Presentation Information

Oral and Invited Speakers: Onsite Upload Information

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

Onsite upload: Onsite presentation upload will be available; files can be delivered to the Preload Room (Room 313) at the convention center (Saturday: 3:00 to 5:00 pm; Sunday to Tuesday: 7:00 am to 5:00 pm; Wednesday: 7:00 am to noon). **Presentations must be uploaded by 5:00 pm on the day before your scheduled presentation. Files will not be accepted via email. No presentations will be loaded while the session is in progress or between presentations.**

Speaker Ready Room

The Speaker Ready Room is located in Room 314 of the David L. Lawrence Convention Center. This room will be available for speakers from 7:00 am to 5:00 pm on each day of the meeting.

Poster Presentations

We have dedicated a two-hour block on Monday and Tuesday to poster presentations. The "open poster" sessions will be from 7:30 to 9:30 am in Exhibit Hall B. Coffee and pastries will be served in the hall from 8:00 to 9:00 am on both days.

Each poster will be available for public viewing for the entire day, with the presenting authors in attendance during the open posters time (7:30–9:30 am). All posters must be mounted on the board 30 minutes before the beginning of the day's session **(poster sessions begin at 7:30 am so posters must be mounted on boards by 7:00 am)** and must list the abstract number and corresponding day. The exhibit hall will open at 6:30 am on Monday and Tuesday. **Posters must be removed after 5:00 pm each day**. Any posters remaining after 5:30 pm each day will be removed by the convention center staff and discarded.

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

Locating the Correct Poster Board

Each poster board number corresponds to the abstract number as noted in the program. For Monday posters an "M" and for Tuesday posters a "T" precedes the board number.

New! Digital Poster Upload and Viewing

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

Mobile MyProgram—An Easier Way to Plan Your Schedule

The MyProgram planner is now mobile! Mobile MyProgram provides ADSA 2017 attendees with convenient access to the conference schedule via most mobile devices. With Mobile MyProgram, the ADSA 2017 program is more convenient than ever. Mobile MyProgram includes a personal scheduler for symposia, sessions, and events you wish to attend, and you can access and share abstracts for all presentations, read invited speaker bios, find exhibitors, and more, making it easier than ever to plan your meeting while on the go. Visit m.adsa.org to access Mobile MyProgram today!

Pittsburgh Information

Transportation in Pittsburgh

Pittsburgh International Airport (PIT) is a world-class facility that serves more than 8 million passengers annually and flies to 56 domestic and international destinations on 13 commercial carriers with more than 170 daily flights. Once in Pittsburgh, you can choose from a large selection of rental vehicles, taxis, limousines, and public transportation. Travel to Pittsburgh by car is also convenient as Pittsburgh is within 500 miles of more than half the US population. It's under 6 hours by car or train to 9 states, District of Columbia, and Canada.

Downtown Pittsburgh is approximately 19 miles from Pittsburgh International Airport (PIT). One-way fare between the airport and downtown is about $40. Start networking by sharing a cab with other meeting attendees to save expense; just print out the sign available at https://www.adsa.org/2017/hotel.asp. There are also many shuttle services available to choose from. ADSA has negotiated with one for a special discount that is valid between June 18 and June 30, 2017. Book online using our exclusive discount code: 9DCKY to save $4.00 off the round-trip SuperShuttle rate or $6.00 off round-trip ExecuCar Private Sedan rate. To book either service, go to www.supershuttle.com or use the SuperShuttle app and enter your discount code or copy this landing page where the code is preloaded: http://www.supershuttle.com/default.aspx?GC=9DCKY. The discount is valid via web or app only and gratuity is not included. Note: A $2.00 booking fee will apply to phone reservations that are booked by a reservation agent.

Pittsburgh Sightseeing Options

With 90 neighborhoods and districts, Pittsburgh is a city to be explored one delightful section at a time. What's most amazing about the city is the people that make up each of these neighborhoods. Pittsburgh's topography has played a large part in how each neighborhood was developed. Start with a dynamic Downtown, then cross the famous three rivers — the Allegheny, Monongahela, and Ohio — to find unique areas shaped by more than the region's beautiful topography. Natural geographic boundaries do their part to define, but Pittsburgh neighborhoods are also known for the clusters of attractions they offer.

Visitors can plan their itineraries by the points of the compass, focusing in turn on attractions Downtown, the Strip District, on the South Side and at Station Square, on the North Shore, and in the East End, including Oakland. Say hello to everyone you meet, and you'll be surprised at what you will learn. Pittsburgh cheers for three major league sports teams, the Penguins, the Pirates, and the Steelers. You can catch a Pirates game while you're in town for the ADSA Annual Meeting.

The ADSA Annual Meeting will be held at the David L. Lawrence Convention Center. As the world's first certified green convention center, the building symbolizes this region's commitment to sustainable development and environmental awareness. This innovative structure connects the urban city to the waterfront overlooking the Allegheny River. Boasting breathtaking views of the North Shore and Downtown Pittsburgh from the concourses, balconies and terraces, the Center is in the heart of the Downtown business and cultural districts. Hotels, retail stores, theaters, and many unique restaurants are within easy walking distance. There is plenty to do in Pittsburgh and the surrounding areas, so start exploring now at www.visitpittsburgh.com.

Check the Pittsburgh area map on page 17 for attractions close to the Convention Center and meeting hotels.

Special Events

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

ADSA Student Tour: Pittsburgh Zoo & PPG Aquarium
Saturday, June 24
12:30 – 4:30 pm
Tickets: $18

The Pittsburgh Zoo & PPG Aquarium offers students an inside glimpse behind the scenes with the zoo's animals. With a backstage pass, participants will explore animal holding areas and learn about animal care in a zoo environment. Ticket price includes zoo program, admission, and round-trip transportation and is offered to both undergraduate and graduate student members.

ADSA Undergraduate Student Midday Mixer and Lunch
Sunday, June 25
12:00 –1:00 pm
Tickets: $5
Convention Center, Ballroom B

Join your fellow dairy clubs for a fun hour of getting reacquainted and making new friends, and get to know your 2017–2018 Student Affiliate Division (SAD) Officer candidates. Ticket price includes lunch. Note: Registration is limited to ADSA undergraduate student members and advisors.

ADSA Graduate Student Division Symposium: Building Strong Work Relationships to Be Effective
Sunday, June 25
2:00 – 5:00 pm
Tickets: $10
Convention Center, Room 306

Join us for an exciting interactive workshop with the 2017 ADSA Annual Meeting keynote speaker, Ethan Schutz. Much of our work gets done by working with other people. Learn about human dynamics at work and how to get things done, solve problems, and collaborate with other people. This is what they don't teach you in school! Space is limited, so sign up early. Attendees will receive a copy of the book upon which the session is based, titled "The Human Element."

Dairy Quiz Bowl Final Round
Sunday, June 25
5:30 – 6:00 pm
Convention Center, Room 325

University teams from across North America will compete in the ADSA-SAD Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division (SAD) invites you to join them for the excitement of the final round of competition as the top two schools go head to head for the title of 2017 Dairy Quiz Bowl Winning Team.

Opening Session and Reception
Sunday, June 25
7:30 – 8:45 pm; 8:45 – 10:00 pm
Convention Center, Ballroom A and Gallery

Come help us kick off the 2017 ADSA Annual Meeting at the opening session. Then, wind down the evening by joining us after the session for food and drinks and some long-awaited socializing time with colleagues and friends.

ADSA Undergraduate Student Poster and Paper Competitions
Monday, June 26
Convention Center

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

Companion Event 1: Beautiful City of Pittsburgh Tour
Monday, June 26
10:00 am – 2:30 pm
Tickets: $60
Meet at Registration

This tour shows you a few of the best sites of Pittsburgh. Enjoy the Carnegie Museum of Art, lunch at the iconic Primanti Brothers in the famous Strip District, and a beautiful tour of the city of Pittsburgh, starting with a ride up the Duquesne Incline to enjoy one of the top 10 views in the United States, so named by *USA Today*. Then, enjoy a ride around our beautiful north shore and sports stadiums, and into our stunning downtown and historic Strip District. Tour includes transportation, lunch at Primanti, guide, ride on the Duquesne Incline, and bottled water. Preregistration for this event is required. Register early—capacity is limited!

ARPAS Exam
Monday, June 26
10:30 am – 12:30 pm; 2:00 – 4:00 pm (2 opportunities)
Convention Center, Room 307

The American Registry of Professional Animal Scientists (ARPAS) provides certification of animal scientists through examination, continuing education and commitment to a code of ethics, and disseminates applied scientific information through publication of a peer-reviewed journal, *The Professional Animal Scientist* (http://www.professionalanimalscientist.org/). Take advantage of this tremendous opportunity to become ARPAS certified.

ADSA Graduate Student Division Career Insights Lunch
Monday, June 26
12:30 – 2:00 pm
Tickets: $10
Convention Center, Room 308

New this year, join us for lunch and interact with a diverse panel of academia and industry professionals, and even a few past GSD members! Bring your questions to the event as panel members will field questions related to their experience moving from graduate school to the professional world. This lunch is intended to give attendees an informal environment in which to inquire about each professional's personal journey and the challenges they encountered along the way. A $10 registration fee is required and a boxed lunch is included.

SAD Undergraduate Career Roundtable Lunch
Monday, June 26
12:30 – 2:00 pm
Tickets: $10
Convention Center, Room 304-305

This year we've added lunch to this already successful SAD program. It is conveniently scheduled during the lunch break on Monday, so students will have the opportunity to dine and network with professional members representing a wide array of careers in the dairy industry. They will learn about careers in the industry, get useful tips on planning for their careers, and much more. Students are encouraged to dress professionally (business casual or better) and bring

several copies of their résumés. Students should also plan time to visit industry reps in the exhibit hall for information about internships and job opportunities.

ADSA Awards Program
Monday, June 26
7:00 – 8:00 pm
Westin Hotel, Allegheny Ballroom

All meeting participants, families, and friends are welcome to attend the 2017 ADSA awards program. Please join us at this special event to recognize and congratulate the 2017 award winners.

Ice Cream Social
Monday, June 26
8:15 – 9:30 pm
Westin Hotel, Allegheny Foyer

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

SAD Riverboat Cruise: Gateway Clipper
Monday, June 26
8:30 – 11:00 pm
Tickets: $25

With the hard work behind you, it's time to celebrate! Join your fellow undergraduates aboard the Gateway Clipper for an evening cruise on Pittsburgh's famous three rivers: the Monongahela, the Allegheny, and the Ohio, while enjoying the beautiful setting sun over the river city. Ticket price includes light snacks and sodas.

Fun Run, sponsored by Feed Components
Tuesday, June 27
6:30 am
Point State Park

Please join your friends at Feed Components for a 5K run in the beautiful city of Pittsburgh, as we run through Point State Park and enjoy views of downtown along the rivers.

Undergraduate Career Symposium—Science to Social: Connecting with Today's Consumer Online
Tuesday, June 27
9:30 – 11:00 am
Convention Center, Room 304-305

It's no surprise that many consumers today are disconnected from their food source. Join this digital workshop to learn how to use your credibility and online tools to reach consumers with accurate information about dairy. You'll walk away with new techniques and ready to share your story online. This program is open to all ADSA meeting attendees, including undergraduates. To help us plan, please register on the registration form.

Companion Event 2: Flavor of Pittsburgh Tour
Tuesday, June 27
9:45 am – 1:45 pm
Tickets: $70
Meet at Registration

Step aboard your bus at the convention center for a tour of the historic Market Square. Visit famed Pittsburgh food spots such as Nicholas Coffee, Prantil's Bakery, Mancini's Bread, Church Brew Works, and Enrico Bakery, the bakery featured in the film "My Bread, My Sweet". The tour also includes a stop at the new Pittsburgh Market and the Olive Tap, and wraps up at Family Farm Creameries for ice cream. While a formal lunch is not included, the tour includes enough food to replace a meal. Preregistration for this event is required. Register early—capacity is limited!

ARPAS Exam
Tuesday, June 27
10:30 am – 12:30 pm; 2:00 – 4:00 pm (2 opportunities)
Convention Center, Room 307

The American Registry of Professional Animal Scientists (ARPAS) provides certification of animal scientists through examination, continuing education and commitment to a code of ethics, and disseminates applied scientific information through publication of a peer-reviewed journal, *The Professional Animal Scientist* (http://www.professionalanimalscientist.org/). Take advantage of this tremendous opportunity to become ARPAS certified.

ADSA Undergraduate Student Awards Lunch
Tuesday, June 27
11:45 am – 2:00 pm
Convention Center, Ballroom B

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

ADSA Graduate Student Division Three-Minute Thesis Challenge
Tuesday, June 27
2:30 – 3:30 pm
Convention Center, Room 333

Graduate student members are encouraged to take part in the return of the Three-Minute Thesis Challenge. This event will test the competitors' ability to quickly and concisely convey their research in a way that is understandable to all. 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 abstract describing the presentation. Everyone is invited to attend to watch these students compete for cash prizes and present their research in a fun and exciting way!

ADSA Graduate Student Division Business Meeting and Open Forum
Tuesday, June 27
3:45 – 4:30 pm
Convention Center, Room 333

In addition to greeting the incoming GSD officer team, attend this meeting to voice your ideas and opinions about ADSA graduate student activities. Learn about our upcoming events and enjoy conversations with your fellow dairy science graduate students.

ADSA GSD Mixer: Take Me Out to the Ballgame (Pirates vs. Rays)
Tuesday, June 27
7:00 pm
PNC Park
Tickets: $10

Enjoy a fun night of entertainment and networking with your fellow dairy science graduate students as we cheer on the Pittsburgh Pirates professional baseball team. Join us at PNC Park, a short 15-minute walk from the convention center, where GSD members will sit together in a reserved block to watch the game. A $10 registration fee includes your ticket to the game AND a $10 food voucher to use at the stadium. Whether you're an avid baseball fan or not, attend to enjoy a night of fresh air, ballpark food, and a chance to network with other graduate students!

2017 ADSA Award Donors

ABS Global Inc.
Alltech Biotechnology Center
American Dairy Science Association
American Dairy Science Association Foundation
American Feed Industry Association
Cargill Animal Nutrition
DeLaval Inc.
Elanco Animal Health
Elsevier
Hoard's Dairyman
International Dairy Foods Association
Kraft Heinz
Lallemand Animal Nutrition
Leprino Foods
National Dairy Council
National Milk Producers Federation
Novus International
Nutrition Professionals Inc.
Purina Animal Nutrition
Schreiber Foods
West Agro Inc.
Zoetis

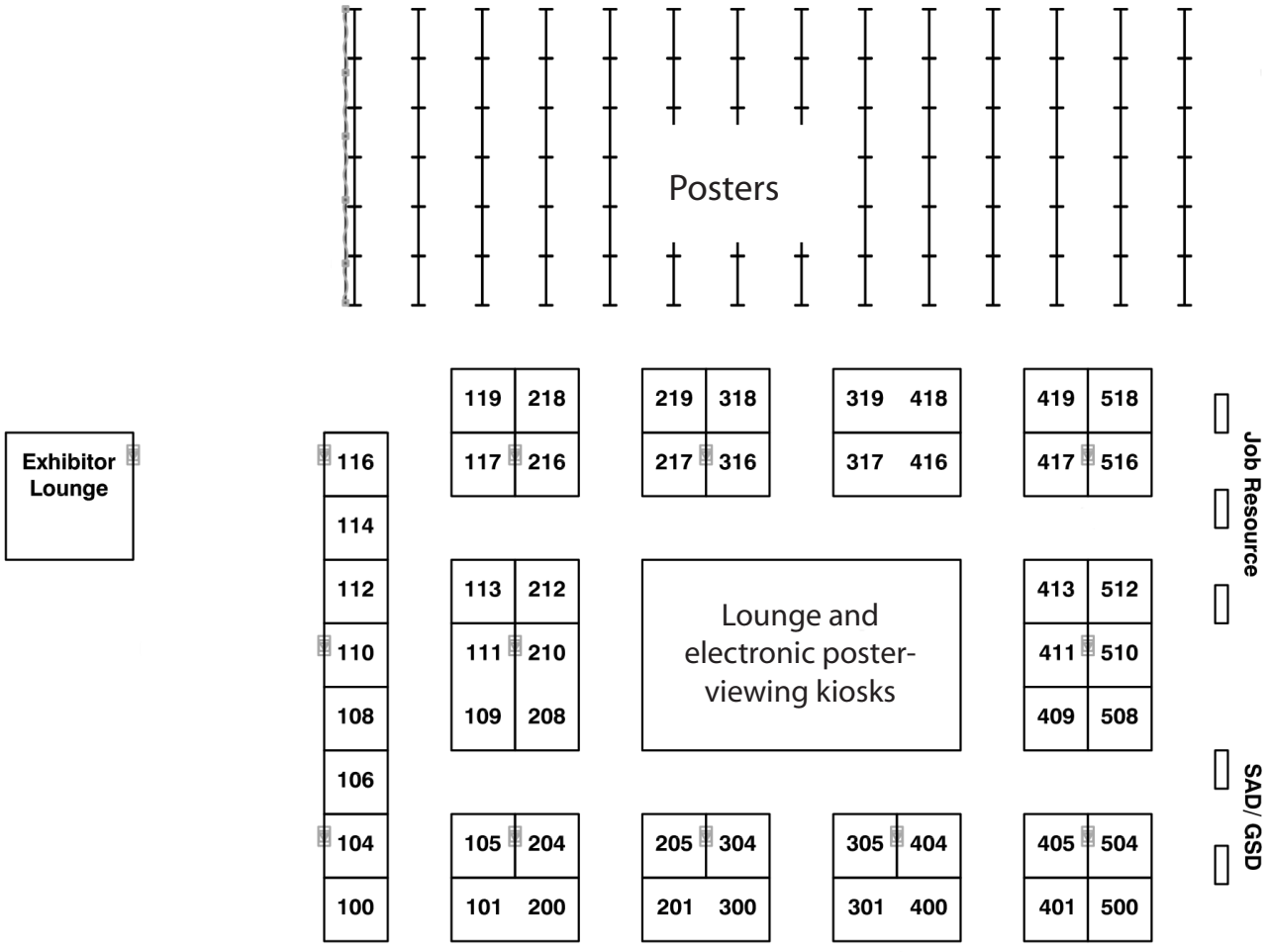
Exhibit Schedule

Sunday, June 25
Set up exhibits ..... 10:00 am – 6:00 pm
Monday, June 26
Exhibits open ..... 8:00 am – 5:00 pm
Tuesday, June 27
Exhibits open ..... 8:00 am – 2:00 pm
Exhibits dismantled ..... 2:00 pm – 5:00 pm

Coffee, milk, and pastries will be served from 8:00 to 9:00 am on Monday and Tuesday.
Thank you to Dean Foods for providing the milk.

Dean FOODS

Exhibit Hall B



Guide to Exhibitors/Booth Numbers

A special thank you to our 2017 ADSA Annual Meeting Exhibitors!

Exhibit Directory

Acumen Detection LLC
6274 Running Ridge Rd
Syracuse, NY 13212
http://www.acumendetection.com
Booth(s): 516

Acumen Detection provides a complete solution for on-farm mastitis detection. Within 2.5 hours, you will be able to detect mastitis and know if it is a gram-negative or gram-positive pathogen. Detect *Mycoplasma*, *Staph* or *Strep* in 5 hours or less.

Adifo NV
Industrielaan 11b
9990 Maldegem
Belgium
http://www.adifo.com
Booth(s): 411

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

Adisseo
4400 N Point Pkwy, Ste 275
One Point Royal
Alpharetta, GA 30022-2429
http://www.adisseo.biz/
Booth(s): 109, 111

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

Ag Processing Inc.
12700 West Dodge Road
Omaha, NE 68154
http://www.aminoplus.com
Booth(s): 219

Ag Processing Inc., the largest cooperative soybean processor in the world, produces of AminoPlus, the number one volume bypass soybean meal supplement in United States. The AminoPlus process utilizes soybean meal to provide high amino acid quality, rumen bypass, and intestinal digestibility without the addition of chemicals or non-soybean components.

Agarwal Group of Industries
15-1-52/1 Jagdish Nivas
Old Feelkhana
Hyderabad, Telangana 500 012, India
http://globalagripl.com/
Booth(s): 119

Agarwal Group of Industries is a third-generation family business, manufacturing and exporting palm oil-based fats for dairies across the world as feed ingredients. We also manufacture and export edible oil-based animal nutrition products and feed supplements.

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

Agri-King is an animal nutrition company committed to the success and profitability of livestock producers worldwide. Known for its precise feed analyses, highly fortified products, and knowledgeable staff, Agri-King strives to help livestock producers get the most out of each pound of feed and each head of livestock.

Ajinomoto Heartland Inc.
8430 W Bryn Mawr Ave, Ste 650
Chicago, IL 60631-3421
http://www.ajipro-l.com
Booth(s): 113

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 Heartland, 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
https://www.adsa.org/
Booth(s): 417

Established in 1906, ADSA is an international organization of educators, scientists, industry, and government representatives who are committed to advancing the dairy industry. All are keenly aware of the vital role the dairy sciences play in fulfilling the economic, nutritive, and health requirements of the world's population. Together, ADSA members have discovered new methods and technologies that have revolutionized the dairy industry. Please visit www.adsa.org for more information.

American Registry of Professional Animal Scientists (ARPAS)
1800 S Oak St, Ste 100
Champaign, IL 61820-6974
http://www.arpas.org/
Booth(s): 106

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.

ANKOM Technology
2052 O'Neil Rd
Macedon, NY 14502-8953
http://www.ankom.com
Booth(s): 217

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

Arm & Hammer Animal Nutrition
469 N Harrison St
Princeton, NJ 08540-3510
http://AHanimalnutrition.com
Booth(s): 419

Animals First. Productivity Always. For the most important jobs you need to get done, Arm & Hammer Animal Nutrition can help keep you on the road to success. During each animal's life cycle, there are many unexpected turns along the way and we'll help you deliver the right advice with the right products at the right time. We'll help navigate so you can stay focused.

Balchem
PO Box 600, 52 Sunrise Park
New Hampton, NY 10958-0600
http://www.balchem.com
Booth(s): 319, 418

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

Bar Diamond Inc
PO Box 60
Parma, ID 83660-0060
http://www.bardiamond.com
Booth(s): 318

Bar Diamond provides rumen cannulae and accessories to researchers worldwide. Let us know how we can help you.

BCF Technology
2900 43rd St NW, Ste 600
Rochester, MN 55901
http://www.bcftechnology.com
Booth(s): 105

A worldwide provider of animal and veterinary diagnostic imaging solutions, bovine ultrasound for sexing, preg check, pregnancy diagnosis, fetal aging, and gender. The Easi-Scan is rugged, reliable, and built to cope with the demanding environment of the farm, stable, and veterinary practice.

BIOMIN America Inc.
1846 Lockhill Selma Rd, Ste 101
San Antonio, TX 78213-1551
http://www.biomin.net
Booth(s): 504

As an animal nutrition company, BIOMIN develops and produces feed additives, premixes, and services for healthy and profitable animals. Our solutions cover mycotoxin risk management and natural growth promotion for swine, poultry, ruminants and aquaculture.

Bioprocess Control AB
Scheelevagen 22
223 63 Lund
Sweden
http://www.bioprocesscontrol.com
Booth(s): 218

Bioprocess Control is a technology and market leader in the area of advanced instrumentation and control technologies for research and commercial applications in a wide range of industries. The company was founded in 2006, and brings to market more than 15 years of industry-leading research in the area of instrumentation, control, and automation of anaerobic digestion processes. Bioprocess Control has a broad product portfolio designed for measuring low gas volume and flow with high precision and accuracy. Our instruments are used worldwide by scientists and engineers for research and industry, in a wide range of application fields.

BioZyme Inc.
6010 Stockyards Expressway
St. Joseph, Missouri 64504
http://biozymeinc.com/
Booth(s): 116

BioZyme Incorporated is an innovative company in the agricultural fields of livestock nutrition and animal microbiology. Through research and outreach, we aim to bring the highest-quality, proprietary products to animals so they can maximize their abilities to perform and thrive, for sustainability that comes full circle.

Bruker Optics Inc.
19 Fortune Dr
Billerica, MA 01821-3923
http://www.bruker.com/nir
Booth(s): 404

Using Bruker's new FT-NIR MPA-D (Multiple Purpose Analyzer - Dairy) instrument, you can perform fast analysis for all your dairy products—solid or liquid (e.g., milk, raw milk, cream, yogurt, whey, butter, ice cream, milk powder, cheese powder). www.bruker.com/dairy.

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

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

Chr. Hansen Inc.
99015 W Maple St
Milwaukee, WI 53214
http://www.chr-hansen.com
Booth(s): 110

Chr. Hansen Inc. was founded in 1874 by the Danish pharmacist Christian Ditlev Ammentorp Hansen. Since then, Chr. Hansen has continued to revolutionize and set standards for manufacture of microbial products. We believe that microbial challenges require microbial solutions. With that in mind, we own one of the world's largest commercial collections of bacteria, numbering more than 25,000 strains.

Cumberland Valley Analytical Services
14515 Industry Dr
Hagerstown, MD 21742-2410
http://www.foragelab.com
Booth(s): 101, 200

Cumberland Valley Analytical Services is a full-service forage and feed testing laboratory serving the United States, Canada, and the world. We specialize in providing contract support for the establishment and operation of NIR feed labs. We are focused on serving the analytical needs of the research community.

Dairy Nutrition Plus
406 First Street, PO Box 68
Ralston, IA 51459
http://www.dairynutritionplus.com
Booth(s): 212

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

Dairy One Forage Lab
730 Warren Rd
Ithaca, NY 14850-1242
http://www.dairyone.com
Booth(s): 216

The Dairy One Forage Lab excels in providing you with high-quality analyses and customer service. Our goal is to provide you with analytical services designed to meet the expanding demands of modern agriculture.

Dairy Records Management Systems
313 Chapanoke Rd Ste 100
Raleigh, NC 27603-3435
http://www.drms.org
Booth(s): 208, 210

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

DASCOR Inc.
PO Box 462885
Escondido, CA 92046-2885
http://www.dascor.com
Booth(s): 316

A world leader, DASCOR provides data loggers for ruminal research with over 500 units already in the field, which measure temperature, ORP/REDOX, pH, and battery voltage. Support software allows calibration and set-up for tests, and downloads the data into an Excel compatible file. DASCOR has improved the performance and long-term reliability of both the loggers and sensors. Our pH sensors now have significantly extended life, reliability and repeatability demonstrated over multiple field trials.

Diamond V
2525 60th Ave SW
Cedar Rapids, IA 52404
http://www.diamondv.com
Booth(s): 301, 400

Diamond V is a leading global nutrition and health company that conducts research in dairy cattle and other species and manufactures natural, precision fermentation products to support animal health, animal performance, and food safety worldwide. Global headquarters and all manufacturing is located in Cedar Rapids, Iowa. Diamond V also has offices in five other countries and markets products in more than 60 countries. More than 70 years of science, innovation, technology, and quality have earned Diamond V the reputation of The Trusted Experts in Nutrition and Health. Contact Diamond V at tel. +1.319.366.0745, email info@diamondv.com, or website www.DiamondV.com.

E. I. Medical Imaging
110 12th Street SW, Unit 102
Loveland, CO 80537
http://www.eimedical.com/
Booth(s): 305

E.I. Medical Imaging (EIMI) is a world leader and the only US manufacturer of portable ultrasound solutions specifically engineered for veterinary use. For the past 32 years, the company's core values have remained intact: putting the customer first and delivering solid, effective ultrasound solutions. EIMI provides the Ibex portable ultrasound systems.

Elsevier
Radarweg 29
1043 NX Amsterdam
Netherlands
http://www.elsevier.com
Booth(s): 508

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

FASS
1800 S Oak St, Ste 100
Champaign, IL 61820-6974
https://www.fass.org/
Booth(s): 518

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

Feed Components
1988 Energy Dr
East Troy, WI 53120
http://www.feedcomponents.com
Booth(s): 205, 304

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

Feedstuffs
12400 Whitewater Dr Ste 160
Minnetonka, MN 55343-4158
http://www.Feedstuffs.com
Booth(s): 409

Animal agriculture's news and information leader.

Grober Nutrition LLC
20 Eagle Dr
Auburn, NY 13021
http://www.grobernutrition.com
Booth(s): 401

Grober Nutrition is a milk replacer and ingredient company based in upstate New York.

HerdStrong
3115 35th Avenue
Greeley, CO 80634-9415
http://dvmsystems.com
Booth(s): 512

HerdStrong develops and markets automatic animal monitoring products internationally to dairy and beef farms, and research organizations providing industry leading early illness and calving alerts. HerdStrong's TruCore technology delivers highly accurate, reliable core body temperature data for research requiring a true gold standard. TruCore software allows researchers to capture core body temperature data and optionally to take advantage of HerdStrong's baseline, water drinking event elimination, illness detection and calving data based upon proprietary algorithms from years of research. Data is secure and automatically backed up and can be exported to a .csv file for onsite or remote access.

Innovative Additives Inc.
33 Eagle Drive
Rehoboth Beach, DE 19971
http://www.innovad-global.be/
Booth(s): 405

Innovative Additives is a brand that combines experience in the field of animal feed additives and an innovative approach and dedication to animal well-being and a healthy environment while securing the producer's cost effectiveness. With corporate headquarters and state-of-the-art production facilities close to Antwerp in Belgium, we are positioned to serve the global feed and animal industry.

King Techina Group
Ren He Jie Dao, Yuhang District
Hangzhou, Zhejiang 311107
China
http://www.kingtechina.com
Booth(s): 317, 416

King Techina has been devoted to developing and utilizing patented IMTM (Intelligent Microcapsule) technology since 1999. We provide IMTM technology-based products and services to improve animal health, increase productivity and efficiency, promote food safety and build a more sustainable agricultural system. All King Techina products are manufactured and packaged in plants certified by GMP+, FAMI-QS, ISO9001 and FDA. Customers in nearly 50 countries trust and use King Techina products and services, and our team will always be here to work with you side by side.

Milk Specialties Global
7500 Flying Cloud Drive, Suite 500
Eden Prairie, MN 55344
http://www.milkspecialties.com
Booth(s): 500

Milk Specialties Global Animal Nutrition is recognized for innovative and science-based products that offer proven benefits to the dairy industry. We are one of the largest providers of functional fats and are led by our flagship brand and top-selling product Energy Booster, as well as milk replacer products and dairy ingredients.

Novus International
20 Research Park Dr
Saint Charles, MO 63304-5633
http://www.novusint.com
Booth(s): 112

Novus is a leading developer of animal health and nutrition products for all species with worldwide headquarters in St. Charles, Missouri. Offering products based in science such as Alimet and MHA methionine supplements, Santoquin and Agrado Plus antioxidants, Mintrex and MAAC chelated trace minerals, and Cibenza enzymes. Other notable Novus product lines include Zorien SeY, Solis, and Sporulin. Novus works to improve animal performance, health and well-being globally.

Origination Inc.
1300 McKnight Road North
Maplewood, MN 55119
http://www.OriginationO2D.com
Booth(s): 114

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

PortaCheck Inc.
1 Whittendale Dr, Ste E
Moorestown, NJ 08057
https://www.portacheck.com/
Booth(s): 104

PortaCheck Inc. was founded in 2004 to focus on the marketing and sale of portable testing devices for the dairy industry. Our on-farm tests that screen for mastitis, SCC and ketosis are now sold in over 65 countries.

Poultry Protein & Fat Council
1530 Cooledge Rd
Tucker, GA 30084-7303
http://www.poultryrenderers.org/
Booth(s): 510

The leading technical resources and advocate for the poultry rendering industry, serving its members through research, education, and promotional services.

SoyBest
PO Box 157
West Point, NE 68788-0157
http://www.soybest.com
Booth(s): 201, 300

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

Stuhr Enterprises LLC
2210 Hwy 34
Waco, NE 68460
http://www.stuhrenterprises.com
Booth(s): 100

Stuhr Enterprises LLC is a global company with manufacturing plants in Iowa and Missouri. It makes and markets two transition cow feed additives: Anion Booster is the most palatable anion additive available in the market and is commonly the best value compared with other anion sources. Glucose Booster is the most effective glucose precursor available in the market with recent research proving its efficacy.

Topcon Agriculture (formerly Digi-Star LLC)
W5527 Hwy 106
Fort Atkinson, WI 53538
http://www.digi-star.com
Booth(s): 108

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

VetAgro Inc.
230 S Clark St, Ste 320
Chicago, IL 60604-1406
http://www.vetagro.com
Booth(s): 117

VetAgro specializes in the microencapsulation of feed additives and nutrients tailored to match the digestive capacity and intestinal transit time of poultry, swine and ruminants. We are present globally, with international patents evidencing our novelty and innovation. Our dairy products include Timet, rumen-protected Methionine to improve milk yield and quality, Mecovit, a synergistic combination of rumen-protected methionine, choline, betaine, and B vitamins, targeting the metabolism of the transition dairy cow; AviPremium rumen-protected tributyrin, the most concentrated source of butyric acid currently available. To find out more about VetAgro products, please visit us at our booth.

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2 Pittsburgh Marriott City Center
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B PPG Paints Arena
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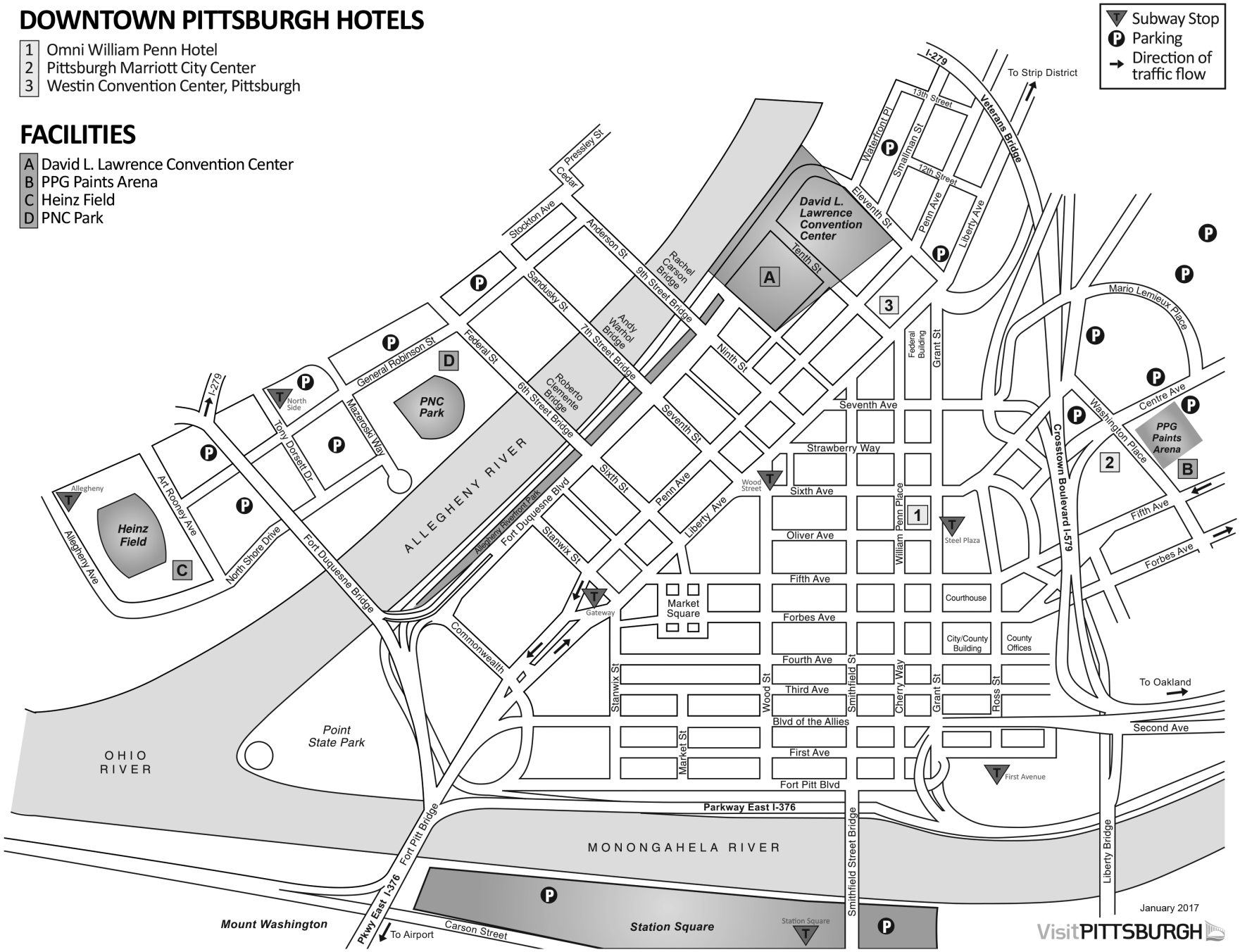
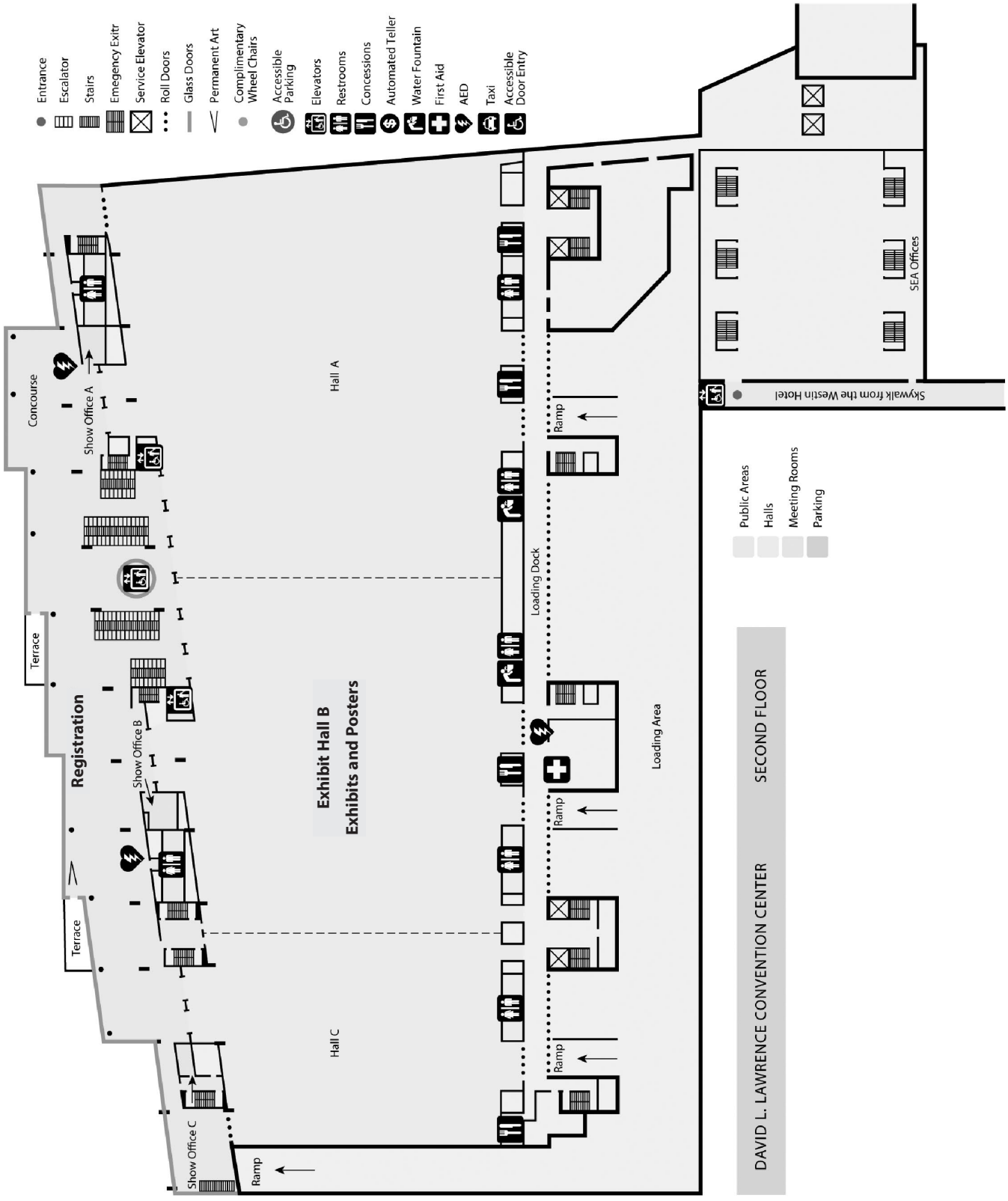
D PNC Park



Downtown Pittsburgh area

David L. Lawrence Convention Center
Level 2



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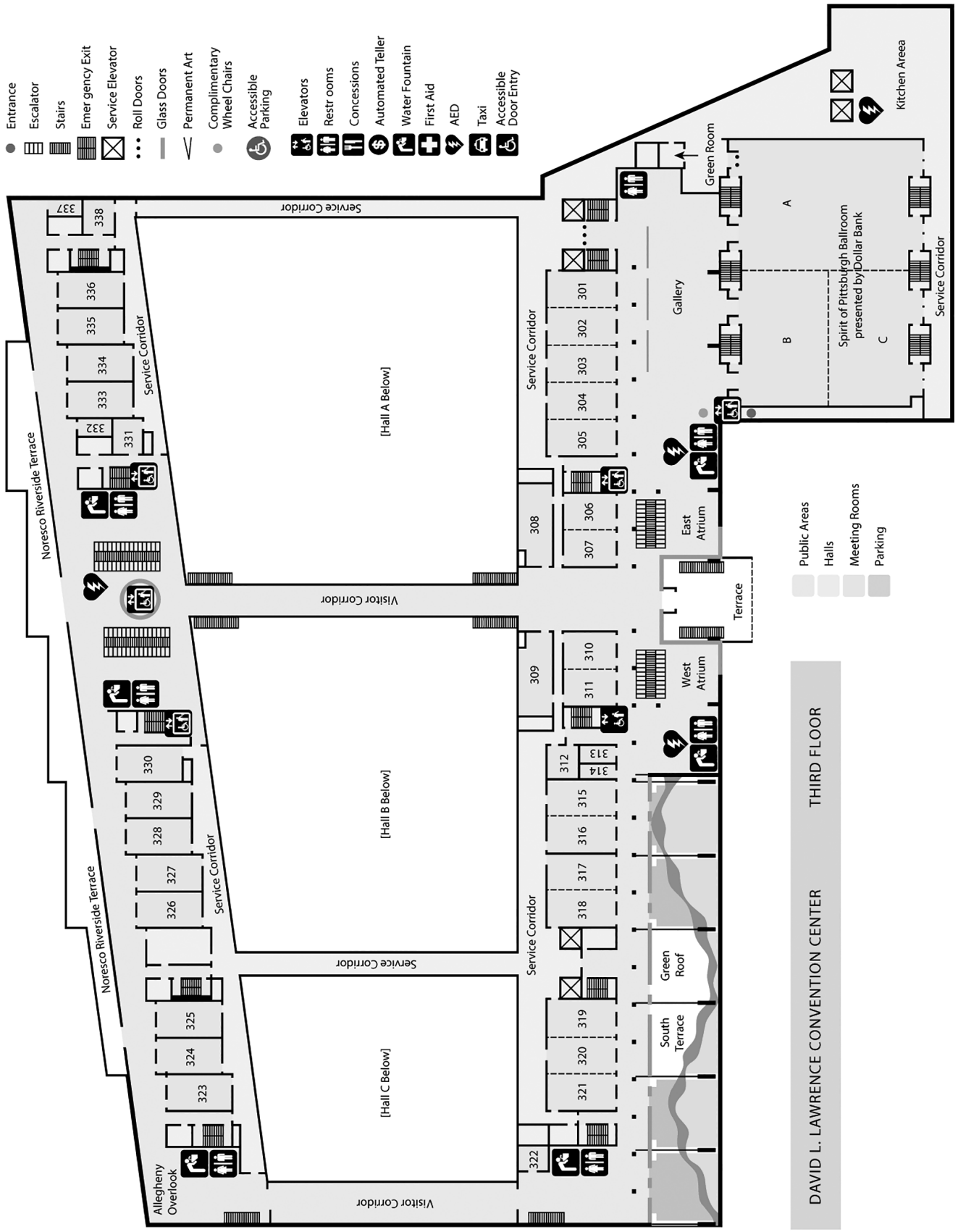

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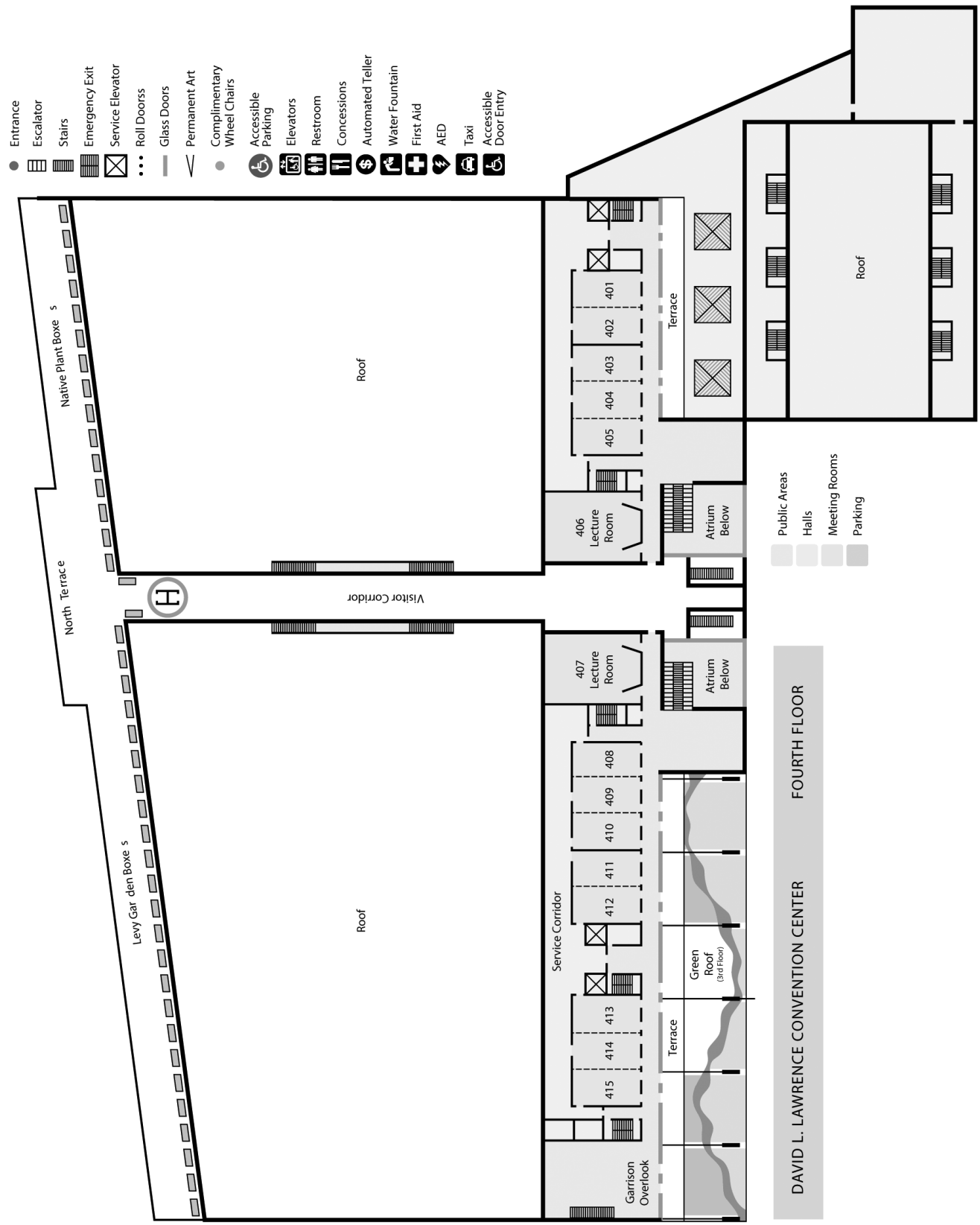

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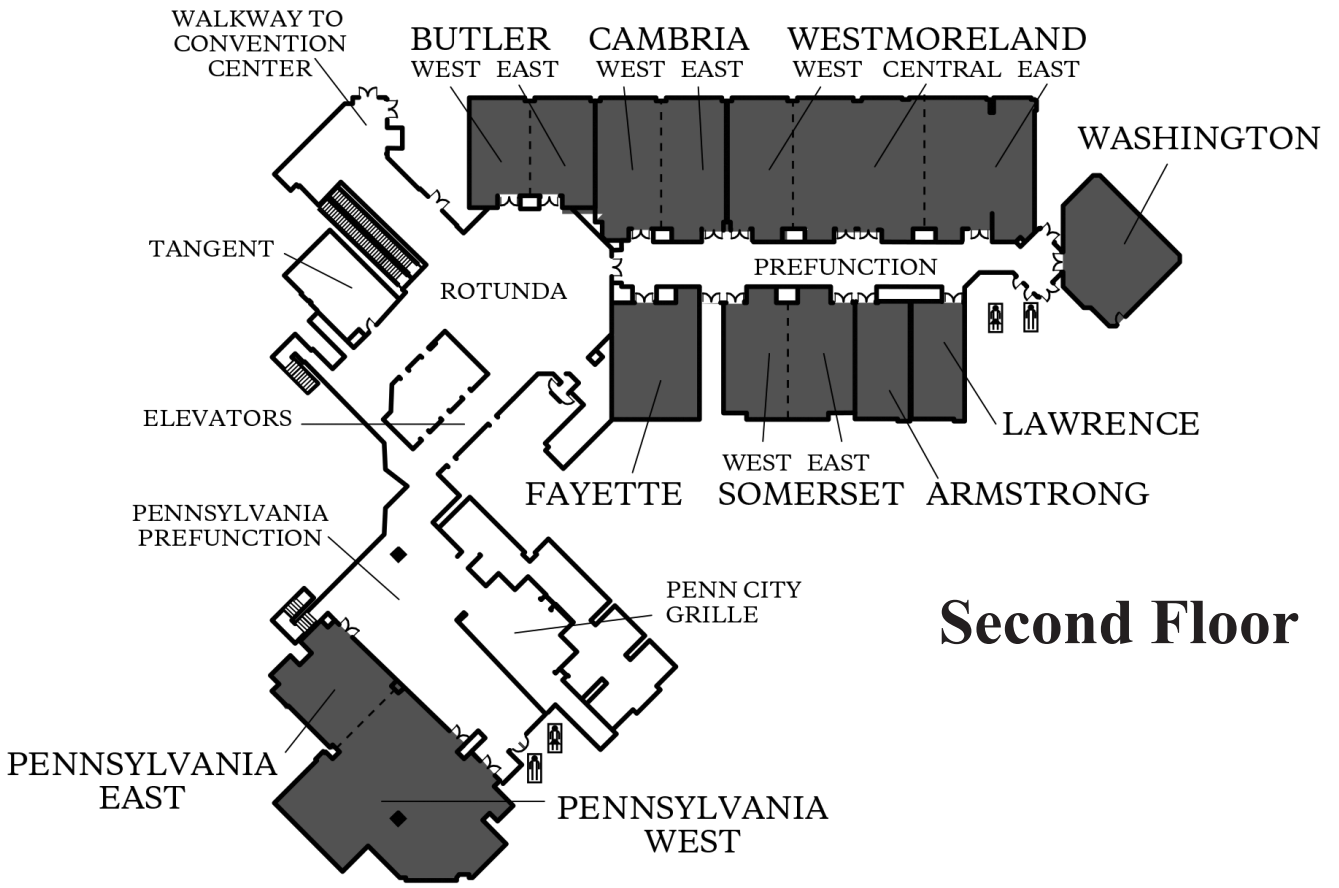
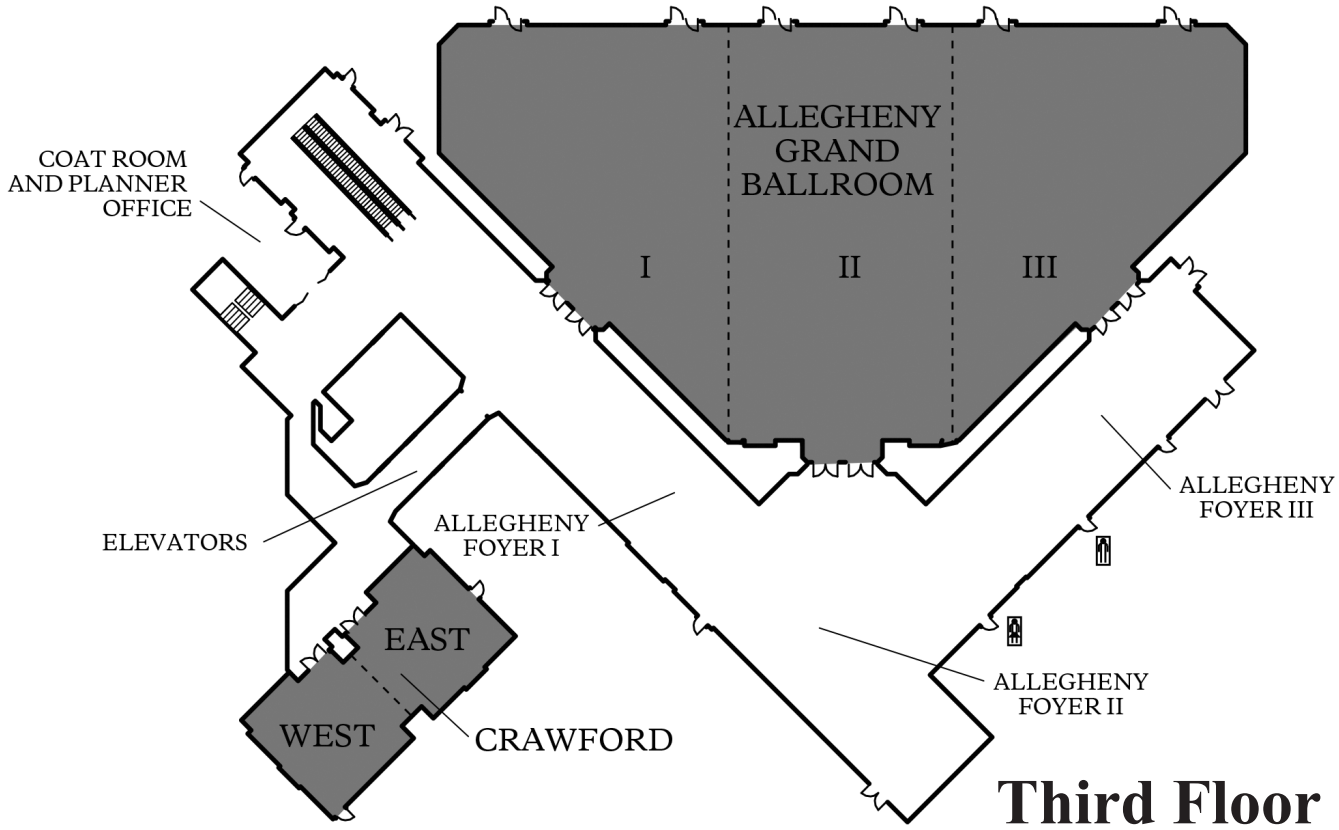


Second Floor



Third Floor

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The ADSA Foundation is excited to announce publication of the third edition (ebook) of *Large Dairy Herd Management*. The book includes 97 chapters in 15 sections: Building Sustainability and Capacity; Large Herd Systems; Facilities and Environment; Milk Markets and Marketing; Genetic Selection Programs and Breeding Strategies; Calves and Replacements; Reproduction and Reproductive Management; Nutrition and Nutritional Management; Lactation and Milking Systems; Mastitis and Milk Quality; Animal and Herd Welfare; Herd Health; Business, Economic Analysis, and Decision-Making; Effectively Managing Farm Employees; and Precision Management Technologies.

The book will be available for purchase at student and professional (member and nonmember) rates exclusively from ADSA. This third edition is fully updated and includes numerous color figures, video, and separate metric and imperial versions.

Visit http://ldhm.adsa.org/ for more information and to purchase the book today!

Schedule of Events

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

Saturday, June 24

7:30 am – 5:00 pm	ADSA Extended Leadership Strategic Planning	Cambria, Westin
12:30 pm – 4:30 pm	Student Tour: Pittsburgh Zoo and PPG Aquarium	Meet in SAD hotel lobby
3:00 pm – 5:00 pm	Registration open	Concourse
3:00 pm – 5:00 pm	Preload room open	313
7:00 pm	Undergraduate Student Informal Mixer	Meet in SAD hotel lobby

Sunday, June 25

7:00 am – 5:00 pm	Preload room open	313
7:00 am – 5:00 pm	Speaker ready room open	314
7:00 am – 7:00 pm	Registration open	Concourse
7:30 am – 10:00 am	New Board Orientation	Executive Boardroom, Westin
8:30 am – 2:30 pm	ADSA Lactation Symposium	303
9:00 am – 4:00 pm	NANP Nutrition Models Workshop	304-305
10:00 am – 11:00 am	Undergraduate Student Officers and Advisors Meeting	322
10:00 am – 3:00 pm	Workshop: The Impact of Raw Milk on Dairy Products	307
10:00 am – 6:00 pm	Exhibit setup (exhibitors and student dairy clubs)	Exhibit Hall B
11:00 am – 12:00 pm	Undergraduate Student Quiz Bowl Officials Meeting	322
11:30 am – 12:00 pm	Undergraduate Student Quiz Bowl Seating Test	Ballroom B
12:00 pm – 1:00 pm	Undergraduate Student Midday Mixer and Lunch	Ballroom B
12:00 pm – 1:00 pm	2018 Program Committee Meeting	331
12:00 pm – 5:00 pm	Hospitality Lounge open	332
12:00 pm – 5:00 pm	Media Room open	335
12:00 pm – 5:00 pm	JDS Editors and JMC Lunch and Meeting	Westmoreland, Westin
1:00 pm – 5:00 pm	Undergraduate Student Quiz Bowl Seating/ Preliminary Rounds	323 and 325
1:00 pm – 5:00 pm	Teaching Workshop: Helping Students Learn	308
2:00 pm – 3:00 pm	Production Division Council Meeting	322
2:00 pm – 3:30 pm	ADSA Foundation Board of Trustees Meeting	Fayette, Westin
2:00 pm – 5:00 pm	Graduate Student Division Symposium: Building Strong Work Relationships to Be Effective	306
3:00 pm – 4:00 pm	Production Division Nominating Committee	322
3:00 pm – 5:00 pm	Late-Breaking Original Research Session (open to all attendees)	310-311
3:00 pm – 6:30 pm	Dale Bauman Recognition Symposium and Reception	301-302
5:00 pm – 6:00 pm	Dairy Foods Division Council Meeting	322
5:30 pm – 6:00 pm	Dairy Quiz Bowl Final Round	325
7:30 pm – 10:00 pm	Opening Session and Reception	Ballroom A and Gallery

Monday, June 26

6:30 am – 7:00 am	Undergraduate Student Posters setup	Exhibit Hall B
6:30 am – 8:00 am	Production Division Extension Breakfast	Butler West, Westin
6:30 am – 5:15 pm	Registration open	Concourse
7:00 am – 5:00 pm	Preload room open	313
7:00 am – 5:00 pm	Speaker ready room open	314
7:15 am – 8:30 am	Turn in SAD yearbooks and scrapbooks	Exhibit Hall B, SAD booth
7:30 am – 9:30 am	Undergraduate Student Poster Presentations	Exhibit Hall B
7:30 am – 9:30 am	Poster presentations	Exhibit Hall B
8:00 am – 9:00 am	Coffee, milk, and pastries	Exhibit Hall B
8:00 am – 9:00 am	Introduction to S-PAC	Exhibit Hall B, ADSA booth
8:00 am – 10:00 am	International Feed and Nutrition Network meeting	306
8:00 am – 5:00 pm	Media Room open	335

8:00 am – 5:00 pm	Interview Room open	336
8:00 am – 5:00 pm	Commercial exhibits open	Exhibit Hall B
8:00 am – 5:00 pm	Job Resource Center open	Exhibit Hall B
8:00 am – 5:00 pm	Hospitality Lounge open	332
8:30 am – 9:30 am	Undergraduate Student Judging of Yearbooks, Scrapbooks, Annual Reports	Exhibit Hall B, SAD booth
8:30 am – 9:30 am	Undergraduate Student Interviews for Outstanding Student and Advisor Awards	322
8:45 am – 10:00 am	Undergraduate Student Activities Symposium	333
9:30 am – 5:00 pm	Scientific sessions	Convention Center
10:00 am – 10:45 am	Undergraduate Student Business Meeting	334
10:00 am – 2:30 pm	Companion Tour 1: Beautiful City of Pittsburgh Tour	Meet near Registration
10:30 am – 12:30 pm	ARPAS Exam	307
11:00 am – 5:00 pm	Undergraduate Student Paper Presentations	333 and 334
12:30 pm – 2:00 pm	Graduate Student Division Career Insights Lunch	308
12:30 pm – 2:00 pm	Undergraduate Student Career Roundtable Lunch	304-305
12:30 pm – 2:00 pm	Production Division Business Meeting (boxed lunch for purchase)	306
12:30 pm – 2:00 pm	ADSA Past Presidents' Luncheon	Butler West, Westin
2:00 pm – 4:00 pm	ARPAS Exam	307
2:00 pm – 5:30 pm	ADSA Southern Branch Symposium and Business Meeting	318
5:00 pm – 6:30 pm	Award Donor Dinner	Pennsylvania, Westin
7:00 pm – 8:00 pm	Awards Program and Ceremony	Allegheny Ballroom, Westin
8:15 pm – 9:30 pm	Ice Cream Social	Allegheny Foyer, Westin
8:30 pm – 11:00 pm	Undergraduate Student Mixer: Riverboat Cruise on Gateway Clipper	Meet at Convention Center dock, Fort Duquesne Blvd

Tuesday, June 27

6:30 am	Fun Run	Point State Park
6:30 am – 8:00 am	JDS Editorial Board Breakfast/Meeting	Somerset, Westin
6:30 am – 8:00 am	Dairy Foods Division Milk Protein and Enzymes Breakfast	Fayette, Westin
7:00 am – 5:00 pm	Preload room open	313
7:00 am – 5:00 pm	Speaker ready room open	314
7:00 am – 5:15 pm	Registration open	Concourse
7:30 am – 9:30 am	Poster presentations	Exhibit Hall B
8:00 am – 9:00 am	Coffee, milk, and pastries	Exhibit Hall B
8:00 am – 9:00 am	ADSA Spokesperson Program Q&A	Exhibit Hall B, ADSA booth
8:00 am – 2:00 pm	Commercial exhibits open	Exhibit Hall B
8:00 am – 2:00 pm	Job Resource Center open	Exhibit Hall B
8:00 am – 5:00 pm	Media Room open	335
8:00 am – 5:00 pm	Interview Room open	336
8:00 am – 5:00 pm	Hospitality Lounge open	332
8:30 am – 9:30 am	Undergraduate Student Business Meeting— Election of Officers	334
9:30 am – 11:00 am	Undergraduate Career Symposium: Science to Social: Connecting with Today's Consumer Online (open to all attendees)	304-305
9:30 am – 5:00 pm	Scientific sessions	Convention Center
9:45 am – 1:45 pm	Companion Tour 2: Flavor of Pittsburgh Tour	Meet near Registration
10:00 am – 11:00 am	Discover Conference Steering Committee Meeting	322
10:30 am – 12:30 pm	ARPAS Exam	307
11:30 am – 12:30 pm	Dairy Foods Division Business Meeting	331
11:45 am – 2:00 pm	Undergraduate Student Awards Lunch	Ballroom B
12:30 pm – 2:00 pm	Dairy Foods Division Program Planning Lunch	322
2:00 pm – 3:00 pm	Undergraduate Student Award Photos	Ballroom B
2:00 pm – 3:00 pm	Undergraduate Student Exhibits— Pick up yearbooks and scrapbooks	Exhibit Hall B, SAD booth

2:00 pm – 4:00 pm	ARPAS Exam	307
2:00 pm – 5:00 pm	Commercial exhibits dismantle	Exhibit Hall B
2:30 pm – 3:30 pm	Undergraduate Student Committee Meeting— Old and New Officers and Advisors	322
2:30 pm – 3:30 pm	Graduate Student Division Three-Minute Thesis Challenge	333
3:45 pm – 4:30 pm	Graduate Student Division Business Meeting and Open Forum	333
5:00 pm – 7:00 pm	Informal Calf Gathering	Westmoreland, Westin
5:00 pm – 7:00 pm	Informal Milk Quality Session (new in 2017)	Allegheny 2, Westin
6:00 pm	Wisconsin Breakfast (speaker Juan Loor), hosted by Feed Components	Sienna Mercato, 942 Penn Ave
6:30 pm – 8:30 pm	Penn State University Reception	Butler West, Westin
7:00 pm – 9:00 pm	Iowa State Alumni and Friends Reception	Cambria, Westin
7:00 pm – 9:00 pm	Purdue Animal Sciences Alumni Reception	Somerset, Westin
7:00 pm – 10:00 pm	Canadian Society of Animal Science (CSAS) Wine and Cheese Social	Fayette, Westin
7:00 pm – 10:00 pm	GSD Mixer: Take Me Out to the Ballgame: Pirates vs. Rays	PNC Park

Wednesday, June 28

7:00 am – 12:00 pm	Preload room open	313
7:00 am – 12:00 pm	Speaker ready room open	314
7:00 am – 12:00 pm	Registration open	Concourse
8:00 am – 9:00 am	Mycobacterial Diseases of Animals Interest Group	331
8:00 am – 12:00 pm	Media Room open	335
8:00 am – 12:00 pm	Interview Room open	336
8:00 am – 12:00 pm	Hospitality Lounge open	332
8:00 am – 5:00 pm	Mixed Models Workshop	317-318
8:30 am – 9:30 am	ADSA Business Meeting and Open Forum	303
9:30 am – 12:30 am	Scientific sessions	Convention Center
12:30 pm – 2:30 pm	ADSA Board of Directors Meeting	Cambria, Westin

Thursday, June 29

8:00 am – 12:00 pm	Mixed Models Workshop (continued)	317-318
8:45 am – 4:15 pm	Teagasc-Moorepark/University College Cork Cheese Symposium	William Penn Ballroom, Omni William Penn Hotel

ADSA-Student Affiliate Division Program
SAD Special Events

Saturday, June 24

ADSA Student Tour: Pittsburgh Zoo & PPG Aquarium
12:30 – 4:30 pm
Tickets: $18

The Pittsburgh Zoo & PPG Aquarium offers students the opportunity to take an inside glimpse behind the scenes with the zoo's animals. With a backstage pass, participants will explore animal holding areas and learn about animal care in a zoo environment. Ticket price includes zoo program, admission, and round-trip transportation and is offered to both undergraduate and graduate student members.

Sunday, June 25

ADSA Undergraduate Student Midday Mixer and Lunch
12:00 –1:00 pm
Tickets: $5
Convention Center, Ballroom B

Join your fellow dairy clubs for a fun hour of getting reacquainted and making new friends, and get to know your 2017–2018 Student Affiliate Division (SAD) Officer candidates. Ticket price includes lunch. Note: Registration is limited to ADSA undergraduate student members and advisors.

Dairy Quiz Bowl Final Round
Sunday, June 25
5:30 – 6:00 pm
Convention Center, Room 325

University teams from across North America will compete in the ADSA-SAD Dairy Quiz Bowl. The event gives schools an opportunity to demonstrate their knowledge about dairy production, processing, and ADSA history. The Student Affiliate Division (SAD) invites you to join them for the excitement of the final round of competition as the top two schools go head to head for the title of 2017 Dairy Quiz Bowl Winning Team.

Opening Session and Reception
7:30 – 8:45 pm; 8:45 – 10:00 pm
Ballroom A and Gallery

Come help us kick off the 2017 ADSA Annual Meeting at the opening session. Then, wind down the evening by joining us after the session for food and drinks and some long-awaited socializing time with colleagues and friends.

Monday, June 26

ADSA Undergraduate Student Poster and Paper Competitions
Convention Center

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

SAD Undergraduate Career Roundtable Lunch
12:30 – 2:00 pm
Tickets: $10
Convention Center, Room 304-305

This year, we've added lunch to this already successful SAD program. This event is conveniently scheduled during the lunch break on Monday, so students will have the opportunity to dine and network with professional members representing a wide array of careers in the dairy industry. They will learn about careers in industry, get useful tips on planning for their careers, and much more. Students are encouraged to dress professionally (business casual or better) and bring several copies of their résumés. Students should also plan time to visit industry reps in the exhibit hall for information about internships and job opportunities.

ADSA Awards Program
7:00 – 8:00 pm
Allegheny Ballroom, Westin Hotel

All meeting participants, families, and friends are welcome to attend the 2017 ADSA awards program. Please join us at this special event to recognize and congratulate the 2017 award winners.

Ice Cream Social
8:15 – 9:30 pm
Allegheny Foyer, Westin Hotel

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

SAD Riverboat Cruise: Gateway Clipper
8:30 – 11:00 pm
Tickets: $25

With the hard work behind you, it's time to celebrate! Join your fellow undergraduates aboard the Gateway Clipper for an evening cruise on Pittsburgh's famous three rivers: the Monongahela, the Allegheny, and the Ohio, while enjoying the beautiful setting sun over the river city. Ticket price includes light snacks and sodas.

Tuesday, June 27

Undergraduate Career Symposium—Science to Social: Connecting with Today's Consumer Online
9:30 – 11:00 am
Convention Center, Room 304-305

It's no surprise that many consumers today are disconnected from their food source. Join this digital workshop to learn how to use your credibility and online tools to reach consumers with accurate information about dairy. You'll walk away with new techniques and ready to share your story online. This program is open to all ADSA meeting attendees, including undergraduates. To help us plan, please register on the registration form.

ADSA Undergraduate Student Awards Lunch
11:45 am – 2:00 pm
Convention Center, Ballroom B

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

SAD Schedule of Events

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

Saturday, June 24

12:30 pm – 4:30 pm	Student Tour: Pittsburgh Zoo & PPG Aquarium	Meet in SAD hotel lobby
3:00 pm – 5:00 pm	Registration open	Concourse
3:00 pm – 5:00 pm	Preload/speaker ready rooms open	313/314
7:00 pm	SAD Informal Mixer	Meet in SAD hotel lobby

Sunday, June 25

7:00 am – 5:00 pm	Preload/speaker ready rooms open	313/314
7:00 am – 7:00 pm	Registration open	Concourse
10:00 am – 11:00 am	Officers and Advisors Meeting	322
11:00 am – 12:00 pm	Dairy Quiz Bowl Officials Meeting	322
11:30 am – 12:00 pm	Dairy Quiz Bowl Seating Test	Ballroom B
12:00 pm – 1:00 pm	Midday Mixer and Lunch	Ballroom B
1:00 pm – 5:00 pm	Dairy Quiz Bowl Preliminary Rounds	323 and 325
5:30 pm – 6:00 pm	Dairy Quiz Bowl Final Round	325
7:30 pm – 10:00 pm	Opening Session and Reception	Ballroom A and Gallery

Monday, June 26

6:30 am – 5:15 pm	Registration open	Concourse
6:30 am - 7:00 am	Hanging of SAD posters	Exhibit Hall B
7:00 am – 5:00 pm	Preload/speaker ready rooms open	313/314
7:15 am – 8:30 am	Turn in yearbooks, scrapbooks, and annual reports	Exhibit Hall B, SAD booth
7:30 am – 9:30 am	Poster presentations	Exhibit Hall B
8:00 am – 9:00 am	Coffee, milk, and pastries	Exhibit Hall B
7:30 am – 9:30 am	Undergraduate Poster Presentation Competition	Exhibit Hall B
7:30 am – 5:00 pm	Posters available for viewing	Exhibit Hall B
8:00 am – 5:00 pm	Commercial exhibits open	Exhibit Hall B
8:00 am – 5:00 pm	Job Resource Center open	Exhibit Hall B
8:30 am – 9:30 am	Judging of Yearbooks, Scrapbooks, and Annual Reports	Exhibit Hall B, SAD booth
8:30 am – 9:30 am	Interviews for Outstanding Student and Advisor Awards	322
8:45 am – 10:00 am	Activities Symposium	333
9:30 am – 5:00 pm	Scientific sessions	Convention Center
10:00 am – 10:45 am	SAD Business Meeting	334
10:30 am – 12:30 pm	ARPAS Exam*	307
11:00 am – 12:30 pm	SAD Undergraduate Dairy Foods Competition	333
12:30 pm – 2:00 pm	Undergraduate Student Career Roundtable Luncheon	304-305
2:00 pm – 4:00 pm	ARPAS Exam*	307
2:00 pm – 5:00 pm	SAD Undergraduate Original Research Competition	333
2:00 pm – 5:00 pm	SAD Undergraduate Production Competition	334
5:00 pm – 5:30 pm	Removal of posters	Exhibit Hall B
7:00 pm – 8:00 pm	ADSA Awards Program	Allegheny Ballroom, Westin Hotel
8:15 pm – 9:30 pm	Ice Cream Social	Allegheny Foyer, Westin Hotel
8:30 pm	Undergraduate Student Mixer: Riverboat Cruise	Meet at Convention Center dock, Fort Duquesne Blvd

Tuesday, June 27

7:00 am – 5:00 pm	Preload/speaker ready rooms open	313/314
7:00 am – 5:15 pm	Registration open	Concourse
7:30 am – 9:30 am	Poster presentations	Exhibit Hall B
7:30 am – 2:00 pm	Posters available for viewing	Exhibit Hall B
8:00 am – 9:00 am	Coffee and pastries	Exhibit Hall B

8:00 am – 2:00 pm	Commercial exhibits open	Exhibit Hall B
8:00 am – 2:00 pm	Job Resource Center open	Exhibit Hall B
8:30 am – 9:30 am	SAD Business Meeting—Election of Officers	334
9:30 am – 11:00 am	Science to Social: A Workshop on Connecting with Today's Consumer Online	304-305
9:30 am – 5:00 pm	Scientific sessions	Convention Center
10:30 am – 12:30 pm	ARPAS Exam*	307
11:45 am – 2:00 pm	SAD Awards Lunch	Ballroom B
2:00 pm – 3:00 pm	Pick up yearbooks and scrapbooks	Exhibit Hall B, SAD booth
2:00 pm – 4:00 pm	ARPAS Exam*	307
2:30 pm – 3:30 pm	SAD Old and New Officers and Advisors Meeting	322

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

Thank you to sponsors and donors for their generous support of Student Affiliate Division and Graduate Student Division events at ADSA 2017

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Milk Protein and Enzymes
Dave Everett
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Juan Loor
Rob Rhoads

Production, Management, and the Environment
Vinicius Moreira
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Ruminant Nutrition
Timothy Hackmann
Guillermo Schroeder
Stephanie Ward

Small Ruminant
Gerardo Caja
Antonello Cannas
Maristela Rovai
Stephanie Clark

Teaching/Undergraduate and Graduate Education
Antonio Faciola
Michel Wattiaux
Cathleen Williams

Dale Bauman Recognition Symposium
Ken McGuffey
Robert Collier
Lance Baumgard

ADSA Multidisciplinary and International Keynote (MILK) Symposium
Michael VandeHaar

ADSA Southern Section Symposium
Peter Krawczel

ADSA Production Division Symposium
Cathleen Williams

ADSA Lactation Symposium
Laura Hernandez
Jimena Laporta
Kevin Harvatine
Kristy Daniels
Kerst Stelwagen
Rupert Bruckmaier

ADSA Graduate Student Symposium
Hiral Vora
Kasey Klein

Graduate Student Competition: ADSA Dairy Foods Oral
Randy Brandsma
Shantanu Agarwal
Rani Govindasamy-Lucey

Graduate Student Competition: ADSA Dairy Foods Poster
Shantanu Agarwal
Hari Meletharayil
Sam Alcaine

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

Graduate Student Competition: ADSA Production Poster (MS/PhD)
Liz Karcher
Paul Fricke
Julie Huzzey
Massimo Bionaz
Keena Mullen
Agustin Rius

Graduate Student Competition: ADSA Southern Section Oral Competition
Peter Krawczel

NANP Nutrition Models Workshop
John McNamara

Teaching Workshop
Michel Wattiaux

Workshop: Impact of Raw Milk Quality on Dairy Products
Kerry Kaylegian

Mixed Models Workshop
Nora Bello

Teagasc-Moorepark/University College Cork Cheese Symposium
Paul Kindstedt and Diarmuid (JJ) Sheehan

ADSA/American Society for Nutrition Symposium
Don Beitz and John Courtney

Animal Health Symposium: Joint ADSA/NMC
Leo Timms
Gina Pighetti
Mario Lopez
Ron Erskine

Precision Dairy Farming Symposium
Jeffrey Bewley and Marcia Endres

Scientific Program Table of Contents

Sunday, June 25

Monday, June 26

SYMPOSIA AND ORAL SESSIONS

Tuesday, June 27

POSTER PRESENTATIONS

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Recorded Symposia Presentations

All symposia at the 2017 ADSA Annual Meeting are being recorded and will be available free of charge to meeting attendees shortly after the meeting ends for a period of 60 days. Thereafter, recordings will be available for purchase. Please note that individual presentations may be excluded from a symposium recording if presenter permission was not granted. The [REC] icon in the scientific program indicates that a presentation is being recorded.

NOTES

Sunday, June 25

SYMPOSIA AND ORAL SESSIONS

ADSA Lactation Symposium
Chair: **Laura Hernandez, University of Wisconsin**
Sponsors: **Balchem and Phibro Animal Health Corp.**
Room 303

8:30 AM REC		**Introduction.** Laura Hernandez.
8:35 AM	1	**Effects of dietary fatty acids on nutrient digestion, energy partitioning, and milk fat synthesis.** A. L. Lock* and J. de Souza, *Michigan State University, East Lansing, MI.*
9:35 AM REC	2	**Amino acid uptake by the mammary glands: Where does the control lie?** J. P. Cant*[1], J. J. M. Kim[1], S. R. L. Cieslar[1], and J. Doelman[2], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Nutreco Nederland BV, Boxmeer, the Netherlands.*
10:35 AM REC	3	**Influences of heat stress on the bovine mammary gland.** S. Tao*, R. M. Orellana, X. Weng, T. N. Marins, and J. K. Bernard, *University of Georgia, Tifton, GA.*
11:35 AM		**Lunch (provided)**
12:35 PM REC	4	**The disparate impacts of inflammatory signaling pathways on lactogenesis, galactopoiesis, and cessation of lactation.** B. J. Bradford*[1], C. M. Ylioja[1], and K. M. Daniels[2], [1]*Kansas State University, Manhattan, KS*, [2]*Virginia Polytechnic Institute and State University, Blacksburg, VA.*
1:35 PM REC	5	**Oxylipids and the regulation of bovine inflammatory responses.** L. Sordillo*, *Michigan State University, East Lansing, MI.*

National Animal Nutrition Program (NANP) Nutrition Models Workshop
Chair: **John McNamara, Washington State University**
Sponsors: **NANP and McNamara Research Fund in Agriculture Firm LLC**
Room 304-305

9:00 AM		**Welcoming remarks.** J. McNamara.
9:10 AM	6	**Purposes and types of models.** M. D. Hanigan*, *Virginia Tech, Blacksburg, VA.*
10:00 AM	7	**Dynamic deterministic models.** T. Hackmann*, *University of Florida, Gainesville, FL.*
10:50 AM		**Break**
11:10 AM	8	**Estimation of parameter values in nutrition models.** L. Moraes*, *The Ohio State University, Columbus, OH.*
12:00 PM		**Lunch (provided)**
1:00 PM	9	**Model evaluation.** E. Kebreab*, *University of California-Davis, Davis, CA.*

1:50 PM 10 **Example models for ruminant digestion and metabolism.**
H. A. Rossow*, *Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA*.

2:40 PM **Break**

3:00 PM 11 **Meta-regression analysis of animal nutrition literature.**
R. R. White*, *Department of Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA*.

3:50 PM **Closing remarks.**
Timothy Hackmann.

Workshop: The Impact of Raw Milk Quality on Dairy Products
Chair: **Kerry Kaylegian, Pennsylvania State University**
Room 307

10:00 AM **Opening remarks.**
K. Kaylegian, *Pennsylvania State University.*

10:05 AM **Milk component quality and variation.**
K. Kaylegian, *Pennsylvania State University.*

10:35 AM **Iron and copper in farm and plant water and impact on milk flavor.**
S. Duncan, *Virginia Tech.*

11:05 AM **Break**

11:15 AM **Effect of raw milk microbial quality on the quality of cheese and dairy products.**
L. Goddik, *Oregon State University.*

11:45 AM **Lunch (provided)**

12:30 PM **Effect of feed source on quality of cheese and dairy products.**
S. Clark, *Iowa State University.*

1:00 PM **Best milking practices for high quality milk.**
G. Fenton, *Pennsylvania State University.*

1:30 PM **Milk quality and safety from udder to tank.**
E. Hovingh, *Pennsylvania State University.*

2:00 PM **Break**

2:15 PM **Panel Q&A.**

2:45 PM **Closing remarks.**
K. Kaylegian, *Pennsylvania State University*.

Teaching Workshop: Helping Students Learn
Chair: **Michel Wattiaux, University of Wisconsin-Madison**
Room 308

1:00 PM **Workshop introduction: Setting expectations.**
A. Faciola, *University of Nevada.*

1:10 PM 12 **How to teach and how to learn effectively: A review of the recent literature.**
M. A. Wattiaux*[1], A. Faciola[2], and C. C. Williams[3], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*University of Nevada, Reno, NV*, [3]*Louisiana State University, Baton Rouge, LA*.

1:50 PM **Orientation to breakout groups.**
C. Williams, *Louisiana State University.*

2:00 PM **Breakout Sessions (see below)**

3:00 PM **Break**

3:05 PM **Report from breakout sessions**

4:35 PM **Workshop evaluation and next steps**

Teaching Workshop: Breakout Sessions

Breakout session: How does students' prior knowledge affect their learning?
Amin Ahmadzadeh, *University of Idaho.*

Breakout session: How does the way students organize knowledge affect their learning?
Peter Erickson, *University of New Hampshire.*

Breakout session: What factors motivate students to learn?
Martin Maquivar, *Washington State University.*

Breakout session: How do students develop mastery?
Marina Danes, *University of Lavras, Brazil.*

Breakout session: What kinds of practice and feedback enhance learning?
Cathleen Williams, *Louisiana State University.*

Breakout session: Why do student development and course climate matter for student learning?
Antonio Faciola, *University of Nevada.*

Breakout session: How do students become self-directed learners?
Michel Wattiaux, *University of Wisconsin-Madison.*

SYMPOSIA AND ORAL SESSIONS

Dale Bauman Recognition Symposium and Reception
Chair: **Rodney K. McGuffey, McGuffey Consulting**
Room 301-302

3:00 PM REC	13	**Introduction: Contributions of Dale E. Bauman to the world of dairy science.** R. K. McGuffey*, *McGuffey Consulting*, *Indianapolis, IN*.
3:15 PM REC	14	**Dale Bauman Symposium–The early years at the University of Illinois.** J. P. McNamara*, *McNamara Research in Agriculture Firm*, *Pullman, WA*.
3:50 PM REC	15	**Homeorhesis and nutrient partitioning.** R. Collier*, *University of Arizona*, *Tucson, AZ*.
4:25 PM REC	16	**Dr. Dale E. Bauman: Training graduate students and solving the riddle of milk fat depression (MFD).** L. Baumgard*, *Iowa State University*, *Ames, IA*.
5:00 PM REC	17	**On being a scientist—Experiences and reflections.** Dale E. Bauman*, *Cornell University*, *Ithaca, NY*.
5:20 PM		**Reception**

OTHER EVENTS

Late-Breaking Original Research Session
Room 310-311
3:00 to 5:00 PM

Opening Session and Reception
Convention Center, Ballroom A and Gallery
7:30 to 10:00 PM

Monday, June 26

POSTER PRESENTATIONS

ADSA Dairy Foods Graduate Student Poster Competition

M1 **Protein biopolymer molecular structure determined protein supply during gastrointestinal digestion.**
N. Xu*[1,2], J. Liu[2], and P. Yu[1], [1]*Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Canada*, [2]*Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*.

M2 **Preparation of milk protein concentrates by ultrafiltration and continuous diafiltration: Effect of process design on overall efficiency.**
C. Gavazzi-April*[1], S. Benoit[1], A. Doyen[1], M. Britten[2], and Y. Pouliot[1], [1]*STELA Dairy Research Center, Institute of Nutrition and Functional Foods (INAF), Department of Food Science, Université Laval, Québec, Québec, Canada*, [2]*Food Research and Development Center (FDRC), Agriculture and Agri-Food Canada, St-Hyacinthe, Québec, Canada*.

M3 **Influence of *Bacillus* spp. on microstructure, graininess, lipolysis and sensory properties of sour cream.**
D. Mehta*[1], L. Metzger[1], A. Hassan[2], and B. Nelson[2], [1]*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, [2]*Daisy Brand, Garland, TX*.

M4 **Preliminary studies on the effect of cooling rate on lactose crystallization characteristics in deproteinized whey (DPW).**
K. Pandalaneni* and J. Amamcharla, *Kansas State University, Manhattan, KS*.

M5 **Preliminary studies on monitoring storage changes in milk protein concentrates using front-face fluorescence spectroscopy and chemometrics.**
K. S. Babu* and J. Amamcharla, *Kansas State University, Manhattan, KS*.

M6 **Sensory characteristics of Cheddar-type caprine milk cheeses supplemented with microencapsulated and normal ferrous sulfate.**
A. Siddique* and Y. W. Park, *Fort Valley State University, Fort Valley, GA*.

M7 **The influence of casein as a percentage of true protein on the physical and sensory properties of skim milk beverages.**
N. Cheng*[1], D. M. Barbano[2], and M. A. Drake[1], [1]*North Caroline State University, Raleigh, NC*, [2]*Cornell University, Ithaca, NY*.

M8 **Components of procream and cream improve the viability of yogurt and probiotic bacteria.**
B. Chinnasamy*, K. Choquette, and S. Clark, *Iowa State University, Ames, IA*.

M9 **Effect of pectin on digestion properties and β-carotene delivery of whey protein-stabilized emulsions.**
Y. Tang* and B. Vardhanabhuti, *University of Missouri-Columbia, Columbia, MO*.

M10 **The effect of different solids concentration on the drying kinetics of whey protein concentrate.**
H. N. Vora*[1], L. E. Metzger[1], C. Selomulya[2], M. W. Woo[2], and A. Putranto[2], [1]*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, [2]*Department of Chemical Engineering, Monash University, Clayton, VIC, Australia*.

M11 **Withdrawn**

M12 **Feasibility of soluble soybean polysaccharide for enhancing lactose crystallization during lactose manufacture.**
V. Sunkesula*, L. E. Metzger, and S. L. Beckman, *Midwest Dairy Foods Research Center, South Dakota State University, Brookings, SD*.

M13 **Moved to Dairy Foods I: Chemistry I (page 53)**

M14 **Improving emulsification properties of whey protein isolate by heating with pectin at near neutral pH.**
Y. Wang* and B. Vardhanabhuti, *Food Science Department, University of Missouri, Columbia, MO*.

M15 **Level of *Listeria* cross contamination in ice cream mix can serve as a predictor of its overall risk from injured cells.**
N. Neha*[1,2], R. Suliman[3], S. Anand[1,2], G. Djira[3], B. Kraus[4], and S. Sutariya[4], [1]*Midwest Dairy Foods Research Center, Brookings, SD*, [2]*Department of Dairy and Food Science, South Dakota State University, Brookings, SD*, [3]*Department of Mathematics and Statistics, South Dakota State University, Brookings, SD*, [4]*Wells Enterprises Inc., Le Mars, IA*.

M16 **Reduction of *Zygosaccharomyces parabailii* in dairy-based salad dressings using different combinations of acidulants.**
A. Meldrum* and H. Joyner, *University of Idaho, Moscow, ID.*

M17 **Maintaining high level of intact casein in Cheddar cheese during aging.**
B. M. Riebel*[1], S. Govindasamy-Lucey[2], J. J. Jaeggi[2], M. E. Johnson[2], and J. A. Lucey[1,2], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Wisconsin Center for Dairy Research, Madison, WI.*

ADSA Graduate Student (MS) Production Poster Competition

M18 **Effect of delaying colostrum feeding on passive transfer and intestinal bacterial colonization in neonatal male Holstein calves.**
A. Fischer*, Y. Song, Z. He, L. Guan, and M. Steele, *University of Alberta, Edmonton, AB, Canada.*

M19 **The effect of dietary supplementation of monobutyrin on growth and intestinal morphophysiology of preweaning Holstein calves.**
L. K. Hilligsøe*[1,2], J. E. Mendez[1], A. M. Ehrlich[1], R. Sygall[3], H. Raybould[1], and P. Ji[1], [1]*University of Copenhagen, Copenhagen, Denmark*, [2]*University of California, Davis, Davis, CA*, [3]*Perstorp Feed & Food, Malmö, Sweden.*

M20 **Effect of heat stress during the dry period on milk and colostrum yield and quality and mammary gland tight junction formation in the subsequent lactation.**
B. D. Senn*, A. L. Skibiel, T. F. Fabris, G. E. Dahl, and J. Laporta, *University of Florida, Gainesville, FL.*

M21 **Effect of prepartum dietary calcium and DCAD concentration on colostrum quality and newborn calf blood mineral and gas concentration.**
A. L. Diehl*[1], J. K. Bernard[1], S. Tao[1], T. N. Smith[1], T. Marins[1], D. J. Kirk[2], D. J. McLean[2], and J. D. Chapman[2], [1]*University of Georgia, Tifton, GA*, [2]*Phibro Animal Health, Corp, Teaneck, NJ.*

M22 **Effect of automatically recorded body condition score at calving on subclinical hyperketonemia.**
C. Truman*, I. Mullins, M. Falk, and J. Bewley, *University of Kentucky, Lexington, KY.*

M23 **Immunological and metabolic responses of lactating dairy cows fed diets supplemented with exogenous β-mannanase enzyme (CTCzyme).**
B. M. Roque*[1], G. C. Reyes[1], J. A. D. R.N. Appuhamy[1], T. A. Tewoldebrhan[1], J. J. Lee[2], S. Seo[3], and E. Kebreab[1], [1]*Department of Animal Science, University of California, Davis, Davis, CA*, [2]*CTCBio Inc., Seoul, Republic of Korea*, [3]*Department of Animal Biosystem Sciences, Chungnam National University, Daejeon, Republic of Korea.*

M24 **Evaluation of commonly used atmospheric carbon dioxide concentrations for the culture of bovine *Mycoplasma* spp.**
J. L. Lowe*[1], B. D. Enger[2], L. K. Fox[1], A. Adams Progar[1], and J. M. Gay[1], [1]*Washington State University, Pullman, WA*, [2]*Virginia Polytechnic Institute and State University, Blacksburg, VA.*

M25 **Feed efficiency and reproductive performance are genomically independent in lactating Holstein cows.**
E. M. Bart*[1], M. D. Hanigan[1], D. M. Spurlock[2], M. J. VandeHaar[3], and R. R. Cockrum[1], [1]*Virginia Polytechnic Institute and State University, Blacksburg, VA*, [2]*Iowa State University, Ames, IA*, [3]*Michigan State University, East Lansing, MI.*

M26 **Differences in lying behavior between Jersey and Holstein dairy cattle during the transition period.**
K. L. Kutina*, O. C. Duner, Y. I. Ruiz, E. A. Whisler, and J. M. Huzzey, *California Polytechnic State University, San Luis Obispo, CA.*

ADSA Graduate Student (PhD) Production Poster Competition

M27 **Assessment of microbiota and short-chain fatty acids profiles in the hindgut of pre-weaned dairy calves.**
Y. Song*[1], N. Malmuthuge[1,2], M. A. Steele[1], and L. L. Guan[1], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*Vaccine and Infectious Disease Organization- International Vaccine Centre University of Saskatchewan Saskatoon, Saskatchewan, SK, Canada.*

M28 **Role of galectins 3 and 9 in the immunity of periparturient dairy cows.**
E. Asiamah*[1], S. Adjei-Fremah[1], K. Ekwemalor[1], M. Worku[1], L. Sordillo[2], and J. Gandy[2], [1]*North Carolina A&T State University, Greensboro, NC*, [2]*Michigan State University, East Lansing, MI*.

M29 **Effects of timing of C16:0 supplementation on production and metabolic responses of early lactation dairy cows.**
J. de Souza* and A. L. Lock, *Michigan State University, East Lansing, MI*.

M30 **Fetuin-A as a marker of adipose tissue function in transition dairy cows.**
C. Strieder-Barboza*, J. de Souza, A. L. Lock, and G. A. Contreras, *Michigan State University, East Lansing, MI*.

M31 **Effects of oral administration of acetylsalicylic acid after parturition on activity patterns, prevalence of diseases, mortality and culling rates in dairy cows.**
A. A. Barragan*[1], L. M. Bauman[2], J. Velez[3], J. D. Rozo Gonzalez[3], G. M. Schuenemann[1], and S. Bas[1], [1]*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*Department of Animal Sciences, The Ohio State University, Columbus, OH*, [3]*Aurora Organic Farms, Boulder, CO*.

M32 **Preliminary evaluation of the DeLaval Cell Counter's ability to quantify somatic cell counts in nonlactating bovine mammary secretions.**
B. D. Enger*[1], C. E. Crutchfield[1], S. C. Nickerson[2], C. L. M. Parsons[1], and R. M. Akers[1], [1]*Virginia Polytechnic Institute and State University, Blacksburg, VA*, [2]*University of Georgia, Athens, GA*.

M33 **Bovine mammary epithelial cell (MAC-T) phenotype impacts TNFα-mediated MAPK signaling and inflammation.**
L. G. Silva*[1], B. S. Ferguson[1], L. Hernandez[2], and A. P. Faciola[1], [1]*University of Nevada, Reno, NV*, [2]*University of Wisconsin, Madison, WI*.

M34 **Prediction algorithms for early detection of clinical mastitis caused by gram-positive and gram-negative pathogens.**
N. M. Steele*[1,3], A. Tholen[1], A. De Vries[2], S. J. Lacy-Hulbert[3], R. R. White[4], and C. S. Petersson-Wolfe[1], [1]*Department of Dairy Science, Virginia Tech, Blacksburg, VA*, [2]*Department of Animal Sciences, University of Florida, Gainesville, FL*, [3]*DairyNZ Ltd., Private Bag 3221, Hamilton, New Zealand*, [4]*Department of Animal and Poultry Science, Blacksburg, VA*.

M35 **Uptake of a fluorescent glucose analog (2-NBDG) by mixed rumen bacteria.**
J. Tao*, H. Sultana, J. Driver, C. Nelson, and T. Hackmann, *Department of Animal Sciences, University of Florida, Gainesville, FL*.

M36 **Effects of replacing soybean meal with canola meals varying in rumen undegraded protein on ruminal fermentation in vitro.**
H. F. Monteiro*[1], E. M. Paula[1], J. L. P. Daniel[2], P. D. B. Benedetti[3], R. Bittner[1], L. G. Silva[1], T. Shenkoru[1], and A. P. Faciola[1], [1]*University of Nevada, Reno, Reno, NV*, [2]*State University of Maringá, Maringá, PR, Brazil*, [3]*Federal University of Viçosa, Viçosa, MG, Brazil*.

M37 **Evaluation of the NRC predictions in response to changes in dietary rumen degraded and undegraded protein on dairy cows exposed to warm climates.**
J. D. Kaufman* and A. G. Rius, *The University of Tennessee, Knoxville, TN*.

M38 **Relationship between ano-genital distance and fertility in Holstein cows.**
M. Gobikrushanth*[1], T. C. Bruinjé[1], M. G. Colazo[2], and D. J. Ambrose[1,2], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada*.

M39 **The effect of body condition loss on hepatic and ovarian tissue function in dairy cattle.**
Y. Schuermann*[1], A. St. Yves[1], N. Dicks[1], V. Higginson[1], R. Bohrer[1], M. Taibi[1], E. Madogwe[1], A. Mustafa[1], V. Bordignon[1], B. Baurhoo[1,2], and R. Duggavathi[1], [1]*McGill University, Montreal, QC, Canada*, [2]*Belisle Nutrition Solutions Inc., Saint-Mathias-sur-Richelieu, QC, Canada*.

M40 **Fungal treatment of lower part of corn stem does not improve its nutritional value.**
Y. He*[1], J. Dijkstra[1], A. S. M. Sonnenberg[2], T. M. B. Mouthier[3], M. A. Kabel[3], W. H. Hendriks[1], and J. W. Cone[1], [1]*Animal Nutrition Group, Wageningen University & Research, Wageningen, the Netherlands*, [2]*Plant Breeding, Wageningen University & Research, Wageningen, the Netherlands*, [3]*Food Chemistry, Wageningen University & Research, Wageningen, the Netherlands*.

M41 **Evaluation of two adsorbents after an aflatoxin challenge in Holstein cows.**
M. E. Weatherly*[1], R. T. Pate[1], G. E. Rottinghaus[2], F. de Oliveira Roberti Filho[3], and F. C. Cardoso[1], [1]*Department of Animal Sciences, University of Illinois, Urbana, IL*, [2]*Veterinary Medical Diagnostic Lab, University of Missouri, Columbia, MO*, [3]*Biorigin, São Paulo, Brazil*.

M42 **Producer perception of precision dairy monitoring technology health alerts.**
E. Eckelkamp* and J. Bewley, *University of Kentucky, Lexington, KY.*

ADSA-SAD Original Research Undergraduate Student Poster Competition

M43 **The effects of vanilla flavoring in calf starter on calf starter intake.**
A. Tomei* and S. Kehoe, *University of Wisconsin-River Falls, River Falls, WI.*

M44 **Economic analysis of feeding costs for diets including corn silage or sorghum silage as the main forage source.**
E. S. Richardson* and G. Ferreira, *Department of Dairy Science, Virginia Tech, Blacksburg, VA.*

M45 **Comparison of two housing systems and dairy calf physiological responses during hot weather.**
H. A. Young*, A. Adams Progar, and A. Lopez Ayala, *Washington State University, Pullman, WA.*

M46 **Coordinated response of hepatic lipolysis during the transition to lactation in dairy cows.**
H. T. Holdorf*, R. S. Pralle, R. C. Oliveira, S. J. Erb, and H. M. White, *University of Wisconsin-Madison, Madison, WI.*

M47 **Production responses to supplementation with rumen-protected lysine and two sources of rumen-protected methionine in Holstein cows.**
C. R. Seely*[1], S. E. LaCount[1], C. M. Ryan[1], K. E. Griswold[2], and T. R. Overton[1], [1]*Cornell University, Ithaca, NY*, [2]*Kemin Industries, Des Moines, IA.*

M48 **Formation and characterizations of heated whey protein isolate and alginate complexes.**
S. Khumsangkha* and B. Vardhanabhuti, *University of Missouri Columbia, Columbia, MO.*

M49 **Influence of heated whey protein isolate and pectin complex on properties and stability of O/W emulsions at different pH.**
P. Sukkha*, A. Kotchabhakdi, and B. Vardhanabhuti, *University of Missouri Columbia, Columbia, MO.*

M50 **Evaluating teat skin condition in response to phenoxyethanol as a post-milking teat disinfectant on lactating dairy cows.**
S. K. Reeves*, M. R. Borchers, and J. M. Bewley, *Department of Animal and Food Sciences, University of Kentucky, Lexington, KY.*

M51 **Behavioral traits of dairy cattle in group calving pens.**
E. A. Whisler*, K. L. Kutina, O. C. Duner, Y. I. Ruiz, and J. M. Huzzey, *California Polytechnic State University, San Luis Obispo, CA.*

M52 **Relationship of body condition changes during the first 30 d of lactation and pregnancy rate per AI at 75 to 81 DIM.**
E. L. Middleton* and J. R. Pursley, *Michigan State University, East Lansing, MI.*

M53 **Flaxseed containing lipid supplement increases linearly omega-3 content in milk without compromising production parameters.**
S. Akers*[1], R. Wilson[1], K. Swanson[1], M. Keller[1], L. Goddick[1], G. Cherian[1], R. Day[2], and G. Bobe[1], [1]*Oregon State University, Corvallis, OR*, [2]*N3Feed, Tualatin, OR.*

Animal Behavior and Well-Being I

M54 **Sampling strategies for dairy cow welfare assessments.**
J. Van Os*[1,2], C. Winckler[3], J. Trieb[3], S. Matarazzo[4], T. Lehenbauer[5], J. Champagne[5], and C. Tucker[1], [1]*Department of Animal Science, University of California, Davis, CA*, [2]*Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada*, [3]*Division of Livestock Sciences, University of Natural Resources and Life Sciences, Vienna, Austria*, [4]*Department of Agricultural and Environmental Sciences, Santa Cruz State University, Ilhéus, Brazil*, [5]*Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA.*

M55 **Associations between on-farm animal welfare indicators, farm productivity, and profitability on Canadian freestall dairies.**
M. V. Robichaud*[1], J. Rushen[2], A. M. de Passillé[2], E. Vasseur[3], D. Haley[4], K. Orsel[5], and D. Pellerin[1], [1]*Université Laval, Québec, QC, Canada*, [2]*University of British Columbia, Agassiz, BC, Canada*, [3]*McGill University, Ste-Anne-de-Bellevue, QC, Canada*, [4]*University of Guelph, Guelph, ON, Canada*, [5]*University of Calgary, Calgary, AB, Canada*.

M56 **Prevalence of lameness and leg injuries on US freestall dairies.**
J. H. C. Costa*, D. M. Weary, and M. A. G. von Keyserlingk, *Animal Welfare Program, University of British Columbia, Vancouver, BC, Canada*.

M57 **Changes in lying behavior in response to lameness.**
A. J. Thompson*[1], J. A. Bran[2], R. R. Daros[1], M. J. Hötzel[2], D. M. Weary[1], and M. A. G. von Keyserlingk[1], [1]*Animal Welfare Program, Faculty of Land and Food systems, University of British Columbia, Vancouver, BC, Canada*, [2]*Laboratório de Etologia Aplicada e Bem-Estar Animal, Departamento de Zootecnia e Desenvolvimento Rural, Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina, Brazil*.

M58 **Early non-invasive clinical diagnosis of hoof ulcers by infrared thermographic images (IRT) in milking dairy cows.**
S. Vázquez-Flores* and C. Lucio-Rodriguez, *Tecnologico de Monterrey Campus Queretaro, Queretaro, Mexico*.

M59 **Evaluation of the relationship between prepartal ruminal and mammary gland temperature and calving day in dairy cows.**
F. Batistel*, E. Gonzalez-Angulo, C. I. M. Garces, and J. J. Loor, *University of Illinois at Urbana-Champaign, Urbana, IL*.

M60 **Effect of ketosis on behavioral activity in transition dairy cows.**
J. M. Piñeiro*[1], B. T. Menichetti[1], A. A. Barragan[1], W. P. Weiss[2], S. Bas[1], and G. M. Schuenemann[1], [1]*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*Department of Animal Sciences, The Ohio State University, Wooster, OH*.

M61 **Effect of prepartum behavioral activity on stillbirth in transition dairy heifers and cows.**
B. T. Menichetti*[1], J. M. Piñeiro[1], A. A. Barragan[1], A. Relling[2], S. Bas[1], and G. M. Schuenemann[1], [1]*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*Department of Animal Sciences, The Ohio State University, Wooster, OH*.

M62 **Effects of mammary biopsy on behavior of dairy cows.**
E. K. Miller-Cushon*, K. C. Horvath, T. F. Fabris, J. Laporta, and G. E. Dahl, *University of Florida, Gainesville, FL*.

M63 **Relationship between the clinical and behavioral response to a mastitis challenge with *Streptococcus uberis* from Holstein dairy cows.**
V. L. Couture*, P. D. Krawczel, G. M. Pighetti, R. A. Almeida, and S. P. Oliver, *The University of Tennessee, Department of Animal Science, Knoxville, TN*.

Animal Health I

M64 **Effect of CalfAce on performance and health of Holstein dairy calves.**
M. Cooney*[1], D. Cooke[2], and R. James[3], [1]*phdR&D, Fort Atkinson WI*, [2]*R&D Life Sciences, Menomonie, WI*, [3]*Virginia Tech, Blacksburg, VA*.

M65 **Effect of lameness on behavioral activity in transition dairy cows.**
J. M. Piñeiro*[1], T. B. Menichetti[1], A. A. Barragan[1], W. P. Weiss[2], S. Bas[1], and G. M. Schuenemann[1], [1]*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*Department of Animal Sciences, The Ohio State University, Wooster, OH*.

M66 **Pre- and postweaning performance and health of dairy calves fed milk replacers supplemented with various additives.**
D. Ziegler*[1], H. Chester-Jones[1], A. Geiger[2], J. Olson[2], B. Ziegler[3], and D. Shimek[3], [1]*University of Minnesota, Waseca, MN*, [2]*Milk Products Inc., Chilton, WI*, [3]*Hubbard Feeds Inc., Mankato, MN*.

M67 **Effects of non-digestible saccharides on passive immunoglobulin G transfer and serum immunoglobulin G concentration in newborn calves fed colostrum replacer.**
A. Htun*[1], T. Sato[2], and M. Hanada[2], [1]*United Graduate School of Agricultural Sciences, Iwate University, Morioka, Iwate, Japan*, [2]*Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan*.

M68 **Pre- and postweaning performance and health of dairy calves fed milk replacers supplemented with different strains of direct-fed microbials.**
H. Chester-Jones*[1], D. Ziegler[1], E. Davis[2], J. O'Neill[2], and S. Hayes[3], [1]*University of Minnesota, Waseca, MN*, [2]*Agro Bio Sciences, Wauwatosa, WI*, [3]*Day 1 Technology, Winona, MN*.

M69 **Effects of Protemace on the performance and small intestinal health of Jersey calves challenged with *Salmonella enterica* serotype Typhimurium at 7 day of life.**
Y. Liang*, R. Hudson, and M. Ballou, *Department of Animal and Food Sciences, Texas Tech University, Lubbock, TX*.

M70 **Risk factors for retained placenta and metritis in grazing dairy herds.**
R. R. Daros*[1], M. J. Hötzel[2], S. J. LeBlanc[3], J. A. Bran[2], A. J. Thompson[1], and M. A. G. von Keyserlingk[1], [1]*Animal Welfare Program, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada*, [2]*Laboratório de Etologia Aplicada e Bem-Estar Animal, Departamento de Zootecnia e Desenvolvimento Rural, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil*, [3]*Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada*.

M71 **The determination of concentrations of tocopherol isoforms in whole tissues and mitochondria via high-performance liquid chromatography after short-term supplementation in dairy cows.**
Y. Qu*[1], T. H. Elsasser[2], S. Kahl[2], M. Garcia[4], C. M. Scholte[1], E. E. Connor[3], G. F. Schroeder[5], and K. M. Moyes[1], [1]*Department of Animal and Avian Science, University of Maryland, College Park, MD*, [2]*Agricultural Research Service, Animal Biosciences and Biotechnology Laboratory, USDA, Beltsville, MD*, [3]*Agricultural Research Service, Animal Genomics and Improvement Laboratory, USDA, Beltsville, MD*, [4]*Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS*, [5]*Cargill Animal Nutrition, Elk River, MN*.

M72 **Exploring lameness across a lactation through the eyes of a fatty pad.**
C. Stambuk*, H. Huson, and R. Bicalho, *Cornell University, Ithaca, NY*.

M73 **Uterine microbiome, antibiotic resistance genes and virulence factors of metritic treated cows that cure or failed to cure from metritis.**
Z. Zhou*, M. S. Gomes, I. F. Canisso, E. F. Garrett, J. S. Stewart, and F. S. Lima, *University of Illinois, Champaign-Urbana, IL*.

M74 **Water intake of transported Holstein dairy calves classified as sick or healthy in the first 21 d.**
S. Y. Morrison*, K. N. Brost, P. A. LaPierre, and J. K. Drackley, *University of Illinois, Urbana, IL*.

M75 **Economic comparison of ampicillin trihydrate and ceftiofur hydrochloride for treating metritis in dairy cows: A prospective cohort study.**
J. A. Snodgrass[1], A. Vieira-Neto[2], R. S. Bisinotto[2], E. S. Ribeiro[3], N. Martinez[4], K. N. Galvao[2], J. E. P. Santos[2], and F. S. Lima*[1], [1]*University of Illinois, Champaign-Urbana, IL*, [2]*University of Florida, Gainesville, FL*, [3]*University of Guelph, Guelph, ON, Canada*, [4]*Zoetis, Kalamazoo, MI*.

M76 **Associations of gait score, lying behavior, hygiene, and body condition score between dairy cows with low and high somatic cell counts.**
A. Zambelis*, I. Robles, and T. J. DeVries, *Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*.

M77 **Effect of an accelerated growth feeding protocol on the weight gain of Holstein calves under tropical conditions.**
N. Navedo-Guzmán*, C. G. Ríos-Solís, A. P. Ramos-Ahmad, P. N. Marrero-Torres, I. M. Lorenzo-Lorenzo, M. Rodríguez-Alvarado, A. P. Rodríguez-Asencio, J. E. Curbelo-Rodríguez, and G. Ortiz-Colón, *University of Puerto Rico at Mayagüez, Mayagüez, PR, Puerto Rico*.

M78 **Impact of housing, environment and management on respiratory illness in pre-weaned calves.**
K. M. Morrill and L. K. Ferlito*, *Cornell University, Ithaca, NY*.

M79 **Effects of the addition of electrolyzed water to a footbath solution on digital dermatitis incidence.**
H. K. Himmelmann*, B. W. Jones, and J. M. Bewley, *University of Kentucky, Lexington, KY*.

M80 **Management practices and prevalence of bovine respiratory disease in pre-weaned dairy calves in California.**
B. M. Karle*[1], G. Maier[2], S. A. Dubrovsky[3], W. J. Love[2], D. R. Williams[2], J. W. Stackhouse[4], R. J. Anderson[5], A. L. Van Eenennaam[3], T. W. Lehenbauer[2,6], and S. S. Aly[2,6], [1]*University of California Cooperative Extension, Orland, CA*, [2]*UC Davis Veterinary Medicine Teaching and Research Center, Tulare, CA*, [3]*Department of Animal Science, University of California, Davis, CA*, [4]*University of California Cooperative Extension, Eureka, CA*, [5]*California Department of Food and Agriculture, Animal Health Branch, Sacramento, CA*, [6]*Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, CA*.

M81 **Effect of calving stress on feed intake of dairy cows soon after calving.**
M. Reshalaitihan*[1], K. Matsuki[2], T. Sato[2], and M. Hanada[2], [1]*United Graduate School of Agricultural Science, Iwate University, Morioka, Iwate, Japan*, [2]*Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan*.

M82 **Transgenerational effects of postpartum inflammatory diseases in dairy cows.**
M. R. Carvalho*[1], F. Peñagaricano[2], J. E. Santos[2], T. J. DeVries[1], B. McBride[1], and E. S. Ribeiro[1], [1]*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Department of Animal Sciences, University of Florida, Gainesville, FL*.

M83 **Colostrum mineral concentrations and their association with calcemic status at calving in Jersey cows.**
J. Chiozza-Logroño*[1], A. Valldecabres[1], A. Lago[2], and N. Silva-del-Río[1], [1]*Veterinary Medicine Teaching and Research Center, University of California Davis, Tulare, CA*, [2]*DairyExperts Inc., Tulare, CA*.

M84 **Association of colostrum Ca concentration at first and second milking with postpartum serum Ca concentration.**
J. Chiozza-Logroño*[1], A. Valldecabres[1], R. Rearte[2], A. Lago[3], and N. Silva-del-Río[1], [1]*Veterinary Medicine Teaching and Research Center, University of California Davis, Tulare, CA*, [2]*Cátedra de Higiene, Epidemiología y Salud Pública, Facultad de Ciencias Veterinarias, Universidad Nacional de La Plata (FCV–UNLP), La Plata, Argentina*, [3]*DairyExperts Inc., Tulare, CA*.

M85 **Metabolic and inflammatory changes in blood of lactating Holstein cows induced to subacute ruminal acidosis.**
F. Rosa*[1], J. C. McCann[2], E. Trevisi[3], F. Cardoso[2], J. J. Loor[2], and J. S. Osorio[1], [1]*South Dakota State University, Brookings, SD, US*, [2]*University of Illinois, Champaign-Urbana, IL, US*, [3]*Università Cattolica del Sacro Cuore, Piacenza, Italy*.

M86 **Liquid chromatography-mass spectrometry metabolomic serum signatures indicate global and disease-specific challenges in protein and fatty acid metabolism precede retained placenta in dairy cows.**
F. Zandkarimi, C. Maier, and G. Bobe*, *Oregon State University, Corvallis, OR*.

M87 **Polyphenolic extract from cowpea (*Vigna unguiculata*) modulates galectin 3 and 9 expression in bovine peripheral blood.**
S. Adjei-Fremah*, E. Asiamah, K. Ekwemalor, and M. Worku, *North Carolina A&T State University, Greensboro, NC*.

M88 **A statewide survey of colostrum management practices on organic dairy farms in Ohio.**
L. da Costa*[1] and K. Bohland[2], [1]*Department of Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*The Ohio State University, Columbus, OH*.

M89 **A comparison of hair cortisol concentrations between various sampling sites of the body and blood cortisol in lactating Holstein cows and heifers.**
J. Ghassemi Nejad, K. I. Sung, B. H. Lee, J. L. Peng, J. Y. Kim, C. Befekadu, S. M. Oh, M. J. Kim, and B. W. Kim*, *Kangwon National University, Chuncheon, Gangwon, Republic of Korea*.

M90 **Upregulation of nitric oxide synthases and natriuretic peptides in healthy controls compared with pulmonary arterial hypertensive Holstein heifers exposed to chronic hypobaric hypoxia.**
S. Wang[1], Y. Wang[1], S. Li[1], D. Han[2], Q. Shi[3], and S. Ji*[1], [1]*College of Animal Science and Technology, China Agricultural University, Beijing, China*, [2]*College of Veterinary Medicine, China Agricultural University, Beijing, China*, [3]*Clinical Laboratory of General Hospital of Tibet Military Command, Lhasa, China*.

M91 **Use of calcitriol to reduce subclinical hypocalcemia and improve postpartum health in dairy cows.**
A. Vieira-Neto*, G. Negro, R. Zimpel, C. Lopera, M. Poindexter, F. R. Lopes Jr., C. Nelson, W. Thatcher, and J. E. P. Santos, *University of Florida, Gainesville, Florida*.

M92 **Comparison of ionized calcium concentrations using an Abaxis Vetscan iSTAT with a Horiba LAQUAtwin ionized calcium meter in dairy cows fed DCAD rations with low, medium, or high concentrations of calcium and challenged with EGTA.**
A. P. Prichard*[1], C. E. Wimmler[1], L. A. Amunson[1], A. Cheng[1], S. R. Weaver[1], P. M. Crump[1], A. D. Rowson[2], S. S. Bascom[2], D. E. Nuzback[2], K. P. Zanzalari[2], and L. L. Hernandez[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Phibro Animal Health Corporation, Teaneck, NJ*.

M93 **Effect of a single dose of an oral calcium bolus after parturition on plasma calcium concentration, milk production, and culling in Holstein dairy cows.**
B. M. Leno*[1], R. C. Neves[2], M. D. Curler[3], M. J. Thomas[3], T. R. Overton[1], and J. A. A. McArt[2], [1]*Department of Animal Science, Cornell University, Ithaca, NY*, [2]*Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY*, [3]*Dairy Health and Management Services LLC, Lowville, NY*.

M94 **Serum mineral concentrations and their association with calcemic status at calving on multiparous Jersey cows.**
A. Valldecabres*[1], J. A. A. Pires[2], and N. Silva-del-Río[1], [1]*Veterinary Medicine Teaching and Research Center, University of California-Davis, Tulare, CA*, [2]*Unité Mixte de Recherche sur les Herbivores, INRA, VetAgro Sup, Saint-Genes-Champanelle, France*.

M95 **Withdrawn**

M96 **Reproductive toxicity of bisphenol A in male New Zealand White rabbits.**
H. Karabulut and M. S. Gulay*, *Mehmet Akif Ersoy University*, *Burdur, Turkey*.

M97 **Safety evaluation of punicalagin in male New Zealand White rabbits.**
H. Karabulut* and M. S. Gulay, *Mehmet Akif Ersoy University*, *Burdur, Turkey*.

M98 **Subacute bisphenol A toxicity in male New Zealand White rabbits.**
H. Karabulut and M. S. Gulay*, *Mehmet Akif Ersoy University*, *Burdur, Turkey*.

M99 **Omnigen supplementation during the first 150 days of life decreases the incidence of tick fever in dairy calves.**
B. B. Leme*[1], L. F. Barbosa[2,1], I. C. Marabiza[4], A. C. Mariano[4], S. H. Casonato[4], and J. L. M. Vasconcelos[3,1], [1]*Universidade Estadual Paulista Júlio de Mesquita Filho*, *Botucatu, São Paulo, Brazil*, [2]*Universidade Federal de Lavras*, *Lavras, Minas Gerais, Brazil*, [3]*Universidade Federal de Minas Gerais*, *Belo Horizonte, Minas Gerais, Brazil*, [4]*Fazenda Agrindus S/A*, *Descalvado, São Paulo, Brazil*.

Breeding and Genetics I

M100 **Genetic evaluation of gestation length as a trait of the service sire.**
J. R. Wright* and P. M. VanRaden, *Animal Genomics and Improvement Laboratory, USDA-ARS*, *Beltsville, MD*.

M101 **Genetic correlations among Canadian selected traits: literature review and completion of the matrix of correlations.**
P. Martin*[1], C. Baes[1], K. Houlahan[1], S. Beard[1], C. Richardson[1], and F. Miglior[1,2], [1]*University of Guelph, Department of Animal Biosciences*, *Guelph, ON, Canada*, [2]*Canadian Dairy Network*, *Guelph, ON, Canada*.

M102 **Breeding strategies for mitigating enteric methane emissions of dairy cattle using ZPLAN+.**
S. Beard*[1], F. Miglior[1,2], F. Schenkel[1], B. Gredler[3], P. Martin[1], A. Fleming[1], and C. Baes[1], [1]*Centre for Genetic Improvement of Livestock, University of Guelph*, *Guelph, ON, Canada*, [2]*Canadian Dairy Network*, *Guelph, ON, Canada*, [3]*Qualitas AG*, *Zug, Switzerland*.

M103 **Genome-wide copy number variant analysis in Holstein cattle reveals variants associated with 10 production traits including residual feed intake and dry matter intake.**
E. E. Connor*[1], Y. Zhou[1,3], G. R. Wiggans[1], Y. Lu[2], R. J. Tempelman[2], S. G. Schroeder[1], H. Chen[3], and G. Liu[1], [1]*USDA-ARS, Animal Genomics and Improvement Laboratory*, *Beltsville, MD*, [2]*Michigan State University*, *East Lansing, MI*, [3]*Northwest A&F University*, *Yangling, Shaanxi, China*.

M104 **Association of residual feed intake with disease indicator traits in Holsteins.**
D. Hailemariam*[1], G. Manafiazar[1], J. Basarab[1,2], F. Miglior[3,4], G. Plastow[1], and Z. Wang[1], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta*, *Edmonton, AB, Canada*, [2]*Alberta Agriculture and Forestry, Lacombe Research Centre*, *Lacombe, AB, Canada*, [3]*Canadian Dairy Network*, *Guelph, ON, Canada*, [4]*CGIL Department of Animal Biosciences, University of Guelph*, *Guelph, ON, Canada*.

M105 **Use of RNA-Sequencing technology for detection of microbial species.**
S. Lam*[1], F. Miglior[1,2], L. L. Guan[3], A. Islas-Trejo[4], D. Seymour[1], V. Asselstine[1], L. F. Brito[1], J. F. Medrano[4], and A. Cánovas[1], [1]*Centre for Genetic Improvement of Livestock, University of Guelph*, *Guelph, ON, Canada*, [2]*Canadian Dairy Network*, *Guelph, ON, Canada*, [3]*Department of Agricultural, Food and Nutritional Science, University of Alberta*, *Edmonton, AB, Canada*, [4]*Department of Animal Science, University of California-Davis*, *Davis, CA*.

M106 **Genetic trends of linear type traits for validation of genomic evaluation in US Holsteins.**
S. Tsuruta*[1], T. J. Lawlor[2], D. A. L. Lourenco[1], Y. Masuda[1], and I. Misztal[1], [1]*University of Georgia*, *Athens, GA*, [2]*Holstein Association USA*, *Brattleboro, VT*.

M107 **Sources of variation in minor milk components and their potential prediction using mid-infrared spectroscopy.**
A. Fleming*[1], F. S. Schenkel[1], S. Nayeri[1], C. Baes[1], R. A. Ali[2], M. Corredig[3,4], and F. Miglior[1,5], [1]*Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph*, *Guelph, ON, Canada*, [2]*Department of Mathematics and Statistics, University of Guelph*, *Guelph, ON, Canada*, [3]*Department of Food Science, University of Guelph*, *Guelph, ON, Canada*, [4]*Gay Lea Foods Co-operative*, *Mississauga, ON, Canada*, [5]*Canadian Dairy Network*, *Guelph, ON, Canada*.

Dairy Foods I: Chemistry I

M13 **Dry heat treatment affects solubility, whey protein denaturation, and soluble aggregates formation in nonfat dry milk.**
K. S. Alán and K. Schmidt*, *Kansas State University, Manhattan, KS.*

M108 **Rapid determination of lactulose in heat-treated milk using ultraperformance convergence chromatography coupled with mass spectrometry.**
F. Wen[1,3], Y. Tian[1,4], Y. W. Xu[5], N. Zheng[1,2], Q. L. Sun[5], S. L. Li[1,3], and J. Q. Wang*[1,2], [1]*Ministry of Agriculture-Key Laboratory of Quality & Safety Control for Milk and Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Ministry of Agriculture-Laboratory of Quality and Safety Risk Assessment for Dairy Products, Beijing, China*, [3]*Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China*, [4]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [5]*Waters Corporation, Shanghai, China*.

M109 **Characterization of microdomains in bovine milk phospholipid monolayers that contain GM3 and GD3 gangliosides.**
L. Real Hernandez* and R. Jimenez Flores, *The Ohio State University, Columbus, OH.*

M110 **Effect of caprine casein in combination with arabinogalactan on the chemical stability of lutein in corn oil-in-water emulsions.**
A. Mora-Gutierrez*, R. Attaie, M. Gonzalez, Y. Jung, and S. Woldesenbet, *Prairie View A&M University, Prairie View, TX.*

M111 **Lipidomics approach reveals integrated triglycerides profiles associated with different thermal treatments on dairy cow milk.**
Y. Zhang*[1,4], N. Zheng[1,2], S. Li[3,4], S. Zhao[1,4], F. Wen[3,4], M. Li[1,4], L. Meng[2,3], and J. Wang[1,4], [1]*Ministry of Agriculture-Key Laboratory of Quality & Safety Control for Milk and Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Ministry of Agriculture-Laboratory of Quality and Safety Risk Assessment for Dairy Products, Beijing, China*, [3]*Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China*, [4]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*.

M112 **Evaluation of electrical bioimpedance spectroscopy for detection of milk adulteration—Preliminary results.**
E. A. Veiga*[2], C. M. M. R. Martins[1], R. Frizon[2], and M. V. Santos[1], [1]*Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil*, [2]*Bionexus Tecnology, Chapecó, Brazil*.

M113 **Adulterants interference on Fourier-transform Infrared analysis of raw milk.**
D. C. S. Z. Ribeiro[1], W. L. F. T. Vicentini[1], M. O. Leite[1], M. M. O. P. Cerqueira[1], L. F. Ferreira[1], F. A. C. Feijó[1], J. P. Haddad[1], and L. M. Fonseca*[1,2], [1]*Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil*, [2]*CNPq, Brasília, DF, Brazil*, [3]*FAPEMIG, Belo Horizonte, MG, Brazil*.

M114 **Effect of extraction conditions on the extraction efficiency for the HS-SPME-GC/MS analysis of volatile compounds in Turkish white cheese using central composite rotatable design.**
P. Salum*[1], Z. Erbay[2], H. Kelebek[2], and S. Selli[3], [1]*Department of Food Engineering, Institute of Natural and Applied Sciences, Cukurova University, Adana, Turkey*, [2]*Department of Food Engineering, Faculty of Engineering and Natural Sciences, Adana Science and Technology University, Adana, Turkey*, [3]*Department of Food Engineering, Faculty of Agriculture, Cukurova University, Adana, Turkey*.

M115 **Sodium reduction and flavor enhancers addition in probiotic Prato cheese: Effect on the probiotic survival and functionality, proteolysis, antioxidant and angiotensin I-converting enzyme inhibitory activity.**
H. Silva*[1], C. Balthazar[1], J. Moraes[2], E. Esmerino[1], and A. Cruz[2], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Instituto Federal de CIência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil*.

M116 **Influence of sodium reduction and flavor enhancer addition on fatty acid profile of probiotic Prato cheese.**
H. Silva*[1], C. Balthazar[1], J. Moraes[2], E. Esmerino[1], and A. Cruz[2], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Instituto Federal de CIência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil*.

M117 **Effect of sodium reduction and flavor enhancers addition on the availability of minerals from probiotic Prato cheese during ripening and storage.**
H. Silva*[1], C. Balthazar[1], J. Moraes[2], E. Esmerino[1], and A. Cruz[2], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Instituto Federal de CIência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil*.

M118 **Micro-vesicles in milk: Identification and characterization of exosomes, ectosomes and small MFGM particles.**
J. Ortega-Anaya* and R. Jiménez-Flores, *The Ohio State University, Columbus, OH.*

M119 **Hydrogen and methane in biogas from anaerobic digestion of manure and whey mixtures.**
D. J. McMahon*, D. S. Fallon, and C. L. Hansen, *Utah State University, Logan, UT.*

M120 **Economic feasibility of anaerobic digestion for treating manure and whey from small-scale dairy farm combined with artisan cheese making.**
S. C. Lund[2], D. J. McMahon*[1], A. J. Young[3], C. L. Hansen[1], and D. V. Bailey[2], [1]*Department of Nutrition, Dietetics and Food Sciences, Utah State University, Logan, UT*, [2]*Department of Applied Economics, Utah State University, Logan, UT*, [3]*Department of Animal, Dairy and Veterinary Sciences, Utah State University, Logan, UT.*

Dairy Foods II: Chemistry II

M121 **Rheological properties, size distribution and optical microscopy of vanilla dairy desserts added with arrowroot flour.**
R. Oliveira[1], M. V. Ferreira*[1], J. L. Barbosa Junior[1], M. I. Barbosa[1], R. Bisaggio[2], M. Cristina[2], and A. Cruz[2], [1]*Universidade Federal Rural of Rio de Janeiro (UFRRJ), Seropédica, RJ, Brazil*, [2]*Instituto Federal de CIência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M122 **Supercritical carbon dioxide technology for processing of whey grape juice beverage: Assessing rheological parameters and particle size distribution.**
G. Amaral[1], M. V. Fereira*[1], E. Silva[2], M. A. Meireles[2], E. Esmerino[3], and A. Cruz[4], [1]*Universidade Federal Rural of Rio de Janeiro (UFRRJ), Seropédica, RJ, Brazil*, [2]*Universidade Estadual de Campinas (UNICAMP), Campinas, SP, Brazil*, [3]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [4]*Instituto Federal de CIência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M123 ***Lactobacillus casei* 01 in probiotic and symbiotic sheep milk ice cream: Viability, survival under simulated gastrointestinal conditions and Caco-2 cells adhesion.**
C. Balthazar[1], H. Silva*[1], E. Esmerino[1], M. Carmo[2], L. Azevedo[2], I. Camps[2], and A. Cruz[3], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Universidade Federal de Alfenas, Alfenas, MG, Brasil*, [3]*Instituto Federal de CIência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M124 **Physical-chemical and functional characteristics and volatile compounds of vanilla dairy desserts: Effect of arrowroot flour addition.**
R. Oliveira[1], M. V. Ferreira*[1], L. Cappato[1], K. Nascimento[1], J. Moraes[2], J. L. Barbosa Junior[1], M. I. Barbosa[1], M. Cristina[2], and A. Cruz[2], [1]*Universidade Federal Rural of Rio de Janeiro (UFRRJ), Seropédica, RJ, Brazil*, [2]*Instituto Federal de CIência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M125 **Effect of ultrasound processing on physical properties of prebiotic soursop-flavored whey beverage.**
J. Guimarães*[1], E. Silva[2], M. A. Meireles[2], E. Esmerino[1], and A. Cruz[3], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Universidade Estadual de Campinas (UNICAMP), Campinas, SP, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M126 **Physical stability study of a prebiotic soursop-flavored whey beverage formulation.**
J. Guimarães*[1], E. Silva[2], M. A. Meireles[2], E. Esmerino[1], and A. Cruz[3], [1]*Universidade Federal Fluminense (UFF), Seropédica, RJ, Brazil*, [2]*Universidade Estadual de Campinas (UNICAMP), Campinas, SP, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M127 **Impact of ultrasound processing in bioactive compounds content of a prebiotic soursop-flavored whey beverage.**
J. Guimarães*[1], E. Silva[2], M. A. Meireles[2], E. Esmerino[1], and A. Cruz[3], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Universidade Estadual de Campinas (UNICAMP), Campinas, SP, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M128 **Effect of ultrasound processing on microbial inactivation of prebiotic soursop-flavored whey beverage.**
J. Guimarães*[1], E. Silva[2], M. A. Meireles[2], E. Esmerino[1], and A. Cruz[3], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Universidade Estadual de Campinas (UNICAMP), Campinas, SP, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil.*

M129 **Impact of prebiotics addition in rheological and microstructure and compositional aspects of sheep milk ice cream.**
C. Balthazar[1], H. Silva*[1], E. Esmerino[1], R. Cavalcanti[2], and A. Cruz[3], [1]*Universidade Federal Fluminense (UFF), Niterói, RJ, Brazil*, [2]*Universidade Estadual de Campinas (UNICAMP), Campinas, SP, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil*.

M130 **Whey acerola-flavored drink processed by ohmic heating: Effect on ascorbic acid degradation and color parameters.**
L. Cappato[1], M. V. Ferreira*[1], G. Mercali[2], L. Marczak[2], and A. Cruz[3], [1]*Universidade Federal Rural of Rio de Janeiro (UFRRJ), Seropédica, RJ, Brazil*, [2]*Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil*.

M131 **Whey acerola-flavored drink processed by ohmic heating: Rheological behavior, particle size distribution, and microstructure.**
L. Cappato[1], M. V. Ferreira*[1], G. Mercali[2], L. Marczak[2], and A. Cruz[3], [1]*Universidade Federal Rural of Rio de Janeiro (UFRRJ), Seropédica, RJ, Brazil*, [2]*Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil*.

M132 **Effect of the ohmic heating in the bioactive compounds (antioxidant capacity and ACE inhibitory peptides) in acerola-flavored whey beverage.**
L. Cappato[1], M. V. Ferreira*[1], G. Mercali[2], L. Marczak[2], and A. Cruz[3], [1]*Universidade Federal Rural of Rio de Janeiro (UFRRJ), Seropédica, RJ, Brazil*, [2]*Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil*, [3]*Instituto Federal de Ciência e Tecnologia do Rio de Janeiro (IFRJ), Rio de Janeiro, RJ, Brazil*.

Dairy Foods III: Microbiology

M133 **Comparison of the adhesion characteristics of common dairy spore formers and their spores.**
S. Jindal and S. Anand*, *South Dakota State University, Brookings, SD*.

M134 **Evaluating enzyme formulations for biofilm removal from dairy separation membranes.**
N. Garcia-Fernandez[1,2] and S. Anand*[1,2], [1]*Midwest Dairy Foods Research Center, Brookings, SD*, [2]*Department of Dairy and Food Science, South Dakota State University, Brookings, SD*.

M135 **Effect of membrane material properties on the diversity of early bacterial communities formed on ultrafiltration membranes.**
J. Chamberland*, G. Beaulieu-Carbonneau, M.-H. Lessard, S. Labrie, L. Bazinet, A. Doyen, and Y. Pouliot, *STELA Dairy Research Center, Institute of Nutrition and Functional Foods, Université Laval, Quebec, QC, Canada*.

M136 **Investigation of *Escherichia coli* survival in powdered whole goat milk during four months of storage.**
B. I. Davis, A. Siddique, A. K. Mahapatra, and Y. W. Park*, *Fort Valley State University, Fort Valley, GA*.

M137 **Evaluation of relationship between water activity, pH and *Escherichia coli* survival of powdered whole caprine milk during 4 months of storage.**
B. I. Davis*, A. Siddique, and Y. W. Park, *Fort Valley State University, Fort Valley, GA*.

M138 **Lactose oxidase as a novel activator of the lactoperoxidase system for improved dairy product shelf-life.**
S. Lara-Aguilar* and S. D. Alcaine, *Cornell University, Ithaca, NY*.

M139 **Selective primer development for rapid detection of the gas-producing non-starter bacterium *Lactobacillus wasatchensis*.**
M. Culumber[1], T. Oberg[2], T. Allen[2], F. Ortakci[2], C. Oberg*[1], and D. McMahon[2], [1]*Weber State University, Ogden, UT*, [2]*Utah State University, Logan, UT*.

M140 **Effect of bio-protective lactic acid bacteria cultures on *Lactobacillus wasatchensis*.**
A. Lavigne[1], S. Smith[1], C. Oberg*[1], I. Bowen[2], and D. McMahon[2], [1]*Weber State University, Ogden, UT*, [2]*Utah State University, Logan, UT*.

M141 **The antibacterial effect of addition of citrulline in fermented milk against foodborne pathogens.**
S. W. Ho* and Nagendra P. Shah, *The University of Hong Kong, Hong Kong, China*.

M142 **Influence of the antimicrobial myrrh on yogurt culture bacteria over yogurt shelf life.**
M. Alhejaili*, D. Olson, M. Janes, C. Boeneke, and K. Aryana, *Louisiana State University Agricultural Center, Baton Rouge, LA.*

M143 **Influence of the food matrix on the viability of *Lactobacillus casei* and *Lactobacillus fermentum* strains.**
B. M. Salotti-Souza, T. F. Borgonovi, and A. L. B. Penna*, *São Paulo State University, São José do Rio Preto, SP, Brazil.*

M144 **Properties of *Enterococcus faecium* strains isolated from traditional Carpathian ewe's cheese.**
O. Tsisaryk*[1], I. Slyvka[1], L. Musiy[1], I. Kushnir[1], and T. Bocer[2], [1]*Lviv National University of Veterinary Medicine and Biotechnologies, Lviv, Ukraine*, [2]*Rzeszow University, Rzeszow, Poland.*

M145 **Optimization of ACE-inhibitory activity of fermented milk with *Lactobacillus plantarum* isolated from double cream cheese of Chiapas, Mexico.**
C. Figueroa*, G. Gutiérrez, and H. Hernández, *Escuela Nacional de Ciencias Biológicas, Mexico City, Mexico.*

Extension Education

M146 **Extension programing targeting women in the dairy industry.**
R. Bluel* and T. Probert, *University of Missouri, Columbia, MO.*

M147 **Trade-off between farm profitability and greenhouse gas emission.**
D. Liang*[1], T. Rutherford[2], B. Jones[1], R. Shaver[1], and V. Cabrera[1], [1]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [2]*Department of Applied Agricultural Economics, University of Wisconsin-Madison, Madison, WI.*

M148 **Development of the Dairy Focus SCC Calculator to analyze mastitis costs.**
R. T. Pate*, K. T. Ryan, and F. C. Cardoso, *Department of Animal Sciences, University of Illinois, Urbana, IL.*

M149 **Education and decision support strategy for farm-level economic and environmental assessment of dairy feed-focused best management practices.**
T. J. Beck[2], R. C. Goodling[1], M. M. Haan*[3], V. A. Ishler[1], R. D. Weaver[1], and H. A. Weeks[2,4], [1]*The Pennsylvania State University, University Park, PA*, [2]*Penn State Extension, Carlisle, PA*, [3]*Penn State Extension, Leesport, PA*, [4]*AgChoice Farm Credit, Mechanicsburg, PA.*

M150 **Feed management practices and corn silage quality effects on income over feed cost.**
T. J. Beck[2], R. C. Goodling*[1], M. M. Haan[3], V. A. Ishler[1], R. D. Weaver[1], and H. A. Weeks[2,4], [1]*The Pennsylvania State University, University Park, PA*, [2]*Penn State Extension, Carlisle, PA*, [3]*Penn State Extension, Leesport, PA*, [4]*AgChoice Farm Credit, Mechanicsburg, PA.*

Forages and Pastures I

M151 **Implementation of the LOCAL algorithm with near-infrared spectroscopy in forage resources for grazing systems of dairy cattle in Colombia.**
C. Ariza-Nieto*[1], B. Mojica[2], D. Parra[1], O. L. Mayorga[1], and G. Afanador[2], [1]*CORPOICA, Bogota, Colombia*, [2]*Universidad Nacional de Colombia, Bogota, Colombia.*

M152 **Characterization of forage resources of Colombian highlands grazing systems using LOCAL algorithm with near-infrared spectroscopy.**
C. Ariza-Nieto*[1], B. Mojica[2], O. L. Mayorga[1], A. Sierra[1], E. Mancipe[1], J. Vargas[1], and G. Afanador[2], [1]*CORPOICA, Bogota, Colombia*, [2]*Universidad Nacional de Colombia, Bogota, Colombia.*

M153 **Effects of a chemical additive on aerobic stability and fungal microbiome of corn silage.**
E. Benjamim da Silva*[1,2], R. M. Savage[1], S. A. Polukis[1], M. L. Smith[1], R. N. Mester[1], A. M. Gray[1], and L. Kung Jr.[1], [1]*University of Delaware, Newark, DE*, [2]*CAPES Foundation, Brasília, DF, Brazil.*

M154 **A sensory additive increased milk response to concentrate supplementation in dairy cows grazing kikuyu pastures.**
L. M. Gómez[1], P. Aguirre[1], F. Bargo*[2,3], G. Tedó[2], and I. Ipharraguerre[4,2], [1]*Solla, Medellín, Colombia*, [2]*Lucta SA, Barcelona, Spain*, [3]*Universidad Buenos Aires, Buenos Aires, Argentina*, [4]*University of Kiel, Kiel, Germany*.

M155 **Feed laboratory demographics and utilization in the United States.**
J. Severe* and A. J. Young, *Utah State University, Logan, UT*.

M156 **Effects of nitrogen fertilization on the nutritive value of oat forages.**
W. K. Coblentz*[1], M. S. Akins[2], and J. S. Cavadini[3], [1]*US Dairy Forage Research Center, Marshfield, WI*, [2]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [3]*University of Wisconsin Marshfield Agricultural Research Station, Marshfield, WI.*

M157 **Winter supplementation of ground whole flaxseed impacts milk fatty acid composition on organic dairy farms in the north-eastern United States.**
A. N. Hafla[1], K. J. Soder*[1], A. F. Brito[2], R. Kersbergen[3], A. F. Benson[4], H. Darby[5], M. D. Rubano[1], S. L. Dillard[1], J. Kraft[5], and S. F. Reis[2], [1]*USDA-ARS, University Park, PA*, [2]*University of New Hampshire, Durham, NH*, [3]*University of Maine, Orono, ME*, [4]*Cornell University, Cortland, NY*, [5]*University of Vermont, Albans, VT*.

M158 **Nutrient composition and management characteristics of California sorghum silage.**
J. Heguy*[1], J. Dahlberg[2], P. Price[4], J. Martins[3], N. Clark[3], N. Silva-del-Rio[5], and D. Meyer[4], [1]*University of California, Ag & Natural Resources, Modesto, CA*, [2]*University of California, Ag & Natural Resources, Parlier, CA*, [3]*University of California, Ag & Natural Resources, Tulare, CA*, [4]*University of California, Davis, Davis, CA*, [5]*University of California, Veterinary Medicine Teaching & Research Center, Tulare, CA*.

M159 **Effect of type of processor and storage length on corn silage processing score in whole-plant corn silage samples.**
L. F. Ferraretto*[1], J. P. Goeser[2,3], and K. A. Bryan[4], [1]*University of Florida, Gainesville, FL*, [2]*Rock River Laboratory Inc., Watertown, WI*, [3]*University of Wisconsin-Madison, Madison, WI*, [4]*Chr. Hansen, Milwaukee, WI*.

M160 **Evaluation of yield and quality of photoperiod-sensitive sorghums in central Wisconsin.**
E. Remick*[1], M. Akins[1], A. Grisham[1], H. Su[2], W. Coblentz[3], and R. Ogden[3], [1]*Department of Dairy Science, University of Wisconsin, Madison, WI*, [2]*College of Animal Science and Technology, China Agricultural University, Beijing, China*, [3]*US Dairy Forage Research Center, Marshfield, WI*.

M161 **Comparison of two in situ reference methods to estimate indigestible NDF by near infrared reflectance spectroscopy.**
G. J. Zhang*[1], Y. H. Yan[2], M.H. Hall[3], D. J. Undersander[4], and D. K. Combs[4], [1]*Ningxia University, Yinchuan, Ningxia Hui, China*, [2]*Sichuan Agriculture University, Chengdu, Sichuan, China*, [3]*Pennsylvania State University, State College, PA*, [4]*University of Wisconsin, Madison, WI.*

M162 **Simulating the effects of forage harvesting strategies on dairy farm profitability and agro-environmental performance in Canada.**
V. Ouellet*[1], G. Belanger[2], S. Binggeli[1], D. Pellerin[1], G. Tremblay[2], G. Jego[2], M. Chantigny[2], V. Baron[3], and E. Charbonneau[1], [1]*Universite Laval, Quebec City, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Quebec City, QC, Canada*, [3]*Agriculture and Agri-Food Canada, Lacombe, AB, Canada*.

M163 **Fermentation profile and identification of lactic acid bacteria and yeasts of rehydrated corn kernel silage.**
B. F. Carvalho, T. Fernandes*, M. N. Pereira, R. F. Schwan, and C. L. S. Ávila, *Universidade Federal de Lavras, Lavras, Minas Gerais, Brazil*.

M164 **Simulating the effect of corn silage substitution by sweet pearl millet or sweet sorghum silages on dairy farm profitability and agro-environmental performance in Canada.**
J. Velarde-Guillén*[1], D. Pellerin[1], L. Guerra-Alarcon[1], A. Vanasse[1], M. Chantigny[2], V. Baron[3], and É Charbonneau[1], [1]*Université Laval, Québec, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Québec, QC, Canada*, [3]*Agriculture and Agri-Food Canada, Lacombe, AB, Canada*.

M165 **Canopy height effect on the fiber digestibility of elephantgrass under cut and carry systems.**
E. B. Alves[1], D. M. Donnelly*[2], J. R. R. Dorea[2], F. L. M. Silva[3], T. Bernardes[1], and D. K. Combs[2], [1]*Federal University of Lavras, Lavras, MG, Brazil*, [2]*University of Wisconsin, Madison, WI*, [3]*University of Sao Paulo, Piracicaba, SP, Brazil*.

M166 **Effects of irrigation on sorghum forage yield and quality in the central sands region of Wisconsin.**
A. Grisham*[1], M. Akins[1], E. Remick[1], H. Su[2], R. Ogden[3], and W. Coblentz[3], [1]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [2]*College of Animal Science and Technology, China Agricultural University, Beijing, China*, [3]*US Dairy Forage Research Center, Marshfield, WI.*

M167 **Packing density of corn and winter forage silage structures on California dairies.**
M. Cuffia*[1], J. Lawrence[2], J. Heguy[3], and N. Silva-del-Rio[1], [1]*University of California, Veterinary Medicine Teaching & Research Center, Tulare, CA*, [2]*Alltech, Fresno, CA*, [3]*University of California, Agriculture & Natural Resources, Modesto, CA*.

M168 **Nitrogen fertilization effects on sorghum forage yield and quality.**
A. Grisham*[1], M. Akins[1], E. Remick[1], H. Su[2], R. Ogden[3], and W. Coblentz[3], [1]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [2]*College of Animal Science and Technology, China Agricultural University, Beijing, China*, [3]*US Dairy Forage Research Center, Marshfield, WI.*

M169 **Pearl millet morphological composition at three sowing densities and two cutting heights.**
J. S. Trindade[2,1], V. L. Banys[1], M. Dias[1], F. J. S. Dias[1], and E. A. Collao-Saenz*[1], [1]*Universidade Federal de Goiás-UFG, Jataí, Goiás, Brazil*, [2]*UNIVAR, Barra do Garças, Mato Grosso, Brazil*.

M170 **Effect of plant population and hybrids varying in relative maturity on yield, nutrient composition and ruminal in vitro NDF digestibility in whole-plant corn forage.**
L. F. Ferraretto*[1], J. G. Wasdin[1], C. R. Staples[1], and D. Grabow[2], [1]*University of Florida, Gainesville, FL*, [2]*Grabow Seed Services Inc., Atlanta, GA*.

M171 **Productivity of lactating dairy cows fed diets with teff hay as the sole forage.**
B. Saylor*, D. Min, and B. Bradford, *Kansas State University, Manhattan, KS.*

Lactation Biology I

M172 **Rapid and efficient method of total RNA isolation from milk fat for transcriptome analysis of mammary gland.**
S. Choudhary and R. K. Choudhary*, *School of Animal Biotechnology, Guru Angad Dev Veterinary and Animal Science University, Ludhiana, Punjab, India*.

M173 **Lactation-related metabolic mechanism investigated based on the relationships between 4 biofluids and mammary gland metabolomics in dairy cows.**
H. Z. Sun*, K. Shi, X. H. Wu, M. Y. Xue, Z. H. Wei, J. X. Liu, and H. Y. Liu, *Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China*.

M174 **Conjugated linoleic acid (CLA) reduces milk fat content in sows without altering litter performance.**
E. C. Sandri, P. C. Carraro, and D. E. Oliveira*, *Santa Catarina State University, Lages, Santa Catarina, Brazil*.

M175 **The gene expression of fatty acid transporters and triglyceride codifying genes changes according the stage of lactation in dairy ewes.**
M. Camêra[1], E. Ticiani[1], K. J. Harvatine[2], E. C. Sandri[1], and D. E. Oliveira*[1], [1]*Santa Catarina State University, Lages, SC, Brazil*, [2]*Penn State University, State College, PA*.

M176 **Milk yield differences between xanthosine treated and control glands are associated with changes in milk protein gene expression.**
R. K. Choudhary[1], S. Choudhary[1], D. Pathak[2], R. Udehiya[4], R. Verma[1], S. Kaswan[3], A. Sharma[3], M. Honparkhe[5], and A. Capuco*[6], [1]*School of Animal Biotechnology, Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, Punjab, India*, [2]*Department of Veterinary Anatomy, GADVASU, Ludhiana, Punjab, India*, [3]*Department of Livestock Production & Management, GADVASU, Ludhiana, Punjab, India*, [4]*Department of Veterinary Surgery and Radiology, GADVASU, Ludhiana, Punjab, India*, [5]*Department of Veterinary Gynaecology & Obstetrics, GADVASU, Ludhiana, Punjab, India*, [6]*Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD*.

M177 **Peroxisome proliferator-activated receptor gamma (PPARγ) agonist and conjugated linoleic acid (CLA) have different effects on expression of milk protein genes in lactating ewes.**
M. Camera[1], E. C. Sandri*[1], K. J. Harvatine[2], and D. E. Oliveira[1], [1]*Santa Catarina State University, Lages, Santa Catarina, Brazil*, [2]*Penn State University, State College, PA*.

M178 **Strategies to ameliorate the negative impact of heat stress on immune status of cows during the dry period.**
T. F. Fabris*[1], J. Laporta[1], D. J. McLean[2], D. J. Kirk[2], J. D. Chapman[2], F. N. Corra[1], Y. M. Torres[1], and G. E. Dahl[1], [1]*University of Florida, Gainesville, FL*, [2]*Phibro Animal Health Corp, Teaneck, NJ.*

M179 **Thiazolidinedione (TZD) does not modify the milk protein synthesis in lactating ewes.**
E. C. Sandri*, M. Camera, W. B. Junior, P. C. Carraro, E. D. Silva, and D. E. Oliveira, *Santa Catarina State University, Lages, Santa Catarina, Brazil.*

Physiology and Endocrinology I

M180 **Evaluating effects of mastitis and ketosis risks on reproductive parameters using indicators from an automated in-line milk analysis system.**
T. C. Bruinje*[1] and D. J. Ambrose[1,2], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada.*

M181 **Development of a model to study mammary gland function during heat stress.**
Ri. O. Rodrigues*[1], T. Leiva[1,2], Ro. O. Rodrigues[1], and T. B. McFadden[1], [1]*University of Missouri, Columbia, MO*, [2]*Sao Paulo State University, Botucatu, Brazil.*

M182 **Relationship between blood urea nitrogen near the time of AI and fertility of lactating Holstein cows.**
P. D. Carvalho*, R. V. Barletta, V. G. Santos, and P. M. Fricke, *Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.*

M183 **Post-weaning calf hepatic gene expression in response to maternal feeding with methyl donors pre-partum.**
C. Bespalhok Jacometo*[1], P. Montagner[2], Z. Zhou[3], F. Lopes[4], D. Luchini[5], M. Nunes Corrêa[2], and J. Loor[3], [1]*Universidad de La Salle, Bogotá, DC, Colombia*, [2]*Universidade Federal de Pelotas, Pelotas, RS, Brazil*, [3]*University of Illinois, Urbana, IL*, [4]*Adisseo SA, São Paulo, SP, Brasil*, [5]*Adisseo NA, Alpharetta, GA.*

M184 **Efficacy of an activity monitoring system to detect estrous activity in nulliparous Holstein heifers after synchronization of estrus using $PGF_{2\alpha}$.**
P. D. Carvalho*, R. V. Barletta, H. Dement, and P. M. Fricke, *Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.*

M185 **Effects of feeding a rumen-protected methionine on plasma amino acid concentrations, glandular morphology, and immunolabeling in the bovine endometrium.**
S. L. Stella*[1], D. A. V. Acosta[2], C. Skenandore[1,3], B. Q. Pinto[1], Z. Zheng[1], D. Luchini[4], and F. C. Cardoso[1], [1]*University of Illinois, Urbana, IL*, [2]*The Colombian Corporation for Agricultural Research (CORPOICA), Bogotá, Colombia*, [3]*Texas A&M College of Veterinary Medicine, College Station, TX*, [4]*Adisseo NACA, Alpharetta, GeoGArgia.*

M186 **Effects of *Saccharomyces cerevisiae* fermentation products on ovarian and uterine characteristics.**
S. L. Stella*[1], K. Glosson[1], I. Yoon[2], and F. C. Cardoso[1], [1]*University of Illinois, Urbana, IL*, [2]*Diamond V, Cedar Rapids, IA.*

M187 **Energy and protein metabolism during induced negative energy balance in mid-lactation dairy cows.**
I. Ansia*[1], Y. Ohta[2], T. Fujieda[2], and J. K. Drackley[1], [1]*University of Illinois, Urbana, IL*, [2]*Ajinomoto Co. Inc., Tokyo, Japan.*

M188 **Effects of rain exposure on environmental conditions and vaginal temperature of Criollo dairy cows in Dominican Republic.**
H. L. Sánchez-Rodríguez*[1], K. Domenech-Pérez[1], R. C. Youngblood[3], L. Björk-Magnúsdóttir[2], P. Iglesias-Estévez[2], I. I. Suero-Pérez[2], G. Muñiz-Colón[1], and C. Cabrera-Cabrera[2], [1]*University of Puerto Rico at Mayaguez, Mayaguez, Puerto Rico*, [2]*ISA University, Santiago, Dominican Republic*, [3]*Institute for Genomics, Biocomputing and Biotechnology, Mississippi State University, Mississippi State, MS.*

M189 **Effects of chronic lipopolysaccharide infusion on immune cell dynamics and the acute phase response in lactating cows.**
E. A. Horst*, M. J. Dickson, S. K. Kvidera, J. A. Ydstie, C. S. Shouse, E. J. Mayorga, M. Al-Qaisi, K. L. Bidne, H. A. Ramirez, A. F. Keating, and L. H. Baumgard, *Iowa State University, Ames, IA.*

M190 **mRNA expression of 11bHSD1 and 17bHSD12 in adipose tissue of dairy cows with high and normal body condition score.**
K. Schuh*[1,2], S. Häussler[1], C. Koch[3], D. Frieten[2], G. Dusel[2], H. Sadri[1], and H. Sauerwein[1], [1]*University of Bonn, Institute for Animal Science Physiology & Hygiene, Bonn, North Rhine-Westphalia, Germany*, [2]*University of Applied Sciences Bingen, Animal Nutrition and Health, Bingen am Rhein, Rhineland Palatinate, Germany*, [3]*Educational and Research Centre for Animal Husbandry, Hofgut Neumühle, Münchweiler a.d. Alsenz, Rhineland Palatinate, Germany.*

M191 **Additional small dose of prostaglandin $F_{2\alpha}$ at timed AI fails to improve pregnancy per AI in lactating dairy cows.**
J. A. Sauls*, B. E. Voelz, L. G. D. Mendonca, and J. S. Stevenson, *Kansas State University, Manhattan, KS.*

M192 **Effect of addition of L-carnitine during culture on pregnancy rate obtained after transfer of cryopreserved bovine embryos produced in vitro.**
A. Zolini*[1], P. J. Hansen[1], and J. Block[1,2], [1]*University of Florida*, *Gainesville, FL*, [2]*OvaTech LLC*, *Gainesville, FL*.

M193 **A resynchronization of ovulation strategy based on the ovarian structures present at non-pregnancy diagnosis reduced time to pregnancy in lactating dairy cows.**
R. Wijma*, M. Masello, M. L. Stangaferro, M. M. Pérez, and J. O. Giordano, *Cornell University*, *Ithaca, NY*.

M194 **Adipose tissue remodeling in transition dairy cows is affected by body condition score and lipolysis intensity.**
G. A. Contreras*[1], C. S. Barboza[1], K. Thelen[1], J. de Souza[2], J. De Koster[1], and A. L. Lock[2], [1]*Department of Large Animal Clinical Sciences*, *East Lansing, MI*, [2]*Department of Animal Science*, *East Lansing, MI*.

M195 **Coordination of adipose tissue lipolysis during the transition period in dairy cows.**
S. J. Erb*, R. S. Pralle, and H. M. White, *University of Wisconsin-Madison*, *Madison, WI*.

M196 **Expression of corticosteroidogenic metabolizing enzymes in adipose tissue of dairy cows with high and normal body condition score.**
K. Schuh*[1,2], S. Häussler[1], C. Koch[3], D. Frieten[2], G. Dusel[2], H. Sadri[1], and H. Sauerwein[1], [1]*University of Bonn, Institute for Animal Science Physiology & Hygiene*, *Bonn, North Rhine-Westphalia, Germany*, [2]*University of Applied Sciences Bingen, Animal Nutrition and Health*, *Bingen am Rhein, Rhineland Palatinate, Germany*, [3]*Educational and Research Centre for Animal Husbandry, Hofgut Neumühle*, *Münchweiler a.d. Alsenz, Rhineland Palatinate, Germany*.

M197 **Chronic lipopolysaccharide infusion reduces productivity in lactating dairy cows.**
M. J. Dickson*, S. K. Kvidera, E. A. Horst, J. A. Ydstie, C. S. Shouse, E. J. Mayorga, M. Al-Qaisi, K. L. Bidne, H. A. Ramirez, A. F. Keating, and L. H. Baumgard, *Iowa State University*, *Ames, IA*.

M198 **Effect of adiposity on localized and systemic insulin sensitivity in periparturient Holstein dairy cows.**
A. N. Davis*, J. E. Rico, Z. C. Phipps, L. C. Demyon, M. C. Clapham, M. C. Coleman, S. Saed Samii, and J. W. McFadden, *West Virginia University*, *Morgantown, WV*.

M199 **Impact of milk yield genotype and stress on accumulative cortisol concentrations in hair from Holstein cows.**
W. A. Smith*, G. Cousillas, A. M. Rosales Gallardo, W. J. Weber, and B. A. Crooker, *University of Minnesota*, *St. Paul, MN*.

M200 **Effect of the intrauterine dextrose infusion at non-pregnancy diagnosis on fertility of lactating dairy cows.**
S. Bas*, A. A. Barragan, J. M. Piñeiro, B. T. Menichetti, and G. M. Schuenemann, *Department of Veterinary Preventive Medicine, The Ohio State University*, *Columbus, OH*.

M201 **Metabolic responses to a glucose tolerance test and epinephrine challenge during continuous lipopolysaccharide infusion in lactating cows.**
S. K. Kvidera*, M. J. Dickson, E. A. Horst, J. A. Ydstie, C. S. Shouse, K. L. Bidne, E. J. Mayorga, M. Al-Qaisi, H. A. Ramirez Ramirez, A. F. Keating, and L. H. Baumgard, *Iowa State University*, *Ames, Iowa*.

M202 **Slick-haired Puerto Rican Holstein cows have larger sweat glands than their wild type-haired counterparts.**
Z. E. Contreras-Correa*[1], N. Peña-Alvarado[2], W. Torres-Ruiz[2], J. R. Almodóvar-Rivera[3], K. I. Domenech-Pérez[1], C. Youngblood[4], M. Pagán-Morales[1], A. Mesonero-Morales[1], J. Curbelo-Rodríguez[1], P. F. Randel-Follin[1], G. C. Muñiz-Colón[1], V. Colón-González[1], Á. L. Jiménez-Arroyo[1], G. M. Jiménez-Arroyo[1], H. L. Sánchez-Rodríguez[1], [1]*University of Puerto Rico at Mayaguez Campus, Department of Animal Science*, *Mayaguez, Puerto Rico*, [2]*Laboratorio de Investigaciones Pesqueras, Departamento de Recursos Naturales y Ambientales*, *Cabo Rojo, Puerto Rico*, [3]*University of Puerto Rico at Mayaguez Campus, Department of Biology*, *Mayaguez, Puerto Rico*, [4]*Institute of Genomics, Biocomputing and Biotechnology, Mississippi State University*, *Mississippi State, MS*.

M203 **Interaction of pre-calving DCAD diet and serotonin infusions on pre and post calving energy markers in multiparous Holstein cows.**
A. A. Cheng*, C. J. Slater, E. L. Endres, and L. L. Hernandez, *University of Wisconsin-Madison*, *Madison, WI*.

M204 **Some factors affecting the response of treatment with novel hormonal protocols in anestrus water buffaloes.**
S. Sah and B. Devkota*, *Department of Theriogenology, Faculty of Animal Science, Veterinary Science and Fisheries, Agriculture and Forestry University*, *Rampur, Chitwan, Nepal*.

M205 **Arteriovenous blood metabolomics: An efficient method to determine the key metabolic pathway for milk synthesis in intra-mammary gland**
B. Wang*[1,2], L. S. Jiang[2], L. L. Guan[3], and J. X. Liu[1], [1]*Institute of Dairy Science, College of Animal Sciences; MoE Key Laboratory of Molecular Animal Nutrition, Zhejiang University, Hangzhou, Zhejiang, China*, [2]*Beijing Key Laboratory for Dairy Cow Nutrition, College of Animal Science and Technology, Beijing University of Agriculture, Beijing, China*, [3]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Canada*.

Production, Management, and the Environment I

M206 In vitro modification of metabolic hydrogen production and consumption with methanogenesis inhibitors.
J. Guyader*[1], E. M. Ungerfeld[2], and K. A. Beauchemin[1], [1]*Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada*, [2]*Instituto de Investigaciones Agropecuarias INIA Carillanca, Temuco, Chile*.

M207 **Is phenotypic residual feed intake associated with feed efficiency, nitrogen use efficiency, urinary nitrogen and methane losses in lactating dairy cows?**
F. Sun*[1], M. Aguerre[2], and M. Wattiaux[1], [1]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [2]*Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC*.

M208 **Perceptions of climate change by Quebec's dairy producers.**
A. L. Bellavance[1], S. Fournel*[1], V. Ouellet[1], G. Bélanger[2], G. Tremblay[2], B. Koraï[1], and É. Charbonneau[1], [1]*Université Laval, Quebec City, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Quebec City, QC, Canada*.

M209 **Variation in carbon footprint of milk production due to management differences: A whole-farm analysis of 142 dairy farms in Ontario, Canada.**
S. Jayasundara*[1], T. Wright[2], A. Weersink[1], A. VanderZaag[3], R. Gordon[4], and C. Wagner-Riddle[1], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Ministry of Agriculture, Food and Rural Affairs, Guelph, ON, Canada*, [3]*Agriculture and Agri-Food Canada, Ottawa, ON, Canada*, [4]*Wilfrid Laurier University, Waterloo, ON, Canada*.

M210 **Effects of feeding oscillating dietary rumen-degradable protein (RDP) levels on feed intake, milk production, and nitrogen utilization in dairy cows.**
A. Y. Makurumure* and T. Mutsvangwa, *Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada*.

M211 **Interactions between partial replacement of barley starch with sugars and dietary rumen-degradable protein level on nitrogen utilization and ruminal acidosis in dairy cows.**
T. Chambwe*, G. B. Penner, and T. Mutsvangwa, *Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada*.

M212 **Assessing regional differences in nitrogen losses from US dairy farms using the Integrated Farm Systems Model.**
K. F. Reed*[1], P. A. Vadas[1], C. A. Rotz[2], G. W. Feyereisen[3], and J. D. Gamble[3], [1]*USDA-ARS Dairy Forage Research Center, Madison, WI*, [2]*USDA-ARS Pasture Systems and Watershed Management Research Unit, State College, PA*, [3]*USDA-ARS Soil and Water Management Research Unit, St. Paul, MN*.

M213 **Economic and environmental impacts of revised amino acid recommendations on Canadian dairy farms.**
S. Binggeli*[1], H. Lapierre[2], E. Charbonneau[1], D. Ouellet[2], and D. Pellerin[1], [1]*Université Laval, Quebec, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*.

M214 **The effect of adding zeolites to dairy manure compost on ammonia emissions and nitrogen speciation.**
M. E. de Haro Marti[1], M. Chahine*[2], H. Neibling[3], and L. Chen[2], [1]*University of Idaho, Gooding, ID*, [2]*University of Idaho, Twin Falls, ID*, [3]*University of Idaho, Kimberly, ID*.

M215 **Effects of heat stress, dietary Zn source and mammary inflammation on plasma heat shock protein concentration and gene expression of mammary gland in lactating dairy cows.**
R. M. Orellana*[1], T. N. Marins[1], X. Weng[1], A. P. A. Monteiro[1], J. Guo[1], J. K. Bernard[1], D. J. Tomlinson[2], J. M. DeFrain[2], and S. Tao[1], [1]*University of Georgia, Tifton, GA*, [2]*Zinpro Corporation, Eden Prairie, MN*.

M216 **A case study to evaluate cooling options in Georgia grazing dairies.**
R. M. Orellana*, J. K. Bernard, and S. Tao, *University of Georgia, Tifton, GA*.

M217 **Effects of an evaporative cooling system on reducing heat stress in dairy cattle.**
J. R. Johnson*[1], M. J. Wolf[2], J. McBride[2], and M. J. Brouk[1], [1]*Kansas State University, Manhattan, KS*, [2]*VES Environmental Solutions, Chippewa Falls, WI.*

M218 **Circulating insulin resistance biomarker lignoceroyl sphingosine is not elevated in Holstein dairy cows in response to heat stress.**
J. E. Rico*[1], Z. C. Phipps[1], Q. Zeng[1], A. M. Shall[1], J. D. Kaufman[2], A. G. Rius[2], and J. W. McFadden[1], [1]*West Virginia University, Morgantown, WV*, [2]*University of Tennessee, Knoxville, TN.*

M219 **Seasonality of calving on dairy farms across the United States.**
F. C. Ferreira*[1,2] and A. De Vries[1], [1]*University of Florida, Gainesville, FL*, [2]*Embrapa Gado de Leite, Juiz de Fora, MG, Brazil.*

M220 **^{1}H NMR-based blood metabolomics in cold-stressed dairy goats.**
N. Mehaba, W. Coloma-García, A. A. K. Salama*, and G. Caja, *Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Spain.*

M221 **Physiological and lactational responses of dairy goats to cold stress.**
W. Coloma-García, N. Mehaba, A. A. K. Salama*, X. Such, and G. Caja, *Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Spain.*

M222 **Interaction between level of production and dry period length on subsequent milking performance.**
A. Bach*[1,2] and J. M. Pont[3], [1]*ICREA, Institució Catalana de Recerca i Estudis Avançats, Spain*, [2]*Department of Ruminant Production, IRTA, Spain*, [3]*Granja San José, Spain.*

M223 **Evaluation of the economically optimal dry period length under four herd constraints.**
P. Pattamanont* and A. De Vries, *University of Florida, Gainesville, FL.*

M224 **The association of blood calcium concentration shortly after parturition with metritis and milk production in Holstein dairy cows.**
R. C. Neves*[1], B. M. Leno[2], M. D. Curler[3], M. J. Thomas[3], T. R. Overton[2], and J. A. A. McArt[1], [1]*Department of Population Medicine and Diagnostic Sciences, Cornell University, Ithaca, NY*, [2]*Department of Animal Science, Cornell University, Ithaca, NY*, [3]*Dairy Health and Management Services LLC, Lowville, NY.*

M225 **Increased serum calcium in dairy cows with oral calcium formate supplementation in the postpartum period.**
E. W. Carneiro[1], S. H. Honorato[2], E. E. Ichikawa[2], and R. Almeida*[1], [1]*Universidade Federal do Paraná, Curitiba, PR, Brazil*, [2]*Bayer Animal Health, São Paulo, SP, Brazil.*

M226 **Association of milk fatty acids and β-hydroxybutyrate concentrations in postpartum dairy cows.**
J. K. Poncheki[1], P. M. Souza[1], J. A. Horst[2], D. P. D. Lanna[3], and R. Almeida*[1], [1]*Universidade Federal do Paraná, Curitiba, PR, Brazil*, [2]*Associação Paranaense de Criadores de Bovinos da Raça Holandesa, Curitiba, PR, Brazil*, [3]*Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, SP, Brazil.*

M227 **Feeding incremental levels of nicotinic acid to prepartum dairy cows increases colostral immunoglobulin concentration.**
K. Aragona*[1], E. Rice[1], M. Engstrom[2], and P. Erickson[1], [1]*University of New Hampshire, Durham, NH*, [2]*DSM Nutritional Products Inc.*

M228 **Effects of supplemental β-carotene to prepartum dairy cows on colostrum quality and the pre-weaned calf.**
K. Aragona*[1], E. Rice[1], M. Engstrom[2], and P. Erickson[1], [1]*University of New Hampshire, Durham, NH*, [2]*DSM Nutritional Products, Inc.*

M229 **Feeding green tea extracts has minor effects on antioxidant status of dairy cows during the transition period.**
V. Fischer*[1], S. C. B. Stivanin[1], E. F. Vizzotto[1], M. de Paris[1], M. B. Zanela[2], C. Matte[1], C. Klein[1], and V. Stone[1], [1]*Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil*, [2]*Empresa Brasileira de Pesquisa Agropecuária, Pelotas, RS, Brazil.*

M230 **Ratio of dietary forage-to-concentrate affect liver and mammary tissue transcriptome in primiparous Holstein dairy cows.**
Z. Zhou[1,2], L. Ma[1,4], J. Q. Wang[1], J. J. Loor[2], M. Bionaz[3], and D. P. Bu*[1,5], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL*, [3]*Animal and Rangeland Sciences, Oregon State University, Corvallis,OR*, [4]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [5]*Hunan Co-Innovation Center of Safety Animal Production, CICSAP, Changsha, Hunan, China*.

M231 **Maternal ethyl-cellulose rumen-protected methionine supplementation affects Holstein heifer calf development and growth.**
A. S. Alharthi*[1], F. Batistel[1], C. Parys[2], A. Helmbrecht[2], and J. J. Loor[1], [1]*University of Illinois at Urbana-Champaign, Urbana, IL*, [2]*Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany.*

M232 **Effect of pasteurized and non-pasteurized colostrum on the growth performance and development of gastrointestinal tract of calves.**
G. T. Liu[1,2], D. P. Bu[1,5], S. C. Li[3], K. Yang[4], and Q. E. Zhang*[2], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Department of Animal Science, Ningxia University, Yinchuan, Ningxia, China*, [3]*Department of Animal Science, University of Manitoba, Winnipeg, Canada*, [4]*Dongying Austasia Modern Dairy Farm Co.,Ltd, Dongying, Shandong, China*, [5]*Hunan Co-Innovation Center of Safety Animal Production , CICSAP, Changsha, Hunan, China*.

M233 **Modulation of feeding behavior in lactating dairy cows by sweet sensory additives.**
M. Blanch*[1], F. Bargo[1], G. Tedó[1], I. R. Ipharraguerre[1,2], I. Guasch[3], and A. Bach[4,5], [1]*Lucta S.A, Barcelona, Spain*, [2]*University of Kiel, Germany*, [3]*Blanca from the Pyrenees, Spain*, [4]*ICREA, Barcelona, Spain*, [5]*IRTA, Caldes de Montbui, Spain*.

M234 **Metabolic changes in rumen fluid from dairy cows in response to heat stress.**
L. Ma[1,2], Y. X. Yang[1], S. T. Gao[1,2], L. S. Zhao[1,2], L. Baumgard[3], Z. T. Yu[4], and D. P. Bu*[1,2], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [3]*Iowa State University, Ames, IA*, [4]*Department of Animal Sciences, The Ohio State University, Columbus, OH*, [5]*Hunan Co-Innovation Center of Safety Animal Production, CICSAP, Changsha, Hunan, China*.

M235 **Impact of ad libitum milk feeding and butyrate supplementation on organ and epithelial growth in the gastrointestinal tract of dairy calves.**
C. Gerbert[1], D. Frieten*[2], C. Koch[1], G. Dusel[2], K. Eder[3], R. Zitnan[4], and H. M. Hammon[5], [1]*Educational and Research Centre for Animal Husbandry, Hofgut Neumuehle, Muenchweiler an der Alsenz, Germany*, [2]*Department of Life Sciences and Engineering, University of Applied Sciences Bingen, Bingen, Germany*, [3]*Institute of Animal Nutrition and Nutrition Physiology, Justus-Liebig-University Giessen, Giessen, Germany*, [4]*National Agricultural and Food Centre, Research Institute for Animal Production, Nitra, Slovakia*, [5]*Institue of Nutritional Physiology, Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany*.

M236 **The effect of fermented ammoniated condensed whey supplementation on hyperketonemia incidence in transition dairy cows.**
R. C. Oliveira*[1], K. J. Sailer[1], R. S. Pralle[1], H. T. Holdorf[1], G. D. Poppy[2], and H. M. White[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Fermented Nutrition Corporation, Luxemburg, WI.*

M237 **Prepartum conjugated linoleic acid supplementation on lactation performance and metabolic health in dairy cows.**
R. C. Oliveira*[1], R. S. Pralle[1], L. C. de Resende[2], C. H. P. C. Nova[3], V. Caprarulo[4], J. A. Jendza[5], A. Troescher[6], and H. M. White[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Federal University of Lavras, Lavras, Brazil*, [3]*State University of Northern Rio de Janeiro, RJ, Brazil*, [4]*University of Milan, Milan, Italy*, [5]*BASF, Florham, NJ*, [6]*BASF, Lampertheim, Germany*.

M238 **Effect of live yeast and a combination of live yeast and calcified seaweed on rumen fermentation.**
N. D. Walker*[1], O. AlZahal[1], B. Tas[2], and W. van Straalen[2], [1]*AB Vista, Marlborough, Wiltshire, UK*, [2]*Schothorst Feed Research, Lelystad, the Netherlands*.

M239 **Factors affecting performance responses to supplementation of rumen-protected methionine for dairy cows.**
G. F. M. Leão[2], J. R. R. Dórea[3], and M. A. C. Danes*[1], [1]*University of Lavras, Lavras, MG, Brazil*, [2]*Federal University of Paraná, Curitiba, PR, Brazil*, [3]*University of Wisconsin, Madison, WI.*

M240 **The use of H-nuclear magnetic resonance (H-NMR) in ewes suffering milk fat depression: Could blood metabolomic differences explain the individual variations?**
A. A. K. Salama*[1], P. G. Toral[2], G. Hervás[2], G. Caja[1], and P. Frutos[2], [1]*Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Spain*, [2]*Instituto de Ganadería de Montaña (CSIC-ULE), Grulleros, León, Spain*.

M241 **Nitrogen utilization in dairy cows fed a corn silage based-diet supplemented with increasing amounts of linseed oil.**
F. Hassanat*, C. Cherif, D. Warner, and C. Benchaar, *Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada*.

M242 **Effect of *Lactobacillus animalis* LA-51 and *Propionibacterium freudenreichii* PF-24 on the total tract digestibility of protein, starch, NDF and on fecal starch concentrations in high-producing cows.**
K. E. Nestor Jr.*, S. Lerner, and C. Jamison, *Chr. Hansen Animal Health, Milwaukee, WI.*

M243 **Gaseous emissions from forages and rumen-cannulated steers: Do ruminants emit nitrous oxide?**
K. Gerlach*[1], A. Sommer[1], A. J. Schmithausen[2], M. Trimborn[2], W. Büscher[2], and K.-H. Südekum[1], [1]*Institute of Animal Science, University of Bonn, Bonn, Germany*, [2]*Institute of Agricultural Engineering, University of Bonn, Bonn, Germany*.

M244 **In vitro post-ruminal digestion of rumen bypass emulsions encapsulated by interfacial crosslinking using polyphenol oxidase from potato tuber peels.**
F. Gadeyne*[1], N. De Neve[1], B. Vlaeminck[1], P. Van der Meeren[2], and V. Fievez[1], [1]*Laboratory for Animal Nutrition and Animal Product Quality, Faculty of Bioscience Engineering, Ghent University, Coupure Links 653, Ghent, Belgium*, [2]*Particle and Interfacial Technology Group, Faculty of Bioscience Engineering, Ghent University, Coupure Links 653, Ghent, Belgium*.

M245 **The effect of concentrate supplementation strategy on milk production and rumen fermentation parameters in late-lactation spring-calving grazing dairy cows.**
Z. C. McKay*, M. B. Lynch, F. J. Mulligan, G. Rajauria, and K. M. Pierce, *UCD Lyons Research Farm, Lyons Estate, Celbridge, Nass, Co. Kildare, Ireland*.

M246 **Reduction of aflatoxin transfer into milk of lactating dairy cows with the addition of a commercial clay.**
S. C. Allen*[1], Z. A. Mason[1], B. J. Rude[1], R. H. Bailey[1], A. Hoang[1], D. L. Sparks[1], A. B. Johnson[1], and S. H. Ward[2], [1]*Mississippi State University, Mississippi State, MS*, [2]*North Carolina State University, Raleigh, NC*.

M247 **Revised representation of urea recycling and ruminal nitrogen metabolism for the Molly cow model.**
M. Li*[1], R. R. White[2], and M. D. Hanigan[1], [1]*Department of Dairy Science, Virginia Tech, Blacksburg, VA*, [2]*Department of Animal and Poultry Sciences, Virginia Tech, Blacksburg, VA*.

M248 **Value of pulp from green protein extraction of grass clover as forage for dairy cows.**
V. K. Damborg*, S. K. Jensen, and M. R. Weisbjerg, *Department of Animal Science, Aarhus University, Aarhus, Foulum, Denmark*.

M249 **Rumen degradability and intestinal digestibility of dry matter and crude protein of wheat and corn dry distillers grains with or without solubles.**
K. Nedelkov*[1], N. Todorov[1], M. T. Harper[2], D. Girginov[1], and M. Simeonov[3], [1]*Trakia University, Stara Zagora, Bulgaria*, [2]*The Pennsylvania State University, University Park, PA*, [3]*Agricultural Institute, Stara Zagora, Bulgaria*.

M250 **Effects of combinations of prilled fatty acids with or without potassium carbonate on fermentation and biohydrogenation intermediates in continuous culture fermenters.**
L. E. Koch*[1], B. M. Koch[1], S. M. Hussein[1], V. R. Trutwin[1], T. C. Jenkins[1], C. Soderholm[2], J. Linn[2], J. Albrecht[2], and G. J. Lascano[1], [1]*Clemson University, Clemson, SC*, [2]*Milk Specialties Global, Eden Prairie, MN*.

M251 **Undigested NDF (uNDF240h) excretion in feces of lactating cows: A comparison of multiple time-points, diurnal and 24-hour composite collections.**
E. Bonfante*, D. Cavallini, A. Palmonari, M. Fustini, L. Mammi, G. Canestrari, and A. Formigoni, *DIMEVET, Dipartimento di Scienze Mediche Veterinarie, Ozzano dell'Emilia, BO, Italy*.

M252 **miRNA regulation of the neutrophil transcriptome in response to prepartal energy intake in Holstein cows: an in silico approach.**
M. Vailati Riboni*[1], V. Palombo[2], A. Agrawal[1], M. J. Khan[1], and J. J. Loor[1], [1]*Urbana, IL 61801, Urbana, IL*, [2]*Università degli Studi del Molise, Campobasso, Italy*.

M253 **Effects of a rumen-protected lysine product as a source of metabolizable lysine for high-producing dairy compared with porcine blood meal.**
S. Polukis*[1], A. Barnard[1], T. Gressley[1], N. Lobos[2], K. Griswold[2], and L. Kung Jr.[1], [1]*University of Delaware, Newark, DE*, [2]*Kemin Industries, Inc., Des Moines, IA*.

M254 **In silico prediction of miRNA activity in the hepatic response to prepartum body condition score and plane of nutrition during the transition period in grazing dairy cows.**
M. Vailati Riboni*[1], V. Palombo[2], M. D. Mitchell[3], M. A. Crookenden[4], A. Heiser[5], S. L. Rodriguez-Zas[1], J. R. Roche[4], and J. J. Loor[1], [1]*University of Illinois at Urbana-Champaign, Urbana, IL*, [2]*Università degli Studi del Molise, Campobasso, Italy*, [3]*University of Queensland, Herston, Queensland, Australia*, [4]*DairyNZ Limited, Hamilton, New Zealand*, [5]*AgResearch, Palmerston North, New Zealand*.

M255 **Pre-weaning and post-weaning performance in dairy calves fed an active dry yeast (*Saccharomyces cerevisiae* CNCM I-1077).**
A. Faulkner[2], A. Clay[3], L. Waldron[2], A. Aguilar*[1], E. Chevaux[1], and A. Turney[1], [1]*Lallemand Animal Nutrition, Milwaukee, WI*, [2]*Vitech/Lallemand, Auckland, NZ*, [3]*Nutritech/Lallemand, Auckland, NZ*.

M256 **Evaluation of sample preparation methods for the determination of fecal pH in dairy cows.**
E. H. Branstad, C. S. Shouse*, B. C. Dooley, A. D. Thomas, L. H. Baumgard, and H. A. Ramirez-Ramirez, *Iowa State University, Ames, IA*.

M257 **Bioavailability of AjiPro-L 2G and AjiPro-L 3G using the plasma free lysine dose-response technique.**
N. Whitehouse*[1], A. Brito[1], C. Schwab[1,2], I. Shinzato[3], and M. Miura[4], [1]*University of New Hampshire, Durham, NH*, [2]*Schwab Consulting LLC, Boscobel, WI*, [3]*Ajinomoto Heartland Inc., Chicago, IL*, [4]*Ajinomoto Co. Inc., Tokyo, Japan*.

M258 **In vitro investigation of supplementing microalgal protein precipitate material as a source of dietary protein in a dairy diet using continuous cultures.**
S. Y. Yang[1], J. M. Yang[1], J. Marriott[2], J.-S. Eun*[1], R. C. Sims[2], and R. C. Anderson[3], [1]*Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT*, [2]*Department of Biological Engineering, Utah State University, Logan, UT*, [3]*USDA-ARS, Southern Plains Agricultural Research Center, Food and Feed Safety Research Unit, College Station, TX*.

M259 **Is a pelleted feed required in an automated milking system (AMS)?**
K. S. Paddick*, S. B. Menajovsky, and G. B. Penner, *University of Saskatchewan, Saskatoon, SK, Canada*.

M260 **Lipidomics reveals phosphatidylcholines as candidate biomarkers for metabolic disease.**
S. S. Samii*[1], Y. Zang[1], E. Grilli[2], and J. W. McFadden[1], [1]*West Virginia University, Morgantown, WV*, [2]*University of Bologna, Bologna, Italy*.

M261 **Performance of crossbred Holstein × Zebu cows supplemented with fibrolytic enzyme in diets with different forage levels.**
A. M. Teixeira[1], L. C. Gonçalves[2], L. F. Martins[1], A. P. D'Abadia Netto[1], B. O. Silva[1], G. C. Oliveira[1], T. T. Santos[3], N. Ferreira Junior*[3], N. D. Walker[4], and T. L. Resende[5], [1]*Universidade Federal de Uberlândia, Uberlândia, MG Brazil*, [2]*Universidade Federal de Minas Gerais, Belo Horizonte, MG Brazil*, [3]*AB Vista Brazil, São Paulo, SP Brazil*, [4]*AB Vista, Marlbrough, Wiltshire, UK*, [5]*Auster Nutrição Animal Ltda, Hortolândia, SP Brazil*.

M262 **Kinetics of *trans*-10,*cis*-12 and *cis*-9,*trans*-11 conjugated linoleic acid (CLA) transfer to plasma and milk following an abomasal bolus in lactating dairy cows.**
N. L. Urrutia[1,2], R. Bomberger[1], M. Baldin[1], M. Toledo[1], and K. J. Harvatine*[1], [1]*The Pennsylvania State University, University Park, PA*, [2]*Instituto Nacional de Investigaciones Agropecuarias-Remehue, Osorno, X Region de Los Lagos, Chile*.

M263 **Palmitic acid feeding increases plasma ceramide concentrations in Holstein dairy cows during early lactation.**
A. N. Davis[1], Z. C. Phipps*[1], Q. Zeng[1], J. de Souza[2], J. E. Rico[1],A. L. Lock[2], and J. W. McFadden[1], [1]*West Virginia University, Morgantown, WV*, [2]*Michigan State University, East Lansing, MI*.

M264 **Effect of rumen fluid inoculum and substrate on in vitro volatile fatty acid production and fiber digestibility.**
R. A. Kohn*[1], L. M. Judd[1], C. Stoffel[2], and E. Evans[3], [1]*University of Maryland, College Park, MD*, [2]*Papillon Agricultural Company, Easton, MD*, [3]*Essi Evans Technical Advisory Services, Bowmanville, Canada*.

M265 **Effect of feeding two fat sources varying in palmitic and stearic acid content in mid-lactation dairy cows.**
P. Piantoni*, Y. Sun, A. A. A. Jacobs, and G. F. Schroeder, *Cargill Animal Nutrition Innovation Center, Elk River, MN*.

M266 **Estimation of dry matter intake of individual cows fed in a group setting using common on-farm measurements.**
M. E. Iwaniuk*[1], E. E. Connor[2], and R. A. Erdman[1], [1]*University of Maryland, College Park, MD*, [2]*USDA-ARS, Beltsville, MD*.

M267 **Effects of a starch binding agent on in vitro rumen degradability of corn and sorghum starch.**
M. N. T. Shipandeni*[1,2], E. Raffrenato[1], and C. W. Cruywagen[1], [1]*Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa*, [2]*Department of Animal Science, University of Namibia, Windhoek, Namibia*.

M268 **Effects of oilseed supplementation on performance, methane emission and nitrogen utilization efficiency of lactating dairy cows.**
C. Muñoz*[1], R. C. Sánchez[2], A. M. T. Peralta[1], S. Espíndola[3], T. Yan[4], R. Morales[1], and E. M. Ungerfeld[5], [1]*Instituto de Investigaciones Agropecuarias, INIA Remehue, Osorno, Chile*, [2]*Facultad de Ciencias Veterinarias, Universidad de Concepción, Concepción, Chile*, [3]*Cooperativa Agrícola y Lechera de La Unión, La Unión, Chile*, [4]*Agri-Food and Biosciences Institute (AFBI), Agriculture Branch, Hillsborough, UK*, [5]*Instituto de Investigaciones Agropecuarias, INIA Carillanca, Temuco, Chile*.

M269 **Effect of different physiological stages on plasma adropin, insulin, nonesterified fatty acids, and glucose concentration in lactating dairy cows.**
H. M. Edvardsson* and A. E. Relling, *Department of Animal Sciences, The Ohio State University, Wooster, OH*.

M270 **Eeffect of different heat processing methods on both morphological changes of starch granules and degradability of barley grain.**
S. Shirmohammadi*, A. Taghizadeh, G. A. Moghaddam, and A. H. Khani, *University of Tabriz, Tabriz, East Azerbaijan, Iran*.

M271 **Effect of parity on grazing behavior of dairy cows grazing oat pastures.**
J. P. Soutto, P. Pellaton, P. Gauthier, M. Carriquiry, P. Chilibroste*, and A. I. Trujillo, *Facultad de Agronomia, UDELAR, Montevideo, Uruguay*.

M272 **Changes in rumen bacteria communities in continuous cultures fed high and low levels of unsaturated fatty acids with increasing rates of starch degradability.**
V. Richards, T. Jenkins, L. Koch, and G. Lascano*, *Clemson University, Clemson, SC*.

M273 **In vitro fermentation of *Moringa oleifera* leaves supplemented in a ruminant diet.**
S. Chizonda*, J. Allen, and V. Fellner, *North Carolina State University, Raleigh, NC*.

M274 **Impact of feed restriction-induced negative energy balance on the fatty acid profile of liver lipid fractions of dairy cows.**
C. M. Prom*, L. C. Worden, S. E. Schmidt, K. M. Thelen, G. A. Contreras, and A. L. Lock, *Michigan State University, East Lansing, MI*.

M275 **Effect of feeding different levels of total undigested NDF and forage on production responses of lactating dairy cows.**
P. Piantoni*, W. I. da Silva Filho, C. Canale, A. Zontini, and G. F. Schroeder, *Cargill Animal Nutrition Innovation Campus, Elk River, MN*.

M276 **Curve-linear relationship between altered carbohydrate traits and rumen and intestinal digestion in dairy cattle in hull-less barley varieties (*Hordeum vulgare* L.).**
B. Sun[1,2], M. Sun[1,3], and P. Yu*[1], [1]*University of Saskatchewan, Sask, Canada*, [2]*Southchina Agricultural University, Guangzhou, China*, [3]*Northeast Agricultural University, Harbin, China*.

M277 **Interactions between levels of flaxseed oil and corn grain particle size on milk yield and nutrient digestibility in Jersey cows.**
V. Brossillon[1], A. F. Brito*[2], S. F. Reis[2], D. C. Moura[3], J. G. B. Galvão Jr.[4], C. Côrtes[1], and A. S. Oliveira[5], [1]*Ecole Supérieure d'Agricultures, Angers, France*, [2]*University of New Hampshire; Department of Biological Sciences, Durham, NH*, [3]*Programa de Pós Graduação em Ciência Animal, Universidade Federal de Mato Grosso, Cuiabá, MT, Brazil*, [4]*Instituto Federal de Educação do Rio Grande do Norte, Ipanguaçu, RN, Brazil, Ipanguaçu, RN, Brazil*, [5]*Instituto de Ciências Agrárias e Ambientais, Universidade Federal de Mato Grosso – Campus Sinop, Sinop, MT, Brazil*.

M278 **Fatty acid challenge increases oxidation and glucose production in a substrate-specific manner in bovine primary hepatocytes.**
T. L. Chandler*, S. J. Erb, K. J. Sailer, S. J. Bertics, and H. M. White, *University of Wisconsin-Madison, Madison, WI*.

M279 **Nutritive value of common feedstuffs fed to dairy cows measured using the in vitro gas production technique.**
K. Mjoun*, L. Shearer, and B. Kubat, *Alltech, Brookings, Sd*.

M280 **Effect of RDP:RUP ratio and corn processing on lactation performance, milk quality and efficiency of nutrients utilization in lactating dairy cows.**
C. M. M. R. Martins*[1], D. C. M. Fonseca[1], M. A. Arcari[1], B. G. Alves[1], K. C. Welter[2], F. P. Rennó[1], and M. V. Santos[1], [1]*Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil*, [2]*Department of Animal Sciecen, School of Animal Science and Food Engineering, University of São Paulo, Pirassununga, São Paulo, Brazil*.

M281 **Impact of dietary starch concentration formulated with two types of corn silage on methane and ammonia emissions in dairy cows.**
J. I. Sanchez-Duarte*[1], K. F. Kalscheur[2], and J. M. Powell[2], [1]*South Dakota State University, Brookings, SD*, [2]*US Dairy Forage Research Center, USDA, ARS, Madison, WI*.

M282 **Forage fiber quality interacts with dietary protein level to determine nitrogen use efficiency.**
C. S. Malherbe* and E. Raffrenato, *Department of Animal Sciences, Stellenbosch University, Stellenbosch, South Africa.*

M283 **Predicting rumen passage rate of NDF fractions in lactating dairy cows.**
J. R. R. Dórea*[1], E.B. Alves[2], and D. K. Combs[1], [1]*University of Wisconsin, Madison, WI*, [2]*Federal University of Lavras, Lavras, MG, Brazil.*

M284 **Effect of contrasting predicted residual feed intake on performance and CH_4 emission of dairy cows fed 2 levels of forage neutral detergent fiber.**
M. Aguerre*[1], F. Sun[2], J. M. Powell[3], K. Weigel[2], A. Pelletier[4], P. Crump[5], and M. Wattiaux[2], [1]*Animal and Veterinary Science Department, Clemson University, Clemson, SC*, [2]*Dairy Science Department, University of Wisconsin-Madison, Madison, WI*, [3]*U.S. Dairy Forage Research Center, Madison, WI*, [4]*Soils Science Department, University of Wisconsin-Madison, Madison, WI*, [5]*Department of Computing and Biometry, University of Wisconsin-Madison, Madison, WI.*

M285 **Effects of supplementing active dry yeast, a blend of probiotic bacteria, or a combination of both on rumen fermentation profiles and nutrient digestion in continuous rumen fermentors.**
Y. Liang*, E. Davis, and M. A. Ballou, *Texas Tech University, Department of Animal and Food Sciences, Lubbock, TX.*

M286 **Performance of dairy cows fed conventional sorghum or corn silages compared to brown midrib sorghum silage: A meta-analysis.**
J. I. Sanchez-Duarte*[1], K. F. Kalscheur[2], A. D. Garcia[1], and F. E. Contreras-Govea[3], [1]*South Dakota State University, Brookings, SD*, [2]*US Dairy Forage Research Center, USDA, ARS, Madison, WI*, [3]*University of Wisconsin, Madison, WI.*

M287 **Effects of experimental design and protein substitution strategy on production responses to feeding different levels of protein to primiparous dairy cows.**
G. I. Zanton*, *USDA-Agricultural Research Service; Dairy Forage Research Center, Madison, WI.*

M288 **Direct and indirect causal effects of dietary starch on fiber digestibility.**
J. R. R. Dórea*, G. J. M. Rosa, and D. K. Combs, *University of Wisconsin, Madison, WI.*

M289 **Physical characterization of fat supplements highly enriched in palmitic and stearic acid.**
R. P. Shepardson*, E. Bazileyskaya, and K. J. Harvatine, *Penn State University, University Park, PA.*

M290 **Circulating blood metabolites in early lactation dairy cows fed canola or soybean meals.**
S. A. E. Moore*[1] and K. F. Kalscheur[2], [1]*University of Wisconsin, Madison, WI*, [2]*US Dairy Forage Research Center, USDA-ARS, Madison, WI.*

M291 **Effect of supplementing rumen-protected methionine pre- and postpartum on milk yield and components of dairy cows during early lactation.**
M. L. Stangaferro*[1], M. M. Perez[1], M. Masello[1], R. Wijma[1], M. E. Van Amburgh[1], T. R. Overton[1], D. Luchini[3], M. C. Wiltbank[2], R. D. Shaver[2], and J. O. Giordano[1], [1]*Cornell University, Ithaca, NY*, [2]*University of Wisconsin-Madison, Madison, WI*, [3]*Adisseo USA Inc., Alpharetta, GA.*

M292 **Methane mitigation with corn oil and calcium sulfate, responses on whole animal energy and nitrogen balance in dairy cattle consuming reduced-fat distillers grains plus solubles.**
J. V. Judy*[1], T. M. Brown-Brandl[2], S. C. Fernando[1], and P. J. Kononoff[1], [1]*University of Nebraska-Lincoln, Lincoln, NE*, [2]*USDA, ARS, US Meat Animal Research Center, Clay Center, NE.*

M293 **Calves fed with oregano and green tea extracts alter slightly their blood redox status.**
V. Fischer*[1], M. de Paris[1], S. C. B. Stivanin[1], E. F. Vizzotto[1], M. B. Zanela[2], C. Klein[1], V. Stone[1], and C. Matte[1], [1]*Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil*, [2]*Empresa Brasileira de Pesquisa Agropecuaria, Pelotas, RS, Brazil.*

M294 **Effects of a pulse dose of propionate on metabolic response in lactating dairy cows during the postpartum period.**
K. M. Kennedy* and M. S. Allen, *Michigan State University, East Lansing, MI.*

M295 **Milk and methane production in lactating dairy cattle consuming distillers dried grains and solubles or canola meal.**
M. A. Myers*[1], T. M. Brown-Brandl[2], J. V. Judy[1], K. J. Herrick[3], and P. J. Kononoff[1], [1]*Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE*, [2]*USDA, ARS, US Meat Animal Research Center, Clay Center, NE*, [3]*Poet Nutrition LLC, Sioux Falls, SD.*

M296 **Increasing the diet concentrations of fat and hemicellulose on energy utilization and methane production in lactating Jersey cattle.**
O. R. Drehmel*[1], T. M. Brown-Brandl[2], J. V. Judy[1], S. C. Fernando[1], and P. J. Kononoff[1], [1]*Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE*, [2]*USDA, ARS, US Meat Animal Research Center, Clay Center, NE.*

M297 **Increasing the concentration of linolenic acid in diets fed to Jersey cows in late lactation does not affect methane production.**
J. V. Judy*[1], T. M. Brown-Brandl[2], S. C. Fernando[1], and P. J. Kononoff[1], [1]*University of Nebraska-Lincoln, Lincoln, NE*, [2]*USDA, ARS, US Meat Animal Research Center, Clay Center, NE*.

M298 **The effects of feeding a high- or low-plane of milk pre-weaning on IGF-1 and IGFBP in dairy heifers.**
J. Haisan*[1], M. Oba[1], D. J. Ambrose[2], and M. A. Steele[1], [1]*University of Alberta, Edmonton, AB, Canada*, [2]*Livestock Research Section, Agriculture and Forestry, Edmonton, AB, Canada*.

M299 **Interactions between levels of flaxseed oil and corn grain particle size on milk fatty acid profile in Jersey cows.**
V. Brossillon[1], A. F. Brito*[2], S. F. Reis[2], D. C. Moura[3], J. G. B. Galvão Jr.[4], C. Côrtes[1], and A. S. Oliveira[5], [1]*Ecole Supérieure d'Agricultures, Angers, France*, [2]*University of New Hampshire; Department of Biological Sciences, Durham, NH*, [3]*Programa de Pós Graduação em Ciência Animal; Universidade Federal de Mato Grosso, Cuiabá, MT, Brazil*, [4]*Instituto Federal de Educação do Rio Grande do Norte, Ipanguaçu, RN, Brazil*, [5]*Instituto de Ciências Agrárias e Ambientais, Universidade Federal de Mato Grosso – Campus Sinop, Sinop, MT, Brazil*.

M300 **Replacing conventional or brown midrib corn silage with brown midrib sudangrass silage in the diets of lactating dairy cows.**
K. F. Kalscheur* and G. E. Brink, *U.S. Dairy Forage Research Center, USDA-ARS, Madison, WI*.

M301 **The role of fat in distillers grains and solubles on the rumen bacterial community.**
E. Castillo-Lopez*[1], C. Jenkins[2], N. Aluthge[2], T. Wesley[2], S. Fernando[2], and P. Kononoff[2], [1]*Universidad Nacional Autonoma de Mexico-FESC, Cuautitlan, Estado de Mexico, Mexico*, [2]*University of Nebraska-Lincoln, Lincoln, NE*.

M302 **Effects of selected feed additives to improve growth and health of dairy calves.**
L. Salazar[1], C. Cortinhas*[2], T. Acedo[2], P. Rotta[1], M. Fontes[1], V. Morais[1], A. Machado[1], A. Sguizzato[1], and M. Marcondes[1], [1]*Federal University of Vicosa, Vicosa, MG, Brazil*, [2]*DSM Produtos Nutricionais Brasil SA, Sao Paulo, SP, Brazil*.

M303 **The effects of varying undigested NDF and physically effective NDF content of fresh cow rations on metabolism in multiparous Holstein cows.**
S. E. LaCount*, B. M. Leno, C. M. Ryan, and T. R. Overton, *Department of Animal Science, Cornell University, Ithaca, NY*.

M304 **Pre- and post weaning performance and health of dairy calves fed complete pelleted calf starters formulated for three different starch levels.**
D. Ziegler*[1], H. Chester-Jones[1], B. Ziegler[2], and S. Schuling[2], [1]*University of Minnesota, Waseca, MN*, [2]*Hubbard Feeds Inc., Mankato, MN*.

M305 **Total fatty acid and rumen unsaturated fatty acid load variation in commercial TMR, forages, and corn grain.**
J. P. Goeser*[1,2], J. Karlen[1], D. Meyer[1], and A. L. Lock[3], [1]*Rock River Laboratory Inc., Watertown, WI*, [2]*University of Wisconsin-Madison, Madison, WI*, [3]*Michigan State University, Lansing, MI*.

M306 **Feeding rumen-protected methionine pre- and postpartum increases milk protein content and yield in early-lactation.**
M. Z. Toledo*[1], R. S. Gennari[1], R. V. Barletta[1], P. L. J. Monteiro Jr.[1], C. A. Gamarra[1], A. B. Prata[1], J. R. R. Dorea[1], A. Jones[1], D. Luchini[2], G. I. Zanton[3], M. E. Van Amburgh[4], J. O. Giordano[4], R. D. Shaver[1], and M. C. Wiltbank[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Adisseo, Alpharetta, GA*, [3]*USDA, US Dairy Forage Research Center, Madison, WI*, [4]*Cornell University, Ithaca, NY*.

M307 **Effects of temporal supply of propionic acid on feeding behavior of cows in the postpartum period.**
G. Maldini*[1,2] and M. S. Allen[1], [1]*Michigan State University, East Lansing, MI*, [2]*CAPES, Brasilia, DF, Brazil*.

M308 **Comparing choline bioavailability of two rumen-protected choline products using milk betaine as a biomarker in the lactating dairy cow.**
M. J. de Veth*[1], M. Cooney[2], and P. French[3], [1]*BioNarus LLC, Cary, NC*, [2]*phdR&D, Fort Atkinson, WI*, [3]*Feed Components LLC, East Troy, WI*.

M309 **Effects of supplementation with a combination of palmitic and stearic acids on dry matter intake, milk yield, and component production: a meta-analysis.**
M. D. Sellers*, T. L. Harris, and J. R. Loften, *Milk Specialties Global Animal Nutrition, Eden Prairie, MN*.

M310 **Withdrawn**

M311 **Effects of supplementation with calcium salts of palm fatty acid distillate on dry matter intake, milk yield, and component production: A meta-analysis.**
T. L. Harris*, M. D. Sellers, and J. R. Loften, *Milk Specialties Global Animal Nutrition, Eden Prairie, MN*.

M312 **Replacing ground corn with liquid molasses decreases production performance in dairy cows offered low-starch diets.**
C. P. Ghedini[1], A. F. Brito*[1], D. C. Moura[2], A. S. Oliveira[3], and R. A. V. Santana[4], [1]*University of New Hampshire, Department of Biological Sciences, Durham, NH*, [2]*Universidade Federal de Mato Grosso, Programa de Pós Graduação em Ciência Animal, Cuiabá, MT, Brazil*, [3]*Universidade Federal de Mato Grosso–Campus Sinop, Instituto de Ciências Agrárias e Ambientais, Sinop, MT, Brazil*, [4]*Instituto Federal de Educação, Ciência e Tecnologia do Norte de Minas Gerais–Campus Arinos, Arinos, MG, Brazil*.

M313 **Effects of supplementation with palmitic acid-enriched fat products on dry matter intake, milk yield, and component production: A meta-analysis.**
M. D. Sellers, T. L. Harris, and J. R. Loften*, *Milk Specialties Global Animal Nutrition, Eden Prairie, MN*.

M314 **Effect of crude glycerin combined with virginiamycin on rumen metabolism of Nellore bulls fed with finishing diets.**
P. de Souza Castagnino*, E. E. Dallantonia, E. San Vito, J. D. Messana, G. Fiorentini, G. Penasso, L. O. Lima, and T. A. Simioni, *Universidade Estadual Paulista (Unesp), Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, São Paulo, Brazil*.

M315 **Comparative analysis of bacterial community composition from the different ruminal ecological niche of Alxa Bactrian camel.**
J. Zhao*[1,2], Z. Yu[2], and H. Wu[1], [1]*Inner Mongolia University for Nationalities, Tongliao, Inner Mongolia, China*, [2]*The Ohio State University, Columbus, OH*.

M316 **Screening of chemically and physically treated corn stover and soybean meal pellet formulations for in situ digestibility in dairy cows.**
B. C. Dooley*[1], C. S. Shouse[1], M. A. Torres-Crespo[1], R. Zeeck[2], and H. A. Ramirez-Ramirez[1], [1]*Iowa State University, Ames, IA*, [2]*Pellet Technology USA, Gretna, NE*.

M317 **The development of methodology for ruminal and colon tissue biopsying of Holstein dairy bull calves during weaning.**
J. K. van Niekerk*, M. Middeldorp, Z. He, and M. A. Steele, *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*.

M318 **Functional oils or monensin on milk production and feed efficiency of Holstein cows during the summer.**
F. P. Rennó*[1], C. S. Takiya[2], G. G. Silva[1], T. A. Del Valle[1], E. M. C. Zilio[1], L. G. Ghizzi[1], and J. Torrent[3], [1]*University of Sao Paulo, Pirassununga, SP, Brazil*, [2]*Kansas State University, Manhattan, KS*, [3]*Oligo Basics, Cascavel, Parana, Brazil*.

M319 **Extracellular amino acids and lysine to methionine ratio affect cell signaling in mammary epithelial cells.**
P. S. Yoder*[1,2], T. Ruiz-Cortes[3], and M. D. Hanigan[1], [1]*Virginia Tech, Blacksburg, VA*, [2]*Perdue AgriBusiness, Salisbury, MD*, [3]*Universidad de Antioquia, Medellin, Colombia*.

M320 **Milk enterolactone and fatty acid profile in dairy cows offered flaxseed meal and incremental amounts of liquid molasses.**
C. P. Ghedini[1], A. F. Brito*[1], D. C. Moura[2], A. S. Oliveira[3], and R. A. V. Santana[4], [1]*Department of Biological Sciences, University of New Hampshire, Durham, NH*, [2]*Programa de Pós Graduação em Ciência Animal, Universidade Federal de Mato Grosso, Cuiabá, MT, Brazil*, [3]*Instituto de Ciências Agrárias e Ambientais, Universidade Federal de Mato Grosso–Campus Sinop, Sinop, MT, Brazil*, [4]*Instituto Federal de Educação, Ciência e Tecnologia do Norte de Minas Gerais–Campus Arinos, Arinos, MG, Brazil*.

M321 **Pre-ensiling addition of bacterial inoculant, amylase or both to rehydrated cracked corn.**
L. C. Solórzano*[1], L. L. Solórzano[2], and A. A. Rodríguez[1], [1]*University of Puerto Rico, Mayagüez, PR*, [2]*Independent Researcher, Fitchburg, WI*.

M322 **Relationship between mineral composition of milk and lactation performance.**
A. R. Alfonso-Avila*[1], E. Charbonneau[1], P. Y. Chouinard[1], G.F. Tremblay[2], D. E. Rico[1], and R. Gervais[1], [1]*Université Laval, Quebec, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Quebec, QC, Canada*.

M323 **Effects of pre-ensiling additions of a bacterial inoculant with or without molasses on rehydrated cracked corn fermentation parameters.**
L. C. Solórzano*[1], L. L. Solórzano[2], and A. A. Rodríguez[1], [1]*University of Puerto Rico, Mayagüez, PR*, [2]*Independent Researcher, Fitchburg, WI*.

M324 **Supplementation of blackberry pomace during the transition phase may improve health and reproductive performance of dairy cows.**
K. Swanson*, S. Akers, K. Estenson, R. Wilson, M. Keller, and G. Bobe, *Oregon State University, Corvallis, OR*.

M325 **Evaluation of *Saccharomyces cerevisiae* fermentation products on production, metabolism, oxidative stress, and health of transition dairy cows.**
K. M. Glosson*[1], I. Yoor[2], and J. K. Drackley[1], [1]*University of Illinois, Department of Animal Science, Urbana, IL*, [2]*Diamond V, Cedar Rapids, IA*.

Small Ruminant I

M326 **Does sunlight exposure result in more concentrate intake in growing Afshari lambs during the hottest hours of day?**
M. Gilhossein, E. Mahjoubi*, D. Zahmatkesh, and M. H. Yazdi, *University of Zanjan, Zanjan, Zanjan, Iran*.

M327 **Monte Carlo risk assessment of dry matter intake equations in Saanen goats.**
A. K. Almeida*[1,2], L. O. Tedeschi[2], K. T. Resende[1], B. Biagioli[1], and I. A. M. A. Teixeira[1], [1]*School of Agricultural and Veterinarian Sciences, São Paulo State University (Unesp), Jaboticabal, Sao Paulo, Brazil*, [2]*Texas A&M University, College Station, TX*.

M328 **A 2% coconut oil supplementation does not improve milk yield of crossbred dairy goats under tropical environment.**
S. Thammacharoen*[1], T. Nguyen[1], T. K. Ho[1], S. Chanpongsang[2], and N. Chaiyabutr[1], [1]*Department of Physiology, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand*, [2]*Department of Animal Husbandry, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, Thailand*.

M329 **Effect of dietary potassium carbonate on milk fat concentration and yield in early-lactating dairy goats fed a high-concentrate diet.**
S. Dion*[1], M. E. Brassard[1], J. Levesque[2], R. Gervais[1], and P. Y. Chouinard[1], [1]*Université Laval, Québec, QC, Canada*, [2]*Centre de recherche en sciences animales de Deschambault, Deschambault, QC, Canada*.

M330 **Influence of supplemental choline on milk yield, fatty acid profile, and postpartum weight changes in suckling ewes.**
M. M. Crosby[1], G. D. Mendoza-Martinez[2], A. Relling*[3], A. Vazquez-Valladolid[4], H. A. Lee-Rangel[4], J. A. Martinez[2], and M. Oviedo[4], [1]*Colegio de Postgraduados, Montecillo, Texcoco, Mexico*, [2]*Universidad Autonoma Metropolitana, Ciudad de Mexico, Mexico*, [3]*Ohio State University, Wooster, OH*, [4]*Universidad Autonoma de San Luis Potosi, San Luis Potosi, Mexico*.

M331 **Sexual responses of bucks in different body condition at the end of anoestrus period.**
E. D. Valle*[1], A. G. López[1], M. G. Machado[1], L. I. Velez[2], M. Mellado[1], F. G. Veliz[1], and M. A. De Santiago[1], [1]*Postgrado de Producción Agropecuaria, Universidad Autónoma Agraria Antonio Narro, Torreón, Coahuila, México*, [2]*Instituto Nacional de Investigaciones Forestales Agrícolas y Pecuarias, Matamoros, Coahuila, México*.

M332 **Improving goat sperm post-thaw quality using GameteGuard extender.**
M. Shepherd*, C. Bennett, B. Baker, and L. Herickhoff, *Membrane Protective Technologies Incorporated, Fort Collins, CO*.

Teaching/Undergraduate and Graduate Education

M333 **Virginia Tech STEM Scholars program: Freshman academic performance influences subsequent academic success.**
R. R. Cockrum*, K. F. Knowlton, and M. D. Denbow, *Virginia Polytechnic Institute and State University, Blacksburg, VA*.

SYMPOSIA AND ORAL SESSIONS

ADSA Dairy Foods Graduate Student Oral Competition
Chair: **Randy Brandsma, Schreiber Foods Inc.**
Room 331

9:30 AM 18 **Use of high hydrostatic pressure to modulate milk protein interactions: A new method for α-lactalbumin fractionation?**
A. Marciniak*[1,2], Y. Pouliot[1,2], and A. Doyen[1,2], [1]*Université Laval, Québec, Québec, Canada*, [2]*INAF/STELA Dairy Research Center, Québec, Québec, Canada*.

9:45 AM 19 **Measurement of casein as a percentage of true protein in milk by Kjeldahl and SDS-PAGE.**
L. Di Marzo* and D. M. Barbano, *Department of Food Science, Northeast Dairy Food Research Center, Cornell University, Ithaca, NY*.

10:00 AM 20 **Identification of iron loci by scanning electron microscopy and iron recovery rate in iron fortified caprine milk Cheddar cheese.**
A. Siddique*, B. I. Davis, B. N. Vaidya, and Y. W. Park, *Fort Valley State University, Fort Valley, GA*.

10:15 AM **Break**

10:30 AM 21 **Effect of sugars and protein sources on expression of genes involved in exopolysaccharide production by *Streptococcus thermophilus* ASCC1275.**
A. Padmanabhan*, Q. Wu, and N. P. Shah, *The University of Hong Kong, Hong Kong, China*.

10:45 AM 22 **In vivo digestion of a model infant formula in piglets: Protein digestion pattern and physiological responses.**
N. R Tari*[1], M.Z. Fan[2], and M. Corredig[1,3], [1]*Department of Food Science, University of Guelph, Guelph, ON, Canada*, [2]*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [3]*Gay Lea Foods Research and Development, Guelph, ON, Canada*.

11:00 AM 23 **Extending the shelf-life of low moisture part-skim mozzarella.**
L. A. Jiménez-Maroto*[1], S. Govindasamy-Lucey[2], J. J. Jaeggi[2], M. E. Johnson[2], and J. A. Lucey[1,2], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Wisconsin Center for Dairy Research, Madison, WI*.

ADSA Graduate Student (MS) Production Oral Competition
Chair: **Heather Dann, Miner Institute**
Room 309

9:30 AM 24 **Qualitative analysis of nine forage mixtures designed for southeastern US organic dairy production.**
H. R. Bailey*, D. M. Butler, D. M. Bates, G. E. Pighetti, D. W. McIntosh, and A. G. Rius, *The University of Tennessee, Knoxville, TN*.

9:45 AM 25 **Productivity of lactating dairy cows fed diets with teff hay as the sole forage.**
B. Saylor*, D. Min, and B. Bradford, *Kansas State University, Manhattan, KS*.

10:00 AM 26 **Transient effects of supplemental potassium and magnesium in lactating dairy cattle.**
A. W. Tebbe* and W. P. Weiss, *Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH*.

10:15 AM 27 **Induction of hypocalcemia in non-lactating, non-pregnant Holstein cows fed negative DCAD rations with low, medium, or high concentrations of calcium.**
A. P. Prichard*[1], C. E. Wimmler[1], L. A. Amundson[1], A. Cheng[1], M. Kliester[1], T. Muñoz[1], S. R. Weaver[1], A. D. Rowson[2], S. S. Bascom[2], D. E. Nuzback[2], K. P. Zanzalari[2], and L. L. Hernandez[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Phibro Animal Health, Teaneck, NJ*.

10:30 AM 28 **Feeding 25-hydroxyvitamin D_3 increases mineral concentrations and decreases severity of mastitis in lactating dairy cows.**
M. B. Poindexter*[1], M. Kweh[1], M. Zenobi[1], R. Zimpel[1], F. R. Lopes[1], Y. Jiang[1], P. Celi[2], S. N. Williams[2], J. E. P. Santos[1], and C. D. Nelson[1], [1]*Department of Animal Science, University of Florida, Gainesville, FL*, [2]*DSM Nutritional Products, Columbia, MD*.

10:45 AM 29 **The development of a decision support tool to determine optimal economic treatment decisions by causative mastitis pathogen.**
D. T. Nolan* and J. M. Bewley, *University of Kentucky, Lexington, KY*.

11:00 AM 30 **Nutrient restriction increases circulating and hepatic ceramide in dairy cows displaying impaired insulin tolerance.**
A. N. Davis*, J. L. Clegg, D. K. Henry, C. A. Perry, and J. W. McFadden, *West Virginia University, Morgantown, WV*.

11:15 AM 31 **Does the partial mixed ration (PMR) energy density interact with the amount of concentrate offered in an automated milking system (AMS)?**
S. B. Menajovsky*[1], C. E. Walpole[1], T. J. DeVries[2], K. S. Schwartzkopf-Genswein[3], M. E. Walpole[4], and G. B. Penner[1], [1]*University of Saskatchewan, Saskatoon, SK, Canada*, [2]*University of Guelph, Guelph, ON, Canada*, [3]*Agriculture and Agri-Food Canada, Lethbridge, AB, Canada*, [4]*DairySmart Nutrition Group, Crediton, ON, Canada*.

11:30 AM 32 **Using in-line milk progesterone data to characterize luteal activity parameters associated with reduced fertility in dairy herds.**
T. C. Bruinje*[1], M. G. Colazo[2], M. Gobikrushanth[1], and D. J. Ambrose[1,2], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada*.

11:45 AM 33 **Genome-wide association analysis and genomic heritability for anti-Müllerian hormone in Holstein dairy heifers.**
M. Y. Nawaz*[1], F. Jimenez-Krassel[1], J. P. Steibel[1], Y. Lu[1], A. Baktula[3], N. Vukasinovic[3], S. K. DeNise[3], L. Neuder[2], J. L. H. Ireland[1], J. J. Ireland[1], and R. J. Tempelman[1], [1]*Department of Animal Science, Michigan State University, East Lansing, MI*, [2]*Department of Large Animal Clinical Sciences, East Lansing, MI*, [3]*Zoetis Genetics, Kalamazoo, MI*.

12:00 PM 34 **Growth and metabolic pathways are impacted by milk replacer dietary energy in pre-weaned Holstein heifers.**
C. E. Owens*, A. J. Geiger, R. M. Akers, and R. R. Cockrum, *Virginia Polytechnic Institute and State University, Blacksburg, VA*.

12:15 PM 35 **The effect of limit-feeding hay on rumen development in pre-weaned Jersey calves.**
D. E. McCurdy* and A. H. Laarman, *University of Idaho, Moscow, ID*.

ADSA Southern Section Graduate Student Oral Competition
Chair: **Stephanie Ward, North Carolina State University**
Room 318

9:30 AM 36 **Significance of cow cooling practices and bulk tank milk quality parameters in southeastern United States dairy farms.**
Z. Mason*[1], D. T. Nolan[2], P. D. Krawczel[3], G. M. Pighetti[3], C. S. Petersson-Wolfe[4], A. E. Stone[1,2], J. M. Bewley[2], and S. H. Ward[5], [1]*Mississippi State University, Starkville, MS*, [2]*University of Kentucky, Lexington, KY*, [3]*University of Tennessee, Knoxville, TN*, [4]*Virginia Polytechnic Institute and State University, Blacksburg, VA*, [5]*North Carolina State University, Raleigh, NC*.

9:45 AM 37 **Effects of feeding hull-less barley on production performance, milk fatty acid composition, and nutrient digestibility of lactating dairy cows.**
Y. Yang*[1], G. Ferreira[1], C. L. Teets[1], B. A. Corl[1], W. E. Thomason[2], and C. A. Griffey[2], [1]*Department of Dairy Science, Virginia Tech, Blacksburg, VA*, [2]*Department of Crop and Soil Environmental Science, Virginia Tech, Blacksburg, VA*.

10:00 AM 38 **Effects of milk replacer feeding levels on performance and metabolism of pre-weaned dairy calves during summer.**
R. M. Orellana*, G. H. Komori, V. V. Beihling, T. N. Marins, J. K. Bernard, and S. Tao, *University of Georgia, Tifton, GA*.

10:15 AM 39 **Effects of varying prepartum DCAD and calcium concentrations on pre- and postpartum mineral and metabolite concentrations.**
A. L. Diehl*[1], J. K. Bernard[1], S. Tao[1], T. N. Smith[1], D. J. Kirk[2], D. J. McClean[2], and J. D. Chapman[2], [1]*University of Georgia, Tifton, GA*, [2]*Phibro Animal Health, Corp, Teaneck, NJ*.

10:30 AM 40 **Efficacy of calcium montmorillonite clay at reducing aflatoxin transfer in lactating Holsteins fed a known concentration of aflatoxin.**
S. C. Allen*[1], Z. A. Mason[1], B. J. Rude[1], R. H. Bailey[1], C. Maki[2], T. Phillips[2], and S. H. Ward[3], [1]*Mississippi State University, Mississippi State, MS*, [2]*Texas A&M University, College Station, TX*, [3]*North Carolina State University, Raleigh, NC*.

10:45 AM 41 **Evaluation of low concentrations of rumen degradable protein in the diet of lactating dairy cows: A meta-analysis.**
J. D. Kaufman* and A. G. Rius, *The University of Tennessee, Knoxville, TN*.

11:00 AM 42 **Comparing summer to winter ratios of milk production and SCS among states in the southeast United States.**
J. Guinn*[1], D. Nolan[1], P. Krawczel[2], C. Petersson-Wolfe[3], G. Pighetti[2], A. Stone[1,4], S. Ward[4,5], and J. Bewley[1], [1]*University of Kentucky, Lexington, KY*, [2]*University of Tennessee, Knoxville, TN*, [3]*Virginia Polytechnic Institute and State University, Blacksburg, VA*, [4]*Mississippi State University, Starkville, MS*, [5]*North Carolina State University, Raleigh, NC*.

Animal Behavior and Well-Being I
Chair: **Katy Proudfoot, Ohio State University**
Room 317

9:30 AM 43 **Which data recorded by automated calf feeders can help to detect sick calves?**
C. Medrano-Galarza*[1,5], S. J. LeBlanc[1,5], T. J. DeVries[2,5], J. Rushen[3], A. M. de Passillé[3], A. Jones-Bitton[1], M. I. Endres[4], and D. B. Haley[1,5], [1]*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, [2]*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [3]*Faculty of Land and Food, University of British Columbia, Vancouver, BC, Canada*, [4]*Department of Animal Science, University of Minnesota, St. Paul, MN*, [5]*Campbell Centre for the Study of Animal Welfare, University of Guelph, Guelph, ON, Canada*.

9:45 AM 44 **Daily milk consumption, number of visits, drinking speed and weight gain of preweaned calves in Midwest US farms with automated feeders.**
M. Peiter*, M. Jorgensen, and M. I. Endres, *University of Minnesota, St. Paul, MN*.

10:00 AM 45 **Assessment of the effects of oral administration of acetylsalicylic acid on biomarkers of inflammation and stress in dairy cows after parturition.**
A. A. Barragan*[1], L. M. Bauman[2], J. Lakritz[3], J. F. Coetzee[4], J. Velez[5], J. D. Rozo Gonzalez[5], G. M. Schuenemann[1], and S. Bas[1], [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]*Department of Anatomy and Physiology, Kansas State University, Manhattan, KS*, [5]*Aurora Organic Farms, Boulder, CO*.

10:15 AM 46 **Holstein calf behavioral responses to acidified milk.**
A. Adams Progar*, A. Deml, R. Pernu, H. A. Young, and J. Callanan, *Washington State University, Pullman, WA*.

10:30 AM 47 **Clinical trial of local anesthetic protocols for acute pain associated with caustic paste disbudding in dairy calves.**
C. Winder*[1], S. LeBlanc[1], D. Haley[1], K. Lissemore[1], M. Godkin[2], and T. Duffield[1], [1]*Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada*, [2]*Ontario Ministry of Agriculture, Food, and Rural Affairs, Elora, ON, Canada*.

10:45 AM 48 **Effects of acute lying and sleep deprivation on behavior and productivity of Holstein dairy cows.**
J. A. Kull*[1], G. M. Pighetti[1], K. L. Produfoot[2], J. M. Bewley[3], B. F. O'Hara[4], K. D. Donohue[5], and P. D. Krawczel[1], [1]*Department of Animal Science, The University of Tennessee, Knoxville, TN*, [2]*Department of Preventive Veterinary Medicine, The Ohio State University, Columbus, OH*, [3]*Department of Animal and Food Sciences, University of Kentucky, Lexington, KY*, [4]*Department of Biology, University of Kentucky, Lexington, KY*, [5]*Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY*.

11:00 AM 49 **Dairy cow preference for outdoor access in summer and winter.**
A. M. C. Smid*[1], E. E. A. Burgers[1,2], D. M. Weary[1], E. A. M. Bokkers[2], and M. A. G. von Keyserlingk[1], [1]*University of British Columbia, Vancouver, BC, Canada*, [2]*Wageningen University, Wageningen, Gelderland, the Netherlands*.

Animal Health I
Chair: **Kasey Moyes, University of Maryland**
Room 303

9:30 AM 50 **Canadian National Dairy Study 2015: Prevalence of bulk tank mastitis pathogens.**
C. Bauman* and D. Kelton, *University of Guelph, Guelph, ON, Canada*.

9:45 AM 51 **Handheld equipment for mastitis detection.**
P. Tongel* and J. Broucek, *National Agricultural and Food Centre, Research Institute of Animal Production Nitra, Luzianky, Slovakia*.

10:00 AM 52 **Changes in real-time sensor data prior to gram-positive and gram-negative clinical mastitis.**
N. M. Steele*[1,3], A. Tholen[1], A. De Vries[2], S. J. Lacy-Hulbert[3], R. R. White[4], and C. S. Petersson-Wolfe[1], [1]*Department of Dairy Science, Virginia Tech, Blacksburg, VA*, [2]*Department of Animal Sciences, University of Florida, Gainesville, FL*, [3]*DairyNZ Ltd., Private Bag 3221, Hamilton, New Zealand*, [4]*Department of Animal and Poultry Science, Virginia Tech, Blacksburg, VA*.

10:15 AM 53 **Laboratory evaluation of on-farm culture-based mastitis tests and the potential effect on treatment decisions.**
K. Griffioen*[1], L. A. Lagerwerf[2], R. P. Achterberg[3], J. B. W. J. Cornelissen[3], D. J. Mevius[3], F. J. van der Wal[2], R. Dijkman[2], A. E. Heuvelink[2], M. M. C. Holstege[2], C. G. M. Scherpenzeel[2], A. G. J. Velthuis[2], and T. J. G. M. Lam[1,2], [1]*Department of Farm Animal Health, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands*, [2]*GD Animal Health, Deventer, the Netherlands*, [3]*Wageningen Bioveterinary Research, Lelystad, the Netherlands*.

10:30 AM 54 **Development of an on-farm qPCR diagnostic test to detect mastitis pathogens in milk.**
A. Sipka*[1], J. Mills[2], H. Suliman[2], F. Rinzan[2], T. Moshier[2], B. Rauch[1], and D. Nydam[1], [1]*Quality Milk Production Services, College for Veterinary Medicine, Cornell University, Ithaca, NY*, [2]*Acumen Detection LLC, Syracuse, NY*.

10:45 AM 55 **In silico identification of natural product inhibitors of *Staphylococcus aureus* threonyl-tRNA synthetase.**
M. Li[1,2], N. Zheng[1,2], S. L. Li[1,3], S. G. Zhao[1,4], F. Wen[1,3], Y. D. Zhang[1,4], and J. Q. Wang*[1,2], [1]*Ministry of Agriculture-Key Laboratory of Quality & Safety Control for Milk and Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Ministry of Agriculture-Laboratory of Quality and Safety Risk Assessment for Dairy Products, Beijing, China*, [3]*Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China*, [4]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*.

11:00 AM 56 **LC-MS metabolomic serum signatures indicate that global and disease-specific challenges in protein and lipid metabolism precede clinical mastitis in transition dairy cows.**
F. Zandkarimi, C. Maier, and G. Bobe*, *Oregon State University, Corvallis, OR*.

11:15 AM 57 **The resilience of the milk microbiome upon experimental infection with *Escherichia coli* and treatment with ceftiofur.**
E. Ganda*[1], N. Gaeta[1], A. Sipka[1], B. Pomeroy[1], G. Oikonomou[2,1], Y. Schukken[1], and R. Bicalho[1], [1]*Cornell University, Ithaca, NY*, [2]*University of Liverpool, Liverpool, UK*.

11:30 AM 58 **Effects of the environmental origin of milk microbiota on milk biodiversity.**
K. B. Fehr*, H. Derakhshani, S. Sepehri, J. C. Plaizier, and E. Khafipour, *University of Manitoba, Winnipeg, MB, Canada*.

11:45 AM 59 **Effects of dairy environment on milk microbiota and mammary inflammation.**
K. B. Fehr*, H. Derakhshani, S. Sepehri, J. C. Plaizier, and E. Khafipour, *University of Manitoba, Winnipeg, MB, Canada*.

12:00 PM 60 **Casein hydrolysate for involution of a single mastitic quarter in dairy cows.**
D. J. Wilson*, J. E. Britten, and K. A. Rood, *Utah State University, Logan, UT*.

12:15 PM 61 **Extended-spectrum beta-lactamase- and AmpC-producing *Escherichia coli* on dairy farms.**
A. G. J. Velthuis*, A. E. Heuvelink, M. A. Gonggrijp, R. Buter, C. Kappert, and T. Lam, *GD Animal Health, Deventer, the Netherlands*.

Breeding and Genetics Symposium: Inbreeding in the Genomics Era

Chair: **Filippo Miglior, Canadian Dairy Network and CGIL, University of Guelph**

Sponsor: **Semex**

Room 315-316

9:30 AM 62 REC
Computational aspects of characterizing genomic inbreeding in livestock.
J. T. Howard*, F. Tiezzi, and C. Maltecca, *North Carolina State University, Raleigh, NC.*

10:00 AM 63 REC
The effect of genomic selection on dairy cow populations.
J. E. Pryce*[1,2], [1]*Agriculture Victoria, Bundoora, VIC, Australia*, [2]*La Trobe University, Bundoora, VIC, Australia.*

10:30 AM 64 REC
Inbreeding depression.
I. Curik*[1], M. Ferencakovic[1], and J. Sölkner[2], [1]*Department of Animal Science, Faculty of Agriculture, University of Zagreb, Zagreb, Croatia*, [2]*Department of Sustainable Agricultural Systems, Division of Livestock Sciences, University of Natural Resources and Life Sciences Vienna, Vienna, Austria.*

11:00 AM 65 REC
What is the optimal measure of genomic inbreeding?
A. C. Sørensen*, *Center for Quantitative Genetics and Genomics, Department of Molecular Biology and Genetics, Aarhus University, Tjele, Denmark.*

11:30 AM 66 REC
Inbreeding in the genomics era the flip side: Crossbreeding.
E. Amuzu-Aweh[2,1], P. Bijma[2], H. Bovenhuis[2], and D. de Koning*[1], [1]*Department of Animal Breeding and Genetics, Swedish University of Agricultural Sciences, Uppsala, Sweden*, [2]*Department of Animal Breeding and Genetics, Wageningen University, Wageningen, the Netherlands.*

12:00 PM 67 REC
Genomic inbreeding from an industry perspective.
S. A. E. Eaglen*, M. F. Costello, B. M. Haines, and D. G. Wilson, *CRV USA, Madison, WI.*

Forages and Pastures I

Chair: **Gonzalo Ferreira, Virginia Tech**

Room 329

9:30 AM 68
ADSA®-SBZ Speaker Exchange Presentation: The acetyl bromide lignin method to quantify lignin and its implications with forage degradability.
R. S. Fukushima*, *Departamento de Nutrição e Produção Animal, Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo, São Paulo, Brazil.*

10:00 AM 69
Effects of wilting and molasses or inoculants additives on fermentation quality and nutritional value of round baled rice straw silages.
H. Zheng*[1], J. Yang[2], R. Ying[3], and Y. Jiang[1], [1]*Institute of Animal Husbandry and Veterinary Science, ZAAS, Hangzhou, Zhejiang, China*, [2]*Zhejiang Province Animal Husbandry Technology Promotion Station, Hangzhou, Zhejiang, China*, [3]*Ningbo Liansheng Dairy Farm, Yuyao, Zhejiang, China.*

10:15 AM 70
Production and dry matter intake of dairy cows in mid lactation with different allocation time at grazing in lucerne (*Medicago sativa*).
A. Santana*, J. Dayuto, M. García, E. Salaberry, C. Cajarville, and J. L. Repetto, *Instituto de Producción Animal de Veterinaria, Facultad de Veterinaria, Universidad de la Republica, Libertad, San José, Uruguay.*

10:30 AM 71
Damascus goats grazing on Mediterranean brushland or fed *Pistacia lentiscus* have improved milk quality.
N. Argov-Argaman*[1], O. Hadaya[1], T. Glasser[3], H. Muklada[3], L. Dvash[2], and S. Y. Landau[2], [1]*Hebrew University, Rehovot, Israel*, [2]*Volcani Center, Rishon LeZion, Israel*, [3]*Ramat Hanadiv Nature Park, Zikhron Yaakov, Israel.*

10:45 AM 72
The effect of the addition of hydrolysable tannins to alfalfa and red clover silages on performance and whole-tract digestibility in dairy cows.
C. E. A. Campbell*, J. A. Huntington, and L. A. Sinclair, *Harper Adams University, Edgmond, Shropshire, UK.*

11:00 AM 73 **Relations between silage composition, its metabolome, and preference shown by goats.**
R. Scherer*, K. Gerlach, and K.-H. Südekum, *Institute of Animal Science, University of Bonn, Bonn, Germany.*

11:15 AM 74 **Modification of ruminal fermentation and methane production by adding legumes containing condensed tannins to an orchardgrass diet in continuous culture.**
A. I. Roca-Fernandez*[1,2], S. L. Dillard[1], M. D. Rubano[1], M. Baldin[3], C. J. Dell[1], J. MacAdam[4], and K. J. Soder[1], [1]*USDA-Agricultural Research Service, University Park, PA*, [2]*Universidad de Santiago de Compostela, Lugo, Galicia, Spain*, [3]*Penn State University, University Park, PA*, [4]*Utah State University, Logan, UT.*

11:30 AM 75 **Effect of rehydrating and ensiling dry ground corn with varied concentrations of wet brewers grain on fermentation profile and ruminal in vitro starch digestibility.**
W. I. Silva Filho, H. Sultana, and L. F. Ferraretto*, *University of Florida, Gainesville, FL.*

11:45 AM 76 **Development of a berry processing score for sorghum silage.**
J. R. Johnson*[1], J. P. Goeser[2], and M. J. Brouk[1], [1]*Kansas State University, Manhattan, KS*, [2]*Rock River Laboratories, Watertown, WI.*

12:00 PM 77 **Dual-flow continuous culture fermentation of organic BMR sorghum-sudangrass and teff grass to determine digestibility of forages in an organic dairy grazing system.**
K. J. Ruh*, B. J. Heins, M. D. Stern, and R. Gardner, *University of Minnesota, St. Paul, MN.*

12:15 PM 78 **Effects of foliar fungicide on whole-plant BMR and floury corn varieties at vegetative tassel and reproductive stages of growth.**
M. E. Weatherly*[1], R. T. Pate[1], L. Hedges[2], S. Mideros[2], G. M. Fellows[3], M. Akins[4], M. R. Murphy[1], and F. C. Cardoso[1], [1]*Department of Animal Sciences, University of Illinois, Urbana, IL*, [2]*Department of Crop Sciences, University of Illinois, Urbana, IL*, [3]*B.A.S.F. Coporation, Research Triangle Park, NC*, [4]*University of Wisconsin-Madison, Marshfield, WI.*

12:30 PM 79 **Influence of plant population, hybrid relative maturity, and cutting height on yield, nutrient content, and digestibility in whole-plant corn forage.**
L. F. Ferraretto*[1], R. D. Shaver[2], J. G. Lauer[2], L. H. Brown[3], J. P. Kennicker[3], and D. M. Taysom[4], [1]*University of Florida, Gainesville, FL*, [2]*University of Wisconsin-Madison, Madison, WI*, [3]*Monsanto, St. Louis, MO*, [4]*Dairyland Laboratories Inc., Arcadia, WI.*

12:45 PM 80 **Forage herbage mass and quality of two different cover cropping systems for grazing organic dairy steers.**
B. J. Heins*[1], H. Phillips[1], K. Delate[2], and R. Turnbull[2], [1]*University of Minnesota, St. Paul, MN*, [2]*Iowa State University, Ames, IA.*

Physiology and Endocrinology I
Chair: **Erminio Trevisi, Università Cattolica del Sacro Cuore**
Room 326

9:30 AM 81 **A metabolomics approach to identify novel pathways involved in metabolic transition of periparturient dairy cows.**
Á. Kenéz*[1], S. Dänicke[2], U. Rolle-Kampczyk[3], M. von Bergen[3], and K. Huber[1], [1]*Institute of Animal Science, University of Hohenheim, Stuttgart, Germany*, [2]*Institute of Animal Nutrition, Federal Research Institute for Animal Health, Braunschweig, Germany*, [3]*Department of Molecular Systems Biology, Helmholtz Centre for Environmental Research, Leipzig, Germany.*

10:00 AM 82 **Methionine and choline feeding during the periparturient period alter the liver metabolome to different extents.**
Z. Zhou*[1], Z. Li[1], X. Dong[1], D. Luchini[2], and J. Loor[1], [1]*University of Illinois, Urbana, IL*, [2]*Adisseo S.A.S, Alpharetta, GA.*

10:15 AM 83 **Untargeted metabolomics of skeletal muscle in Holstein cows during the periparturient period in response to feeding rumen-protected methionine or choline.**
Z. Zhou*[1], Z. Li[1], X. Dong[1], D. Luchini[2], and J. Loor[1], [1]*University of Illinois, Urbana, IL*, [2]*Adisseo S.A.S, Alpharetta, GA.*

10:30 AM 84 **Muscle-targeted metabolomics in dairy cows during the transition from late pregnancy to early lactation.**
Y. Yang*[1], P. Cornelia[2], J. Adamski[2], J. Rehage[3], S. Dänicke[4], H. Sauerwein[1], and H. Sadri[1], [1]*Institute of Animal Science, Physiology & Hygiene Unit, University of Bonn, Bonn, North Rhine-Westphalia, Germany*, [2]*Institute of Experimental Genetics, Genome Analysis Center, Helmholtz Zentrum München, German Research Center for Environmental Health, Neuherberg, Bavaria, Germany*, [3]*Clinic for Cattle, University of Veterinary Medicine Hannover, Foundation, Hannover, Lower Saxony, Germany*, [4]*Institute of Animal Nutrition, Friedrich-Loeffler-Institute, Braunschweig, Lower Saxony, Germany*.

10:45 AM 85 **Comparison of different treatment strategies for hyperketonemia in early lactation Holstein cows.**
S. Mann*[1], F. Leal Yepes[2], E. Behling-Kelly[1], and J. McArt[1], [1]*Department of Population Medicine and Diagnostic Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY*, [2]*Department of Animal Science, Cornell University, Ithaca, NY*.

11:00 AM 86 **Metabolomics profiling of the serum from dairy cow with different milk protein yield using gas chromatography–time of flight/mass spectrometry.**
X. H. Wu*[1], H. Z. Sun[1], D. M. Wang[1], M. Y. Xue[1], L. L. Guan[2], and J. X. Liu[1], [1]*Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*, [2]*Department of Agricultural, Food & Nutritional Science, University of Alberta, Edmonton, Canada*.

11:15 AM 87 **The effects of α-linolenic acid supplementation on production, health, and fertility of dairy cows.**
U. Moallem*, H. Lehrer, and L. Lifshitz, *Department of Ruminant Science, ARO, Volcani Center, Rishon LeZion, Israel*.

11:30 AM 88 **Effects of continuous and increasing lipopolysaccharide infusion on basal metabolism in lactating cows.**
S. K. Kvidera*, M. J. Dickson, E. A. Horst, J. A. Ydstie, C. S. Shouse, K. L. Bidne, E. J. Mayorga, M. Al-Qaisi, H. A. Ramirez Ramirez, A. F. Keating, and L. H. Baumgard, *Iowa State University, Ames, IA*.

11:45 AM 89 **Effects of lactational stage and conjugated linoleic acid supplementation on glucose metabolism during hyperglycemic clamps.**
L. Grossen-Rösti[1], E. Kessler[1], A. Tröscher[2], R. Bruckmaier*[1], and J. Gross[1], [1]*Veterinary Physiology, University of Bern, Bern, Switzerland*, [2]*BASF SE, Lampertheim, Germany*.

12:00 PM 90 **Transcriptional changes in the gut of neonatal dairy calves undergoing a mild diarrhea revealed by a non-invasive technique.**
F. Rosa*[1,4], S. Busato[1,2], F. C. Avaroma[1,2], E. Trevisi[3], M. Bionaz[1], and J. S. Osorio[4], [1]*Oregon State University, Corvallis, OR*, [2]*Escuela Agricola Panamericana El Zamorano, El Zamorano,Francisco Morazan, Honduras*, [3]*Università Cattolica del Sacro Cuore, Piacenza, Italy*, [4]*South Dakota State University, Brookings, SD*.

Production, Management, and the Environment I
Chair: **Victor Cabrera, University of Wisconsin, Madison**
Room 324

9:30 AM 92 **Developing a heat stress model in dairy cows using an electric blanket.**
M. Al-Qaisi*, E. A. Horst, S. K. Kvidera, E. J. Mayorga, C. S. Shouse, J. A. Ydstie, S. Lei, L. L. Timms, and L. H. Baumgard, *Iowa State University, Ames, IA*.

9:45 AM 91 **Evaluation of an ear tag based behavior and temperature monitor (Cow Manager) during a heat stress induction trial using electric heat blankets (EHB).**
M. Al-Qaisi*, L. Timms, and L. Baumgard, *Iowa State University, Ames, IA*.

10:00 AM 93 **^{1}H Nuclear magnetic resonance-based metabolomics of urine in heat-stressed dairy goats.**
A. Contreras-Jodar*[1], N. Nayan[1,2], A. A. K. Salama[1], S. Hamzaoui[1,3], and G. Caja[1], [1]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*, [2]*Wageningen University, Wageningen, the Netherlands*, [3]*University of Bouira, Bouira, Algeria*.

10:15 AM 94 **Effect of heat stress, dietary zinc source and intramammary lipopolysaccharide challenge on metabolic responses of lactating Holstein cows.**
T. N. Marins*[1], R. M. Orellana[1], X. Weng[1], A. P. A. Monteiro[1], J. Guo[1], J. K. Bernard[1], D. J. Tomlinson[2], J. M. DeFrain[2], and S. Tao[1], [1]*University of Georgia, Tifton, GA*, [2]*Zinpro Corporation, Eden Prairie, MN*.

10:30 AM 95 **Production and absorption rates of volatile fatty acids are significantly affected by heat stress.**
R. R. White*[1,2], L. Beckett[2], L. Harthan[2], C. Wang[3], N. Jiang[4], H. Schramm[5], K. M. Daniels[2], and M. D. Hanigan[2], [1]*Department of Animal and Poultry Science, Virginia Tech, Blacksburg, VA*, [2]*Department of Dairy Science, Blacksburg, VA*, [3]*College of Animal Science and Technology, Zhejiang Agriculture and Forestry University, Hangzhou, Zhejiang, China*, [4]*College of Animal Science and Veterinary Medicine, Heilongjiang Bayi Agricultural University, Harbin, Heilongjiang, China*, [5]*College of Veterinary Medicine, Virginia Tech, Blacksburg, VA*.

10:45 AM 96 **Using calf jackets to minimize cold stress in Jersey calves.**
X. Wen*, A. Adams Progar, D. A. Moore, J. H. Harrison, and J. Schafer, *Washington State University, Pullman, WA*.

11:00 AM **Break**

11:15 AM 97 **Technical and economic performance of Holstein crossbred versus pure Holstein herds using a stochastic simulation model.**
M. López-Suárez*[1], L. Castillejos[1], M. Piera[2], J. M. Loste[3], and S. Calsamiglia[1], [1]*Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*, [2]*Centre Veterinari Tona, Tona, Barcelona, Spain*, [3]*Albaikide, Irurtzun, Navarra, Spain*.

11:30 AM 98 **Herd contextual effect modulates the relationship between cow milk yield and reproductive performance.**
R. Rearte[1,3], S. LeBlanc[5], R. de la Sota[2,3], S. Corva[1], I. Lacau-Mengido[4,3], and M. Giuliodori*[6], [1]*Cátedra de Higiene, Epidemiología y Salud Pública, Facultad de Ciencias Veterinarias – Universidad Nacional de La Plata (FCV–UNLP), La Plata, Argentina*, [2]*Cátedra y Servicio de Reproducción Animal, FCV–UNLP, La Plata, Argentina*, [3]*Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina*, [4]*Instituto de Biología y Medicina Experimental–CONICET, Buenos Aires, Argentina*, [5]*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, [6]*Cátedra de Fisiología, FCV–UNLP, La Plata, Argentina*.

11:45 AM 99 **Precision dairy herd management—A quantile regression approach.**
J. Richard* and T. Mark, *University of Kentucky, Lexington, KY*.

Ruminant Nutrition Symposium: Metabolomics Applications in Dairy Cow Metabolism

Chair: **Timothy Hackmann, University of Florida**

Sponsors: **Dairy Nutrition Plus and Vetagro**

Room 319-320

9:30 AM 100 **Discovering isomeric milk metabolites with liquid chromatography drift tube-ion mobility mass spectrometry.**
REC
T. Shen, I. Blaženovic, and O. Fiehn*, *West Coast Metabolomics Center, University of California-Davis, Davis, CA*.

10:00 AM 101 **Lipidomic studies can inform on the effects of low-fat or full-fat dairy foods on cardiometabolic health: Potential benefit of full-fat dairy products.**
REC
P. J. Meikle*, *Baker Heart and Diabetes Institute, Melbourne, Australia*.

10:30 AM 102 **NMR metabolomic analysis of dairy cows reveals milk glycerophosphocholine to phosphocholine ratio as prognostic biomarker for risk of ketosis.**
REC
M. S. Klein[1], N. Krattenmacher[2], S. Wiedemann[2], W. Junge[2], G. Thaller[2], P. J. Oefner[1], and W. Gronwald*[1], [1]*Institute of Functional Genomics, University of Regensburg, Regensburg, Bavaria, Germany*, [2]*Institute of Animal Breeding and Husbandry, Christian-Albrechts-University, Kiel, Schleswig-Holstein, Germany*.

11:00 AM **Break**

11:15 AM 103 **Characterization of the bovine lipidome: Discovery of the sphingolipid ceramide as a biomarker of insulin resistance in dairy cattle.**
REC
J. W. McFadden*, *West Virginia University, Morgantown, WV*.

11:45 AM 104 **Metabolomics reveals unhealthy alterations in rumen metabolism with increased proportion of cereal grain in dairy cow diets: Application of MetaboAnalyst.**
REC
F. Saleem*[1,3], Q. Zebeli[2], B. N. Ametaj[2,3], N. Psychogios[3], M. J. Lewis[3], S. M. Dunn[2], J. Xia[3], and D. S. Wishart[3], [1]*University of Agriculture Faisalabad, Faisalabad, Pakistan*, [2]*Department of Agricultural, Food and Nutritional Science, Edmonton, AB, Canada*, [3]*Departments of Computing Science and Biological Sciences, University of Alberta, Edmonton, AB, Canada*.

Ruminant Nutrition I
Chair: **Guillermo Schroeder, Cargill Animal Nutrition**
Room 321

9:30 AM 105 **Improvement of ruminal fermentation by live yeast in dairy cows.**
Y. Huang*[1], J. P. Marden[2], C. Julien[2], E. Auclair[2], and C. Bayourthe[1], [1]*GenPhySE, Université de Toulouse, INRA, INPT, INP-ENVT, Castanet-Tolosan, France*, [2]*Phileo Lesaffre Animal Care, Marcq-en-Baroeul, France*.

9:45 AM 106 **Evaluation of supplementing brewer's yeast to lactating dairy cows.**
T. C. Aubrey*[1], J. L. Anderson[1], and A. R. Boyer[2], [1]*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, [2]*Kent Nutrition Group, Muscatine, IA*.

10:00 AM 107 **Effects of *Saccharomyces cerevisiae* fermentation products and subacute ruminal acidosis (SARA) on apparent digestibility of dry matter, NDF, and phosphorus in lactating dairy cows.**
V. P. Senaratne*[1], H. Khalouei[1], K. Fehr[1], J. Guo[1], I. Yoon[2], E. Khafipour[1], and J. C. Plaizier[1], [1]*Department of Animal Science, University of Manitoba, Winnipeg, Canada*, [2]*Diamond V, Cedar Rapids, IA*.

10:15 AM 108 **Effects of *Saccharomyces cerevisiae* fermentation products on endotoxins and acute phase proteins in lactating dairy cows.**
J. Guo[1], H. Khalouei[1], K. Fehr[1], V. Senaratne[1], Z. Zhang[1], H. Derakhshani[1], M. Scott[2], G. Crow[1], I. Yoon*[2], E. Khafipour[1], and J. C. Plaizier[1], [1]*University of Manitoba, Winnipeg, Canada*, [2]*Diamond V, Cedar Rapids, IA*.

10:30 AM 109 **Effect of sequestering agents based on a *Saccharomyces cerevisiae* fermentation product and clay on the performance of lactating dairy cows challenged with dietary aflatoxin B_1.**
Y. Jiang*[1], D. H. Kim[1], I. M. Ogunade[1], X. Li[2], A. A. Pech-Cervantes[1], A. S. Oliveira[3], K. G. Arriola[1], A. Mayer-Camocho[1], J. P. Driver[1], C. R. Staples[1], D. Vyas[1], and A. T. Adesogan[1], [1]*Department of Animal Sciences, University of Florida, Gainesville, FL*, [2]*Department of Animal Sciences, China Agricultural University, Beijing, China*, [3]*Institute of Agriculture and Environmental Sciences, Federal University of Mato Grosso, Sinop, MT, Brazil*.

10:45 AM 110 **Effects of phytonutrients or ionophore on productivity, blood cells, and fat mobilization in lactating dairy cows.**
J. Oh*[1], M. Harper[1], E. Wall[2], and A. Hristov[1], [1]*The Pennsylvania State University, University Park, PA*, [2]*Pancosma, Geneva, Switzerland*.

11:00 AM 111 **Effect of tea saponins on milk performance, milk fatty acids, and immune function in dairy cows.**
B. Wang*[1,2], Y. Tu[1], J. X. Liu[3], B. H. Xiong[4], and L. S. Jiang[2], [1]*Feed Research Institute, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Beijing Key Laboratory for Dairy Cow Nutrition, College of Animal Science and Technology, Beijing University of Agriculture, Beijing, China*, [3]*Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China*, [4]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*.

11:15 AM 112 **Improving the long-chain fatty acid profile of milk and cheese in dairy cows by supplementation with microalgae.**
B. E. Till*[1], J. A. Huntington[1], J. Taylor-Pickard[2], and L. A. Sinclair[1], [1]*Harper Adams University, Shropshire, UK*, [2]*Alltech Biotechnology Institute, Dunboyne, Ireland*.

11:30 AM 113 **The effect of calcareous marine algae, with or without marine magnesium oxide, and sodium bicarbonate on milk production in mid-lactation dairy cows.**
E. W. Neville*[1], A. G. Fahey[2], B. P. Molloy[1], S. J. Taylor[3], and F. J. Mulligan[1], [1]*School of Veterinary Medicine, University College Dublin, Belfield, Dublin, Ireland*, [2]*School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland*, [3]*Celtic Sea Minerals, Currabinny, Carrigaline, Cork, Ireland*.

11:45 AM 114 **Effects of an exogenous enzyme blend on dry matter intake and performance of lactating dairy cows.**
D. M. Paulus Compart*, R. A. Dvorak, and T. P. Karnezos, *PMI Nutritional Additives, Arden Hills, MN*.

12:00 PM 115 **Bacterial expansins: A novel approach to improve efficacy of exogenous fibrolytic enzymes.**
A. A. Pech-Cervantes*[1], C. F. Gonzalez[2], I. M. Ogunade[1], D. H. Kim[1], A. S. Oliveira[3], Y. Jiang[1], D. Vyas[1], and A. T. Adesogan[1], [1]*Department of Animal Sciences, University of Florida, Gainesville, FL*, [2]*Department of Microbiology and Cell Science, University of Florida, Gainesville, FL*, [3]*Institute of Agriculture and Environmental Sciences, Federal University of Mato Grosso, Sinop, MT, Brazil*.

12:15 PM 116 **Effect of a recombinant bacterial expansin (BsEXLX1) and fibrolytic enzymes on in vitro digestibility and preingestive hydrolysis of bermudagrass silage.**
A. A. Pech-Cervantes*[1], I. M. Ogunade[1], D. H. Kim[1], F. X. Amaro[1], Y. Jiang[1], K. G. Arriola[1], C. F. Gonzalez[2], D. Vyas[1], and A. T. Adesogan[1], [1]*Department of Animal Sciences, University of Florida, Gainesville, FL*, [2]*Department of Microbiology and Cell Science, University of Florida, Gainesville, FL*.

Small Ruminant Symposium:
New Opportunities for Dairy Sheep and Goats
Chair: **Gerardo Caja, University Autonoma of Barcelona**
Sponsor: **European Association of Animal Production (EAAP)**
Room 310-311

9:30 AM REC **Introduction.**
G. Caja.

9:35 AM 117 REC **Current market trends of sheep and goat milk, farm structures and production costs.**
G. Pulina*[1], M. J. Milàn Sendra[2], M. P. Lavin[3], A. Theodoridis[4], E. Morin[5], and J. Capote[6], [1]*University of Sassari, Sassari, Italy*, [2]*University Autonoma of Barcelona, Barcelona, Spain*, [3]*Consejo Superior de Investigaciones Científicas, Leòn, Spain*, [4]*Aristotle University of Thessaloniki, Thessaloniki, Grece*, [5]*Institut de l'Élevage, Paris, France*, [6]*Canary Islands Institute of Agricultural Research, Canary Islands, Spain*.

10:00 AM 118 REC **ADSA®-EAAP Speaker Exchange Presentation: Compositional and functional differences of ewe and goat's milk and dairy products with regard to cow's milk and dairy products.**
P. Roncada*[1], P. de Frutos[2], A. Nudda[3], and N. Castro Navarro[4], [1]*Istituto Sperimentale Italiano Lazzaro Spallanzani, Milano, Italy*, [2]*CSIC-Universidad de L, Grulleros, León, Spain*, [3]*Università degli Studi di Sassari, Sassari, Italy*, [4]*Universidad de Las Palmas de Gran Canaria, Arucas, Gran Canaria, Spain*.

10:25 AM 119 **Update on lactation biology and milking strategies of small ruminants.**
M. Rovai*[1], G. Caja[2], A. Argüello[3], C. Peris[4], X. Such[2], and P.-G. Marnet[5], [1]*South Dakota State University, Brookings, SD*, [2]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*, [3]*University of Las Palmas de Gran Canaria, Gran Canaria, Spain*, [4]*Polythecnic University of Valencia, Valencia, Spain*, [5]*Agrocampus-Ouest, Rennes, France*.

10:50 AM **Break**

11:05 AM 120 REC **Currently available genetic resources in the United States for dairy sheep and dairy goat production.**
D. Thomas*[1], J.-M. Astruc[2], A. Carta[3], M. D. Pérez-Guzmán[4], and J.-M. Serradilla[5], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Institut de l'Élevage, Castanet-Tolosan, France*, [3]*DIRPA-AGRIS, Olmedo, Sardegna, Italy*, [4]*Instituto Regional de Investigación y Desarrollo Agroalimentario y Forestal, Valdepeñas, Castilla-La Mancha, Spain*, [5]*Universidad de Córdoba, Córdoba, Andalusia, Spain*.

11:30 AM 121 REC **Intake prediction and energy requirements for lactating dairy small ruminants: Comparison of systems.**
A. Cannas*[1], F. Bocquier[2,3], P. Hassoun[3], S. Giger-Reverdin[4], D. Sauvant[4], L. O. Tedeschi[5], and G. Caja[6], [1]*University of Sassari, Sassari, Italy*, [2]*INRA-Montpellier SupAgro, Montpellier, France*, [3]*INRA, Montpellier, France*, [4]*INRA-AgroParisTech-Université Paris-Saclay, Paris, France*, [5]*Texas A&M University, College Station, TX*, [6]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*.

11:55 AM 122 **ADSA®-EAAP Speaker Exchange Presentation: Animal–environment interactions in dairy small ruminants: Cause-and-effect relationships and strategies of alleviation.**
REC
A. A. K. Salama*[1], D. R. Yañez-Ruiz[2], C. Fernandez[3], N. Koluman[4], M. Ramon[5], N. Silanikove[6], A. Goetsch[7], and G. Caja[1], [1]*Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Spain*, [2]*Estación Experimental del Zaidín (CSIC), Armilla, Granada, Spain*, [3]*Research Centre ACUMA, Animal Science Department, Polytechnic University of Valencia, Valencia, Spain*, [4]*Cukurova University, Agricultural Fac., Department of Animal Science, Adana, Turkey*, [5]*Centro Regional de Selección y Reproducción Animal (CERSYRA-IRIAF), Valdepeñas, Spain*, [6]*Institute of Animal Science, Agricultural Research Organization, Volcani Center, Bet Dagan, Israel*, [7]*American Institute for Goat Research, Langston University, Langston, OK*.

12:20 PM **Joint discussion and concluding remarks.**
G. Caja.

Teaching/Undergraduate and Graduate Education Symposium: Mentoring in Dairy Science

Chair: **Antonio Faciola, University of Nevada**
Sponsor: **Elanco Animal Health**
Room 301-302

9:30 AM 123 **Mentoring undergraduate students in dairy science.**
REC
L. Berning*, *California Polytechnic State University, San Luis Obispo, CA*.

9:55 AM 124 **Mentoring minorities in dairy and animal sciences.**
REC
R. Noble*, *North Carolina A&T State University*.

10:20 AM 125 **Mentoring graduate students as a young faculty: Challenges and opportunities.**
REC
A. Faciola*, *University of Nevada, Reno, NV*.

10:45 AM 126 **Mentoring and empowering women in dairy science.**
REC
K. M. Schoenberg*, *Elanco Animal Health, Greenfield, IN*.

11:10 AM 127 **Mentoring postdocs in an increasingly competitive environment.**
REC
P. Clifford*, *University of Illinois at Chicago, Chicago, IL*.

11:35 AM 128 **Mentoring young faculty to succeed in teaching and research.**
REC
K. A. Weigel*, *Department of Dairy Science, University of Wisconsin, Madison, WI*.

12:00 PM **Panel discussion with speakers**
REC

ADSA-SAD Dairy Foods Undergraduate Student Oral Competition

Chair: **Jillian Bohlen, University of Georgia**
Room 333

11:00 AM 129 **The role of flavored milk in school nutrition.**
B. Bowman*, D. Winston, and K. Daniels, *Virginia Tech, Blacksburg, VA*.

11:15 AM 130 **Exploring the market for goat milk products.**
L. Scott*, *Clemson University, Clemson, SC*.

11:30 AM 131 **The health benefits of donkey milk.**
N. P. Uzee* and C. C. Williams, *Louisiana State University, Baton Rouge, LA*.

11:45 AM 132 **Health benefits of whole milk in comparison with other milk fat options.**
S. E. Mac*, C. M. Truman, and J. M. Bewley, *University of Kentucky*, *Lexington, KY*.

12:00 PM 133 **Whey management options in Greek yogurt production.**
Z. Curtis* and D. Olver, *Pennsylvania State University*, *University Park, PA*.

12:15 PM 134 **The potential impact of a novel canned latté on the North American dairy products market.**
K. Alward* and J. Bohlen, *University of Georgia*, *Athens, GA*.

ADSA Production Division Symposium: Future of the Dairy Sector Toward 2030

Chair: **Cathleen Williams, Louisiana State University**
Sponsor: **Elanco Animal Health**
Room 315-316

2:00 PM 135 **Vision on dairy cattle nutrition towards 2030.**
REC
M. D. Hanigan* and R. R. White*, *Virginia Tech*, *Blacksburg, VA*.

2:30 PM 136 **ADSA®-EAAP Speaker Exchange Presentation: Vision on dairy cattle physiology and limits of milk production growth towards 2030.**
REC
R. M. Bruckmaier*[1], J. J. Gross[1], and H. Sauerwein*[2], [1]*Veterinary Physiology Vetsuisse Faculty, University of Bern*, *Bern, Switzerland*, [2]*University of Bonn, Institute for Animal Science*, *Bonn, Germany*.

3:00 PM 137 **ADSA®-EAAP Speaker Exchange Presentation: Dutch vision on environmental and system aspects of dairy farming towards 2030.**
REC
K. de Koning*[1], P. Galama[2], and A. Kuipers[2], [1]*Wageningen Livestock Research–Dairy Campus*, *Leeuwarden, the Netherlands*, [2]*Wageningen Livestock Research*, *Wageningen, the Netherlands*.

3:30 PM 138 **The global dairy industry of the future—Technology and trends in milk quality and animal health towards 2030.**
REC
P. L. Ruegg*[1] and A. Kuipers*[2], [1]*University of Wisconsin, Madison,* [2]*Foundation Agro Management Tools Wagingene UR, Wageningen, the Netherlands*.

4:00 PM 139 **Vision on milk and dairy products and human health towards 2030.**
A. L. Lock*[1] and D. E. Bauman[2], [1]*Michigan State University*, *East Lansing, MI*, [2]*Cornell University*, *Ithaca, NY*.

4:30 PM **Interactive debate between speakers and audience: How will the dairy sector look in 2030.**
REC
Moderators: Roger Cady, Elanco, and Abele Kuipers, Wageningen University and Research.

ADSA Graduate Student (PhD) Production Oral Competition

Chair: **Heather Dann, Miner Institute**
Room 309

2:00 PM 140 **Effects of camelina cake supplementation at two dietary fat levels on ruminal fermentation and nutrient flow in a dual-flow continuous culture system.**
V. L. N. Brandao*, X. Dai, L. G. Silva, E.M. Paula, T. Shenkoro, and A. Faciola, *University of Nevada*, *Reno, NV*.

2:15 PM 141 **Temporal changes of milk odd- and branched-chain fatty acids in response to acidogenic diets fed to dairy cows.**
E. Baumann*, P. Y. Chouinard, A. R. Alfonso-Avila, and R. Gervais, *Université Laval*, *Québec, QC, Canada*.

2:30 PM 142 **The milk microbiome of healthy and inflamed mammary quarters through the dry period and first 150 days of lactation.**
S. A. Metzger*, T. M. Walker, J. H. Skarlupka, L. L. Hernandez, G. Suen, and P. L. Ruegg, *University of Wisconsin-Madison*, *Madison, Wisconsin*.

2:45 PM 143 **An on-farm algorithm to guide selective dry-cow therapy.**
A. K. Vasquez*[1], C. Foditsch[1], M. Wieland[1], R. A. Lynch[2], P. D. Virkler[1], S. Eicker[3], and D. V. Nydam[1], [1]*Cornell University College of Veterinary Medicine, Ithaca, NY*, [2]*Department of Animal Science, Cornell University, Ithaca, NY*, [3]*Valley Ag. Software, Tulare, CA*.

3:00 PM 144 **Advancement of Dairying in Austria (ADDA): Conventional dairy farm management with respect to mastitis prevention and detection.**
C. L. Firth*[1], C. Schleicher[2], A. Käsbohrer[1], and W. Obritzhauser[1], [1]*University of Veterinary Medicine, Institute of Veterinary Public Health, Vienna, Austria*, [2]*Austrian Agency for Health and Food Safety (AGES), Integrated Risk Assessment, Data and Statistics, Graz, Styria, Austria*.

3:15 PM 145 **Effects of oral administration of acetylsalicylic acid after parturition on milk yield and milk components in lactating dairy cows under certified organic management.**
A. A. Barragan*[1], L. M. Bauman[2], L. da Costa[1], J. Velez[3], J. D. Rozo Gonzalez[3], G. M. Schuenemann[1], and S. Bas[1], [1]*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*Department of Animal Sciences, The Ohio State University, Columbus, OH*, [3]*Aurora Organic Farms, Boulder, CO*.

3:30 PM 147 **Feeding increasing amounts of ruminally-protected choline (RPC) increasingly reduced fatty liver of Holstein cows.**
M. G. Zenobi*[1], A. M. Lopez[1], J. E. Zuniga[1], M. B. Poindexter[1], T. L. Scheffler[1], S. R. Campagna[2], B. A. Barton[3], J. E. P. Santos[1], and C. R. Staples[1], [1]*University of Florida, Gainesville, FL*, [2]*University of Tennessee, Knoxville, TN*, [3]*Balchem Corp, New Hampton, NY*.

3:45 PM 148 **Ethyl-cellulose rumen-protected methionine supply during late gestation enhances nutrient transporter expression in bovine placentome and calf birth weight.**
F. Batistel*[1], A. S. M. Alharthi[1], B. Saremi[2], C. Parys[2], and J. J. Loor[1], [1]*University of Illinois at Urbana-Champaign, Urbana, IL*, [2]*Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*.

4:00 PM 149 **Effect of diet composition on rumen development in Holstein bull calves.**
T. T. Yohe*, H. L. M. Tucker, B. D. Enger, K. M. Enger, C. E. Owens, C. A. Ceh, C. L. M. Parsons, and K. M. Daniels, *Virginia Polytechnic Institute and State University, Blacksburg, VA*.

4:15 PM 150 **Ruminal pH in Holstein dairy bull calves from pre-weaning to post-weaning.**
J. K. van Niekerk*, M. Middeldorp, and M. A. Steele, *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Canada*.

4:30 PM 151 **Alteration of intrinsic molecular structure by steam flaking process improved gastrointestinal digestion of carbohydrate in dairy cows.**
N. Xu*[1,2], J. Liu[1], and P. Yu[2], [1]*Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*, [2]*Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, Canada*.

4:45 PM 146 **Energy intake and balance of cows in the early postpartum period is affected by diet starch content and fermentability.**
R. Albornoz* and M. Allen, *Michigan State University, Lansing, MI.*

ADSA Southern Section Symposium:
Key Considerations for Improving Milk Quality in the Southeast
Chair: **Peter Krawczel, University of Tennessee**
Room 318

2:00 PM 152 REC **Getting inside their heads: Dairy farmers' attitudes and behaviors that affect milk quality.**
S. M. Schexnayder* and P. D. Krawczel, *University of Tennessee, Knoxville, TN.*

2:30 PM 153 REC **Considerations for managing mastitis and milk quality on organic dairy farms.**
K. A. E. Mullen*, *North Carolina State University, Raleigh, NC.*

3:00 PM 154 REC **The role of housing facilities and management in improving milk quality.**
A. E. Stone*[1] and P. D. Krawczel*[2], [1]*Mississippi State University, Starkville, MS*, [2]*University of Tennessee, Knoxville, TN.*

3:30 PM 155 **The role of technology in quantifying mastitis-related decisions.**
REC J. M. Bewley*, *University of Kentucky*, *Lexington, KY*.

4:00 PM **Break**

4:30 PM **ADSA Southern Section Business Meeting**

ADSA-SAD Dairy Production Undergraduate Student Oral Competition
Chair: **Jillian Bohlen, University of Georgia**
Room 334

2:00 PM 156 **Using supplemental oxygen for newborn calves on dairy farms.**
H. Kuester* and S. Kehoe, *University of Wisconsin-River Falls*, *River Falls, WI*.

2:15 PM 157 **Grocery by-product waste and how dairy cattle can help.**
S. J. Garbowski*, A. E. Goho, and G. J. Lascano, *Clemson University*, *Clemson, SC*.

2:30 PM 158 **Serotonin precursor treatment: An emerging preventative method for hypocalcemia in transitioning dairy cows.**
C. M. Kenny*, C. C. Williams, and S. J. Blair, *Louisiana State University*, *Baton Rouge, LA*.

2:45 PM 159 **The effects of grain-induced subacute ruminal acidosis on rumen epithelial transporters and volatile fatty acid concentrations.**
L. Beckett*, R. White, and D. Winston, *Virginia Tech*, *Blacksburg, VA*.

3:00 PM 160 **Using genomic selection to improve dairy cattle heat tolerance.**
C. N. Folmar*, C. M. Truman, and J. M. Bewley, *University of Kentucky*, *Lexington, KY*.

3:15 PM 161 **Measuring fecal cortisol metabolites to assess the impact of management stressors on dairy cattle.**
Y. I. Ruiz* and J. M. Huzzey, *California Polytechnic State University, San Luis Obispo, CA*.

3:30 PM 162 **The impacts of manure management in dairy production.**
B. Young*, *West Virginia University*, *Morgantown, WV*.

3:45 PM 163 **Invisible impacts of mastitis: The long-term reproductive loss.**
E. Brenengen* and D. Olver, *Pennsylvania State University*, *University Park, PA*.

4:00 PM 164 **Evaluating the migration toward automated calf feeders on calf performance.**
M. Wright* and J. Bohlen, *University of Georgia*, *Athens, GA*.

ADSA-SAD Original Research Undergraduate Student Oral Competition
Chair: **Leanne Berning, California Polytechnic State University**
Room 333

2:00 PM 165 **The effects of body condition and dietary starch content on first ovulation postpartum in dairy cows.**
K. V. Murphy*[1], D. J. Ambrose[1,2], and M. Oba[1], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta*, *Edmonton, AB, Canada*, [2]*Livestock Research Section, Alberta Agriculture and Forestry*, *Edmonton, AB, Canada*.

2:15 PM 166 **Exposure of dairy cows to heat stress during late gestation or while in utero affects mammary gland microstructure.**
C. Mejia*, A. L. Skibiel, B. Dado-Senn, T. F. Fabris, V. B. Sichler, S. A. Pinkelton, G. E. Dahl, and J. Laporta, *University of Florida*, *Gainesville, FL*.

2:30 PM 167 **Effects of trace mineral injections on liver and blood trace mineral concentrations in dairy cattle.**
K. Kelly*[1], E. Eckelkamp[1], B. Kawonga[1], D. Tracy[2], C. Fendley[1], and J. Bewley[1], [1]*University of Kentucky, Lexington, KY*, [2]*Multimin USA, Fort Collin, CO*.

2:45 PM 168 **Characterization of milk cellular response to intramammary phytoceutical administration in cows with clinical mastitis.**
C. M. Womble*[1], K. A. E. Mullen[1], S. P. Washburn[1], and K. L. Anderson[2], [1]*Department of Animal Science, College of Agriculture and Life Sciences, North Carolina State University, Raleigh, NC*, [2]*Department of Population Health and Pathobiology, College of Veterinary Medicine, North Carolina State University, Raleigh, NC*.

3:00 PM 169 **Genetic analysis of kickoff behavior in automatic milking systems.**
K. Sondericker*, L. Hardie, and C. Dechow, *The Pennsylvania State University, University Park, PA*.

3:15 PM 170 **Relationship between lying behavior and subclinical ketosis in Holstein and Jersey dairy cows.**
O. Duner*, K. Kutina, Y. Ruiz, E. Whisler, and J. Huzzey, *California Polytechnic State University, San Luis Obispo, CA*.

3:30 PM 171 **The effect of electric disbudding on the reaction of phytohemagglutinin-P in Holstein calves.**
A. Taylor* and S. I. Kehoe, *University of Wisconsin-River Falls, River Falls, WI.*

3:45 PM 172 **Flaxseed containing lipid supplement increases omega-3 content in milk by protecting dietary omega-3 from ruminal biohydrogenation.**
R. Wilson*[1], S. Akers[1], K. Swanson[1], M. Keller[1], L. Goddick[1], G. Cherian[1], R. Day[2], and G. Bobe[1], [1]*Oregon State University, Corvallis, OR*, [2]*N3Feed LLC, Tualatin, OR*.

4:00 PM 173 **Estimating urinary nitrogen using creatinine in cows fed adequate and protein deficient diets.**
D. M. Andreen*, E. Liu, and M. J. VandeHaar, *Michigan State University, East Lansing, MI*.

Animal Health: Joint ADSA-National Mastitis Council Symposium: Mastitis Control and Milk Quality Globally: Past, Present, and an Amazing Future

Chair: **Leo Timms, Iowa State University**

Room 301-302

2:00 PM 174 REC **Mastitis control: Past, present, and future, and milk quality globally.**
L. Timms*, *Iowa State University, Ames, IA*.

2:15 PM 175 REC **Genetics, genomics, and improving mastitis resistance.**
G. M. Pighetti*, *University of Tennessee, Knoxville, TN.*

2:35 PM 176 REC **Novel genomic and phenotypic strategies to improve mastitis resistance and milk quality.**
P. Martin[1], H. Barkema[2], S. G. Narayana[1,2], and F. Miglior*[1,3], [1]*CGIL, Dept of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Dept of Production Animal Health, Faculty of Veterinary Medicine, University of Calgary, Calgary, AB, Canada*, [3]*Canadian Dairy Network, Guelph, ON, Canada*.

2:50 PM 177 REC **Genome-wide association analyses identify loci associated with mastitis phenotypes generated from *Streptococcus uberis* experimental challenge data.**
L. Siebert*, M. E. Staton, S. P. Oliver, and G. M. Pighetti, *University of Tennessee, Knoxville, TN*.

3:05 PM 178 REC **Mastitis therapy: Past successes, current challenges, and vision for the future.**
J. Middleton*, *University of Missouri, Columbia, MO*.

3:25 PM **Break**

3:40 PM 179 REC **Modulating adipose tissue lipolysis and remodeling to improve immune function in early lactation.**
G. A. Contreras*, C. Strieder Barboza, and J. De Koster, *Department of Large Animal Clinical Sciences, East Lansing, MI*.

3:55 PM 180 REC **Targeting antimicrobial defenses of the udder through intrinsic cellular pathways.**
C. D. Nelson*, M. F. Kweh, M.B. Poindexter, K. E. Merriman, and L. P. Blakely, *University of Florida, Gainesville, FL*.

4:10 PM 181 **Challenges to milking efficiency: Quality versus quantity.**
REC
R. Erskine* and R. Moore-Foster, *Michigan State University, East Lansing, MI.*

4:30 PM 182 **Data, decisions, and mastitis.**
REC
J. M. Bewley*, *University of Kentucky, Lexington, KY.*

4:45 PM 183 **Measuring parlor performance from a cow's perspective.**
REC
R. Moore-Foster* and R. Erskine, *Michigan State University, East Lansing, MI.*

Animal Health II
Chair: **Michael Ballou, Texas Tech University**
Room 303

2:00 PM 184 **Monitoring dairy cattle health and husbandry including by use of drones.**
D. J. Wilson*, L. E. Cheetham, and K. A. Rood, *Utah State University, Logan, UT.*

2:15 PM 185 **Real-time automatic system for calving detection in dairy cows.**
A. Arazi* and D. Rak, *Afimilk, Afikim, Israel.*

2:30 PM 186 **How to sanitize dairy herds from the contagious genotype B of *Staphylococcus aureus*? A new molecular biology approach.**
C. Sartori*[1,2] and H. U. Graber[2], [1]*ETH, Zurich, Switzerland*, [2]*Agroscope, Bern, Switzerland.*

2:45 PM 187 **Effects of dexamethasone and opsonized *Mycoplasma bovis* on bovine neutrophil function in vitro.**
H. A. Alabdullah*[1], L. K. Fox[1], J. M. Gay[1], G. M. Barrington[1], and R. H. Mealey[2], [1]*Department of Clinical Science, Washington State University, Pullman, WA*, [2]*Department of Veterinary Microbiology and Pathology, Washington State University, Pullman, WA.*

3:00 PM 188 **Changes in galectin gene expression in bovine blood buring the periparturient period.**
E. Asiamah*[1], S. Adjei-Fremah[1], K. Ekwemalor[1], M. Worku[1], L. Sordillo[2], and J. Gandy[2], [1]*North Carolina A&T State University, Greensboro, NC*, [2]*Michigan State University, East Lansing, MI.*

3:15 PM 190 **Effect of prepartum energy balance on neutrophil function following pegbovigrastim treatment in periparturient cows.**
S. McDougall[1], S. LeBlanc*[2], and A. Hesier[3], [1]*Cognosco, AnexaFVC, Morrinsville, New Zealand*, [2]*Ontario Veterinary College, University of Guelph, Guelph, ON, Canada*, [3]*AgResearch, Hopkirk Research Institute, Palmerston North, New Zealand.*

3:30 PM 189 **Pegbovigrastim affected gene expression in neutrophils of transition cows indicating increased neutrophil function.**
A. Heiser[1], S. LeBlanc*[2], and S. McDougall[3], [1]*AgResearch, Palmerston North, New Zealand*, [2]*Ontario Veterinary College, University of Guelph, Guelph, ON, Canada*, [3]*Cognosco, AnexaFVC, Morrinsville, New Zealand.*

3:45 PM 191 **Epidemiology of bovine respiratory disease in pre-weaned dairy calves in California.**
S. A. Dubrovsky*[1], A. L. Van Eenennaam[1], B. M. Karle[2], T. W. Lehenbauer[3,4], and S. S. Aly[3,4], [1]*Department of Animal Science University of California Davis, Davis, CA*, [2]*University of California Cooperative Extension, Orland, CA*, [3]*Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, Davis, CA*, [4]*Veterinary Medicine Teaching and Research Center, School of Veterinary Medicine, University of California, Davis, Tulare, CA.*

4:00 PM 192 **The effect of lung consolidation, as determined by ultrasonography, on first lactation milk production in Holstein dairy calves.**
T. R. Dunn*[1], T. L. Ollivett[2], D. L. Renaud[1], and D. F. Kelton[1], [1]*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, [2]*Department of Medical Sciences, University of Wisconsin-Madison, School of Veterinary Medicine, Madison, WI.*

4:15 PM 193 **Associations between respiratory disease type and average daily gain in preweaned group-housed dairy calves.**
M. C. Cramer*[1] and T. L. Ollivett[2], [1]*University of Wisconsin- Madison, Department of Dairy Science, Madison, WI*, [2]*University of Wisconsin- Madison, School of Veterinary Medicine, Madison, WI.*

4:30 PM 194 **Time lost to disease in dairy cattle: Associations between two consecutive lactations.**
P. Bacigalupo-Sanguesa*[1], C. McConnel[2], F. Garry[1], J. Lombard[3], and P. Pinedo[4], [1]*Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO*, [2]*Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Washington State University, Pullman, WA*, [3]*USDA-APHIS-VS-Center for Epidemiology and Animal Health, Fort Collins, CO*, [4]*Department of Animal Sciences, College of Agricultural Sciences, Colorado State University, Fort Collins, CO.*

4:45 PM 195 **Metagenomic analysis of fecal microbiomes in cattle infected with *Mycobacterium avium* ssp. *paratuberculosis*.**
N. Indugu*, D. Pitta, B. Bhukya, B. Vecchiarelli, M.-E. Fecteau, and R. Sweeney, *University of Pennsylvania, School of Veterinary Medicine, New Bolton Center, PA.*

Bioethics Symposium:
Sustainable Dairy Farm
Chair: **Leorges Fonseca, Universidade Federal de Minas Gerais, Brazil**
Room 310-311

2:00 PM **Welcoming remarks**

2:00 PM 196 REC **Influence of public perception on future dairy cattle management practices.**
M. Armfelt*, *Elanco Dairy Business.*

2:30 PM 197 REC **Environmental sustainability in dairy production.**
V. Moreira*[1] and B. LeBlanc[2], [1]*LSU Agricultural Center School of Animal Sciences, Baton Rouge, LA*, [2]*LSU Agricultural Center School of Plant, Environment and Soil Sciences, Baton Rouge, LA.*

3:00 PM **Break**

3:15 PM 198 REC **Driver and barriers to farmer adoption of sustainable practices.**
M. Niles*, *University of Vermont, Burlington, VT.*

3:45 PM REC **Availability of water and its impact on management practices and location of dairies.**
R. Hagevoort*, *New Mexico State University.*

4:15 PM 199 **Antibiotic residues and resistance in sustainable dairy farming.**
G. Habing*, *Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH.*

4:45 PM **Discussion and concluding remarks**

Breeding and Genetics I:
Fertility and Efficiency
Chair: **Christine Baes, CGIL, University of Guelph**
Room 317

2:00 PM 200 **Genetic dissection of bull fertility in dairy cattle.**
Y. Han[1], P. Nicolini[1,2], and F. Peñagaricano*[1], [1]*University of Florida, Gainesville, FL*, [2]*Universidad de la República, Tacuarembó, Uruguay.*

2:15 PM 201 **Predicting bull fertility using genomic data and biological information.**
R. Abdollahi-Arpanahi[1,2], G. Morota[3], and F. Peñagaricano*[1], [1]*University of Florida, Gainesville, FL*, [2]*University of Tehran, Tehran, Iran*, [3]*University of Nebraska-Lincoln, Lincoln, NE.*

2:30 PM 202 **Evaluation of conception rates of sex-sorted semen in commercial dairy farms over the last five years.**
C. Heuer*, D. Kendall, C. Sun, J. Deeb, J. Moreno, and R. Vishwanath, *ST Genetics, Navasota, TX.*

2:45 PM 203 **Simulating the underlying variation in fertility: Combining physiology and genetics.**
N. A. Dennis*[1], K. Stachowicz[1], B. Visser[1], F. S. Hely[1], D. K. Berg[3], N. C. Friggens[2], P. R. Amer[1], S. Meier[4], and C. R. Burke[4], [1]*AbacusBio Ltd, Dunedin, New Zealand*, [2]*AgroParisTech, Paris, France*, [3]*AgResearch Ltd, Hamilton, New Zealand*, [4]*DairyNZ Ltd, Hamilton, New Zealand*.

3:00 PM 204 **Estimating epistatic and dominance genetic variances for fertility and reproduction traits in Canadian Holstein cattle.**
K. Alves*[1], M. Sargolzaei[1,2], C. Baes[1], A. Robinson[1], and F. Schenkel[1], [1]*Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada*, [2]*The Semex Alliance, Guelph, ON, Canada*.

3:15 PM 205 **Discovery of a haplotype affecting fertility in Ayrshire dairy cattle and identification of a putative causal variant.**
D. J. Null*[1], J. L. Hutchison[1], D. M. Bickhart[2], P. M. VanRaden[1], and J. B. Cole[1], [1]*Animal Genomics and Improvement Laboratory, ARS, USDA, Beltsville, MD*, [2]*U.S. Dairy Forage Research Center, ARS, USDA, Madison, WI*.

3:30 PM 206 **Predictions for workability and reproductive traits using two-step and single-step genomic BLUP in Canadian Holsteins.**
A. R. Guarini*[1], D. A. L. Lourenço[2], L. F. Brito[1], M. Sargolzaei[1,3], C. Baes[1], F. Miglior[1,4], I. Misztal[2], and F. S. Schenkel[1], [1]*Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada*, [2]*Department of Animal and Dairy Science, University of Georgia, Athens, GA*, [3]*The Semex Alliance, Guelph, ON, Canada*, [4]*Canadian Dairy Network, Guelph, ON, Canada*.

3:45 PM 207 **Value of thermal images as predictors of feed conversion efficiency in New Zealand Friesian dairy cattle.**
M. Camara*, K. McDonald, M. Olayemi, and J. Bryant, *DairyNZ, Hamilton, New Zealand*.

4:00 PM 208 **Determining the economic value for efficiency traits.**
C. Richardson*[1], C. Baes[1], P. Amer[3], C. Quinton[3], F. Hely[3], P. Martin[1], V. Osborne[1], J. Pryce[4,5], and F. Miglior[1,2], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Canadian Dairy Network, Guelph, ON, Canada*, [3]*AbacusBio Limited, Dunedin, Otago, New Zealand*, [4]*Development, Jobs, Transport and Resources, AgriBio, Bundoora, VIC, Australia*, [5]*La Trobe University, AgriBio, Bundoora, VIC, Australia*.

4:15 PM 209 **Preliminary genomic predictions of feed saved for 1.4 million Holsteins.**
P. M. VanRaden*[1], J. R. Wright[1], E. E. Connor[1], M. J. VandeHaar[2], R. J. Tempelman[2], J. S. Liesman[2], L. E. Armentano[3], and K. A. Weigel[3], [1]*Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD*, [2]*Michigan State University, East Lansing, MI*, [3]*University of Wisconsin, Madison, WI*.

4:30 PM 210 **Breeding strategies for improving feed efficiency in Holstein cattle using ZPLAN+.**
K. Houlahan*[1], F. Miglior[1,2], C. Maltecca[3], B. Gredler[4], A. Fleming[1], and C. Baes[1], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Canadian Dairy Network, Guelph, ON, Canada*, [3]*North Carolina State University, Raleigh, NC*, [4]*Qualitas AG, Zug, Switzerland*.

4:45 PM 211 **A comparison of feed intake, production, body condition score, body weight, and frame size of ProCROSS cross-bred versus Holstein cows during the first 150 days of first lactation.**
B. N. Shonka-Martin*[1], B. J. Heins[2], and L. B. Hansen[1], [1]*University of Minnesota, St. Paul, MN*, [2]*West-Central Research and Outreach Center, Morris, MN*.

Dairy Foods I:
Dairy Products
Chair: **Zeynep Ustunol, Michigan State University**
Room 331

2:00 PM 212 **Impact of pasture versus indoor feeding systems on quality characteristics, nutritional composition, sensory and volatile properties of full-fat Cheddar cheese.**
T. O'Callaghan[1,2], D. Mannion[1], D. Hennessy[3], S. McAuliffe[3], M. O'Suillivan[4], N. Leeuwendaal[1], T. Beresford[1], P. Dillon[3], K. Kilcawley[1], J. Sheehan[1], R. P. Ross[2,3], and C. Stanton*[1,2], [1]*Teagasc Food Research Center, Fermoy, Co. Cork, Ireland*, [2]*APC Microbiome Institute, University College Cork, Cork, Ireland*, [3]*Teagasc Animal and Grassland Research Center, Fermoy, Co. Cork, Ireland*, [4]*University College Cork, Cork, Ireland*.

2:15 PM 213 **Feeding reduced-fat dried distillers grains with solubles to lactating Holstein dairy cows does not negatively influence quality of baby Swiss cheese.**
E. D. Testroet*, M. R. O'Neil, D. C. Beitz, and S. Clark, *Iowa State University, Ames, IA*.

2:30 PM 215 **Chemical and sensory characteristics of Chanco cheese from dairy cows supplemented with olive oil and partially hydrogenated vegetable oil.**
E. Vargas-Bello-Pérez*[1], C. Garrido[2], C. Geldsetzer-Mendoza[1], M. S. Morales[2], P. Toro-Mujica[1], R. A. Ibáñez[1], and P. C. Garnsworthy[3], [1]*Departamento de Ciencias Animales, Pontificia Universidad Católica de Chile, Santiago, Chile*, [2]*Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile, Santiago, Chile*, [3]*School of Biosciences, The University of Nottingham, Sutton Bonington Campus, Loughborough, United Kingdom*.

2:45 PM 217 **Determination of native lactoferrin in milk using HiTrap Heparin HP column coupled with HPLC.**
M. X. Chen[1,2], F. Wen[1,3], Y. D. Zhang[1,4], N. Zheng[1,2], and J. Q. Wang*[1,2], [1]*Ministry of Agriculture-Key Laboratory of Quality & Safety Control for Milk and Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Ministry of Agriculture-Laboratory of Quality and Safety Risk Assessment for Dairy Products, Beijing, China*, [3]*Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China*, [4]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Beijing, China*.

3:00 PM 218 **Development and quality enhancement of cottage-type cheese made from Nili Ravi buffalo postpartum milk (colostrum).**
M. Batool[1], S. Inayat*[1], M. Ayaz[1], S. Ahmad[1], and S. Akhtar[2], [1]*University of Veterinary & Animal Sciences, Lahore, Punjab, Pakistan*, [2]*Bahauddin Zakariya University, Multan, Punjab, Pakistan*.

3:15 PM 219 **Flavor profile of UHT conjugated linoleic acid-enriched milk based on headspace solid-phase microextraction coupled to gas chromatography-mass spectrometry.**
M. Leal-Davila[1], J. Curtis[1], M. Saldaña[1], and S. Martinez-Monteagudo*[1,2], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*Dairy and Food Science Department, South Dakota State University, Brookings, SD*.

3:30 PM 216 **Evaluation of electrical bioimpedance spectroscopy in estimate the milk composition, SCC, and milk ethanol stability—Preliminary results.**
C. M. M. R. Martins*[1], E. A. Veiga[2], D. C. M. Fonseca[1], B. G. Alves[1], and M. V. Santos[1], [1]*Department of Animal Nutrition and Production, School of Veterinary Medicine and Animal Science, University of São Paulo, Pirassununga, São Paulo, Brazil*, [2]*Bionexus Tecnology, Chapecó, Brazil*.

Extension Education
Chair: **Elizabeth Eckelkamp, University of Kentucky**
Room 327

2:00 PM 220 **Practical training method for animal-based welfare assessments in dairy cattle.**
S. L. Croyle*, C. G. R. Nash, C. Bauman, S. J. LeBlanc, D. B. Haley, D. K. Khosa, and D. F. Kelton, *University of Guelph, Guelph, ON, Canada*.

2:15 PM 221 **Comparison of online, hands-on, and a combined approach for teaching cautery disbudding technique, including administration of a cornual nerve block, to dairy producers.**
C. Winder*[1], S. LeBlanc[1], D. Haley[1], K. Lissemore[1], M. Godkin[2], and T. Duffield[1], [1]*Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada*, [2]*Ontario Ministry of Agriculture, Food, and Rural Affairs, Elora, ON, Canada*.

2:30 PM 222 **Bovine respiratory disease prevalence estimation in pre-weaned dairy calves using a mobile application.**
B. M. Karle*[1], S. S. Aly[2,3], D. R. Williams[3], J. W. Stackhouse[4], A. L. Van Eenennaam[5], and T. W. Lehenbauer[2,3], [1]*University of California Cooperative Extension, Orland, CA*, [2]*Department of Population Health and Reproduction, School of Veterinary Medicine, University of California, Davis, CA*, [3]*UC Davis Veterinary Medicine Teaching and Research Center, Tulare, CA*, [4]*University of California Cooperative Extension, Eureka, CA*, [5]*Department of Animal Science, University of California, Davis, CA*.

2:45 PM 223 **Bringing udder health to life: Using data visualization to improve student and dairy producer learning.**
S. Roche*[1,2], D. Kelton[2], A. Godkin[3], K. Hand[4], and D. Shock[5], [1]*ACER Consulting, Guelph, ON, Canada*, [2]*University of Guelph, Guelph, ON, Canada*, [3]*Ontario Ministry of Food, Agriculture and Rural Affairs, Guelph, ON, Canada*, [4]*Precision Strategic Solutions, Guelph, ON, Canada*, [5]*Main Street/Upper Grand Veterinary Services, Guelph, ON, Canada*.

3:00 PM 224 **NRCS Pilot Feed Management Project—What did we learn?**
L. E. Chase*[1], A. W. Lucas[2], P. E. Cerosaletti[2], R. Jerauld[3], and K. Hoffman[4], [1]*Cornell University, Ithaca, NY*, [2]*Cornell Cooperative Extension-Delaware County, Walton, NY*, [3]*Lutz Feed Inc., Oneonta, NY*, [4]*USDA-NRCS, Norwich, NY*.

3:15 PM 225 **Dairy employee training: A new extension educational approach.**
M. Rovai*[1], H. Carroll[2], R. Foos[3], T. Erickson[1], and A. Garcia[1], [1]*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, [2]*Animal Science Department, South Dakota State University, Brookings, SD*, [3]*Department of Occupational Safety and Ergonomics, Colorado State University, Fort Collins, CO*.

3:30 PM 226 **The fact and fiction about dairy personnel training and performance.**
G. M. Schuenemann*, J. D. Workman, J. M. Piñeiro, B. T. Menichetti, A. A. Barragan, and S. Bas, *Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*.

3:45 PM 227 **Validation of dryer bag as a new method to estimate moisture content in feedstuffs.**
W. da Silva Machado* and M. I. Marcondes, *Federal University of Viçosa, Viçosa, Minas Gerais, Brazil*.

4:00 PM 228 **Maximizing income over feed cost by grouping cows with mixed-integer programing.**
Y. Wu*, V. Cabrera, and R. Shaver, *University of Wisconsin-Madison, Madison, WI*.

Forages and Pastures Symposium: Multidimensional Functions of Forages and Pastures for Dairy Production

Chair: **André Fonseca de Brito, University of New Hampshire**

Sponsor: **BIOMIN America**

Room 329

2:00 PM 229 **The role of nutrition in dairy cow health and welfare in grazing systems.**
REC
J. Roche*[1], G. Zobel*[2], J. Huzzey[3], and J. Loor[4], [1]*DairyNZ, Hamilton, New Zealand*, [2]*AgResearch, Hamilton, New Zealand*, [3]*Cal Poly, San Luis Obispo, CA*, [4]*University of Illinois, Urbana, IL*.

2:45 PM 230 **The impact of forages and their quality on the efficiency of dairy production.**
REC
R. D. Shaver*, *Department of Dairy Science, University of Wisconsin, Madison, WI*.

3:30 PM 231 **The filling effect of forages and its effect on feed intake of lactating cows.**
M. Allen*, *Michigan State University, East Lansing, MI*.

4:15 PM 232 **The influence of forage feeding on the ruminal microbiome of dairy cattle and its implications for dairy production.**
REC
P. J. Weimer*[1,2], [1]*USDA-ARS, Madison, WI*, [2]*University of Wisconsin-Madison, Madison, WI*.

Physiology and Endocrinology II
Chair: **Johan Osorio, South Dakota State University**
Room 326

2:00 PM 233 **Hepatic mTORC2 synchronizes glucose and fatty acid metabolism to sustain cellular energy status.**
S. I. Arriola Apelo*[1,5], X. Guo[2,6], A. Lin[1,5], E. J. Meyer[1,5], N. E. Cummings[3,5], C. P. Pumper[1,5], D. J. Pagliarini[4,6], and D. W. Lamming[1,5], [1]*Department of Medicine, University of Wisconsin-Madison, Madison, WI*, [2]*Department of Chemistry, University of Wisconsin-Madison, Madison, WI*, [3]*Endocrinology and Reproductive Physiology Graduate Training Program, University of Wisconsin-Madison, Madison, WI*, [4]*Department of Biochemistry, University of Wisconsin-Madison, Madison, WI*, [5]*William S. Middleton Memorial Veterans Hospital, Madison, WI*, [6]*Morgridge Institute for Research, Madison, WI*.

2:15 PM 234 **Association between bone and energy metabolism in calcidiol treated dairy cows.**
R. M. Rodney[1,2], N. P. Martinez[3], P. Celi[4,5], J. E. P. Santos[3], D. R. Fraser[2], and I. J. Lean*[1,2], [1]*Scibus, Camden, NSW, Australia*, [2]*School of Life and Environmental Sciences, Faculty of Veterinary Science, University of Sydney, Camden, NSW, Australia*, [3]*Separtment of Animal Sciences, University of Florida, Gainesville, FL*, [4]*DSM Nutritional Products, Animal Nutrition and Health, Columbia, MD*, [5]*Faculty of Veterianry and Agricultural Sciences, The University of Melbourne, Parkville, VIC, Australia*.

2:30 PM 235 **Blue light from light-emitting diodes (LEDs) directed at a single eye elicits a dose-dependent suppression of melatonin in dairy cows.**
B. A. Murphy[1], M. M. Herlihy[2], M. B. Nolan[1], and S. T. Butler*[2], [1]*University College Dublin, Belfield, Dublin, Ireland*, [2]*Teagasc, Moorepark AGRIC, Cork, Ireland*.

2:45 PM 236 **The effects of blood composition and age on PBMC mitochondrial enzyme activity in prewean dairy calves.**
A. M. Niesen* and H. A. Rossow, *University of California Davis, Davis, CA*.

3:00 PM 237 **Effect of delayed colostrum feeding on plasma concentrations of glucagon-like peptide 1 and 2 in calves.**
Y. Inabu*[1], A. Fischer[2], T. Sugino[1], M. Oba[2], L. L. Guan[2], and M. Steele[2], [1]*The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan*, [2]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, Canada*.

3:15 PM 238 **Systemic administration of bovine recombinant interleukin-8 induces long term insulin resistance in Holstein bull calves.**
M. Zinicola* and R. Bicalho, *Cornell University, Ithaca, NY*.

3:30 PM 239 **Luteolysis and concentrations of estradiol during preovulatory period in 7-day or 5-day Co-Synch with one or two doses of prostaglandin in dairy heifers.**
C. Navanukraw*, V. Khanthusaeng, N. Kogram, and S. Uriyapongson, *Agricultural Biotechnology Research Center for Sustainable Economy (ABRCSE), Department of Animal Science, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand*.

3:45 PM 240 **Differences of blood biochemical parameters among jugular, subcutaneous abdomen and coccygeal veins and between coccygeal artery and veins in dairy cows compare.**
Z. H. Wei*, B. X. Zhang, X. H. Wu, and J. X. Liu, *Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*.

4:00 PM 241 **Effect of Dalmavital on pregnancy rate in CIDR-synchronized Nili-Ravi buffaloes.**
A. Sattar*[1], B. Munawwar[1], N. Ahmad[1], A. Rehman[1], S. Murtaza[1], M. R. Yousuf[1], U. Arshad[1], M. Ijaz[2], and A. Riaz[1], [1]*Department of Theriogenology, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*, [2]*Department of Clinical Medicine and Surgery, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*.

4:15 PM 242 **Proton-coupled oligopeptide transporter expression in bovine mammary gland epithelium and their peptide transport potential.**
C. Wang*, J. Liu, and H. Liu, *Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China*.

4:30 PM 537 **Fetuin-A as a marker of adipose tissue function in transition dairy cows.**
C. Strieder-Barboza*, J. de Souza, A. L. Lock, and G. A. Contreras, *Michigan State University, East Lansing, MI*.

Production, Management, and the Environment II
Chair: **Noelia Silva, University of California, Davis**
Room 324

2:00 PM 243 **Evaluation of colostrum and plasma insulin concentration around parturition and its effect on milk yield in dairy cows.**
M. Zinicola* and R. Bicalho, *Cornell University, Ithaca, NY.*

2:15 PM 244 **The effect of nipple bottle vs. esophageal tube feeding of colostrum on absorption of IgG and plasma glucagon-like peptide-2 concentrations.**
M. Desjardins-Morrissette*[1], J. K. van Niekerk[1], D. Haines[2], T. Sugino[3], M. Oba[1], and M. A. Steele[1], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*The Saskatoon Colostrum Co. Ltd, Saskatoon, SK, Canada*, [3]*The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Hiroshima, Japan*.

2:30 PM 245 **Use of phytogenic feed additives in pre-weaned dairy calves.**
B. Miller* and P. Gott, *Biomin USA, San Antonio, TX.*

2:45 PM 246 **Heifer calf health and management on Canadian dairy farms.**
C. Winder*, T. Duffield, C. Bauman, and D. Kelton, *Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada*.

3:00 PM **Break**

3:15 PM 247 **Cow-level responses to two commercial dry cow mastitis preparations.**
E. Cox*[1], T. Bilby[1], S. Kieser[2], B. Petersen[3], J. Laporta[4], and R. Chebel[4,5], [1]*Merck Animal Health, De Soto, KS*, [2]*Dairy Vet Services, Sunnyside, WA*, [3]*Sunrise Veterinary Services, Dalhart, TX*, [4]*Department of Animal Sciences, University of Florida, Gainesville, FL*, [5]*Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL.*

3:30 PM 248 **Evaluating the effect of two hoof-trimming techniques on lesion incidence.**
G. Stoddard*[1], N. Cook[2], S. Wagner[3], and G. Cramer[1], [1]*University of Minnesota Twin-Cities, St. Paul, MN*, [2]*University of Wisconsin Madison, Madison, WI*, [3]*North Dakota State University, Fargo, ND*.

3:45 PM 249 **Effects of intramuscular injection of vitamin B_{12} and dietary biotin addition on feed intake and milk performance of dairy cows.**
B. X. Zhang, D. M. Wang*, and J. X. Liu, *Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*.

4:00 PM 250 **Nutritional recovery strategies from severe nutrient restriction alter milk and blood parameters of dairy cows.**
V. Fischer*[1], D. Werncke[1], F. A. Schmidt[2], and A. Thaler Neto[2], [1]*Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil*, [2]*Universidade do Estado de Santa Catarina, Lages, SC, Brazil*.

Ruminant Nutrition Symposium:
Ruminal Metagenomics in Dairy Cattle—Beyond Microbial Diversity
Chair: **Timothy Hackmann, University of Florida**
Sponsor: **Innovation Center for U.S. Dairy**
Room 319-320

2:00 PM 251 **Colonizing microbiome influences early intestinal development in newborn dairy calves.**
N. Malmuthuge[1,2], G. Liang[1,3], and L. L. Guan*[1], [1]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*Vaccine and Infectious Disease Organization- International Vaccine Centre, University of Saskatchewan, Saskatoon, SK, Canada*, [3]*Department of Microbiology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA*.

2:30 PM 252 **Host-rumen microbe interactions may be leveraged to improve productivity of dairy cows.**
REC
D. M. Bickhart* and P. J. Weimer, *USDA-ARS DFRC, Madison, WI.*

3:00 PM 253 **Can the rumen microbiome be manipulated to enhance feed efficiency in dairy cows?**
I. Mizrahi*, *The Department of Life Sciences & the National Institute for Biotechnology in the Negev, Ben-Gurion University of the Negev, Beer-Sheva, Israel.*

3:30 PM **Break**

3:50 PM 254 **Understanding dietary-microbe interactions to enhance the productivity of dairy cows.**
REC
D. Pitta*, *University of Pennsylvania, School of Veterinary Medicine, New Bolton Center, Kennett Square, PA.*

4:20 PM 255 **Leveraging next-generation sequencing technology to identify the functional role of rumen microbiome in dairy cows.**
REC
T. Snelling*[5], I. Tapio[1], F. Strozzi[7], D. Fischer[1], A. Bayat[1], P. Garnsworthy[3], P. Huhtanen[2], P. Bani[4], K. Shingfield[6], and J. Wallace[5], [1]*Natural Resources Institute Finland (Luke), Helsinki, Finland*, [2]*Swedish University of Agricultural Sciences, Umeå, Sweden*, [3]*University of Nottingham, Loughborough, UK*, [4]*Università Cattolica del Sacro Cuore, Piacenza, Italy*, [5]*University of Aberdeen, Aberdeen, UK*, [6]*Aberystwyth University, Aberystwyth, UK*, [7]*Enterome Bioscience, Paris, France.*

Ruminant Nutrition II
Chair: **Joseph McFadden, West Virginia University**
Room 321

2:00 PM 256 **Low and high methane emitting cows hold their ranking over different feeding strategies.**
A. R. Bayat*[1], T. Luukkonen[1], P. Kairenius[1], H. Leskinen[1], T. Hurme[2], S. Ahvenjärvi[1], and J. Vilkki[1], [1]*Green Technology, Natural Resources Institute Finland (Luke), Jokioinen, Finland*, [2]*Natural Resources and Bioproduction, Natural Resources Institute Finland (Luke), Jokioinen, Finland.*

2:15 PM 257 **Effects of feeding brown midrib dwarf pearl millet silage on lactational performance and enteric methane emission in dairy cows.**
M. T. Harper*, A. Melgar, G. Roth, and A. N. Hristov, *The Pennsylvania State University, University Park, PA.*

2:30 PM 258 **Assessing the potential of 3-nitrooxypropanol and canola oil alone and in combination to lower methane emissions from cattle and reduce their contribution to climate change.**
M. L. Smith*[1], S. M. Duval[2], M. Kindermann[3], K. A. Beauchemin[4], and L. Kung Jr.[1], [1]*University of Delaware, Newark, DE*, [2]*DSM Nutritional Products France, Saint Louis Cedex, France*, [3]*DSM Nutritional Products, Basel, Switzerland*, [4]*Agriculture and Agri-Food Canada, Lethbridge, AB, Canada.*

2:45 PM 259 **Effect of pH and 22:6*n*-3 on in vitro biohydrogenation of 18:2*n*-6 by different ratios of *Butyrivibrio fibrisolvens* to *Propionibacterium acnes*.**
L. Dewanckele*, B. Vlaeminck, J. Jeyanathan, and V. Fievez, *Laboratory for Animal Nutrition and Animal Product Quality, Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium.*

3:00 PM 261 **Altering the ratio of dietary C16:0 and *cis*-9 C18:1 interacts with production level in dairy cows: Effects on production responses and energy partitioning.**
J. de Souza* and A. L. Lock, *Michigan State University, East Lansing, MI.*

3:15 PM 260 **Are EPA, DPA, and DHA equally effective to modulate ruminal biohydrogenation in cows? A comparative in vitro study.**
P. G. Toral*[1], G. Hervás[1], D. Carreño[1], H. Leskinen[2], A. Belenguer[1], K. J. Shingfield[3], and P. Frutos[1], [1]*Instituto de Ganadería de Montaña (CSIC-Universidad de León), Grulleros, León, Spain*, [2]*Natural Resources Institute Finland (LUKE), Green Technology, Nutritional Physiology, Jokioinen, Finland*, [3]*Institute of Biological, Environmental and Rural Sciences, Animal and Microbial Sciences, Aberystwyth University, Aberystwyth, United Kingdom.*

3:30 PM 262 **Effects of timing of C16:0 supplementation on production and metabolic responses of early lactation dairy cows.**
J. de Souza* and A. L. Lock, *Michigan State University, East Lansing, MI.*

3:45 PM 264 **Milk fat depression in dairy ewes fed marine lipids: What are the reasons behind individual variation?**
P. G. Toral*[1], L. Rodríguez-López[1], G. Hervás[1], A. K. K. Salama[2], G. Caja[2], and P. Frutos[1], [1]*Instituto de Ganadería de Montaña (CSIC-Universidad de León), Finca Marzanas s/n, Grulleros, León, Spain*, [2]*Grup de Recerca en Remugants (G2R), Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain.*

4:00 PM 263 **Abomasal infusion with an exogenous emulsifier improves fatty acid digestibility and milk fat yield of lactating dairy cows.**
J. de Souza*, M. M. Western, and A. L. Lock, *Michigan State University, East Lansing, MI.*

4:15 PM 265 **Effects of supplementation of oleic acid and stearic acid in low fat and high fat diets on milk performance of early lactation cows.**
Y. T. Chen*[1], G. L. MA[1], J. H. Harrison[2], and E. Block[3], [1]*1Washington State University, Pullman, WA*, [2]*Washington State University, Puyallup, WA*, [3]*Church and Dqight Animal Nutrition, Princeton, NJ.*

4:30 PM 266 **Body temperature of corn- and wheat-fed dairy cows.**
J. B. Garner*, S. R. O. Williams, P. J. Moate, J. L. Jacobs, and W. J. Wales, *Dairy Production Sciences, Agriculture Research Division, Department of Economic Development Jobs Transport and Resources, Ellinbank, Victoria, Australia.*

4:45 PM 267 **Heat stress decreases transcription of protein metabolism-related genes in mammary tissue of middle lactating cows.**
D. P. Bu*[1,5], L. Ma[1,4], S. T. Gao[1], L. H. Baumgard[2], and M. Bionaz[3], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Department of Animal Science, Iowa State University, Ames, IA*, [3]*Animal and Rangeland Sciences, Oregon State University, Corvallis, OR*, [4]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [5]*Hunan Co-Innovation, Changsha, Hunan, China.*

Teaching/Undergraduate and Graduate Education I
Chair: **Michel Wattiaux, University of Madison-Wisconsin**
Room 328

2:00 PM 268 **Impact of production animal scholars program on developing production veterinarians.**
E. L. Karcher*[1] and D. Grooms[2], [1]*Purdue University, West Lafayette, IN*, [2]*Michigan State University, East Lansing, MI.*

2:15 PM 269 **The use of virtual farm tours in a dairy cattle management course.**
E. L. Karcher* and P. Reid, *Purdue University, West Lafayette, IN.*

2:30 PM 270 **Male seniors were the lowest performing students in an introductory to dairy cattle science course.**
C. G. Burgett*, J. A. Sterle, and J. M. Bundy, *Iowa State University, Ames, IA.*

2:45 PM 271 **An assessment of the impact of the U.S. Dairy Education and Training Consortium (USDETC) on dairy education.**
M. A. Tomaszewski[1] and G. R. Hagevoort*[2], [1]*Texas A&M University, College Station, TX*, [2]*New Mexico State University, Clovis, NM.*

Tuesday, June 27

POSTER PRESENTATIONS

Animal Behavior and Well-Being II

T1 **Assessment of two pain management strategies following scoop dehorning in dairy calves.**
A. A. Barragan*, S. Bas, and L. da Costa, *Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH.*

T2 **Pair housing of dairy calves in modified individual calf hutches.**
L. Whalin* and M. A. G. von Keyserlingk, *Animal Welfare Program, Faculty of Land and Food Systems, University of British Columbia, Vancouver, BC, Canada.*

T3 **Veal calf health on the day of arrival to growers in Ohio.**
J. Pempek*, D. Trearchis, M. Masterson, G. Habing, and K. Proudfoot, *The Ohio State University, Columbus, OH.*

T4 **Characterizing activity at social grouping in weaned dairy calves.**
K. C. Horvath* and E. K. Miller-Cushon, *University of Florida, Gainesville, FL.*

T5 **Behavioral changes in group-housed dairy calves infected with *Mannheimia haemolytica*.**
C. L. Hixson*[1], P. D. Krawczel[2], J. M. Caldwell[2], and E. K. Miller-Cushon[1], [1]*University of Florida, Gainesville, FL*, [2]*University of Tennessee, Knoxville, TN.*

T6 **Exploring the effect of automated milk feeding stall design on dairy calf behavior.**
T. Wilson*, S. J. LeBlanc, T. J. DeVries, and D. B. Haley, *University of Guelph, Guelph, ON, Canada.*

T7 **Feeding behavior of cows fed with oregano and green tea extracts during the transition period.**
V. Fischer*[1], S. C. B. Stivanin[1], E. F. Vizzotto[1], M. de Paris[1], and M. B. Zanela[1], [1]*Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brazil*, [2]*Empresa Brasileira de Pesquisa Agropecuaria, Pelotas, RS, Brazil.*

T8 **The effect of overstocking different resources within a freestall pen on the behavior and physiology of lactating Holstein cows.**
C. B. Kesterson*, R. A. Black, N. L. Eberhart, E. M. Edwards, and P. D. Krawczel, *Department of Animal Science, The University of Tennessee, Knoxville, TN.*

T9 **Effects of calcium salts of medium-chain fatty acid supplements on feeding behavior and milking activity in lactating dairy cows in an automatic milking system.**
Y. Takao*, T. Sugino, and T. Obitsu, *The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan.*

T10 **Feeding behavior of lactating dairy cows with genomic predisposition for residual feed intake fed at two levels of dietary neutral detergent fiber.**
F. Sun*[1], M. Aguerre[2], J. Powell[3,5], K. Weigel[1], A. Pelletier[3,5], P. Crump[4], and M. Wattiaux[1], [1]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [2]*Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC*, [3]*US Dairy Forage Research Center, Madison, WI*, [4]*Department of Computing and Biometry, University of Wisconsin-Madison, Madison, WI*, [5]*Department of Soil Science, University of Wisconsin-Madison, Madison, WI.*

Animal Health II

T11 **Metabolic and digestive disorders affect behavioral and productive parameters of lactating Holstein cows milked with an automatic milking system.**
M. L. Stangaferro* and J. O. Giordano, *Cornell University, Ithaca, NY.*

T12 **Evaluation of milk microbiome provides evidence for selective dry cow therapy and rational use of antimicrobial in dairy cows.**
E. C. R. Bonsaglia[1,2], M. S. Gomes[1], I. F. Canisso[1], Z. Zhou[1], S. F. Lima[3], V. L. M. Rall[2], E. F. Garrett[1], G. Oikonomou[4], R. C. Bicalho[3], and F. S. Lima*[1], [1]*University of Illinois, Urbana-Champaign, IL*, [2]*Sao Paulo State University, Botucatu, SP, Brazil*, [3]*Cornell University, Ithaca, NY*, [4]*University of Liverpool, Leahurst, Neston, UK*.

T13 **The effect of 2,4-thiazolidinedione on lipid-soluble vitamins in lactating goats induced with subclinical mastitis.**
C. Y. Tsai*[1], F. Rosa[2], M. Bionaz[2], and P. Rezamand[1], [1]*Department of Animal and Veterinary Science, University of Idaho, Moscow, ID*, [2]*Departmentof Animal and Rangeland Sciences, Oregon State University, Corvallis, OR*.

T14 **Bacterial ecosystem of the bovine mammary gland: Potential role of foundation taxa in shaping mammary gland microbiota and modulating udder homeostasis.**
H. Derakhshani*[1], J. C. Plaizier[1], and E. Khafipour[1,2], [1]*Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada*, [2]*Department of Medical Microbiology, University of Manitoba, Winnipeg, MB, Canada*.

T15 **Quarter somatic cell count of culture negative and gram-negative cases of non-severe clinical mastitis enrolled in negatively controlled randomized clinical trials.**
M. J. Fuenzalida* and P. L. Ruegg, *University of Wisconsin, Madison, WI*.

T16 **Macrophage activation during subclinical mastitis in dairy goats treated with 2,4-thiazolidinedione.**
F. Rosa*[1,2], M. Moridi[1], J. S. Osorio[2], J. Lohakare[3], C. Estill[1], and M. Bionaz[1], [1]*Oregon State University, Corvallis, OR*, [2]*South Dakota State University, Brookings, SD*, [3]*University of Arkansas, Fayetteville, AR*.

T17 **Evaluation of the effects of metabolic diseases during the transition period on the culling risk of high-yielding dairy cows by survival analysis.**
M. Probo[1], O. Bogado Pascottini*[2], S. LeBlanc[2], G. Opsomer[3], and M. Hostens[3], [1]*Central Laboratory, Veterinary Teaching Hospital, University of Milan, Lodi, Italy*, [2]*Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada*, [3]*Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium*.

T18 **Risk factors for subclinical mastitis in grazing dairy cows.**
R. R. Daros*[1], M. J. Hötzel[2], S. J. LeBlanc[3], J. A. Bran[2], A. J. Thompson[1], and M. A. G. von Keyserlingk[1], [1]*Animal Welfare Program, Faculty of Land and Food systems, University of British Columbia, Vancouver, BC, Canada*, [2]*Laboratório de Etologia Aplicada e Bem-Estar Animal, Departamento de Zootecnia e Desenvolvimento Rural, Universidade Federal de Santa Catarina, Florianópolis, SC, Brazil*, [3]*Population Medicine, Ontario Veterinary College, University of Guelph, Canada, Guelph, ON, Canada*.

T19 **Evaluation of chlorine concentration and stability, oxidation-reduction potential (ORP), and pH in 2 chlorine based disinfectants at teat dip concentrations.**
L. Timms*, *Iowa State University, Ames, IA*.

T20 **Associations of dry-off management and somatic cell count in robotic milking systems.**
F. H. Padua, M. T. M. King*, and T. J. DeVries, *Dept. of Animal Biosciences, University of Guelph, Guelph, ON, Canada*.

T21 **Effect of minerals and vitamins supplementation during the non-lactating period on incidence of metritis in lactating dairy cows.**
G. A. Mattioli[1], C. G. Sarramone[2], E. Turic[2], M. Sain-Martin[2], and A. E. Relling*[3], [1]*Fc. Cs. Veterinarias, UNLP, La Plata, Buenos Aires, Argentina*, [2]*Biogenesis Bago, Garin, Buenos Aires, Argentina*, [3]*Department of Animal Sciences, The Ohio State University, Wooster, OH*.

T22 **Effect of somatic cell count around service on the fertility of grazing dairy cows.**
N. Lorenti[1], R. Rearte[2,5], M. Giuliodori[3], and R. de la Sota*[4,5], [1]*Práctica Privada, Brandsen, Buenos Aires, Argentina*, [2]*Cátedra de Higiene, Epidemiología y Salud Pública, Facultad de Ciencias Veterinarias- Universidad Nacional de La Plata (FCV-UNLP), La Plata, Argentina*, [3]*Cátedra de Fisiología, FCV-UNLP, La Plata, Argentina*, [4]*Cátedra y Servicio de Reproducción Animal, FCV-UNLP, La Plata, Argentina*, [5]*Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina*.

T23 **Assessing the validity of inline milk fat-to-protein ratio data as an indicator of subclinical ketosis in dairy cows in robotic milking herds.**
I. R. Salmazo, M. T. M. King*, and T. J. DeVries, *Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*.

T24 **Can the use of cefquinome be justified to treat *Streptococcus agalactiae* subclinical mastitis?**
R. Rossi, L. Correia, S. Guerra, A. Amarante, V. Rall, and J. Pantoja*, *Universidade Estadual Paulista (UNESP), Botucatu, SP, Brazil*.

T25 **Detection of *icaA*, *icaD*, and *bap* genes in strains of coagulase-negative staphylococcus antimicrobial resistant isolated from bovine mastitis.**
J. R. P. Arcaro*, A. S. Bosso, J. E. P. Braga, and L. Castelani, *Instituto de Zootecnia, Nova Odessa, São Paulo, Brazil.*

T26 **Validation of BHBCheck blood β-hydroxybutyrate meter as a diagnostic tool for hyperketonemia.**
K. J. Sailer*, R. S. Pralle, R. C. Oliveira, G. R. Oetzel, and H. M. White, *University of Wisconsin-Madison, Madison, WI.*

T27 **Liver functionality index in peripartal dairy cows fed ethyl-cellulose rumen-protected methionine is associated with better performance and immunometabolic status.**
F. Batistel*[1], B. Saremi[2], C. Parys[2], E. Trevisi[3], and J. J. Loor[1], [1]*University of Illinois at Urbana-Champaign, Urbana, IL*, [2]*Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*, [3]*Università Cattolica del Sacro Cuore, Piacenza, Italy*.

T28 **Prevalence of *Prototheca* spp. in bulk tank milk from Ohio dairy farms.**
L. da Costa*[1], A. Della Libera[2], and H. Sullivan[3], [1]*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*Department of Clinical Medical University of São Paulo, São Paulo, São Paulo, Brazil*, [3]*Eastern Laboratory Service, Medina, OH.*

T29 **Development and evaluation of hyperketonemia prediction models.**
R. S. Pralle*, K. A. Weigel, and H. M. White, *University of Wisconsin-Madison, Madison, WI.*

T30 **Quantifying milk leukocyte proportions in mastitic and healthy quarters.**
S. Paudyal*[1], G. Pena[2], P. Melendez[3], A. Villarroel[4], N. Roman-Muniz[1], and P. Pinedo[1], [1]*Colorado State University, Fort Collins, CO*, [2]*Advanced Animal Diagnostics, Morrisville, NC*, [3]*University of Missouri, Columbia, MO*, [4]*Afimilk USA, Fitchburg, WI.*

T31 **Advancement of Dairying in Austria (ADDA): Antimicrobial dry cow therapy on conventional dairy farms—Farmers' management decisions.**
C. L. Firth*[1], C. Schleicher[2], A. Käsbohrer[1], and W. Obritzhauser[1], [1]*University of Veterinary Medicine, Institute of Veterinary Public Health, Vienna, Austria*, [2]*Austrian Agency for Health and Food Safety (AGES), Integrated Risk Assessment, Data and Statistics, Graz, Styria, Austria*.

T32 **Prevalence of subclinical ketosis in Chilean grazing dairy cattle calving during fall and spring.**
P. Melendez*[1], C. Chacon[2], S. Poock[1], and P. Pinedo[3], [1]*College of Veterinary Medicine, University of Missouri, Columbia, MO*, [2]*Agricola Pozo Brujo, Santiago, Chile*, [3]*Department of Animal Sciences, Colorado State University, Fort Collins, CO.*

T33 **Nonesterified fatty acids induce proinflammatory macrophage phenotype.**
G. A. Contreras* and W. Raphael, *Department of Large Animal Clinical Sciences, East Lansing, MI.*

T34 **Efficacy and clinical safety of pegbovigrastim against naturally occurring clinical mastitis in periparturient cows on US commercial dairies.**
P. C. Canning*[1], R. L. Hassfurther[1], T. TerHune[2], K. Rogers[3], S. Abbott[4], and D. Kolb[5], [1]*Elanco Animal Health, Greenfield, IN*, [2]*HMS Veterinary Development Inc., Tulare, CA*, [3]*Veterinary Research & Consulting Services, Greeley, CO*, [4]*Dairy Vet Management, Sunnyside, WA*, [5]*Lodi Veterinary Hospital, Lodi, WI.*

T35 **Reduction of the endotoxin concentration by a clay mineral-based product in a semi-continuous in vitro rumen model.**
N. Reisinger*[1], C. Stoiber[1], C. Emsenhuber[1], I. Dohnal[1], S. Schaumberger[2], and G. Schatzmayr[1], [1]*Biomin Research Center, Tulln, Austria*, [2]*Biomin Holding GmbH, Getzersdorf, Austria*.

T36 **Dietary clay supplementation improves hepatic expression of inflammatory markers in Holstein cows challenged with aflatoxin.**
K. Ryan*[1], S. Sulzberger[1], M. Vailati-Riboni[1], L. Guifen[2], Y. Khidoyatov[3], J. Loor[1], and F. Cardoso[1], [1]*University of Illinois, Department of Animal Sciences, Urbana, IL*, [2]*Institute of Animal Science and Veterinary Medicine, Shangdong Academy of Agricultural Sciences, Jinan, China*, [3]*United Minerals Group, Kiev, Ukraine*.

T37 **Investigation of toxin genes in strains of *Staphylococcus* spp. antimicrobial resistant isolated from bovine mastitis.**
J. R. P. Arcaro*, J. C. R. da Cruz, J. E. P. Braga, and L. Castelani, *Instituto de Zootecnia, Nova Odessa, São Paulo, Brazil.*

T38 **Advancement of Dairying in Austria (ADDA): Preliminary results of an observational study into antimicrobial use on dairy farms in Austria, Europe.**
C. L. Firth*[1], A. Käsbohrer[1], C. Egger-Danner[2], K. Fuchs[3], and W. Obritzhauser[1], [1]*University of Veterinary Medicine, Institute of Veterinary Public Health, Vienna, Austria*, [2]*ZuchtData EDV-Dienstleistungen GmbH, Vienna, Austria*, [3]*Austrian Agency for Health and Food Safety (AGES), Integrated Risk Assessment, Data and Statistics, Graz, Styria, Austria*.

T39 **Explaining farmers' adaptation of preventive measures against mastitis—An application of Theory of Planned Behavior.**
N. Lind*[1], H. Hansson[1], U. Emanuelson[2], and C.-J. Lagerkvist[1], [1]*Department of Economics, Swedish University of Agricultural Sciences, Uppsala, Sweden*, [2]*Department of Clinical Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden*.

T40 **Integration of phenotypic and transcriptomic data shows differences of metabolic response upon energy shortage in relation with genetic resistance to mastitis.**
J. Bouvier-Muller*[1,2], G. Foucras[2], and R. Rupp[1], [1]*INRA GenPhySE, Castanet-Tolosan, France*, [2]*Université de Toulouse IHAP INRA ENVT, Toulouse, France*.

T41 **Impact of culling for SCC, milk revenue, and estimated breeding values on herd performance.**
K. Kaniyamattam*[1], A. De Vries[3], L. W. Tauer[2], and Y. T. Grohn[1], [1]*Section of Epidemiology, College of Veterinary Medicine, Cornell University, Ithaca, NY*, [2]*Charles H. Dyson School of Applied Economics and Management, Cornell University, Ithaca, NY*, [3]*Department of Animal Sciences, University of Florida, Gainesville, FL*.

T42 **Cow-level risk factors for clinical and subclinical mastitis in New York dairy cattle.**
A. M. Miles*, J. A. A. McArt, P. D. Virkler, and H. J. Huson, *Cornell University, Ithaca, NY*.

T43 **Effects of feeding an extruded flaxseed supplement on fatty acids in milk and plasma and immune function in transition dairy cows.**
M. Fetter*[1,2], J. Pate[1,2], K. Harvatine[1], J. Moats[3], and T. Ott[1,2], [1]*Department of Animal Science, Pennsylvania State University*, [2]*Center for Reproductive Biology and Health, Pennsylvania State University*, [3]*O&T Farms, Regina, SK, Canada*.

Breeding and Genetics II

T44 **Polymorphism in the β-casein gene in Zebu dairy cattle.**
A. H. N. Rangel*[1], L. G. Zaros[1], M. S. Silva[2], D. M. Lima Júnior[3], J. G. B. Galvao Jr.[4], and S. A. Urbano[1], [1]*Universidade Federal do Rio Grande do Norte, Macaiba, RN, Brazil*, [2]*Programa de Doutorado Integrado em Zootecnia, Universidade Federal do Ceará, Fortaleza, CE, Brazil*, [3]*Universidade Federal de Alagoas, Arapiraca, AL, Brazil*, [4]*Instituto Federal de Educaçao, Ciencia e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil*.

T45 **Bull fertility evaluations for Angus service sires bred to Holstein cows.**
J. L. Hutchison*[1], P. M. VanRaden[1], J. B. Cole[1], G. C. Fok[1], and H. D. Norman[2], [1]*Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD*, [2]*Council on Dairy Cattle Breeding, Bowie, MD*.

T46 **Genetic and genomic analysis for oocyte number and embryo production traits in Holstein cattle using in vitro fertilization data.**
C. Sun*, D. Kendall, C. Heuer, J. Deeb, R. Vishwanath, M. Fosado, and J. Moreno, *ST Genetics, Navasota, TX*.

T47 **Accounting for potential bias due to the pre-selection of cows for hoof trimming using a multiple trait evaluation.**
F. Malchiodi*[1], F. S. Schenkel[1], A-M. Christen[2], D. F. Kelton[3], and F. Miglior[1,4], [1]*Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada*, [2]*Valacta, Sainte-Anne-De-Bellevue, QC, Canada*, [3]*Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada*, [4]*Canadian Dairy Network, Guelph, ON, Canada*.

T48 **Genomic prediction of lactation curves for milk, fat, protein, and somatic cell score in Canadian Jersey cattle.**
H. R. Oliveira*[1,2], L. F. Brito[1], J. Jamrozik[3,1], F. F. Silva[2], and F. S. Schenkel[1], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil*, [3]*Canadian Dairy Network, Guelph, ON, Canada*.

T49 **Identifying, analyzing, and comparing runs of homozygosity in Canadian dairy populations using next-generation sequencing data.**
C. Vogelzang*[1], F. Miglior[1,2], N. Melzer[3], M. Sargolzaei[1,4], C. Maltecca[5], B. Makanjuola[1], A. Fleming[1], F. Schenkel[1], and C. Baes[1], [1]*CGIL, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Canadian Dairy Network, Guelph, ON, Canada*, [3]*Leibniz Institute for Farm Animal Biology, Institute of Genetics and Biometry, Dummerstorf, Germany*, [4]*Semex Alliance, Guelph, ON, Canada*, [5]*Department of Animal Sciences, North Carolina State University, Raleigh, NC*.

T50 **Understanding functional severity of deleterious runs of homozygosity in Holstein cattle.**
B. Makanjuola*[1], F. Miglior[1,2], N. Melzer[3], A. Fleming[1], F. Schenkel[1], M. Sargolzaei[1,4], and C. Baes[1], [1]*Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Canadian Dairy Network, Guelph, ON, Canada*, [3]*Institute of Genetics and Biometry, Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany*, [4]*Semex Alliance, Guelph, ON, Canada*.

T51 **Statistical power of the Bayesian analysis for simulated transmission ratio distortion in cattle.**
S. Id-Lahoucine[1], A. Cánovas[2], C. Jaton*[2,3], F. Miglior[4,2], F. S. Schenkel[2], J. P. Chesnais[3], S. Miller[5], M. Sargolzaei[2,3], J. F. Medrano[6], and J. Casellas[1], [1]*Departament de Ciència Animal i dels Aliments, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain*, [2]*Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [3]*Semex Alliance, Guelph, ON, Canada*, [4]*Canadian Dairy Network, Guelph, ON, Canada*, [5]*Angus Genetics Inc., St. Joseph, MO*, [6]*Department of Animal Sciences, University of California-Davis, Davis, CA*.

T52 **Genetic mechanisms of mucus plug formation associated with immune response to infection in the cow mammary gland.**
V. Asselstine*[1], F. Miglior[1,2], A. Islas-Trejo[3], S. Lam[1], H. Sweett[1], L. Brito[1], J. F. Medrano[3], and A. Cánovas[1], [1]*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Canadian Dairy Network, Guelph, ON, Canada*, [3]*Department of Animal Science, University of California-Davis, Davis, CA*.

T53 **Genetic susceptibility of Canadian dairy heifers to mastitis.**
S. G. Narayana*[1,2], F. Miglior[2,3], A. Naqvi[1], P. Martin[2], and H. W. Barkema[1], [1]*University of Calgary, Calgary, AB, Canada*, [2]*University of Guelph, Guelph, ON, Canada*, [3]*Canadian Dairy Network, Guelph, ON, Canada*.

Dairy Foods IV

T54 **United States funded international development of dairy product capabilities in smallholder plants in Lebanon.**
T. Schoenfuss*[1] and G. Hanson[2], [1]*University of Minnesota, St. Paul, MN*, [2]*Land O'Lakes, Arden Hills, MN*.

T55 **Impact of milk hauling practices on microbiological quality.**
E. Kuhn*, L. Goddik, and J. Waite-Cusic, *Oregon State University, Corvallis, OR*.

T56 **Influence of somatic cell count on sensorial acceptance of bovine milk and cheese in the semi-arid region of Brazil.**
E. R. Lima[1], M. F. Bezerra[1], J. G. B. Galvao Jr.*[2], S. A. Urbano[1], and A. H. N. Rangel[1], [1]*Universidade Federal do Rio Grande do Norte, Macaiba, RN, Brazil*, [2]*Instituto Federal de Educaçao, Ciencia e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil*.

T57 **Prevalence of sporeformers in raw milk in Nebraska: A year in perspective.**
B. Martinez, R. Crespo*, J. Stratton, and A. Bianchini, *University of Nebraska-Lincoln, Lincoln, NE*.

T58 **Population dynamics of a common dairy sporeformer, *Bacillus licheniformis*, in spiked raw milk samples stored at low temperatures.**
N. Awasti*[1,2], R. Suliman[3], S. Anand[1,2], and G. Djira[3], [1]*Midwest Dairy Food Research Center, Brookings, SD*, [2]*Department of Dairy and Food Science, South Dakota State University, Brookings, SD*, [3]*Department of Mathematics and Statistics, South Dakota State University, Brookings, SD*.

T59 **The role of *Bacillus cereus* and their enzymes in gelation of UHT milk.**
R. S. Obaid*[1], K. Qadoura[2], and M. M. Ayyash[3], [1]*University of Sharjah, Sharjah, United Arab Emirates*, [2]*Jordan Food and Drug Administration, Amman, Jordan*, [3]*United Arab Emirates University, Al Ain, United Arab Emirates*.

T60 **New insights into post-pasteurization contamination of fluid milk—Detection, effects, and environmental persistence.**
S. Reichler*[1], A. Alles[1], A. Trmcic[2], N. Martin[1], K. Boor[1], and M. Wiedmann[1], [1]*Cornell University, Ithaca, NY*, [2]*University of British Colombia, Vancouver, BC, Canada*.

T61 **Effect of lutein and antioxidant feed supplementation on milk quality and lutein content under different heat processes and storage times.**
D. Ren[1], C. Wang[2], Z. Wei*[1], J. Liu[1], and Z. Duan[3], [1]*Institute of Dairy Science, College of Animal Science, Zhejiang University, Hangzhou, Zhejiang, China*, [2]*College of Animal Science and Technology, Zhejiang A & F University, Lin'an, Zhejiang, China*, [3]*Kemin Industries (Zhuhai) Co. Ltd, Zhuhai, Guangdong, China*.

T62 **Impact of processing on in vitro digestion of milk from grazing organic and confined conventional herds.**
D. L. Van Hekken*[1], M. H. Tunick[1], D. X. Ren[2], and P. M. Tomasula[1], [1]*USDA, ARS, DFFRU, Wyndmoor, PA*, [2]*Zhejiang University, Hangzhou, China*.

T63 **Effect of high-pressure jet processing on casein-fat interaction.**
M. Tran* and F. M. Harte, *The Pennsylvania State University, State College, PA*.

T64 **Quantitative analysis of *Lactobacillus rhamnosus* GR-1 in fermented probiotic milk products over refrigerated storage.**
S. Hekmat*, M. Soltani, and L. Ahmadi, *Brescia University College at Western University, London, ON, Canada.*

T65 **The role of heat treatment, fat content, and storage time on mechanical and sensory behaviors of fluid milk.**
H. S. Joyner (Melito)*[1], Y. Li[1], B. G. Carter[2], and M. A. Drake[2], [1]*School of Food Science, University of Idaho, Moscow, ID*, [2]*Department of Food Bioprocessing and Nutrition Sciences, Southeast Dairy Foods Research Center, North Carolina State University, Raleigh, NC.*

T66 **Detection of microorganisms responsible for a musty off-odor in nonfat chocolate milk.**
D. Batty*, E. Kuhn, L. Goddik, and J. Waite-Cusic, *Oregon State University, Corvallis, OR.*

T67 **Rheological and tribological characterization of saliva interaction with acid milk gels.**
M. Baniasadidehkordi* and H. S. Joyner (Melito), *University of Idaho, Moscow, ID.*

T68 **Preparation of polymerized whey protein directly from cheese whey and its application as a gelation agent for yogurt making.**
T. Fang[1], X. Shen[1], J. Zheng[1], Y. Wang[1], and M. Guo*[1,2], [1]*Department of Food Science, College of Food Science and Engineering, Jilin University, Changchun, Jilin, China*, [2]*Department of Nutrition and Food Sciences, College of Agriculture and Life Sciences, University of Vermont, Burlington, VT.*

T69 **Chemical, physiochemical and microstructural properties, and probiotic survivability of goat milk kefir using polymerized whey protein as co-thickening agent.**
H. Wang[1], C. Wang[1], M. Wang[1], X. Zhou[1], and M. Guo*[1,2], [1]*Jilin University, Changchun, Jilin, China*, [2]*University of Vermont, Burlington, VT.*

T70 **Oxidative stability of Iranian ghee (butter oil) and soybean oil: A comparative study.**
M. Enteshari*[1,2], K. Nayebzadeh[1], and S. Martínez-Monteagudo[2], [1]*Faculty of Nutrition and Food Science and Technology, Shahid Beheshti University of Medical Sciences, Tehran, Iran*, [2]*Dairy and Food Science Department, South Dakota State University, Brookings, SD.*

T71 ***Trans*-isomers in cultured butter under the cream fermentation of Flora Danica in combination with *Lactobacillus acidophilus* La-5 at different temperatures.**
O. Tsisaryk*, L. Musiy, and I. Slyvka, *Lviv National University of Veterinary Medicine and Biotechnologies, Lviv, Ukraine.*

Dairy Foods V: Cheese

T72 **Impact of membrane selectivity on the cheesemaking properties of skim milk concentrates.**
A. Lauzin*[1], I. Dussault-Chouinard[1], M. Britten[2], and Y. Pouliot[1], [1]*STELA Dairy Research Center, Institute of Nutrition and Functional Foods (INAF), Department of Food Science, Université Laval, Québec, QC, Canada*, [2]*Food Research and Development Center (FDRC), Agriculture and Agri-Food Canada, St-Hyacinthe, QC, Canada.*

T73 **Impact of membrane selectivity on the compositional characteristics of liquid pre-cheese concentrates.**
A. Lauzin*[1], M. Britten[2], and Y. Pouliot[1], [1]*STELA Dairy Research Center, Institute of Nutrition and Functional Foods (INAF), Department of Food Science, Université Laval, Université Laval, Québec, QC, Canada*, [2]*Food Research and Development Center (FDRC), Agriculture and Agri-Food Canada, Agriculture and Agri-Food Canada, St-Hyacinthe, QC, Canada.*

T74 **On the use of polymeric microfiltration membranes for the preparation of liquid pre-cheese: Impact on process efficiency.**
D. Mercier-Bouchard[1], I. Dussault-Chouinard*[1], S. Benoit[1], A. Doyen[1], M. Britten[2], and Y. Pouliot[1], [1]*STELA Dairy Research Center, Institute of Nutrition and Functional Foods (INAF), Department of Food Science, Université Laval, Québec, QC, Canada*, [2]*Food Research and Development Center (FDRC), Agriculture and Agri-Food Canada, St-Hyacinthe, QC, Canada.*

T75 **Milk fatty acid composition and long-seasoning cheese-making qualities of milk from dairy cows given algae in pelleted or meal concentrate form.**
M. Morlacchini[1], F. Giorgio[1], C. Moran[2], D. Graugnard*[2], and K. Jacques[2], [1]*CERZOO, Piacenza, Italy*, [2]*Alltech Inc., Nicholasville, KY.*

T76 **Multivariate analysis in the study of association between Mozzarella cheese yield and processing factors.**
D. C. Sales[1], A. H. N. Rangel[1], A. R. Freitas[3], J. G. B. Galvão Jr.*[2], S. A. Urbano[1], E. P. E. Silva[1], and H. Tonhati[4], [1]*Universidade Federal do Rio Grande do Norte, Macaiba, RN, Brazil*, [2]*Instituto Federal de Educaçao, Ciencia e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil*, [3]*Empresa Brasileira de Pesquisa Agropecuaria (Retired), Sao Paulo, SP, Brazil*, [4]*Universidade Estadual Paulista Julio de Mesquita Filho, Jaboticabal, SP, Brazil*.

T77 **Tuning meltability and stretchability of pizza cheese using modified starch.**
X. Yang*, J. Hirsch, A. Speranza, and S. Ganesh, *Ingredion Incorporated, Bridgewater, NJ*.

T78 **Utilization of konjac glucomannan as a fat replacer in low-fat and skimmed Mozzarella cheese.**
S. Dai*[1], H. Corke[1,2], and N. P. Shah[1], [1]*Food and Nutritional Sciences, School of Biological Sciences, The University of Hong Kong, Hong Kong, China*, [2]*Department of Food Science and Technology, Shanghai Jiao Tong University, Shanghai, China*.

T79 **Behavior of starches with different amylose content in mixtures with casein for replacing fat in cheese.**
V. R. Diamantino, M. S. Costa, C. M. L. Franco, and A. L. B. Penna*, *São Paulo State University, São José do Rio Preto, SP, Brazil*.

T80 **Physiochemical and texture analysis of camembert cheese variants.**
D. Batty*, J. Waite-Cusic, and L. Goddik, *Oregon State University, Corvallis, OR*.

T81 **Compositional and proteolytic study of Danish Blue cheese during ripening.**
A. Mane*[2,1], F. Ciocia[2,1], T. K. Beck[3], S. Lillevang[3], and P. McSweeney[2,1], [1]*Food for Health Ireland, Dublin, Ireland*, [2]*University College Cork, Cork, Ireland*, [3]*Arla Foods, Vojens, Denmark*.

T82 **Withdrawn**

T83 **Quantification of starch through an enzymatic starch assay to quantify flow aid concentrations in shredded cheeses.**
A. Zumbusch and T. Schoenfuss*, *University of Minnesota, St. Paul, MN*.

Dairy Foods VI: Dairy Ingredients

T84 **Comparative environmental impact analysis of distilled whey spirit and white whiskey production.**
D. Risner, A. Shayevitz, L. Goddik*, and P. Hughes, *Oregon State University, Corvallis, OR*.

T85 **Utilizing acid whey in the beer brewing process.**
M. R. Lawton* and S. D. Alcaine, *Cornell University, Ithaca, NY*.

T86 **Production of whey protein-maltodextrin conjugates at a pilot plant scale.**
Y. Lu*[1], Y. Gong[2], S. Khanal[2], M. Molitor[1], and J. Lucey[1], [1]*Center for Dairy Research, University of Wisconsin-Madison, Madison, WI*, [2]*Department of Food Science, University of Wisconsin-Madison, Madison, WI*.

T87 **Mycobiota and natural incidence of aflatoxin M1 in milk based dietary supplements.**
B. Pereira[1,2], V. Farias[1], L. Luquez[3], E. Rodrigues[3], R. Franco[1], and L. Keller*[1], [1]*UFF, University Federal Fluminense, Niterói, RJ, Brazil*, [2]*CAPES, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, Brasília, DF, Brazil*, [3]*PESAGRO, Empresa de Pesquisa Agropecuária do Estado do Rio de Janeiro, Niterói, RJ, Brazil*.

T88 **Low temperature forward osmosis concentration of skim milk: Process efficiency and product quality.**
K. Kriner* and C. I. Moraru, *Cornell University, Ithaca, NY*.

T89 **Withdrawn**

T90 **Edible electrospun nanofibers from caseinate and pullulan blends.**
S. Akkurt*[1,2], K. L. Yam[1], L. Liu[2], R. Kwoczak[2], and P. M. Tomasula[2], [1]*Food Science Department, Rutgers University, New Brunswick, NJ*, [2]*Dairy & Functional Foods Research Unit Department of Agriculture, Agricultural Research Unit Service, Eastern Regional Research Center, Wyndmoor, PA*.

T91 **Delactosed milk powder: Determination of the optimal drying parameters.**
T. L. Fialho[1], E. Martins[1], A. C. P. Silveira[2], C. R. J. Silva[1], I. T. Perrone[1], P. Schuck[3], and A. F. Carvalho*[1], [1]*Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil*, [2]*GEA, Campinas, São Paulo, Brazil*, [3]*Institut National de la Recherche Agronomique, Rennes, Bretagne, France*.

T92 **The physical and chemical effect of thermal processing on high- and low-heat nonfat dry milk set yogurt.**
S. Brooks*, *Kansas State University, Manhattan, KS.*

T93 **Preliminary studies on heat stability of high protein dairy beverages containing modified milk protein concentrate.**
K. Pandalaneni*[1], J. Amamcharla[1], C. Marella[2], and L. Metzger[2], [1]*Kansas State University, Manhattan, Kansas*, [2]*Midwest Dairy Foods Research Center, Brookings, South Dakota*.

T94 **Development of the method for the determination of the undenatured whey proteins in milk powder products.**
Z. Zhao*[1], Z. Gaygadzhiev[2], and M. Corredig[1,2], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Gay Lea Foods, Guelph, ON, Canada*.

T95 **Effect of sonication on viscosity of reconstituted SMP and MPC as influenced by solids content.**
V. Deshpande* and M. Walsh, *Utah State University, Logan, UT*.

T96 **Determination of the appropriate emulsion formulation for microencapsulated milk fat powder production.**
A. B. Himmetagaoglu[1], Z. Erbay*[2], and M. Cam[3], [1]*Department of Gastronomy and Culinary Arts, Faculty of Tourism, Alanya Hamdullah Emin Pasa University, Antalya, Turkey*, [2]*Department of Food Engineering, Faculty of Engineering and Natural Sciences, Adana Science and Technology University, Adana, Turkey*, [3]*Department of Food Engineering, Faculty of Engineering, Erciyes University, Kayseri, Turkey*.

Food Safety

T97 **Iodine-127 levels in bulk milk on Ontario dairy farms and its association with groundwater, milking management, and other risk factors.**
C. M. Rogerson*[1], D. F. Kelton[1], V. R. Osborne[2], J. Levison[3], and S. M. Hamilton[4], [1]*Department of Population Medicine, University of Guelph, Guelph, ON, Canada*, [2]*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [3]*School of Engineering, University of Guelph, Guelph, ON, Canada*, [4]*Earth Resources and Geoscience Mapping Section, Ontario Geological Survey, Sudbury, ON, Canada*.

T98 **Mycoflora and occurrence of fumonisins in complete mixed rations from dairy farms in São Paulo, Brazil.**
J. E. P. Braga[1], A. Bosso[1], A. F. Rosa[1], R. Braghini[1], and C. R. Pozzi*[1], [1]*Instituto de Zootecnia, Nova Odessa, São Paulo, Brazil*, [2]*Instituto de Ciências Biomédicas, São Paulo, São Paulo, Brazil*.

T99 **Reduction of *Listeria monocytogenes* in Queso Fresco by combination of phage endolysin PlyP100 and nisin.**
L. A. Ibarra-Sanchez*, M. Van Tassell, and M. Miller, *University of Illinois at Urbana-Champaign, Champaign, IL*.

T100 **Survival and growth of *Listeria monocytogenes* in a model cheese based on pH, moisture, and acid type.**
S. K. Engstrom* and K. A. Glass, *University of Wisconsin-Madison, Madison, WI.*

Forages and Pastures II

T101 **Establishment and production of ryegrass and clover in two Colombian highland regions.**
J. Vargas, A. M. Sierra, Y. Avellaneda, O. L. Mayorga, and C. Ariza-Nieto*, *CORPOICA, Bogota, Colombia*.

T102 **Growth dynamic and chemical composition of kikuyu (*Cenchrus clandestinum*) in Colombian highland dairy systems.**
E. Mancipe, C. Ariza-Nieto*, O. L. Mayorga, and Y. Avellaneda, *CORPOICA, Bogota, Colombia*.

T103 **Effectiveness of a chemical additive on improving the aerobic stability of air-stressed high-moisture corn submitted to aerobic spoilage at room and warm temperatures.**
E. Benjamim da Silva*[1,2], R. M. Savage[1], S. A. Polukis[1], M. L. Smith[1], A. M. Gray[1], K. M. Pacer[1], and L. Kung Jr.[1], [1]*University of Delaware, Newark, DE*, [2]*CAPES Foundation, Brasília, DF, Brazil*.

T104 **Effectiveness of a chemical additive on improving the aerobic stability of corn silage after short periods of ensiling.**
E. Benjamim da Silva*[1,2], R. M. Savage[1], S. A. Polukis[1], M. L. Smith[1], A. M. Gray[1], R. N. Mester[1], and L. Kung Jr.[1], [1]*University of Delaware, Newark, DE*, [2]*CAPES Foundation, Brasília, DF, Brazil*.

T105 **Sensory additive effects on leucocyte and metabolic profile of grazing dairy cows.**
L. M. Gómez[1], P. Aguirre[1], F. Bargo*[2,3], G. Tedó[2], and I. Ipharraguerre[4,2], [1]*Solla, Medellín, Colombia*, [2]*Lucta SA, Barcelona, Spain*, [3]*Universidad Buenos Aires, Buenos Aires, Argentina*, [4]*University of Kiel, Kiel, Germany*.

T106 **Effect of a homolactic inoculant alone and in combination with a heterolactic inoculant on the fermentation and aerobic stability of high-moisture corn.**
M. L. Smith*[1], R. M. Savage[1], E. Benjamim da Silva[1], S. A. Polukis[1], S. J. Dietz[1], K. M. Pacer[1], T. P. Karnezos[2], and L. Kung Jr.[1], [1]*University of Delaware, Newark, DE*, [2]*PMI Nutritional Additives, Shoreview, MN*.

T107 **Effect of a homolactic inoculant alone and in combination with a heterolactic inoculant on the fermentation and aerobic stability of snaplage.**
M. L. Smith*[1], R. M. Savage[1], E. Benjamim da Silva[1], S. A. Polukis[1], S. J. Dietz[1], M. B. Palillo[1], T. P. Karnezos[2], and L. Kung Jr.[1], [1]*University of Delaware, Newark, DE*, [2]*PMI Nutritional Additives, Shoreview, MN*.

T108 **Accuracy and precision of forage analysis by commercial laboratories.**
J. Severe* and A. J. Young, *Utah State University, Logan, UT*.

T109 **Analysis of Japanese forages for undigested neutral detergent fiber composition.**
K. Ishida*[1], K. W. Cotanch[2], and R. J. Grant[2], [1]*ZEN-NOH National Federation of Agricultural Cooperative Associations, Tokyo, Japan*, [2]*William H. Miner Agricultural Research Institute, Chazy, NY*.

T110 **Carbon footprint of dairy production systems in Québec: Barley versus corn silage.**
J. Guyader*[1], S. Little[1], R. Kröbel[1], C. Benchaar[2], and K. A. Beauchemin[1], [1]*Lethbridge Research and Development Centre, Agriculture and Agri-Food Canada, Lethbridge, AB, Canada*, [2]*Sherbrooke Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*.

T111 **Effect of seed variety and cutting date on nutritive values and in vitro digestibility of teff grass.**
B. Saylor*, B. Bradford, and D. Min, *Kansas State University, Manhattan, KS.*

T112 **Effect of homofermentative bacteria and cellulase addition to sugarcane at ensiling on silage chemical composition.**
L. R. de Q. Carvalho, V. L. Banys, A. A. Pinheiro, M. Dias, P. A. Helrigel, and E. A. Collao-Saenz*, *Universidade Federal de Goiás-UFG, Jataí, Goiás, Brazil*.

T113 **Cell wall composition between and within phytomers of corn plants.**
A. N. Brown*, G. Ferreira, W. A. Thomason, and B. A. Corl, *Virginia Polytechnic Institute and State University, Blacksburg, VA*.

T114 **Yield and nutritive value of binary legume-grass mixtures under grazing or frequent cutting.**
G. F. Tremblay*[1], G. Bélanger[1], Y. A. Papadopoulos[2], J. Duynisveld[2], J. Lajeunesse[1], C. Lafrenière[3], and S. A. E. Fillmore[2], [1]*Agriculture and Agri-Food Canada, Quebec Research and Development Centre, Québec City, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Kentville Research and Development Centre, Kentville, NS, Canada*, [3]*Université du Québec en Abitibi-Témiscamingue, Notre-Dame-du-Nord, QC, Canada*.

T115 **The effects of *Lactobacillus buchneri* and various air stresses on the fermentation and aerobic stability of corn silage.**
R. M. Savage*, E. B. Silva, M. L. Smith, S. A. Polukis, K. M. Pacer, M. B. Palillo, and L. Kung Jr., *University of Delaware, Newark, DE*.

T116 **The impact of storage strategy and time on the quality and dry matter loss of wet distillers grains.**
A. Echeverría[1], M. De León[1], R. Gimenez[1], M. Auil[2], and O. Queiroz*[3], [1]*National Institute of Agricultural Technology, Manfredi, Córdoba, Argentina*, [2]*Dpto. Tenico Bovinos, TEKNAL SA, Río Cuarto, Córdoba, Argentina*, [3]*Animal Health and Nutrition Chr-Hansen, Córdoba, Córdoba, Argentina*.

T117 **Chemical composition and in vitro degradation kinetics of saboya grass (*Panicum maximum* Jacq.) silage with inclusion of tropical fruits by-products.**
I. Espinoza*, L. Montenegro, M. Medina, G. Quintana, A. Sanchez, L. Espinosa, M. Medina, and M. Romero, *Universidad Técnica Estatal de Quevedo, Quevedo, Los Rios, Ecuador*.

T118 **Effect of *Lactobacillus buchneri* 30319 alone or in combination with *Lactobacillus plantarum* 40027 (MTD/1) on the aerobic stability of high-moisture corn.**
S. A. Polukis, M. L. Smith, E. B. da Silva, R. M. Savage, R. N. Mester*, M. B. Palillo, and L. Kung Jr., *University of Delaware, Newark, DE.*

T119 **Tall fescue as an alternative to timothy silage fed with or without alfalfa to dairy cows.**
A.-M. Richard*[1], E. Charbonneau[1], R. Gervais[1], G. F. Tremblay[2], and G. Bélanger[2], [1]*Département des sciences animales, Université Laval, Québec, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Québec, QC, Canada.*

T120 **The use of the Cornell Net Carbohydrate and Protein System in corn silage hybrid testing programs.**
A. B. Lawton*[1], J. R. Lawrence[1], M. E. Smith[2], W. S. Burhans[1], M. E. Van Amburgh[1], and T. R. Overton[1], [1]*Department of Animal Science and PRO-DAIRY, Cornell University, Ithaca, NY*, [2]*Section of Plant Breeding and Genetics, Cornell University, Ithaca, NY.*

T295 **Effect of silage covering systems on fermentation, nutritional quality, and estimated organic matter loss of corn silage after 156 days of storage in a drive-over pile.**
S. Li[1], E. Uriarte[2], K. Wang[3], D. Bu[4,5], K. Rich[6], C. Banchero[6], and K. Bolsen*[7], [1]*University of Manitoba, Winnipeg, MB, Canada*, [2]*Ibero-American University, Puebla, Mexico*, [3]*State Key Laboratory of Animal Nutrition, Beijing, China*, [4]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, Beijing, China*, [5]*World Agroforestry Centre, East and Central Asia, Beijing, China*, [6]*Silostop, London, UK*, [7]*Kansas State University, Manhattan, KS.*

Growth and Development II

T121 **Effect of feeding milk replacer at a moderate rate, ad libitum, or with a step-up program on calf performance through 4 months of age.**
F. X. Suarez-Mena*, T. S. Dennis, T. M. Hill, W. Hu, J. D. Quigley, and R. L. Schlotterbeck, *Provimi-NA, Brookville, OH.*

T122 **Effect of feeding milk replacer at moderate rates with and without Neo-Terramycin and at high rates on calf performance and digestion immediately post-weaning.**
F. X. Suarez-Mena*, T. S. Dennis, T. M. Hill, W. Hu, J. D. Quigley, and R. Schlotterbeck, *Provimi-NA, Brookville, OH.*

T123 **Changes in digestion in calves fed different amounts of milk replacer and starters of different starch concentrations.**
J. D. Quigley, T. M. Hill, F. X. Suarez-Mena, T. S. Dennis, L. L. Deikun*, and R. L. Schlotterbeck, *Provimi North America, Brookville, OH.*

T124 **Estimates of metabolizable energy of dry feed in calves fed two types of starters and two levels of milk replacer.**
J. D. Quigley*, T. M. Hill, F. X. Suarez-Mena, T. S. Dennis, L. L. Deikun, and R. L. Schlotterbeck, *Provimi North America, Brookville, OH.*

T125 **Performance of calves fed milk replacer or whole milk and traditional starter or an alternative concentrate feeding program.**
F. L. M. Silva*[1], S. J. Bertics[3], E. B. Alves[2], D. M. Donnelly[3], J. R. R. Dórea[3], C. M. M. Bittar[1], and D. K. Combs[3], [1]*University of Sao Paulo, Piracicaba, SP, Brazil*, [2]*Federal University of Lavras, Lavras, MG, Brazil*, [3]*University of Wisconsin, Madison, WI.*

T126 **Effect of diet energy level and genomic residual feed intake on pre-bred dairy heifer feed intake and growth.**
K. Williams[1], K. Weigel[1], W. Coblentz[3], N. Esser[4], P. Hoffman[1,5], H. Su[2], and M. Akins*[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*China Agricultural University, Beijing, China*, [3]*USDA Dairy Forage Research Center, Marshfield, WI*, [4]*Marshfield Agricultural Research Station, Marshfield, WI*, [5]*Vita Plus Corporation, Madison, WI.*

T127 **Effect of limit feeding and genomic residual feed intake on dairy heifer growth and feed efficiency.**
M. S. Akins*[1], K. T. Williams[1], H. Su[2], W. K. Coblentz[3], N. M. Esser[4], P. C. Hoffman[1,5], and K. A. Weigel[1], [1]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [2]*China Agricultural University, Beijing, China*, [3]*USDA Dairy Forage Research Center, Marshfield, WI*, [4]*Marshfield Agricultural Research Station, University of Wisconsin, Marshfield, WI*, [5]*Vita Plus Corporation, Madison, WI.*

T128 **Evaluation of a nutrition model for calves raised under tropical conditions using individual animal data.**
V. L. Souza*[1], C. M. M. Bittar[1], J. K. Drackley[2], R. Almeida[3], and D. P. D. Lanna[1], [1]*Esalq/USP, Piracicaba, SP, Brazil*, [2]*University of Illinois, Urbana, IL*, [3]*Universidade Federal do Paraná, Curitiba, PR, Brazil.*

T129 **Monthly body weight change in wild type and slick haired post-weaned Puerto Rican Holstein heifers.**
J. M. Muñiz-Cruz*[1], G. C. Muñiz-Colón[1], P. F. Randel-Folling[1], C. J. Cabrera-Cabrera[2], Cal Youngblood[3], K. I. Domenech-Pérez[1], and H. L. Sánchez-Rodríguez[1], [1]*University of Puerto Rico at Mayaguez Campus, Mayaguez, PR*, [2]*ISA University, Santiago, Dominican Republic*, [3]*Institute for Genomics, Biocomputing and Biotechnology, Mississippi State University, Mississippi Stae, MS.*

T130 **Effect of functional additives on the rumen development in the dairy calf.**
A. Cubides, D. Parra, R. Ortiz*, Y. Avellaneda, O. L. Mayorga, and C. Ariza-Nieto, *CORPOICA, Bogota, Colombia.*

T131 **Effects of meloxicam administration on nitrogen metabolism and growth performance in transported Jersey calves.**
G. Chibisa*, J. Vinyard, and A. Laarman, *University of Idaho, Moscow, ID.*

T132 **Variation of nutrient content and bacteria count of pasteurized waste milk fed to dairy calves.**
W. S. B. Yoho*[1], C. M. Hansen[1], E. L. Stephas[1], M. M. R. Rao[1], T. J. Earleywine[2], L. J. Van Roekel[2], M. J. Radmer[2], and B. L. Miller[1], [1]*Land O'Lakes, Inc., Gray Summit, MO*, [2]*Land O'Lakes, Inc., Shoreview, MN.*

Lactation Biology II

T133 **Transcriptional changes in the early lactation mammary gland involved immune signaling pathways but were not affected by NSAID treatment.**
C. M. Ylioja*[1], A. J. Carpenter[1,2], L. K. Mamedova[1], K. M. Daniels[3], P. J. Ross[4], S. L. Laflin[1], and B. J. Bradford[1], [1]*Kansas State University, Manhattan, KS*, [2]*University of Guelph, Ridgetown, ON, Canada*, [3]*Virginia Tech, Blacksburg, VA*, [4]*University of California, Davis, CA.*

T134 **Peroxisome proliferator-activated receptor gamma (PPARγ) agonist does not overcome the effect of *trans*-10,*cis*-12 conjugated linoleic acid (CLA) but stimulate lipogenic gene expression in mammary explants cultured in vitro.**
W. B. Junior, P. C. Carraro, E. D. Silva, and D. E. Oliveira*, *Santa Catarina State University, Lages, SC, Brazil.*

T135 **Effects of feed restriction on synthetic capacty of the bovine mammary gland.**
D. J. Seymour*[1], J. J. M. Kim[1], J. Doelman[2], and J. P. Cant[1], [1]*Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Nutreco Nederland BV, Boxmeer, the Netherlands.*

T136 **Comparison of metabolites and hormones involved in the control of energy partitioning during the lactation of dairy ewes and goats.**
M. F. Lunesu[1], A. Prandi[2], A. Comin[2], G. C. Bomboi[1], P. Sechi[1], P. Nicolussi[3], M. Decandia[4], and A. Cannas*[1], [1]*University of Sassari, Sassari, Italy*, [2]*University of Udine, Udine, Italy*, [3]*Istituto Zooprofilattico Sperimentale della Sardegna, Sassari, Italy*, [4]*Dipartimento di Ricerca nelle Produzioni Animali, Agris, Olmedo, Italy.*

T137 **Effects of extracellular Zn and G protein-coupled receptor 39 silencing on immortalized bovine mammary epithelial (MAC-T) cells.**
J. E. Shaffer, L. K. Mamedova*, and B. J. Bradford, *Kansas State University, Manhattan, KS.*

T138 **The bovine milk microbiome and somatic cell count.**
S. L. Brooker*[1], K. M. Yahvah[1], B. A. Casperson[2], J. E. Williams[1], B. Shafii[1], W. Price[1], J. Tinker[3], and M. A. McGuire[1], [1]*University of Idaho, Moscow, ID*, [2]*Purdue Universirty, West Lafayette, IN*, [3]*Boise State University, Boise, ID.*

T139 **Effects of supplementary folic acid and vitamin B_{12} feed-restriction on immune cell functions and blood cell population in dairy cows.**
N. Vanacker*, C. Girard, M. Duplessis, and P. Lacasse, *Agriculture and Agri-Food Canada, Sherbrooke Research and Development Center, Sherbrooke, QC, Canada.*

T297 **Differential effects of lipopolysaccharide on expression of major milk protein genes in mouse mammary epithelial cells.**
Q. Tian*, A. Spitzer, and F.-Q. Zhao, *Department of Animal and Veterinary Sciences, University of Vermont, Burlington, VT.*

Milk Protein and Enzymes

T140 **Surface properties of fat globules and proteomic analysis of MFGM during temperature processing of milk.**
J. Ortega-Anaya* and R. Jiménez-Flores, *The Ohio State University, Columbus, OH.*

T141 **The effect of emulsifying salts in binary combinations on the structure of casein micelles at varying pH, temperature, time and concentration.**
M. Culler, T. Thomas, M. Zaffuto*, A. Peleschak, and F. Harte, *Pennsylvania State University, University Park, PA.*

T296 **Period2 gene silencing increases the synthesis of casein protein in bovine mammary epithelial cells.**
L. Y. Hu[1], Y. J. Jing[1], M. Z. Wang[1], Q. Y. Xu[1], J. L. Ouyang[1], and J. J. Loor*[2], [1]*College of Animal Science and Technology, Yangzhou University, Yangzhou, Jiangsu, China*, [2]*Mammalian NutriPhysioGenomics, Department of Animal Sciences and Division of Nutritional Sciences, University of Illinois, Urbana, IL.*

T298 **Effects of milk-flavoring constituents on the fluorometric assay of bovine alkaline phosphatase.**
E. M. Brock and Z. Ustunol*, *Michigan State University, East Lansing, MI.*

Physiology and Endocrinology II

T142 **Changes in duodenal protein expression in dairy calves at birth and 48 hours of age.**
S. L. Gelsinger*[1] and A. J. Heinrichs[2], [1]*The University of Wisconsin-Madison, Madison, WI*, [2]*The Pennsylvania State University, University Park, PA.*

T143 **Reproductive management strategies for first service in replacement dairy heifers.**
M. Masello*[1], M. M. Perez[1], G. E. Granados[1], M. L. Stangaferro[1], B. Ceglowski[2], M. J. Thomas[2], and J. O. Giordano[1], [1]*Cornell University, Ithaca, NY*, [2]*Dairy Health & Management Services, Lowville, NY.*

T144 **Response of patatin-like phospholipase domain-containing protein 3 abundance to fatty acid treatment in bovine primary hepatocytes.**
H. T. Holdorf*, R. S. Pralle, M. T. Lavarias, Q. Zhang, T. L. Chandler, and H. M. White, *University of Wisconsin-Madison, Madison, WI.*

T145 **Influence of adipocyte size and adipose depot on the expression of adipokines in dairy cows at the end of pregnancy.**
J. De Koster*[1], M. Van Poucke[3], M. Hostens[2], K. Hermans[2], W. Van den Broeck[4], L. Peelman[3], and G. Opsomer[2], [1]*Large Animal Clinical Sciences, Michigan State University, East Lansing, MI*, [2]*Department of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Gent, Belgium*, [3]*Department of Nutrition, Genetics and Ethology, Faculty of Veterinary Medicine, Ghent University, Gent, Belgium*, [4]*Department of Morphology, Faculty of Veterinary Medicine, Ghent University, Gent, Belgium.*

T146 **mRNA expression of DNA methyltransferase 1 and 3a in adipose tissue of lactating and non-lactating dairy cows.**
S. Häussler, T. Bleikamp, L. Laubenthal, K.-H. Südekum, M. Hoelker, and H. Sauerwein*, *Institute of Animal Science, University of Bonn, Bonn, Germany.*

T147 **Effects of fatty acid supplementation on oxidative status of red blood cells in dairy cows fed a ration with low n-3 fatty acid content.**
D. Revskij[1], D. Dipasquale[2], U. Bernabucci[2], S. Haubold[1], C. Kröger-Koch[1], A. Tuchscherer[1], A. Tröscher[3], H. J. Schuberth[4], H. Hammon[1], and M. Mielenz*[1], [1]*Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany*, [2]*Department of Agriculture and Forestry Sciences, University of Tuscia, Viterbo, Italy*, [3]*BASF SE, Limburgerhof, Germany*, [4]*Immunology Unit, University of Veterinary Medicine, Hannover, Germany.*

T148 **Fatty acid composition of red blood cell membranes of dairy cows fed a diet with low n-3 fatty acid content and effects of fatty acid supplementation.**
D. Revskij[1], S. Haubold[1], C. Kröger-Koch[1], H. Kienberger[2], M. Rychlik[3], A. Tuchscherer[1], A. Tröscher[4], H. J. Schuberth[5], H. M. Hammon[1], and M. Mielenz*[1], [1]*Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany*, [2]*Bavarian Biomolecular Mass Spectrometry Center, Technical University of Munich, Freising, Germany*, [3]*Analytical Food Chemistry, Technical University of Munich, Freising, Germany*, [4]*BASF SE, Limburgerhof, Germany*, [5]*Immunology Unit, University of Veterinary Medicine, Hannover, Germany.*

T149 **Sorbic acid is rapidly absorbed but does not affect plasma leptin and adiponectin concentrations in milk-fed calves.**
M. Mielenz*[1], S. Görs[1], A. Tuchscherer[1], H. Sauerwein[2], and J. J. G. C. van den Borne[3], [1]*Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany*, [2]*Institute of Animal Science, Physiology and Hygiene Unit, University of Bonn, Bonn, Germany*, [3]*Wageningen University, Animal Nutrition Group, Wageningen, the Netherlands*.

T150 **Markers of mineral metabolism in non-lactating, non-pregnant Holstein cows fed DCAD rations with low, medium, or high concentrations of calcium and challenged with hypocalcemia .**
A. P. Prichard*[1], C. E. Wimmler[1], L. A. Amundson[1], A. Cheng[1], M. Klister[1], T. Munoz[1], S. R. Weaver[1], A. D. Rowson[2], S. S. Bascom[2], D. E. Nuzback[2], K. P. Zanzalari[2], and L. L. Hernandez[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Phibro Animal Health Corporation, Teaneck, NJ*.

T151 **Identification of metabolic differences in dairy cows consuming corn stover and rice straw through liver metabolomics and transcriptomics.**
H. Sun[1,2], H. Liu[1], D. Wang[1], L. L. Guan*[2], and J. Liu[1], [1]*Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China*, [2]*Department of Agricultural, Food & Nutritional Science, University of Alberta, Edmonton, AB, Canada*.

T152 **Expression of IgG receptor and tight junction protein in neonatal calf intestine.**
S. L. Gelsinger*[1], L. L. Hernandez[1], and A. J. Heinrichs[2], [1]*The University of Wisconsin-Madison, Madison, WI*, [2]*The Pennsylvania State University, University Park, PA*.

T153 **Effect of one versus two prostaglandin $F_{2\alpha}$ injections on progesterone concentrations and luteolysis in dairy cows subjected to a 5-d CIDR-Cosynch.**
J. Spencer*[1], K. Carnahan[1], W. Price[2], B. Shafii[2], and A. Ahmadzadeh[1], [1]*Animal and Vet. Sci., University of Idaho, Moscow, ID*, [2]*Statistical Program, University of Idaho, Moscow, ID*.

T154 **Delaying administration of prostaglandin $F_{2\alpha}$ by 24 hours during a Double-Ovsynch protocol decreased fertility of lactating Holstein cows to timed artificial insemination.**
A. M. Niles*, A. E. Jones, P. D. Carvalho, and P. M. Fricke, *Department of Dairy Science, University of Wisconsin-Madison, Madison, WI.*

T155 **A higher plane of nutrition in pre-weaned Holstein heifer calves alters transcriptome profiles in mammary parenchyma and fat pad.**
S. Zhan*[1,2], A. J. Geiger[3], J. C. McCann[1], M. Vailati-Riboni[1], R. M. Akers[3], and J. J. Loor[1], [1]*University of Illinois, Urbana-Champaign, Urbana, IL*, [2]*Sichuan Agricultural University, Chengdu, Sichuan, China*, [3]*Virginia Polytechnic Institute and State University, Blacksburg, VA*.

T156 **Impact of higher plane of nutrition and post-weaning exogenous estrogen on transcriptome profiles in mammary parenchyma and fat pad of Holstein heifer calves.**
S. Zhan*[1,2], A. J. Geiger[3], J. C. McCann[1], M. Vailati-Riboni[1], R. M. Akers[3], and J. J. Loor[1], [1]*University of Illinois, Urbana-Champaign, Urbana, IL*, [2]*Sichuan Agricultural University, Chengdu, Sichuan, China*, [3]*Virginia Polytechnic Institute and State University, Blacksburg, VA*.

T157 **Perinatal effects of feeding rumen-protected methyl donors to dams on hepatic gene expression in Holstein calves.**
C. Bespalhok Jacometo*[1], P. Montagner[2], Z. Zhou[3], F. Lopes[4], D. Luchini[5], M. Nunes Corrêa[2], and J. Loor[3], [1]*Universidad de La Salle, Bogotá, DC, Colombia*, [2]*Universidade Federal de Pelotas, Pelotas, RS, Brzsil*, [3]*University of Illinois, Urbana, IL*, [4]*Adisseo SA, São Paulo, SP, Brazil*, [5]*Adisseo NA, Alpharetta, GA*.

T158 **Short-term feeding of a rumen-protected carbohydrate increases plasma insulin concentrations in early postpartum dairy cows.**
M. C. Lucy*[1], A. R. Castillo[2], J. P. Russi[3], G. Díaz-Pérez[1], S. G. Moore[1], L. M. Mayo[1], and R. Doyle[1], [1]*University of Missouri, Columbia, MO*, [2]*University of California, Cooperative Extension, Merced, CA*, [3]*RUSITEC, Piedritas, Buenos Aires, Argentina*.

T159 **Relationship between liver functionality index and fertility in dairy cows.**
E. Trevisi*, F. Piccioli-Cappelli, M. Mezzetti, A. Ferrari, and A. Minuti, *Istituto di Zootecnica, Facoltà di Scienze Agrarie, Alimentari ed Ambientali, Università Cattolica del Sacro Cuore, Piacenza, Italy*.

T160 **Effect of calcium salts of medium-chain fatty acids on performance and plasma hormone concentrations in lactating dairy cows.**
S. Ishimaru*[1], T. Hasunuma[2], K. Kawashima[3], T. Yamaguchi[3], S. Asakuma[4], S. Kushibiki[5], T. Obitsu[1], and T. Sugino[1], [1]*The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan*, [2]*Toyama Prefectual Agricultural, Forestry &Fisheries Research Center, Toyama, Japan*, [3]*Chiba Prefectural Livestock Research Center, Chiba, Japan*, [4]*Hokkaido Agricultural Research Center, Sapporo, Hokkaido, Japan*, [5]*National Institute of Livestock and Grassland Science, Ibaraki, Japan*.

T161 **The effect of body condition score and lipolysis intensity on the biosynthesis of oxylipids in periparturient dairy cows.**
G. A. Contreras*[1], C. Strieder Barboza[1], J. de Souza[2], J. Gandy[1], A. L. Lock[2], and L. M. Sordillo[1], [1]*Department of Large Animal Clinical Sciences, East Lansing, MI*, [2]*Department of Animal Science, East Lansing, MI*.

T162 **pH from mammary gland secretions is acidic at the time of parturition in mares.**
I. F. Canisso, F. S. Lima*, R. E. Ellerbrock, and G. Amorim, *University of Illinois, Urbana-Champaign, IL*.

T163 **Mammary utilization and secretion of β-hydroxybutyrate differs in dairy cows with hyperketonemia.**
R. C. Oliveira*, S. J. Erb, R. S. Pralle, T. L. Chandler, S. J. Sailer, T. N. Mack, K. A. Weld, and H. M. White, *University of Wisconsin-Madison, Madison, WI*.

T164 **Interaction of pre-calving DCAD diet and serotonin infusions on hypocalcemia in Holstein multiparous cows.**
C. J. Slater*, E. L. Endres, P. M. Crump, and L. L. Hernandez, *University of Wisconsin-Madison, Madison, WI*.

T165 **Use of milk progesterone (P4) data to predict non-pregnancy in dairy cows subjected to timed AI.**
B. O. Omontese*, A. R. Santos, L. G. Silva, V. R. Merenda, and R. S. Bisinotto, *Department of Veterinary Population Medicine, University of Minnesota, St. Paul, MN*.

T166 **Effect of eCG administration on day 7 postpartum on resumption of ovarian cyclicity and uterine involution in dairy cows.**
E. Rojas Cañadas*[1,2], P. Lonergan[2], and S. T. Butler[1], [1]*Animal and Grassland Research and Innovation Centre, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland*, [2]*School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland*.

T167 **Effect of short wavelength light from white LED on melatonin and appetite-related hormones in calves.**
M. Mon*[1], A. Shinoda[2], T. Watanabe[2], S. Kushibiki[3], T. Obitsu[1], and T. Sugino[1], [1]*The Research Center for Animal Science, Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan*, [2]*Showa Denko K. K, Tokyo, Japan*, [3]*National Institute of Livestock and Grassland Science, Tsukuba, Japan*.

T168 **Delaying PRID Delta removal by 24 h during a 5-day PRID-synch protocol decreased expression of estrus before timed AI without affecting fertility in Holstein heifers.**
V. G. Santos*[1], P. D. Carvalho[1], C. Maia[2], B. Carneiro[2], A. Valenza[3], and P. M. Fricke[1], [1]*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*, [2]*Diessen Serviços Veterinários Lda, Evora, Portugal*, [3]*CEVA Santé Animale, Libourne, France*.

T169 **Differences in nerve growth factor-β concentrations in bull seminal plasma and its association with sire conception rate scores.**
J. S. Stewart[1], I. F. Canisso[1], J. C. Ferreira[1], N. J. Sugai[1], V. R. G. Mercadante[2], and F. S. Lima*[1], [1]*University of Illinois, Urbana-Champaign, IL*, [2]*Virginia Tech University, Blacksburg, VA*.

Production, Management, and the Environment II

T170 **Effect of culling rates on profitability of dairy herds achieving the same pregnancy rate.**
G. M. Schuenemann*[1], K. N. Galvão[2], S. Borchardt[3], W. Heuwieser[3], and P. Federico[4], [1]*Department of Veterinary Preventive Medicine, The Ohio State University, Columbus, OH*, [2]*Department of Large Animal Clinical Sciences, University of Florida, Gainesville, FL*, [3]*Clinic for Animal Reproduction, Faculty of Veterinary Medicine, Free University of Berlin, Berlin, Germany*, [4]*Department of Mathematics, Computer Science and Physics, Capital University, Columbus, OH*.

T171 **Factor screening for prediction of retention-pay offs of dairy cows using standardized regression coefficients, random forests, and the method of elementary effects.**
A. Beyi* and A. De Vries, *University of Florida, Gainesville, FL*.

T172 **Prediction of dairy cow retention pay-offs with k-nearest neighbors methods.**
A. Beyi* and A. De Vries, *University of Florida, Gainesville, Florida*.

T173 **Sources of variation in feed conversion in commercial dairy farms of Argentina.**
R. A. Palladino*[1], C. Magliola[1], E. Giugge[2], C. Chiavassa[2], J. L. Monge[3], M. P. Turiello[4], and F. Bargo[1], [1]*Universidad Buenos Aires, Buenos Aires, Argentina*, [2]*Grupo Chiavassa, Carlos Pellegrini, Santa Fe, Argentina*, [3]*Universidad Nacional de Villa María, Villa María, Córdoba, Argentina*, [4]*Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina*.

T174 **Effect of stocking rate on feeding strategies and individual milk production of autumn calving grazing dairy cows.**
D. Custodio[1], G. Ortega[1], Y. Lopezyesi[1], T. Nuñez[1], R. Mello[1], and P. Chilibroste*[2], [1]*Agronomy Faculty, Animal Science Department, CRS, Progreso, Canelones, Uruguay*, [2]*Agronomy Faculty, Animal Science Department, Grass Production and Utilization on Grazing Systems, EEMAC, Paysandú, Paysandú, Uruguay*.

T175 **Effect of stocking rate at system level on produced and harvested forage.**
G. Ortega[1], Y. Lopez[1], T. Nuñez[1], D. Custodio[1], R. Mello[1], and P. Chilibroste*[2], [1]*Agronomy Faculty, Animal Science Department CRS, Progreso, Canelones, Uruguay*, [2]*Agronomy Faculty, Animal Science Department, Grass Production and Utilization on Grazing Systems, EEMAC, Paysandú, Paysandú, Uruguay*.

T176 **Milk yield and somatic cell score of northeastern United States organic dairy farms during the grazing and non-grazing seasons.**
J. G. B. Galvao Jr.*[1], A. F. Brito[2], A. H. N. Rangel[3], J. B. A. Silva[4], A. F. Benson[5], A. N. Hafla[6], H. M. Darby[7], K. J. Soder[6], and R. Kersbergen[8], [1]*Instituto Federal de Educação, Ciencia e Tecnologia do Rio Grande do Norte, Ipanguaçu, RN, Brazil*, [2]*University of New Hampshire, Durham, NH*, [3]*Universidade Federal do Rio Grande do Norte, Natal, RN, Brazil*, [4]*Universidade Federal do Semiarido, Mossoro, RN, Brazil*, [5]*Cornell University Cooperative Extension, Cortland, NY*, [6]*USDA-ARS, University Park, PA*, [7]*University of Vermont, St. Albans, VT*, [8]*University of Maine, Orono, ME*.

T177 **Dairy calf management—A comparison of practices and producer attitudes among conventional and organic herds.**
J. Pempek*, G. Schuenemann, E. Holder, and G. Habing, *The Ohio State University, Columbus, OH*.

T178 **Milk yield distribution within pens in commercial dairy farms.**
P. Turiello*[1], C. Vissio[1,2], S. Derado Mulleady[1], F. Bargo[3], A. Larriestra[1], and A. Relling[4], [1]*Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina*, [2]*CONICET, Río Cuarto, Córdoba, Argentina*, [3]*Universidad de Buenos Aires, Buenos Aires, Argentina*, [4]*Ohio State University, Wooster, OH*.

T179 **Using DHI electronic milk weights to improve farm management.**
H. Adams* and R. Fourdraine, *CRI International Center for Biotechnology, Mt. Horeb, WI*.

T180 **Improved AMS benchmarking using cluster analysis.**
M. Tremblay*[1], J. P. Hess[1], B. M. Christenson[1], K. K. McIntyre[1], B. Smink[2], A. J. van der Kamp[3], L. G. de Jong[3], and D. Döpfer[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Lely North America, Pella, IA*, [3]*Lely International N.V, Maassluis, the Netherlands*.

T181 **Factors associated with increased milk production in automatic milking systems.**
M. Tremblay*[1], J. P. Hess[1], B. M. Christenson[1], K. K. McIntyre[1], B. Smink[2], A. J. van der Kamp[3], L. G. de Jong[3], and D. Döpfer[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Lely North America, Pella, IA*, [3]*Lely International N.V, Maassluis, the Netherlands*.

T182 **Estrus detected by activity monitors within 30 DIM is associated with estrus expression and fertility outcomes at first AI in lactating Holstein cows.**
A. M. L. Madureira*[1], L. B. Polsky[1], B. F. Silper[1], T. A. Burnett[1], J. L. M. Vasconcelos[2], and R. L. A. Cerri[1], [1]*University of British Columbia, Vancouver, BC, Canada*, [2]*Sao Paulo State University, Botucatu, SP, Brazil*.

T183 **An evaluation of technology-recorded rumination and feeding behaviors in dairy heifers.**
M. A. Myers*[1,2], J. A. Davidson[2], M. R. Borchers[3], C. M. Bradley[2], and J. M. Bewley[3], [1]*Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE*, [2]*Purina Animal Nutrition Center, Gray Summit, MO*, [3]*Department of Animal and Food Sciences, University of Kentucky, Lexington, KY*.

T184 **A case study of composting process establishment in a new compost bedded pack barn housing lactating dairy cattle.**
M. Borchers*, J. Taraba, and J. Bewley, *University of Kentucky, Lexington, KY*.

T185 **Variables associated with milk yield and rumination time of Holstein cows housed in compost bedded pack barns.**
J. L. Monge*[1], G. Clemente[1], F. Clemente[1], M. L. Zingaretti[1], E. Giugge[2], C. Chiavassa[2], M. P. Turiello[3], A. Palladino[4], and F. Bargo[4], [1]*Universidad Nacional Villa María, Villa María, Córdoba, Argentina*, [2]*Grupo Chiavassa, Carlos Pellegrini, Santa Fe, Argentina*, [3]*Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba, Argentina*, [4]*FAUBA, Buenos Aires, Argentina*.

T186 **Factors of cow comfort associated with herd-level reproductive outcomes on Canadian dairy farms.**
T. A. Burnett*[1], R. Westin[1], E. Vasseur[2], D. Pellerin[3], D. B. Haley[4], A. M. de Passillé[1], J. Rushen[1], and R. L. A. Cerri[1], [1]*University of British Columbia, Vancouver, BC, Canada*, [2]*McGill University, Sainte-Anne-de-Bellevue, QC, Canada*, [3]*Université Laval, Quebec City, QC, Canada*, [4]*University of Guelph, Guelph, ON, Canada*.

T187 **Relationship between cow cleanliness, locomotion, and bulk tank somatic cell count in southeastern United States dairy farms.**
G. Mazon*[1], J. Guinn[1], D. Nolan[1], P. Krawczel[2], C. Petersson-Wolfe[3], G. Pighetti[2], A. Stone[1,4], S. Ward[4,5], M. Marcondes[6], and J. Bewley[1], [1]*University of Kentucky, Lexington, KY*, [2]*University of Tennessee, Knoxville, TN*, [3]*Virginia Polytechnic Institute, Blacksburg, VA*, [4]*Mississippi State University, Starkville, MI*, [5]*North Carolina State University, Raleigh, NC*, [6]*Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brazil*.

T188 **Evaluation of four on-farm culture plates to identify pathogens associated with mastitis in dairy cows.**
J. C. Ferreira*, M. S. Gomes, E. C. R. Bonsaglia, I. C. Canisso, E. F. Garrett, and F. S. Lima, *University of Illinois, Champaign-Urbana, IL*.

T189 **Abortion lactation curves.**
M. Piccardi*[1,4], A. C. Funes[2], G. Bó[3], and M. Balzarini[4,1], [1]*Facultad de Ciencias Agropecuarias de la Universidad Nacional de Córdoba, Córdoba, Argentina*, [2]*DairyTech S.R.L, Rosario, Santa Fe, Argentina*, [3]*Instituto de Reproducción Bovina Córdoba, Córdoba, Argentina*, [4]*CONICET, Córdoba, Argentina*.

T190 **Relationship between body condition score and serum plasm insulin-to-glucose ratio on embryo production in lactating dairy cows.**
T. Leiva*[1], R. F. Cooke[2], R. D. Bertin[1], A. C. Fonseca[1], Ri. O. Rodrigues[3], and J. L. M. Vasconcelos[1], [1]*Sao Paulo State University, Botucatu, Brazil*, [2]*Oregon State University-EOARC Burns, Burns, OR*, [3]*University of Missouri, Columbia, MO*.

T191 **Does a 500-ohm shunt resistor accurately characterize the electrical resistance of adult dairy cattle?**
R. Norell*[1], J. Spencer[2], A. Ahmadzadeh[2], M. E. de Haro Marti[3], and M. Chahine[4], [1]*University of Idaho, Idaho Falls, ID*, [2]*University of Idaho, Moscow, ID*, [3]*University of Idaho, Gooding, ID*, [4]*University of Idaho, Twin Falls, ID*.

T192 **Survey of work processes on German dairy farms.**
A. Hesse*[1,2], S. Bertulat[1], and W. Heuwieser[1,2], [1]*Clinic for Animal Reproduction, College of Veterinary Medicine, Universitaet Berlin, Berlin, Germany*, [2]*Department of Population Medicine and Diagnostic Sciences, Cornell University, College of Veterinary Medicine, Ithaca, NY*.

Ruminant Nutrition II

T193 **Partial replacement of maize meal and molasses for cracked maize in supplements of grazing dual-purpose cows during the dry season.**
I. G. Salas-Reyes[1,2], C. M. Arriaga-Jordán[1,3], A. García-Martínez[1,2], J. G. Estrada-Flores[1,3], B. Albarrán-Portillo*[1,2], and R. Rojo-Rubio[1,2], [1]*Universidad Autónoma del Estado de México, Toluca, México*, [2]*Centro Universitario UAEM Temascaltepec, Temascaltepec, México*, [3]*Instituto de Investigación en Ciencias Agropecuarias y Rurales, Toluca, México*.

T194 **Effects of supplementary folic acid and vitamin B_{12} on glucose and insulin responses of fed-restricted dairy cows to an intravenous glucose tolerance test.**
C. L. Girard*, N. Vanacker, M. Duplessis, and P. Lacasse, *Sherbrooke Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*.

T195 **Evaluation of rumen degradability and intestinal digestibility of canola meal.**
A. Rouissi*[1,2], H. Lapierre[1], D. Pellerin[1], K. Békri[1,2], and D. R. Ouellet[2], [1]*Université Laval, Québec, QC , Canada*, [2]*Research and Development Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*.

T196 **Effects of straw processing and pen stocking density on Holstein dairy heifers: 1. Growth and sorting behaviors.**
W. K. Coblentz*[1], M. S. Akins[2], N. M. Esser[2], and R. K. Ogden[1], [1]*US Dairy Forage Research Center, Marshfield, WI*, [2]*University of Wisconsin, Marshfield, WI*.

T197 **Effects of straw processing and pen stocking density on Holstein dairy heifers: 2. Behavior and hygiene.**
W. K. Coblentz*[1], M. S. Akins[2], N. M. Esser[2], and R. K. Ogden[1], [1]*US Dairy Forage Research Center, Marshfield, WI*, [2]*University of Wisconsin, Marshfield, WI*.

T198 **Effect of feeding increasing amounts of beet pulp on weaned calf performance and digestion.**
T. S. Dennis*[1], F. X. Suarez-Mena[1], G. J. Lascano[2], T. M. Hill[1], J. D. Quigley[1], W. Hu[1], and R. L. Schlotterbeck[1], [1]*Nurture Research Center, Provimi North America, Brookville, OH*, [2]*Department of Animal and Veterinary Sciences, Clemson University, Clemson, SC*.

T199 **Effects of previous milk replacer feeding program on calf performance and digestion through 4 months of age.**
T. S. Dennis*, F. X. Suarez-Mena, T. M. Hill, J. D. Quigley, W. Hu, and R. L. Schlotterbeck, *Nurture Research Center, Provimi North America, Brookville, OH.*

T200 **Effects of milk replacer feeding rate and age at weaning on calf performance and digestion through 8 weeks of age.**
T. S. Dennis*, F. X. Suarez-Mena, T. M. Hill, J. D. Quigley, W. Hu, and R. L. Schlotterbeck, *Nurture Research Center, Provimi North America, Brookville, OH.*

T201 **Impact of tannins and grazing schedule on nitrogen partitioning in lactating dairy cows.**
C. A. Pozo*[1], G. V. Kozloski[1], C. Cajarville[2], A. R. Sprunck[2], Y. A. Ketenjian[2], M. Cuffia[3], and J. L. Repetto[2], [1]*Departamento de Zootecnia, Universidade Federal de Santa Maria, Santa Maria, RS, Brazil*, [2]*Facultad de Veterinaria, Universidad de la República, San José, Uruguay*, [3]*Facultad de Agronomía, Universidad Nacional del Litoral, Esperanza, Santa Fe, Argentina.*

T202 **Lactational performance and energy partitioning of dairy cows fed with *N*-acetyl-l-methionine as a source of rumen-protected methionine during mid to late lactation.**
T. G. Grisenti[1], S. Sharp[1], S. Y. Yang[1], J.-S. Eun*[1], J. O. Hall[1], J. S. Park[2], and J. O. Moon[2], [1]*Department of Animal, Dairy, and Veterinary Sciences, Utah State University, Logan, UT*, [2]*CJ CheilJedang Research Institute of Biotechnology, Suwon, South Korea.*

T203 **Effects of drying procedures of milk, urine, and fecal samples on nitrogen losses and its effects on nitrogen secretion and excretion in dairy cows.**
D. L. Morris*, A. W. Tebbe, W. P. Weiss, and C. Lee, *Department of Animal Sciences, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, Ohio.*

T204 **Effect of top dressing plant extracts in early lactating Holstein cow: milk yield, milk composition, plasma lipomobilization indicators and body condition score.**
D. K. Kumprechtova[1], B. C. Cadudal*[2], and F. J. Jancik[1], [1]*Institute of Animal Science Prague, Prague, Czech Republic*, [2]*Phytosynthese, Mozac, France.*

T205 **Effects of lactose and sucrose with varying starch and rumen degradable protein concentrations on ruminal fermentation in vitro.**
E. L. Sorge* and R. D. Shaver, *University of Wisconsin-Madison, Madison, WI.*

T206 **In vitro disappearance fails to predict extent of ruminal and total tract digestion of NDF and starch from corn silage diets by growing Holstein heifers.**
L. Nuzback[1], R. A. Zinn[2], and F. N. Owens*[1], [1]*DuPont Pioneer, Johnston, IA*, [2]*University of California, Imperial Valley, C.*

T207 **Could diet composition modulate concentration of vitamin B_{12} in milk?**
M. Duplessis*[1], R. Robichaud[2], L. Fadul-Pacheco[3], D. Pellerin[2], D. E. Santschi[3], and C. L. Girard[1], [1]*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*, [2]*Université Laval, Département des sciences animales, Québec, QC, Canada*, [3]*Valacta, Sainte-Anne-de-Bellevue, QC, Canada.*

T208 **Effects of protein and forage sources on milk production, rumen parameters and intestinal digestibility in lactating dairy cows.**
C. E. Galindo[1], D. R. Ouellet[2], G. Maxin[2], R. Martineau[2], D. Pellerin[1], and H. Lapierre*[2], [1]*Université Laval, Québec, QC, Canada*, [2]*Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada.*

T209 **Dietary camelina cake changes the ruminal bacterial community compositions in a dual-flow continuous culture system.**
X. Dai*[1], P. J. Weimer[2,3], K. A. Dill-McFarland[2], V. L. N. Brandao[1], L. G. Silva[1], E. M. Paula[1], T. Shenkoru[1], G. Suen[2], and A. P. Faciola[1], [1]*Department of Agriculture, Nutrition, and Veterinary Sciences, University of Nevada, Reno, NV*, [2]*Departments of Bacteriology and Forest and Wildlife Ecology, University of Wisconsin-Madison, Madison, WI*, [3]*US Department of Agriculture, Agricultural Research Service, Madison, WI.*

T210 **First-lactation performance of Holstein cows fed milk replacer or pasteurized or raw non-saleable milk as preweaning heifers.**
M. Garcia*, S. R. Montgomery, L. E. Hulbert, and B. J. Bradford, *Kansas State University, Manhattan, KS.*

T211 **Enriching bovine milk fat with α-linolenic acid, an n-3 fatty acid, through feeding of a rumen-protected flax-based supplement.**
H. Peterson*[1], R. Day[2], J. E. Williams[1], W. J. Price[3], B. Shafii[3], and M. A. McGuire[1], [1]*University of Idaho, Moscow, ID*, [2]*N3 Feed LLC, Tualatin, OR*, [3]*Statistical Programs, College of Agriculture and Life Sciences, University of Idaho, Moscow, ID.*

T212 **Determination of the bioavailability of lysine in the latest generation of a rumen-protected lysine product exposed to TMR using the in vivo plasma lysine response method.**
K. Hultquist[1], C. S. Ballard*[1], M. Miura[2], T. Fujieda[2], and I. Shinzato[3], [1]*William H. Miner Agricultural Research Institute, Chazy, NY*, [2]*Ajinomoto Co. Inc., Kawasaki-ku, Kawasaki-shi, Japan*, [3]*Ajinomoto Heartland, Inc., Chicago, IL*.

T213 **Characteristics of a rumen-protected lysine product. 1: Bioavailability of the third-generation AjiPro-L.**
M. Miura*[1], A. Haruno[1], H. Sato[1], S. Shimizu[1], M. Nakamura[1], Y. Miyazawa[1], T. Fujieda[1], and I. Shinzato[2], [1]*Research Institute for Bioscience Products & Fine Chemicals, Ajinomoto Co. Inc., Kawasaki, Kanagawa, Japan*, [2]*Ajinomoto Heartland Inc., Chicago, IL*.

T214 **Characteristics of a rumen protected lysine product. 2: Handling properties of the third-generation AjiPro-L in feeding practices.**
M. Miura*[1], A. Haruno[1], M. Tanida[1], Y. Miyazawa[1], T. Fujieda[1], and I. Shinzato[2], [1]*Research Institute for Bioscience Products & Fine Chemicals, Ajinomoto Co. Inc., Kawasaki, Kanagawa, Japan*, [2]*Ajinomoto Heartland Inc., Chicago, IL*.

T215 **Impact of tannins and grazing schedule on ruminal inoculum activity of dairy cows: Evaluation using the in vitro gas-production technique.**
C. A. Pozo*[1], J. L. Repetto[2], G. V. Kozloski[1], M. Cuffia[3], A. Ramírez[2], and C. Cajarville[2], [1]*Departamento de Zootecnia, Universidade Federal de Santa Maria, Santa Maria, RS, Brazil*, [2]*Facultad de Veterinaria, Universidad de la República, San José, Uruguay*, [3]*Facultad de Agronomía, Universidad Nacional del Litoral, Esperanza, Santa Fe, Argentina*.

T216 **Evaluation of starter intake in Holstein calves during weaning using blood β-hydroxybutyrate concentrations measured with a handheld meter.**
R. A. Molano* and M. E. Van Amburgh, *Department of Animal Science, Cornell University, Ithaca, NY*.

T217 **Effect of cinnamaldehyde on feed intake, rumen fermentation, nutrient digestibility, and milk components in lactating dairy cows.**
C. Chapman*[1], S. Ort[2], K. Aragona[3], R. Cabral[4], and P. Erickson[3], [1]*Penn State Extension-Bradford County, Towanda, PA*, [2]*Cornell Cooperative Extension of Chemung County, Elmira, NY*, [3]*University of New Hampshire, Durham, NH*, [4]*Famo Feeds Inc., Freeport, MN*.

T218 **Gene expression of some hepatic gluconeogenic and fatty acid metabolism in early lactation dairy cows as affected by dietary starch and monensin supplementation.**
M. M. McCarthy*[1], G. D. Mechor[1], and T. R. Overton[2], [1]*Elanco Animal Health, Greenfield, IN*, [2]*Department of Animal Science, Cornell University, Ithaca, NY*.

T219 **Effect of dry matter intake (DMI) on N metabolism and urea kinetics in lactating dairy cows.**
S. H. Lee[1], H. Lapierre[2], and D. R. Ouellet*[2], [1]*Gyeongsangnam Livestock Promotion Institute, Sancheong, South Korea*, [2]*R&D Centre, Agriculture and Agri-Food Canada, Sherbrooke, QC, Canada*.

T220 **Effects of forage level and site of starch digestion on N utilization and in vitro urea flux across the ovine ruminal, duodenal, and cecal epithelia.**
K. Scott*, G. B. Penner, and T. Mutsvangwa, *Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK, Canada*.

T221 **Effect of prepartum nonesterified fatty acids on milk yield and first postpartum ovulation in multiparous Holstein dairy cows.**
E. Miqueo[1], A. Chiarle[2], M. J. Giuliodori[2], and A. E. Relling*[1], [1]*Department of Animal Sciences, The Ohio State University, Wooster, OH*, [2]*Fac. Cs Veterinarias, UNLP, La Plata, Buenos Aires Argentina*.

T222 **Effects of different physical starter forms on health, growth, rumen parameters and selected blood metabolites in dairy calves.**
C. Du[1,2], Y. G. Zhen[2], L. Ma[1,4], A. F. Kertz[3], and D. P. Bu*[1,5], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing,China*, [2]*Jilin Agricultural University, Changchun,Jilin,China*, [3]*ANDHIL LLC, Louis, MO*, [4]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [5]*Hunan Co-Innovation Center of Safety Animal Production, CICSAP, ChangSha, Hunan, China*.

T223 **Comparative effects of different forms of flax seed and oil on milk yield and composition in dairy cows: A meta-analysis.**
M. Leduc*, M.-P. Létourneau-Montminy, R. Gervais, and P. Y. Chouinard, *Département des sciences animales, Université Laval, Québec, QC, Canada*.

T224 **Effect of replacing alfalfa hay with triticale hay on milk production and nitrogen metabolism in dairy cows.**
O. Santana*[1], J. Olmos-Colmenero[2], and M. Wattiaux[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Centro Universitario de los Altos, Universidad de Guadalajara, Tepatitlán, Jalisco, México*.

T225 **Comparative effects of chitosan supplementation on nutrient intake and digestibility of Holstein steers.**
T. Lemos[1], M. Ferreira[1], A. Pause*[1], I. Franco[1], G. Rodrigues[1], H. Araki[1], A. Santos[1], C. Takiya[2], A. Gabriel[1], E. Oliveira[1], and J. Gandra[1], [1]*Universidade Federal da Grande Dourados, Dourados, Brazil*, [2]*Kansas State University, Manhattan, KS.*

T226 **Relative reticulo-rumen pH indicators for subacute ruminal acidosis detection in dairy cows.**
C. Villot*[1], B. Meunier[1], J. Bodin[2], C. Martin[1], and M. Silberberg[1], [1]*Institut national de la recherche agronomique, UMR1213 Herbivores, Saint-Genès-Champanelle, France*, [2]*BR3 Consultants, Lyon, France*.

T227 **Omnigen-AF improves milk yield and composition of grazing dairy cows under a semi-intensive management.**
N. Orbach[1], C. Pedrini[1], R. Santos[1], B. Alem[1], R. Barbosa[1], G. Barreto[3], L. Barbosa[3], C. Takiya[2], A. Pause*[1], E. Oliveira[1], and J. Gandra[1], [1]*Universidade Federal da Grande Dourados, Dourados, Brazil*, [2]*Kansas State University, Manhattan, KS*, [3]*Phibro Animal Health Corporation, Teaneck, NJ*.

T228 **Yeast-based supplements as an efficient peri-parturient solution on performance and health status of dairy cows.**
C. Julien[1], J. P. Marden[1], Y. Huang*[1], and D. Kumprechtova[2], [1]*Phileo Lesaffre Animal Care, Marcq-en-Baroeul, France*, [2]*Institute of Animal Science Prague, Prague, Czech Republic*.

T229 **The effect of inclusion of soybean meal or canola meal or an excess of rumen-degradable protein on N metabolism in dairy cows fed grass silage-based diets.**
C. Roy*[1,2], D. R. Ouellet[2], D. Pellerin[1], and H. Lapierre[2], [1]*Department of Animal Science, Université Laval, Québec, Canada*, [2]*Agriculture and Agri-Food Canada, Sherbrooke, Québec, Canada*.

T230 **Health, milk yield and milk quality records evaluated in 76 European dairy farms before and during OmniGen-AF supplementation to dry and lactating cows.**
R. Garcia-Gonzalez*[1], P. Bozzi[1], M. Corsini[1], A. Dekker[1], W. Germis[1], E. Hoogland[1], J. Chapman[1], and L. Ely[2], [1]*Phibro Animal Health Corp, Teaneck, NJ*, [2]*University of Georgia, Athens, GA*.

T231 **Effect of dietary supplementation of two forms of B-vitamins on growth and efficiency of Holstein calves from 3 to 13 weeks of age.**
R. A. Molano*[1], C. L. Girard[2], and M. E. Van Amburgh[1], [1]*Department of Animal Science, Cornell University, Ithaca, NY*, [2]*Agriculture & Agri-Food Canada, Sherbrooke, QC, Canada*.

T232 **Original XPC and NutriTek increase volatile fatty acid production in an in vitro rumen microbial model using TMR diets from various US regions.**
T. Kwan*, C. Reedy, T. Werner, J. Butler, and I. Yoon, *Diamond V, Cedar Rapids, IA*.

T233 **Monitoring ketosis in a commercial Holstein and Jersey herd.**
K. E. Mitchell* and H. A. Rossow, *University of California, Davis, Davis, CA*.

T234 **Effects of spray-dried plasma product on transition and early lactation dairy cows.**
C. Lee*[1], A. Tebbe[1], J. M. Campbell[2], and W. P. Weiss[1], [1]*Department of Animal Sciences, OARDC, The Ohio State University, Wooster, OH*, [2]*APC Inc., Ankeny, IA*.

T235 **Effect of source and pelleting on protein degradation of dried distillers grains with solubles.**
A. Carpenter*[1,2], J. F. Rivera[1,3], C. Ylioja[1], K. Herrick[4], and B. Bradford[1], [1]*Kansas State University, Department of Animal Sciences and Industry, Manhattan, KS*, [2]*University of Guelph, Department of Animal Biosciences, Ridgetown, ON, Canada*, [3]*Universidad Zamorano, Francisco Morazan, Honduras*, [4]*POET Nutrition, Sioux Falls, SD*.

T236 **Effects of spray-dried plasma product supplementation on transition and lactation on milk production and reproduction in dairy cows.**
A. Bach*[1,2], J. Polo[3], J. M. Campbell[3], M. E. de Haro Martí[4], and M. Chahine[5], [1]*ICREA, Institució Catalana de Recerca i Estudis Avançats, Spain*, [2]*Department of Ruminant Production, IRTA, Spain*, [3]*APC Inc.., Ankeny, IA*, [4]*University of Idaho Extension, Gooding County, ID*, [5]*Department of Animal and Veterinary Science, University of Idaho, Twin Falls, ID*.

T237 **Performance response of dairy cattle supplemented with a fungal-derived extract from *Trichoderma reesei*.**
I. Guasch[1], G. Elcoso[1], M. S. Gómez-Conde[2], N. D. Walker[3], G. Cordero[3], and A. Bach*[4,5], [1]*Blanca, Hostalets de Tost, Lleida, Spain*, [2]*SETNA SAU, Madrid, Spain*, [3]*ABVista, Marlborough, UK*, [4]*ICREA, Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain*, [5]*Department of Ruminant Production, IRTA, Caldes de Montbui, Spain*.

T238 **Consequences of supplying methyl donors during pregnancy on the methylome of the offspring from lactating and non-lactating dairy cattle.**
A. Bach*[1,2], A. Aris[2], A. Pinto[3], and I. Guasch[3], [1]*ICREA, Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain*, [2]*Department of Ruminant Production, IRTA, Caldes de Montbui, Spain*, [3]*Blanca from the Pyrenees, Lleida, Spain*.

T239 **Relationship of NDFD24 and uNDF240 to NDF components and the impact of maturity on predicted digestible energy of corn plants harvested at silage maturity.**
B. Powel-Smith, M. Laubach, T. Hageman, D. Bolinger, B. Mahanna, L. Nuzback, and F. N. Owens*, *DuPont Pioneer, Johnston, IA*.

T240 **The time of wheat straw inclusion affects weaning weight and average daily gain in Holstein calves.**
A. Gahremani[1], E. Mahjoubi[2], M. Chamani[1], M. H. Yazdi[2], R. A. Patton*[3], and M. Bahrami[4], [1]*Islamic Azad University, Tehran, Iran*, [2]*University of Zanjan, Zanjan, Iran*, [3]*Nittany Dairy Nutrition Inc., Mifflinburg, PA*, [4]*Afzalian Dairy Farm, Qazvin, Iran*.

T241 **Effect of diet supplementation with probiotic *Pediococcus acidilactici* or *Bacillus subtilis* on milk production and ruminal pH in dairy cattle.**
A. D. Thomas*[1], C. S. Shouse[1], B. C. Dooley[1], G. Copani[2], B. K. K. Nielsen[2], N. Milora[2], R. C. Cernat[2], and H. A. Ramirez-Ramirez[1], [1]*Iowa State University, Ames, IA*, [2]*Chr-Hansen Animal Health and Nutrition, Hørsholm, Denmark.*

T242 **Amount of milk replacer offered to female Holstein calves during first eight weeks of life: Effect on ruminal pH and diet digestibility in pre and post weaning weeks.**
G. Antúnez[1], C. Cajarville*[1], C. M. Fernández[1], J. E. Dayuto[1], L. M. Artús[1], M. Fernández[1], L. Hornos[1], F. Correa[1], R. Biasiolo[2], A. Vicente[3], and J. L. Repetto[1], [1]*Instituto de Producción Animal de Veterinaria, Facultad de Veterinaria, Universidad de la República, Libertad, San José, Uruguay*, [2]*Centro de Ciências Agroveterinárias Universidade do Estado de Santa Catarina, Lages, Santa Catarina, Brazil*, [3]*Facultad de Ciencias Veterinarias de la Universidad del Nordeste, Cabral, Corrientes, Argentina*.

T243 **Microbial community structure of conventional and brown midrib corns ensiled at low dry matter concentrations with and without a combo inoculant.**
J. J. Romero*[1,4], J. W. Park[2], Y. Zhao[3], Y. H. Joo[2], M. A. Balseca-Paredes[4], E. Gutierrez-Rodriguez[5], and M. S. Castillo[4], [1]*Animal and Veterinary Sciences, School of Food and Agriculture, University of Maine, Orono, ME*, [2]*Division of Applied Life Science (BK-21Plus, Insti. of Agri. & Life Sci.), Gyeongsang National University, Jinju, Korea*, [3]*Department of Animal Nutrition and Feed Science, China Agricultural University, Beijing, China*, [4]*Department of Crop and Soil Sciences, North Carolina State University, Raleigh, NC*, [5]*Department of Food, Bioprocessing, and Nutrition Sciences, North Carolina State University, Raleigh, NC*.

T244 **Inclusion of canola meal increases milk response in partial mixed rations and grain mixes fed to grazing cows.**
M. Auldist*, M. Wright, V. Russo, M. Douglas, L. Marett, J. Jacobs, and W. Wales, *Department of Economic Development, Jobs, Transport and Resouces, Ellinbank, VIC, Australia*.

T245 **Effect of crude glycerin combined with virginiamycin on performance and fatty acid profile of Longissimus muscle of Nellore bulls fed with finishing diets.**
P. S. Castagnino*, E. E. Dallantonia, E. San Vito, J. D. Messana, G. Fiorentini, G. Penasso, J. A. Torrecilhas, A. G. S. Sobrinho, and T. T. Berchielli, *Universidade Estadual Paulista (Unesp), Faculdade de Ciências Agrárias e Veterinárias, Jaboticabal, São Paulo, Brazil*.

T246 **Metabolic responses in biofluid and feces of dairy cows fed different ratio of dietary neutral detergent fiber to starch.**
L. Ma[1], T. T. Li[2], M. Zhao[1], L. S. Zhao[1], J. Q. Wang[1], J. J. Wang[2], Z. T. Yu[3], and D. P. Bu*[1,4], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*China Agricultural University, Beijing, China*, [3]*Department of Animal Sciences, The Ohio State University, Columbus, OH*, [4]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [5]*Hunan Co-Innovation Center of Animal Production Safety, CICAPS, Changsha, Hunan, China*.

T247 **Effects of different sources of dietary zinc on growth performance and incidence of diarrhea of newborn calves.**
L. Y. Hao[1], P. Sun[1], J. Wang[1], and D. P. Bu*[1,2], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [3]*Hunan Co-Innovation Center of Safety Animal Production, CICSAP, Changsha, Hunan, China*.

T248 **Effects of limit-feeding forage to concentrate ratios on nutrients intake, rumination, ruminal fermentation, digestibility, and growth in Holstein heifers.**
J. Zhang, H. Shi, Z. Cao, S. Li, S. Ji*, and Y. Wang, *State Key Laboratory of Animal Nutrition, Beijing Engineering Technology Research Center of Raw Milk Quality and Safety Control, College of Animal Science and Technology, China Agricultural University, Beijing, China*.

T249 **Hydroxy-selenomethionine: A novel organic selenium source for mid-lactation dairy cows improving antioxidant status and selenium concentrations in milk and plasma.**
J. Wang[1], P. Sun[1], W. Liu[1], and D. P. Bu*[1,2], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [3]*Hunan Co-Innovation Center of Safety Animal Production, CICSAP, Changsha, Hunan, China*.

T250 **Supplementation of lactating dairy cows with strains of live yeast during summer.**
K. T. Silva[1,2], F. F. Cardoso[1], E. F. Barbosa[1], J. C. Silva[1], L. J. Lara[1], E. A. Garcia[3], M. Aronovich[3,4], A. P. Peconick[1], R. A. N. Pereira[2,5], and M. N. Pereira*[1,5], [1]*University of Lavras, Lavras, Brazil*, [2]*Minas Gerais Ag Research Enterprise (Epamig), Lavras, Brazil*, [3]*Phileo Lesaffre Animal Care, Lille, France*, [4]*Rio de Janeiro State Ag Reasearch Enterprise (Pesagro), Rio de Janeiro, Brazil*, [5]*Better Nature Research Center, Ijaci, Brazil*.

T251 **Evaluation of acidified milk for feeding dairy calves in tropical climates.**
M. G. Coelho, F. L. M. Silva, M. D. Silva, A. P. Silva, A. C. Silva, J. Hartmann, and C. M. M. Bittar*, *ESALQ, University of Sao Paulo, Piracicaba, Sao Paulo Brazil*.

T252 **Supplementation to late lactation dairy cows during summer with dead yeast culture.**
J. D. L. Dias[1], R. B. Silva[1,2], L. E. C. Graças[1], K. Ferreira[1], L. C. Resende[1], R. C. Araujo[3], R. A. N. Pereira[2,4], and M. N. Pereira*[1,2], [1]*University of Lavras, Lavras, Brazil*, [2]*Better Nature Research Center, Ijaci, Brazil*, [3]*Grasp Industria e Comercio, Curitiba, Brazil*, [4]*Minas Gerais State Ag Research Enterprise (Epamig), Lavras, Brazil*.

T253 **Effect of acetic acid or sodium acetate infused into the abomasum or rumen on feeding behavior and metabolic response of postpartum cows.**
L. B. Gualdrón-Duarte* and M. S. Allen, *Michigan State University, East Lansing, MI*.

T254 **Original XPC and NutriTek increase volatile fatty acid production in an in vitro rumen model on forage samples from various global regions.**
C. Reedy*, T. Kwan, T. Werner, J. Butler, and I. Yoon, *Diamond V, Cedar Rapids, IA*.

T255 **Supplementation of grazing cows with a blend of essential oils and capsaicin or monensin.**
R. B. Silva[1,2], W. R. Silva[1], R. C. Cunha[1], B. B. C. Junqueira[1], M. A. S. Lara[1], J. F. Santos[3], R. C. Araujo[4], R. A. N. Pereira[2,4], and M. N. Pereira*[1,2], [1]*University of Lavras, Lavras, Brazil*, [2]*Better Nature Research Center, Ijaci, Brazil*, [3]*Cooperativa Castrolanda, Castro, Brazil*, [4]*Grasp Industria e Comercio, Curitiba, Brazil*, [5]*Minas Gerais Ag Research Enterprise (Epamig), Lavras, Brazil*.

T256 **Supplementation of lactating cows with a blend of essential oils and capsaicin or monensin: Performance and digestion.**
R. B. Silva[1,2], W. R. Silva[1], C. D. Oliveira[1], R. C. Araujo[3], R. A. N. Pereira[2,4], and M. N. Pereira*[1,2], [1]*University of Lavras, Lavras, Brazil*, [2]*Better Nature Research Center, Ijaci, Brazil*, [3]*Grasp Industria e Comercio, Curitiba, Brazil*, [4]*Minas Gerais State Ag Research Enterprise (Epamig), Lavras, Brazil*.

T257 **Supplementation of lactating cows with a blend of essencial oils or monensin: Thermoregulation and blood variables.**
R. B. Silva[1,2], W. R. Silva[1], C. D. S. Oliveira[1], A. C. C. Lacreta Junior[1], L. H. L. Chalfun[1], R. C. Araujo[3], R. A. N. Pereira[2,4], and M. N. Pereira*[1,2], [1]*University of Lavras, Lavras, Brazil*, [2]*Better Nature Research Center, Lavras, Brazil*, [3]*Grasp Industria e Comercio, Curitiba, Brazil*, [4]*Minas Gerais State Ag Research Enterprise (Epamig), Lavras, Brazil*.

T258 **Production effects of phytonutrients alone or in combination with yeast culture in lactating dairy cows.**
J. Oh*[1], M. Harper[1], A. Melgar[1], E. Wall[2], and A. Hristov[1], [1]*The Pennsylvania State University, University Park, PA*, [2]*Pancosma, Geneva, Switzerland*.

T259 **Effect of an abomasal amylase administration on postruminal starch digestion in heifers.**
K. Hansen[1], E. Westreicher-Kristen[1], A. Tröscher*[2], R. Blank[1], U. Dickhöfer[3], and A. Susenbeth[1], [1]*Christian-Albrechts-Universität zu Kiel, Kiel, Germany*, [2]*BASF SE, Ludwigshafen, Germany*, [3]*Universität Hohenheim, Stuttgart, Germany*.

T260 **Effect of a *Saccharomyces cerevisiae*-based direct-fed microbial product and an enzyme extract from *Aspergillus oryzae* and *Aspergillus niger* on productivity and enteric gas emission in lactating dairy cows.**
J. Oh*[1], M. Harper[1], A. Melgar[1], D. P. Compart[2], and A. Hristov[1], [1]*The Pennsylvania State University, University Park, PA*, [2]*PMI Nutritional Additive, Arden Hills, MN*.

T261 **Ad libitum milk feeding and butyrate supplementation differently affect the somatotropic axis in dairy calves.**
D. Frieten*[1], C. Gerbert[2], C. Koch[2], G. Dusel[1], K. Eder[3], B. Mielenz[4], A. Hoeflich[4], and H. M. Hammon[4], [1]*Department of Life Sciences and Engineering, University of Applied Sciences Bingen, Bingen, Germany*, [2]*Educational and Research Centre for Animal Husbandry, Hofgut Neumuehle, Muenchweiler an der Alsenz, Germany*, [3]*Institute of Animal Nutrition and Nutrition Physiology, Justus-Liebig-University Giessen, Giessen, Germany*, [4]*Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany*.

T262 **Effect of sodium acetate supplementation on in vitro production of volatile fatty acids and gases.**
L. M. Judd* and R. A. Kohn, *University of Maryland, College Park, MD.*

T263 **Fava bean (*Vicia faba* L. *major*) inclusion in dairy cow diets: Effect on enteric methane production and milk performance.**
C. Cherif*[1], F. Hassanat[1], S. Claveau[1], J. Girard[2], R. Gervais[2], and C. Benchaar[3], [1]*Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada*, [2]*Agrinova, Alma, QC, Canada*, [3]*Département des Sciences Animales, Université Laval, Québec, QC, Canada.*

T264 **Effect of phytogenic feed supplements added to starter grain on weight gain and rumen development in Holstein calves.**
H. A. Rossow[1], K. Mitchell[1], A. Johnson*[1], and B. Miller[2], [1]*University of California Davis, Tulare, CA*, [2]*Biomin America Inc., San Antonio, TX.*

T265 **Fava bean (*Vicia faba* L. *major*) inclusion in dairy cow diets: Effects on nitrogen utilization.**
C. Cherif*[1], F. Hassanat[1], S. Claveau[2], J. Girard[2], R. Gervais[3], and C. Benchaar[1], [1]*Agriculture and Agri-Food Canada, Sherbrooke Research and Development Centre, Sherbrooke, QC, Canada*, [2]*Agrinova, Alma, QC, Canada*, [3]*Département des Sciences Animales, Université Laval, Québec, QC, Canada.*

T266 **Evaluation of different liquid diets associated with environmental enrichment for dairy calves.**
M. D. Silva, M. G. Coelho, A. P. A. Moreira, M. Poczynek, and C. M. M. Bittar*, *ESALQ, University of Sao Paulo, Piracicaba, Sao Paulo, Brazil.*

T267 **Metabolic profile, feeding behavior and production responses of lactating dairy cows supplemented with a combination of osmolite feed ingredients (I.C.E.) and submitted to high temperature and humidity environment.**
J. Franck[1,2], F. Terra[3], A. Barbosa[1,2], M. N. Corrêa[1,2], F. A. B. Del Pino[1,2], D. B. Araújo[3], and E. Schmitt*[1,2], [1]*Federal University of Pelotas, Capão do Leão, Brazil*, [2]*NUPPEC, Capão do Leão, Brazil*, [3]*Cargill Animal Nutrition, Campinas, Brazil.*

T268 **Effects of an immunomodulatory feed additive on health, blood metabolites, milk composition, and milk quality in multiparous transition Holstein cows.**
Z. Wu[1], G. Alugongo[1], J. Xiao[1], J. Li[1], Y. Yu[1,2], Y. Li[2], Y. Wang[1], S. Li[1], and Z. Cao*[1], [1]*China Agricultural University, Beijing, China*, [2]*Henan University of Science and Technology, Luoyang, Henan, China.*

T269 **C16:0 supplementation alters markers of adipose tissue lipolysis and inflammation in early lactation dairy cows.**
J. de Souza*, C. Strieder-Barboza, G. A. Contreras, and A. L. Lock, *Michigan State University, East Lansing, MI.*

T270 **Long-term effects of C16:0 supplementation on production responses of lactating dairy cows.**
J. de Souza* and A. L. Lock, *Michigan State University, East Lansing, MI.*

T271 **Altering the ratio of dietary C16:0 and *cis*-9 C18:1 modifies the fatty acid profile of plasma lipid fractions and adipose tissue.**
J. de Souza*, C. Strieder-Barboza, H. Eerdun, G. A. Contreras, and A. L. Lock, *Michigan State University, East Lansing, MI.*

T272 **Altering source of chelated trace minerals improves milk fat in commercial dairy.**
H. Tucker* and M. Vazquez-Anon, *Novus International, St. Charles, MO.*

T273 **Comparison of ruminal bacterial communities in dairy herds of different production.**
N. Indugu*[1], B. Vecchiarelli[1], L. Baker[1], J. Ferguson[1], J. Vanamala[2], and D. Pitta[1], [1]*University of Pennsylvania, New Bolton Center, PA*, [2]*The Pennsylvania State University, University Park, PA.*

T274 **Evaluation of solubles syrup from microbially enhanced soy protein production as a supplement for growing dairy heifers.**
C. R. Schossow and J. L. Anderson*, *Dairy and Food Science Department, South Dakota State University, Brookings, SD.*

T275 **Dairy heifer growth performance when fed hydroponically grown barley sprouts.**
R. D. Lawrence* and J. L. Anderson, *Dairy and Food Science Department, South Dakota State University, Brookings, SD.*

T276 **The effects of feeding rations that differ in neutral detergent fiber and starch within a day on the daily pattern of selected rumen microbial populations.**
I. J. Salfer*, C. E. Crawford, Y. Ying, and K. J. Harvatine, *The Pennsylvania State University, University Park, PA.*

T277 **Acute high-grain challenge triggers a hepatic inflammatory response and alteration of lipid metabolism in Holstein but not Jersey cows.**
T. Xu*[1,2], F. C. Cardoso[2], E. Trevisi[3], X. Shen[1], and J. J. Loor[2], [1]*College of Veterinary Medicine, Nanjing Agricultural University, Nanjing, China*, [2]*Department of Animal Sciences, University of Illinois, Urbana, IL*, [3]*Universita Cattolica del Sacro Cuore, Piacenza, Italy.*

T278 **Assessing potentially digestible NDF and energy content of canola meal from twelve Canadian crushing plants over four production years.**
E. M. Paula*[1], J. L. P. Daniel[2], H. H. A. Costa[3], and A. Faciola[1], [1]*University of Nevada, Reno, NV*, [2]*Universidade Estadual de Maringa, Maringa, PR, Brazil*, [3]*Universidade Estadual Vale do Acarau, Sobral, Ceara, Brazil*.

T279 **Implications of rumen inoculation on the ruminal bacterial populations in dairy cows with diet induced milk fat depression.**
D. Pitta[1], N. Indugu*[1], B. Vecchiarelli[1], D. Rico[3], and K. Harvatine[2], [1]*University of Pennsylvania, School of Veterinary Medicine, New Bolton Center, PA*, [2]*Penn State University, University Park, PA*, [3]*Centre de Recherche en Sciences Animales de Deschambault, Deschambault, QC, Canada*.

T280 **Effects of varying prepartum DCAD and calcium concentrations on pre- and postpartum body weight, intake, milk yield and milk composition.**
A. L. Diehl*[1], J. K. Bernard[1], S. Tao[1], T. N. Smith[1], D. J. Kirk[2], D. J. McClean[2], and J. D. Chapman[2], [1]*University of Georgia, Tifton, GA*, [2]*Phibro Animal Health, Corp, Teaneck, NJ*.

T281 **Comparing selected corn grains using in vitro starch digestion or gas production.**
D. R. Mertens*[1], N. Schlau[2], and D. Taysom[2], [1]*Mertens Innovation & Research LLC, Belleville, WI*, [2]*Dairyland Laboratories Inc., Arcadia, WI*.

T282 **Steam explosion of corn stover: Saccharification, fermentation, and microbial colonization in rumen of dairy cows.**
G. Li[1,4], S. Zhao*[1,4], N. Zheng[1,2], and J. Wang[1,3], [1]*Ministry of Agriculture-Key Laboratory of Quality & Safety Control for Milk and Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Ministry of Agriculture-Laboratory of Quality and Safety Risk Assessment for Dairy Products, Beijing, China*, [3]*Ministry of Agriculture-Milk and Dairy Product Inspection Center, Beijing, China*, [4]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*.

T283 **Effects of clay on ruminal degradability of alfalfa hay, grass hay, wet brewer's grains, ground corn, corn silage, and soybean meal.**
M. E. Weatherly*[1], S. A. Sulzberger[1], A. Pineda[1], Y. Khidoyatov[2], M. R. Murphy[1], and F. C. Cardoso[1], [1]*University of Illinois, Department of Animal Sciences, Urbana, IL*, [2]*United Minerals Group, Kyiv, Ukraine*.

T284 **Effective fiber for lactating dairy cows: A physically adjusted NDF (paNDF) system.**
R. R. White[1], M. B. Hall[2], J. L. Firkins[3], and P. J. Kononoff*[4], [1]*Department of Animal and Poultry Science, Virginia Tech, Blacksburg, VA*, [2]*U.S. Dairy Forage Research Center, Madison, WI*, [3]*Department of Animal Sciences, The Ohio State University, Columbus, OH*, [4]*Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE*.

T285 **Effects of virginiamycin supplementation on milk yield and its composition in high-producing dairy cows.**
P. M. Souza[1], J. K. Poncheki[1], L. Barbosa[2], D. P. D. Lanna[3], and R. Almeida*[1], [1]*Universidade Federal do Paraná, Curitiba, PR, Brazil*, [2]*Phibro Animal Health, Campinas, SP, Brazil*, [3]*Escola Superior de Agricultura Luiz de Queiroz, Piracicaba, SP, Brazil*.

T286 **Evaluation of chemical composition and in vitro protein and fiber digestibility of corn dried distillers grains with solubles originating from seven sources.**
E. Dufour*[1], J. Judy[1], K. Herrick[2], and P. Kononoff[1], [1]*University of Nebraska-Lincoln, Lincoln, NE*, [2]*Poet Nutrition LLC, Sioux Falls, SD*.

T287 **Effects of DHA and ARA on performance, nutrient metabolism, and activation of the immune system in Holstein heifers.**
C. F. Vargas-Rodriguez, K. E. Olagaray*, R. Rusk, L. K. Mamedova, J. L. McGill, and B. J. Bradford, *Kansas State University, Manhattan, KS*.

T288 **Maternal ethyl-cellulose rumen-protected methionine supplementation alters blood biomarkers and immune function in neonatal Holstein calves.**
A. S. Alharthi*[1], F. Batistel[1], C. Parys[2], A. Helmbrecht[2], M. A. Ballou[3], E. Trevisi[4], and J. J. Loor[1], [1]*University of Illinois at Urbana-Champaign, Urbana, IL*, [2]*Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*, [3]*Department of Animal Sciences, Texas Tech University, Lubbock, TX*, [4]*Istituto di Zootecnica, Facoltà di Scienze Agrarie Alimentari ed Ambientali, Università Cattolica del Sacro Cuore, Piacenza, Italy*.

T289 **Estrus and ovarian response in Alpine and Criollo goats primed with progesterone plus human chorionic gonadotropin in anestrous period.**

A. S. Alvarado-Espino*[1], C. A. Meza-Herrera[2], E. Carrillo[3], R. Rivas-Muñoz[3], O. Ángel-García[1], S. Moreno-Avalos[1], M. A. De Santiago-Miramontes[1], and F. G. Véliz[1], [1]*Universidad Autónoma Agraria Antonio Narro, Torreón, Coahuila, México*, [2]*Universidad Autónoma Chapingo, Bermejillo, Durango, México*, [3]*Instituto Tecnológico de Torreón, Torreón, Coahuila, México*.

T290 **Effect of rumen-protected methionine and choline supplementation during dry period on dairy goats metabolic and inflammatory profile.**

F. Piccioli-Cappelli, M. Maiocchi, A. Minuti, M. Mezzetti, and E. Trevisi*, *Istituto di Zootecnica, Facoltà di Scienze Agrarie, Alimentari ed Ambientali, Università Cattolica del Sacro Cuore, Piacenza, Italy*.

T291 **Effects of forage to concentrate ratio in dairy ewes in early-lactation: 1. Lactational performances.**

A. Elhadi*[1], G. Caja[1], A. A. K. Salama[1], M. Mendivil[2], E. Durán[2], and E. Albanell[1], [1]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*, [2]*University Nacional Autonoma of Mexico, México DF, México*.

T292 **Effects of forage to concentrate ratio in dairy ewes in early lactation: 2. Milk fatty acid profile and cheese-yielding traits.**

A. Elhadi*[1], D. T. M. Ly[1], J. Saldo[1], P. G. Toral[2], A. A. K. Salama[1], G. Hervás[2], P. Frutos[2], and G. Caja[1], [1]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*, [2]*Instituto de Ganaderia de Montaña (CSIC-ULE), Grulleros, León, Spain*.

T293 **Out of breeding season sexual biostimulations of Dorper rams improve sexual behavior but not the male effect.**

O. Angel-García*[1], C. A. Meza-Herrera[2], L. R. Gaytán Alemán[1], J. L. Morales-Cruz[1], E. Carrillo Castellanos[3], M. G. Calderón-Leyva[4], A. S. Alvarado-Espino[1], and F. G. Veliz Déras[1], [1]*Universidad Autónoma Agraria Antonio Narro, Unidad Laguna, Torreon, Coahuila, Mexico*, [2]*Unidad Regional Universitaria de Zonas Aridas, Universidad Autónoma Chapingo, Bermejillo, Durango, México*, [3]*Instituto Tecnológico de Torreón No.10, Torreón, Coahuila, México*, [4]*Centro de Bachillerato Tecnológico Agropecuario No. 216, Ciudad Juárez, Durango, México*.

T294 **Milk fatty acid profile of dairy ewes fed contrasting sources of energy supplementation.**

F. E. Miccoli*[1,2], C. D. Perez[3,4], D. Colombatto[4,2], J. Danelon[2], and R. A. Palladino[4,2], [1]*School of Agriculture Science, National University of Lomas de Zamora, Buenos Aires, Argentina*, [2]*Department of Animal Production, University of Buenos Aires, Buenos Aires, Argentina*, [3]*Food Technology Institute-INTA, Buenos Aires, Argentina*, [4]*Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina*.

SYMPOSIA AND ORAL SESSIONS

ADSA Multidisciplinary and International Leadership (MILK) Symposium: The Dairy Cow in 50 Years

Chairs: **Michael VandeHaar, Michigan State University, and Kent Weigel, University of Wisconsin**

Room 301-302

9:30 AM 272 REC **The Dairy Cow in 50 Years: A symposium for all ADSA members and especially for graduate students in dairy production.**
Michael VandeHaar*, *Michigan State University*, *East Lansing, MI*.

9:45 AM 273 REC **A vision of the dairy farm and dairy cow in 50 years.**
J. H. Britt*, *Jack H Britt Consulting*, *Etowah, NC*.

10:15 AM 274 REC **Possibilities in an age of genomics: The future of the breeding index.**
J. B. Cole*, *Animal Genomics and Improvement Laboratory, ARS, USDA*, *Beltsville, MD*.

10:45 AM **Break**

11:00 AM 275 REC **Building a better cow: The Australian experience and what's next.**
J. E. Pryce*[1,2] and M. Shaffer[3], [1]*Agriculture Victoria*, *Bundoora, VIC, Australia*, [2]*La Trobe University*, *Bundoora, VIC, Australia*, [3]*DataGene*, *Bundoora,VIC, Australia*.

11:30 AM 276 REC **Building a better cow. How can we be sure she is adaptable?**
D. P. Berry*, *Teagasc Moorepark*, *Fermoy, Co. Cork, Ireland*.

12:00 PM REC **Discussion**

Animal Health III

Chair: **Matthew Sellers, Milk Specialties Global**

Room 324

9:30 AM 277 **Management practices for male calves on Canadian dairy farms .**
D. L. Renaud*, T. F. Duffield, S. J. LeBlanc, D. B. Haley, and D. F. Kelton, *Department of Population Medicine, University of Guelph*, *Guelph, ON, Canada*.

9:45 AM 278 **Neonatal management factors on dairy farms associated with mortality on veal farms.**
D. L. Renaud*, D. F. Kelton, S. J. LeBlanc, D. B. Haley, and T. F. Duffield, *Department of Population Medicine, University of Guelph*, *Guelph, ON, Canada*.

10:00 AM 279 **Aluminized reflective covers: Effect on calf behavior, health, and performance during summer.**
D. Manriquez*[1], H. Valenzuela[2], S. Paudyal[1], A. Velasquez[1], J. Velez[2], and P. Pinedo[1], [1]*Colorado State University*, *Fort Collins, CO*, [2]*Aurora Organic Dairy*, *Boulder, CO*.

10:15 AM 280 **Associations of management practices and calf health on dairy farms using automated milk feeders in southern Ontario.**
C. Medrano-Galarza*[1,5], S. J. LeBlanc[1,5], A. Jones-Bitton[1], T. J. DeVries[2,5], A. M. de Passillé[3], J. Rushen[3], M. I. Endres[4], and D. B. Haley[1,5], [1]*Department of Population Medicine, University of Guelph*, *Guelph, ON, Canada*, [2]*Department of Animal Biosciences, University of Guelph*, *Guelph, ON, Canada*, [3]*Faculty of Land and Food Systems, University of British Columbia*, *Vancouver, BC, Canada*, [4]*Department of Animal Science, University of Minnesota*, *St. Paul, MN*, [5]*Campbell Centre for the Study of Animal Welfare, University of Guelph*, *Guelph, ON, Canada*.

10:30 AM 281 **Factors associated with veal calf morbidity on an Ontario grain-fed (red) veal operation.**
K. Scott*, D. Renaud, T. Duffield, and D. Kelton, *University of Guelph*, *Guelph, ON, Canada*.

10:45 AM 282 **Behavior activity detected via 3D acceleration before diarrhea events in neonatal dairy calves.**
J. F. Castillo*[1,2], F. Rosa[2], J. J. Loor[3], J. S. Osorio[2], and F. C. Cardoso[3], [1]*Escuela Agrícola Panamericana El Zamorano, El Zamorano, Honduras*, [2]*South Dakota State University, Brookings, SD*, [3]*University of Illinois, Champaign-Urbana, IL*.

11:00 AM 283 **Real time determination of immunoglobulins levels in colostrum by using on-line computerized a herd management system.**
L. Lemberskiy-Kuzin[1], S. Lavie[1], G. Katz*[1], U. Merin[1], and G. Leitner[2], [1]*afimilk, Afikim, Israel*, [2]*National Mastitis Reference Center, Kimron Veterinary Institute, Bet Dagan, Israel*.

11:15 AM 284 **Validation of commercial luminometry swabs for enumeration of total bacteria and coliform counts in colostrum feeding equipment.**
D. L. Renaud*, T. F. Duffield, D. B. Haley, S. J. LeBlanc, and D. F. Kelton, *Department of Population Medicine, University of Guelph, Guelph, ON, Canada*.

11:30 AM 285 **Fresh cow illness detection using productivity and behavioral data in robotic milking herds.**
M. T. M. King*[1], S. J. Leblanc[2], E. A. Pajor[3], T. C. Wright[1], and T. J. DeVries[1], [1]*Dept. of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada*, [3]*Fac. of Veterinary Medicine, University of Calgary, Calgary, AB, Canada*.

11:45 AM 286 **Comparison of Johne's disease prevalence on organic and conventional dairy farms in Pennsylvania.**
M.-E. Fecteau*, T. L. Fyock, H. W. Aceto, H. J. Karreman, and R. W. Sweeney, *Department of Clinical Studies-New Bolton Center, School of Veterinary Medicine, University of Pennsylvania, Kennett Square, PA*.

12:00 PM 287 **Dry cow treatment, antimicrobial residues in colostrum, and resistance in new born calves.**
A. G. J. Velthuis*[1], M. A. Gonggrijp[1], A. E. Heuvelink[1], C. Kappert[1], D. Mevius[2], and T. Lam[1,2], [1]*GD Animal Health, Deventer, the Netherlands*, [2]*Utrecht University, Department Farm Animal Health, Utrecht, the Netherlands*.

12:15 PM 288 **Lameness on Canadian dairy farms: Measured and farmer-perceived prevalence, and associations with management practices.**
S. L. Croyle*, C. Bauman, S. J. LeBlanc, and D. F. Kelton, *University of Guelph, Guelph, ON, Canada*.

Dairy Foods Symposium:
Biofilm Formation on Dairy Separation Membranes
Chair: **Ashraf Hassan, Daisy Brand**
Room 327

9:30 AM 289 **Exopolysaccharides produced by lactic starter cultures impact biofilm formation on separation membranes.**
REC
N. Garcia-Fernandez[2], S. Anand[2], and A. Hassan*[1], [1]*Daisy Brand, Garland, TX*, [2]*South Dakota State University, Brookings, SD*.

10:00 AM 293 **The role of quorum sensing in biofilm formation by bacteria in the dairy processing environment.**
REC
M. Griffiths*, *University of Guelph, Guelph, ON, Canada*.

10:30 AM 290 **The role of biofilms in the quality of dairy products in whey processing plants.**
REC
S. Flint*, S. N. M. Zain, and R. Bennett, *Massey Institute of Food Science and Technology, Massey University, Palmerston North, New Zealand*.

11:00 AM 291 **Controlling microbial biofilms.**
REC
P. S. Stewart*, *Montana State University, Bozeman, MT*.

11:30 AM 292 **Features of reverse osmosis membrane treatment systems that influence biofouling.**
T. Arrowood*[1], G. G. Oriol[2], and G. Massons[2], [1]*Dow Water and Process Solutions, Edina, MN*, [2]*Dow Water and Process Solutions, Tarragona, Spain*.

12:00 PM **Closing remarks.**
Ashraf Hassan.

Dairy Foods II:
Cheese
Chair: **Lloyd Metzger, South Dakota State University**
Room 328

9:30 AM 294 **Mid-infrared analysis of Cheddar cheese.**
B. Margolies* and D. Barbano, *Cornell University, Ithaca, NY.*

9:45 AM 295 **Cholesterol, fatty acid profile, and mineral content of commercial cheeses predicted by near-infrared transmittance spectroscopy.**
C. L. Manuelian*, S. S. Currò, M. Penasa, and M. De Marchi, *University of Padova, Legnaro, Padova, Italy.*

10:00 AM 296 **Is fatty acid composition of retail cheeses influenced by the scale of production?**
E. Vargas-Bello-Pérez*[1], C. Geldsetzer-Mendoza[2], M. S. Morales[2], P. Toro-Mujica[1], M. A. Fellenberg[1], R. A. Ibáñez[1], and P. Gómez-Cortés[3], [1]*Departamento de Ciencias Animales, Facultad de Agronomía e Ingeniería Forestal, Pontificia Universidad Católica de Chile, Santiago, Chile*, [2]*Departamento de Fomento de la Producción Animal, Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile, Santiago, Chile*, [3]*Instituto de Investigación en Ciencias de la Alimentación, Universidad Autónoma de Madrid, Nicolás Cabrera 9, Madrid, Spain.*

10:15 AM 297 **Impact of green tea polyphenols on functionality and sensory acceptability of buffalo milk Cheddar cheese.**
M. A. Murtaza*[1], I. Hafiz[2], and M. Anees-ur-Rehman[1], [1]*Institute of Food Science and Nutrition, University of Sargodha, Sargodha, Pakistan*, [2]*Department of Chemistry, University of Agriculture, Faisalabad, Pakistan.*

10:30 AM 298 **Effect of pH modification on chymosin-induced coagulation of concentrated casein micelles suspensions.**
Z. Zhao*[1] and M. Corredig[1,2], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Gay Lea Foods, Guelph, ON, Canada.*

10:45 AM 299 **Effects of different commercial proteolytic enzymes used in the production of enzyme-modified cheese on the cheese ripening parameters.**
G. Govce[1], P. Salum[2], D. Bas[3], P. Kendirci[4], and Z. Erbay*[5], [1]*Department of Food Engineering, Institute of Natural and Applied Sciences, Adana Science and Technology University, Adana, Turkey*, [2]*Department of Food Engineering, Institute of Natural and Applied Sciences, Cukurova University, Adana, Turkey*, [3]*Department of Food Engineering, Faculty of Engineering, Cankiri Karatekin University, Cankiri, Turkey*, [4]*Department of Gastronomy and Culinary Arts, Faculty of Tourism, Katip Çelebi University, Izmir, Turkey*, [5]*Department of Food Engineering, Faculty of Engineering and Natural Sciences, Adana Science and Technology University, Adana, Turkey.*

Growth and Development I
Chair: **Michael Steele, University of Alberta**
Room 317

9:30 AM 300 **Evaluating the effect of protein source and micro-encapsulated sodium butyrate in starter mixtures on gastrointestinal tract development of dairy calves.**
K. Burakowska*[1], M. Przybylo[2], G. Penner[1], and P. Górka[2], [1]*University of Saskatchewan, Saskatoon, SK, Canada*, [2]*University of Agriculture in Krakow, Krakow, Poland.*

9:45 AM 301 **Effects of feeding milk replacer with increased fat on intake and performance of calves during the summer months in northern New York.**
K. Hultquist*, C. Ballard, and C. Havekes, *William H. Miner Agricultural Research Institute, Chazy, NY.*

10:00 AM 302 **Effects of prebiotic and phytogenic milk replacer additives on growth and feed utilization of Holstein rearing calves.**
T. Wilke*[1] and H. Westendarp[2], [1]*Dr. Eckel Animal Nutrition GmbH & Co KG, Niederzissen, Germany*, [2]*Faculty of Agricultural Sciences and Landscape Architecture, University of Applied Sciences, Osnabrück, Germany.*

Physiology and Endocrinology III
Chair: **Julio Giordano, Cornell University**
Room 330

9:30 AM 303 **16S rRNA gene sequencing reveals the microbiome of the virgin and pregnant bovine uterus.**
S. G. Moore*[1], A. C. Ericsson[2,3], S. E. Poock[4], P. Melendez[4], and M. C. Lucy[1], [1]*Division of Animal Sciences, University of Missouri, Columbia, MO*, [2]*Department of Veterinary Pathology, University of Missouri, Columbia, MO*, [3]*University of Missouri Metagenomics Center, University of Missouri, Columbia, MO*, [4]*College of Veterinary Medicine, University of Missouri, Columbia, MO*.

9:45 AM 304 **Uterine microbiome during the first week after calving is associated with differences in milk production in the absence of overt signs of disease.**
S. G. Moore*[1], A. C. Ericsson[2,3], S. E. Poock[4], and M. C. Lucy[1], [1]*Division of Animal Sciences, University of Missouri, Columbia, MO*, [2]*Department of Veterinary Pathology, University of Missouri, Columbia, MO*, [3]*University of Missouri Metagenomics Center, University of Missouri, Columbia, MO*, [4]*College of Veterinary Medicine, University of Missouri, Columbia, MO*.

10:00 AM 305 **Discovering neutrophil extracellular traps in the bovine endometrium and the effects of feeding a rumen-protected methionine on plasma amino acid concentrations and uterine characteristics.**
S. L. Stella*[1], D. A. V. Acosta[2], C. Skenandore[1,3], Z. Zheng[1], A. Steelman[1], D. Luchini[4], and F. C. Cardoso[1], [1]*University of Illinois, Urbana, IL*, [2]*The Colombian Corporation for Agricultural Research (CORPOICA), Bogotá, Colombia*, [3]*Texas A&M College of Veterinary Medicine, College Station, TX*, [4]*Adisseo NACA, Alpharetta, GA*.

10:15 AM 306 **Ovarian follicular dynamics, endocrinology, and estrous behaviour in repeat breeder cattle.**
P. Sood*[1], H. D. Sarma[2], P. K. Dogra[1], V. Kadwad[3], and S. S. Sachdev[3], [1]*DR G C Negi College of Veterinary and Animal Sciences, Palampur, Himachal Pradesh, India*, [2]*Bhabha Atomic Research Centre, Mumbai, Maharashtra, India*, [3]*Board of Radiation and Isotope Technology, Mumbai, Maharashtra, India*.

10:30 AM 307 **Preovulatory follicle characteristics and oocyte competence in repeat breeder dairy cows.**
P. Sood*[1,2], M. Zachut[2], I. Dekel[2], H. Dube[2], and U. Moallem[2], [1]*Dr G C Negi College of Veterinary and Animal Sciences, Palampur, Himachal Pradesh, India*, [2]*Department of Ruminants Science, ARO, Volcani Center, Rishon LeZion, Israel*.

10:45 AM 308 **Fertility, concentrations of steroid hormones, and antioxidant enzymes during transition period in dairy cows fed organic trace minerals supplement.**
V. Khanthusaeng*, C. Navanukraw, A. Kraisoon, S. Tongrueng, and T. Bunma, *Agricultural Biotechnology Research Center for Sustainable Economy (ABRCSE), Department of Animal Science, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand*.

11:00 AM 309 **The association between cervical and uterine size at 4 weeks postpartum and fertility in Jersey cows.**
S. Poock[1], P. Melendez*[1], M. Caldeira[2], S. Moore[2], L. Mayo[2], R. Molina-Coto[2], and M. Lucy[2], [1]*College of Veterinary Medicine, University of Missouri, Columbia, MO*, [2]*Department of Animal Sciences, University of Missouri, Columbia, MO*.

11:15 AM 310 **Pre-ovulatory follicular size and the subsequent conception rate in dairy cows.**
R. Mur-Novales*[1,2], I. Garcia-Ispierto[1,2], B. Serrano-Pérez[1,2], V. Cabrera[3], and F. López-Gatius[2], [1]*Department of Animal Science, University of Lleida, Lleida, Spain*, [2]*Agrotecnio Center, Lleida, Spain*, [3]*University of Wisconsin-Madison, Madison, WI.*

11:30 AM 311 **Associations between inter-service interval and fertility in dairy cows.**
J. G. Remnant*, M. J. Green, J. N. Huxley, and C. D. Hudson, *University of Nottingham, Sutton Bonington, Loughborough, UK*.

11:45 AM 312 **Chronic lipopolysaccharide infusion has no impact on dominant follicular size but affects 17β-estradiol in lactating dairy cows.**
M. J. Dickson*, S. K. Kvidera, E. A. Horst, J. A. Ydstie, K. L. Bidne, C. E. Wiley, P. J. Gunn, A. F. Keating, and L. H. Baumgard, *Iowa State University, Ames, IA*.

12:00 PM 313 **Measurement of ISG15 in milk somatic cells for pregnancy diagnosis 18, 20, and 22 days after timed artificial insemination (TAI).**
L. M. Mayo*[1], R. Rodrigues[1], R. Molina Coto[1], S. G. Moore[1], S. E. Poock[2], and M. C. Lucy[1], [1]*Division of Animal Sciences, University of Missouri, Columbia, MO*, [2]*Veterinary Medicine Extension, University of Missouri, Columbia, MO*.

12:15 PM 314 **Effects of nerve growth factor-β on luteal function and markers of conceptus development in cattle.**
J. S. Stewart[1], V. R. G. Mercadante[2], I. F. Canisso[1], and F. S. Lima*[1], [1]*University of Illinois, Urbana-Champaign, IL*, [2]*Virginia Tech University, Blacksburg, VA*.

Precision Dairy Farming Symposium: Precision Dairy (PD) Management Today

Chair: **Marcia Endres, University of Minnesota**
Sponsor: **Precision Dairy Farming Association**
Room 319-320

9:30 AM 315 REC **Precision dairy research and user update: Dairy cattle reproduction.**
R. L. A. Cerri*[1], B. F. Silper[1], T. A. Burnett[1], A. M. L. Madureira[1], L. B. Polsky[1], M. Kaur[1], R. F. Cooke[2], and J. L. M. Vasconcelos[3], [1]*Applied Animal Biology, University of British Columbia, Vancouver, BC, Canada*, [2]*EOARC, Oregon State University, Burns, OR*, [3]*Department of Animal Production, Sao Paulo State University, Botucatu, SP, Brazil*.

10:00 AM 316 REC **Dairy cattle health and welfare in the precision dairy world.**
D. Kelton*, *University of Guelph, Guelph, ON, Canada*.

10:30 AM **Q&A session**

10:45 AM **Break**

11:00 AM 317 REC **Producer experience with precision dairy.**
B. Biehl*, *Corner View Farm, Kutztown, PA*.

11:30 AM 318 REC **Precision dairy economics.**
C. Kamphuis*[2], H. Hogeveen[1,3], and M. van der Voort[1], [1]*Business Economics Group, Wageningen University and Research, Wageningen, the Netherlands*, [2]*Animal Breeding and Gernomics, Wageningen University and Research, Wageningen, the Netherlands*, [3]*Department of Farm Animal Health, Faculty of Veterinary Health, Utrecht University, Utrecht, the Netherlands*.

12:00 PM **Q&A session**

Production, Management, and the Environment III

Chair: **K. Marie Krause, West Virginia University, Morgantown**
Room 329

9:30 AM 319 **Validation of an accelerometer to monitor rumination, eating and activity in an organic grazing dairy herd.**
G. Pereira*[1], B. Heins[1], and M. Endres[2], [1]*University of Minnesota, West Central Research and Outreach Center, Morris, MN*, [2]*University of Minnesota, Department of Animal Science, St.Paul, MN*.

9:45 AM 320 **Milking efficiency in AMS—Effects of teaser feed and take-off level.**
S. Ferneborg[1], R. A. Black[3], S. Agenäs[1], M. Thulin[2,1], K. Svennersten-Sjaunja[1], E. Ternman*[1], and P. D. Krawczel[3], [1]*Swedish University of Agricultural Sciences, Department of Animal Nutrition and Management, Uppsala, Sweden*, [2]*Uppsala University, Department of Statistics, Uppsala, Sweden*, [3]*The University of Tennessee, Department of Animal Science, Knoxville, TN*.

10:00 AM 321 **Daily milk production, number of milkings, feed consumption and rumination time for cows in robotic milking systems in the United States.**
J. M. Siewert*[1], J. A. Salfer[2], and M. I. Endres[1], [1]*University of Minnesota, St. Paul, MN*, [2]*University of Minnesota Extension, St. Cloud, MN*.

10:15 AM 322 **Economic and environmental performance of traditional and grass-fed organic dairies using the Integrated Farm System Model.**
R. A. V. Santana[1], A. F. Brito*[2], V. E. Cabrera[3], F. A. Barbosa[4], A. K. Hoshide[5], A. F. Benson[6], A. N. Hafla[7], H. M. Darby[8], K. J. Soder[7], and R. Kersbergen[9], [1]*Instituto Federal de Educação, Ciência e Tecnologia do Norte de Minas Gerais–Campus Arinos, Arinos, MG, Brazil*, [2]*University of New Hampshire; Department of Biological Sciences, Durham, NH*, [3]*University of Wisconsin; Department of Dairy Sciences, Madison, WI*, [4]*Universidade Federal de Minas Gerais; Departamento de Zootecnia, Belo Horizonte, MG, Brazil*, [5]*University of Maine; School of Economics, Orono, ME*, [6]*Cornell University; Cornell Cooperative Extension, Cortland, NY*, [7]*USDA-ARS; Pasture Systems and Watershed Management Research Unit, University Park, PA*, [8]*University of Vermont; Department of Plant and Soil Sciences, St. Albans, VT*, [9]*University of Maine; Cooperative Extension and School of Food and Agriculture, Orono, ME*.

10:30 AM 323 **Comparison of fatty acid profiles and consumer acceptability of dairy steers grazing two cover cropping systems.**
H. Phillips*[1], B. Heins[1], K. Delate[2], and B. Turnbull[2], [1]*University of Minnesota, Morris, MN*, [2]*Iowa State University, Ames, IA*.

10:45 AM **Break**

11:00 AM 324 **Relationships between protein and energy consumed from milk replacer and starter and first lactation production performance of Holstein dairy cows.**
J. Rauba*[1], B. Heins[2], H. Chester-Jones[3], D. Ziegler[3], and N. Broadwater[4], [1]*Milk Specialties Global, Eden Prairie, MN*, [2]*University of Minnesota West Central Research and Outreach Center, Morris, MN*, [3]*University of Minnesota Southern Research and Outreach Center, Waseca, MN*, [4]*University of Minnesota Extension, Rochester, MN*.

11:15 AM 325 **Relationships between protein and energy consumed from milk replacer and starter and growth for Holstein dairy calves.**
J. Rauba*[1], B. Heins[2], H. Chester-Jones[3], D. Ziegler[3], and N. Broadwater[4], [1]*Milk Specialties Global, Eden Prairie, MN*, [2]*University of Minnesota West Central Research and Outreach Center, Morris, MN*, [3]*University of Minnesota Southern Research and Outreach Center, Waseca, MN*, [4]*University of Minnesota Extension, Rochester, MN*.

11:30 AM 326 **Effects of dietary nonfiber carbohydrate content on lactation performance and rumen fermentation characteristics in mid-lactation dairy cows receiving corn stover.**
Z. H. Wei*, B. X. Zhang, D. M. Wang, and J. X. Liu, *Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*.

Ruminant Nutrition III
Chair: **Diwakar Vyas, University of Florida**
Room 310-311

9:30 AM 327 **Comparison of Molly and Karoline models to predict methane emissions in cattle.**
M. Kass[1,3], M. D. Hanigan[2], M. Ramin[3], and P. Huhtanen*[3], [1]*Estonian University of Life Science, Tartu, Estonia*, [2]*Virginia Tech University, Blacksburg, VA*, [3]*Swedish University of Agricultural Sciences, Umeå, Sweden*.

9:45 AM 328 **Development of equations to predict dry matter intake of lactating cows using animal factors.**
R. Souza*[1], R. Tempelman[1], D. Spurlock[2], E. Connor[3], L. Armentano[4], M. Allen[1], and M. VandeHaar[1], [1]*Michigan State University, East Lansing, MI*, [2]*Iowa State University, Ames, IA*, [3]*USDA, Beltsville, MD*, [4]*University of Wisconsin, Madison, WI*.

10:00 AM 329 **Development of equations to predict dry matter intake of lactating cows using factors related to the filling effect of rations.**
D. O. Sousa, M. J. VandeHaar, and M. S. Allen*, *Michigan State University, East Lansing, MI*.

10:15 AM 330 **A meta-analysis of starch concentration in dairy calf feeds on growth and digestibility.**
W. Hu, T. M. Hill*, F. X. Suarez-Mena, T. S. Dennis, J. D. Quigley, and R. L. Schlotterbeck, *Nurture Research Center, Provimi, Brookville, OH*.

10:30 AM 331 **Effects of transition nutrition on the fertility of lactating dairy cattle: A meta-analysis.**
R. M. Rodney[1,2], P. Celi[3,4], W. Scott[1], K. Breinhild[1], and I. J. Lean*[1,2], [1]*Scibus, Camden, NSW, Australia*, [2]*School of Life and Environmental Sciences, Faculty of Veterinary Science, University of Sydney, Camden, NSW, Australia*, [3]*DSM Nutritional Products, Animal Nutrition and Health, Columbia, MD*, [4]*Faculty of Veterinary and Agricultural Sciences, The University of Melbourne, Parkville, VIC, Australia*.

10:45 AM 332 **Repeatability of residual feed intake across diets with two levels of dietary protein content.**
E. Liu* and M. J. VandeHaar, *Michigan State University, East Lansing, MI.*

11:00 AM 333 **Early lactation meal size, but not meal frequency, is positively associated with whole-lactation milk production and retention in the dairy herd.**
A. J. Carpenter, M. Wood, and B. J. Bradford*, *Kansas State University, Manhattan, KS.*

11:15 AM 334 **Effects of particle size and undigested neutral detergent fiber source on dry matter intake, milk production and composition, and chewing behavior of dairy cows.**
M. D. Miller*, H. M. Dann, K. W. Cotanch, and R. J. Grant, *William H. Miner Agricultural Research Institute, Chazy, NY.*

11:30 AM 335 **Impact of ration nutrient density on the energy balance and inflammatory response of dairy cows during and after dry-off.**
K. M. Dancy*, E. S. Ribeiro, and T. J. DeVries, *Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*.

11:45 AM 336 **Impact of straw particle size on behavior, health, and production of early lactation dairy cows.**
R. E. Coon*[1], T. F. Duffield[2], and T. J. DeVries[1], [1]*Dept. of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Dept. of Population Medicine, University of Guelph, Guelph, ON, Canada*.

12:00 PM 337 **Effects of dietary chromium on circulating energetic metabolites and leukocyte patterns following a lipopolysaccharide challenge in lactating cows.**
E. A. Horst*[1], S. K. Kvidera[1], E. J. Mayorga[1], C. S. Shouse[1], M. Al-Qaisi[1], M. J. Dickson[1], J. A. Ydstie[1], H. A. Ramirez[1], K. E. Griswold[2], and L. H. Baumgard[1], [1]*Iowa State University, Ames, IA*, [2]*Kemin Industries Inc., Des Moines, IA*.

12:15 PM 338 **Effects of dietary chromium on energetic requirements of an activated immune system following a lipopolysaccharide challenge in lactating cows.**
E. A. Horst*[1], S. K. Kvidera[1], E. J. Mayorga[1], C. S. Shouse[1], M. Al-Qaisi[1], M. J. Dickson[1], J. A. Ydstie[1], H. A. Ramirez[1], K. E. Griswold[2], and L. H. Baumgard[1], [1]*Iowa State University, Ames, IA*, [2]*Kemin Industries Inc., Des Moines, IA*.

Small Ruminant
Chair: **David L. Thomas, University of Wisconsin-Madison**
Room 318

9:30 AM 339 **The effects of prepartum fatty acid supplementation on colostrum and milk fatty acid profiles and production.**
D. Coleman* and A. Relling, *The Ohio State University, OARDC, Wooster, OH.*

9:45 AM 340 **Why and when should dairy ewes be shorn: Open, pregnant, or neither?**
G. Caja*[1], L. Cordón[1], S. González-Luna[2], A. A. K. Salama[1], X. Such[1], E. Albanell[1], A. Contreras-Jodar[1], and J. de Lucas[2], [1]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*, [2]*University Nacional Autonoma of Mexico, Cuautitlán, México*.

10:00 AM 341 **Net protein and energy requirements for growth according to the degree of maturity of Saanen goats.**
I. A. M. A. Teixeira*[1], A. P. Souza[1], N. R. St-Pierre[2], M. H. M. R. Fernandes[1], A. K. Almeida[1], J. A. C. Vargas[1], and K. T. Resende[1], [1]*Universidade Estadual Paulista (Unesp), Jaboticabal, Sao Paulo, Brazil*, [2]*Ohio State University, Columbus, OH.*

10:15 AM 342 **Effects of dietary nitrogen sources and nisin on nutrient digestibility, rumen fermentation, nitrogen utilization, plasma metabolites, and growth performance in growing lambs.**
J. Shen*[1,2], Y. Chen[1], W. Zhu[1], and Z. Yu[2], [1]*Nanjing Agricultural University, Nanjing, Jiangsu, China*, [2]*The Ohio State University, Columbus, OH.*

10:30 AM 343 **Effects of algae supplementation on milk performance and rumen fermentation in lactating Xinong Saanen dairy goats.**
P. Wang*[1], Y. Xue[2], X. Zhang[1], A. Koontz[2], and J. Luo[1], [1]*Alltech-NWAFU Animal Science Research Alliance, College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, China*, [2]*Alltech China, Beijing, China*.

10:45 AM 344 **Variability of rumen acidosis and intake behavior of dairy goats submitted to a dietary acidogenic challenge.**
A. Castro-Costa[1], G. Caja*[1], A. Eymard[2], O. Dhumez[2], J. Tessier[2], and S. Giger-Reverdin[2], [1]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*, [2]*INRA, AgroParisTech, University of Paris-Saclay, Paris, France*.

11:00 AM 345 **Evaluation of two bulk tank milk paratuberculosis tests in dairy goats and sheep.**
C. Bauman*[1], A. Jones-Bitton[1], J. Jansen[2], P. Menzies[1], and D. Kelton[1], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Ontario Ministry of Agriculture Food and Rural Affairs, Guelph, ON, Canada*.

ADSA-American Society for Nutrition Symposium: Does the Amount and Type of Fat That You Eat Matter?
Chair: **Donald C. Beitz, Iowa State University**
Room 319-320

2:00 PM 346 **A rational evaluation of the dairy fat debate.** REC
L. Baumgard*, *Iowa State University, Ames, IA*.

2:45 PM 347 **Dietary fats: The saturated vs. unsaturated controversy.** REC
G. D. Lawrence*, *Long Island University, Brooklyn, NY*.

3:30 PM 348 **Scientific evidence and gaps: A systematic review of dietary cholesterol and cardiovascular disease.** REC
G. Raman*, *Tufts Medical Center, Boston, MA*.

4:15 PM 349 **Nutritional significance of milk fat membrane composition and structure.** REC
R. Jimenez-Flores*, *The Ohio State University, Columbus, OH*.

Animal Behavior and Well-Being II
Chair: **Peter Krawczel, University of Tennessee**
Room 321

2:00 PM 350 Effects of stocking density and feed access on short-term responses in ruminal fermentation of Holstein dairy cows.
M. A. Campbell*[1,2], H. M. Dann[2], P. D. Krawczel[3], and R. J. Grant[2], [1]*University of Vermont, Burlington, VT*, [2]*William H. Miner Agricultural Research Institute, Chazy, NY*, [3]*University of Tennessee, Knoxville, Knoxville, TN*.

2:15 PM 351 Effects of stocking density and feed availability on short-term lying, feeding, and rumination responses of Holstein dairy cows.
M. A. Campbell*[1,2], H. M. Dann[2], P. D. Krawczel[3], and R. J. Grant[2], [1]*University of Vermont, Burlington, VT*, [2]*William H. Miner Agricultural Research Institute, Chazy, NY*, [3]*University of Tennessee, Knoxville, Knoxville, TN*.

2:30 PM 352 Clinical mastitis detection—Development of an accurate detection method for automatic milking systems.
M. Khatun*, P. C. Thomson, K. Kerrisk, J. Molfino, and S. C. García, *School of Life and Environmental Sciences, Faculty of Science, The University of Sydney, Camden, NSW, Australia*.

2:45 PM 353 Evaluation of activity, feeding time, lying time, rumination time, reticulorumen temperature, and milk yield, conductivity, lactose, protein, and fat to detect subclinical mastitis.
A. E. Stone*[1,2], B. W. Jones[2], I. C. Tsai[2], L. M. Mayo[2], and J. M. Bewley[2], [1]*Mississippi State University, Starkville, MS*, [2]*University of Kentucky, Lexington, KY*.

3:00 PM 354 Cows at high risk of Johne's disease spend less time lying down around peak lactation.
G. L. Charlton*, C. Gauld, E. C. L. Bleach, and S. M. Rutter, *Harper Adams University, Edgmond, United Kingdom.*

3:15 PM 355 Detection of lame cattle using behavioral and physiological changes as measured by precision dairy monitoring technologies.
B. W. Jones*[1], L. M. Mayo[1], I. C. Tsai[1], A. E. Stone[1], Y. M. Chang[2], and J. M. Bewley[1], [1]*University of Kentucky, Lexington, KY,* [2]*Royal Veterinary College, London, UK.*

3:30 PM 356 Facial biometrics as predictors of productivity, fertility, and health traits in elite dairy sires.
C. McVey* and P. Pinedo, *Colorado State University, Fort Collins, CO.*

Animal Health Symposium:
Antibiotics and Animal Agriculture: Outlook for the Upcoming Years
Chair: **Michael Ballou, Texas Tech University**
Sponsor: **BIOMIN America**
Room 301-302

2:00 PM 357 **How has the veterinary feed directive changed dairy production medicine?**
REC P. J. Gorden*, *Iowa State University, Ames, IA.*

2:45 PM 358 **The status of antimicrobials for dairy practice: An update on efficacy and resistance.**
REC P. Ruegg*, *University of Wisconsin, Madison, WI.*

3:30 PM **Strategies for reducing antibiotic use in dairy cattle.**
REC G. Mechor*, *Elanco Animal Health.*

4:15 PM 359 **Enhancing animal health through multiple modes of action.**
REC K. C. Jeong*, *Department of Animal Sciences, Emerging Pathogens Institute, University of Florida, Gainesville, FL.*

Animal Health IV
Chair: **Barry Bradford, Kansas State University**
Room 303

2:00 PM 360 **Genome, metabolome, and microbiome associations in grain- and sugar- challenged dairy heifers.**
H. M. Golder*[1,2], J. Thomson[3], S. Denman[4], C. S. McSweeney[4], and I. J. Lean[1,2], [1]*Scibus, Camden, NSW, Australia,* [2]*Dairy Science Group, Faculty of Veterinary Science, The University of Sydney, Camden, NSW, Australia,* [3]*Montana State University, Department of Animal and Range Sciences, Bozeman, MT,* [4]*CSIRO Agriculture and Food, Queensland Bioscience Precinct, St. Lucia, QLD, Australia.*

2:15 PM 361 **Grain-induced subacute ruminal acodosis (SARA) alters epimural microbiota of dairy cows thoughout the digestive tract.**
J. C. Plaizier*[1], A. M. Danscher[2], P. A. Azevedo[1], S. Li[1], P. H. Andersen[3], and E. Khafipour[1], [1]*University of Manitoba, Winnipeg, Canada,* [2]*University of Copenhagen, Copenhagen, Denmark,* [3]*Swedish Agricultural Universiity, Uppsala, Sweden.*

2:30 PM 362 **Associations of productivity and supplemental feed consumption with subclinical ketosis in dairy cows in robotic milking herds.**
K. J. Sparkman, M. T. M. King*, and T. J. DeVries, *Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada.*

2:45 PM 363 **Postpartal subclinical ketosis can be predicted by monitoring prepartal standing behavior in transition dairy cows.**
S. Rodriguez-Jimenez*[1], K. J. Haerr[2], E. Trevisi[3], J. S. Osorio[1], J. J. Loor[2], and F. C. Cardoso[2], [1]*South Dakota State University, Brookings, SD,* [2]*University of Illinois, Champaign, IL,* [3]*Università Cattolica del Sacro Cuore, Milan, Italy.*

3:00 PM 364 **Glucagon-like peptide 2 administration improves biomarkers of inflammation and intestinal morphology in feed restricted lactating Holstein cows.**
S. K. Kvidera*[1], E. A. Horst[1], M. V. Sanz Fernandez[1], M. Abuajamieh[1], S. Ganesan[1], P. J. Gorden[1], H. B. Green[2], K. M. Schoenberg[2], W. E. Trout[2], A. F. Keating[1], and L. H. Baumgard[1], [1]*Iowa State University, Ames, IA*, [2]*Elanco Animal Health, Greenfield, N.*

3:15 PM 365 **Sensitivity and specificity of fine needle aspiration cytology and histopathology for fatty liver screening in dairy cattle.**
P. Melendez*[1], M. Whitney[1], F. Williams[1], P. Pinedo[2], D. Manriquez[2], S. Moore[3], M. Lucy[3], P. Pithua[1], and S. Poock[1], [1]*College of Veterinary Medicine, University of Missouri, Columbia, MO,* [2]*Department of Animal Sciences, Colorado State University, Foth Collins, CO,* [3]*Department of Animal Sciences, University of Missouri, Columbia, MO.*

3:30 PM 366 **Factors associated with subclinical hypocalcemia at calving on multiparous Jersey cows.**
A. Valldecabres*[1], J. A. A. Pires[2], and N. Silva-del-Río[1], [1]*Veterinary Medicine Teaching and Research Center, University of California Davis, Tulare, CA,* [2]*Unité Mixte de Recherche sur les Herbivores, INRA, VetAgro Sup, Saint-Genes-Champanelle, France.*

3:45 PM 367 **Effects of chloride and sulfate-based diets fed to grazing prepartum dairy cows on postpartum plasma calcium.**
P. Melendez*[1], V. Zaror[2], P. Gaul[2], S. Poock[1], and J. Goff[3], [1]*College of Veterinary Medicine, University of Missouri, Columbia, MO,* [2]*Tribute Dairy, Benton, MO,* [3]*College of Veterinary Medicne, Iowa State University, Ames, IA.*

4:00 PM 368 **Supplementing phytogenics and autolyzed yeast in concentrate-rich diets modulate chewing behavior and rumen pH in dairy cows.**
I. Kröger[1], V. Neubauer[1], E. Humer[1], N. Reisinger*[2], and Q. Zebeli[1], [1]*Institute of Animal Nutrition and Functional Plant Compounds, Department for Farm Animals and Veterinary Public Health, University of Veterinary Medicine Vienna, Vienna, Austria,* [2]*Biomin Research Center, Technopark 1, Tulln, Austria.*

4:15 PM 369 **Mycotoxin survey in 2016 US corn.**
P. N. Gott*[1], E. G. Hendel[1], T. Jenkins[2], and G. R. Murugesan[1], [1]*Biomin America Inc., San Antonio, TX,* [2]*Biomin Holding GmbH, Getzersdorf, Austria.*

4:30 PM 370 **Mycotoxin survey in US corn distillers dried grains with solubles.**
P. N. Gott*[1], E. G. Hendel[1], T. Jenkins[2], and G. R. Murugesan[1], [1]*Biomin America Inc., San Antonio, TX,* [2]*Biomin Holding GmbH, Getzersdorf, Austria.*

Breeding and Genetics II: Health

Chair: **Christian Maltecca, North Carolina State University**

Room 324

2:00 PM 371 **Calving ease, stillbirth, and gestation length of ProCROSS calves compared to pure Holsteins in two research herds.**
E. S. Houdek*[1], A. R. Hazel[1], B. J. Heins[2], and L. B. Hansen[1], [1]*University of Minnesota, Saint Paul, MN,* [2]*West-Central Research and Outreach Center, Morris, MN.*

2:15 PM 372 **The Finnish dairy farmers' usage of AI bulls: Variation in realized trait preferences.**
E. P. Paakala*[1,2], D. Martín-Collado[3], A. Mäki-Tanila[1], and J. Juga[1], [1]*University of Helsinki, Department of Agricultural Sciences, Helsinki. Finland,* [2]*Faba Co-op, Vantaa, Finland,* [3]*Centro de Investigación y Tecnología Agroalimentaria de Aragón, Zaragoza, Spain.*

2:30 PM 373 **Comparative performance of Holstein-Friesian dairy cows of contrasting Economic Breeding Index.**
M. O' Sullivan*[1,2], S. McParland[1], K. M. Pierce[2], and F. Buckley[1], [1]*TeagascMoorepark Animal & Grassland Research and Innovation Centre, Fermoy, Cork Ireland,* [2]*School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland.*

2:45 PM 374 **Combined use of test-day model and principal component analysis to obtain heat tolerance phenotypes in dairy cattle.**
N. P. P. Macciotta*[1], S. Biffani[2], U. Bernabucci[3], N. Lacetera[3], A. Vitali[3], P. Ajmone-Marsan[4], and A. Nardone[3], [1]*University of sassari, Sassari, Italy*, [2]*Associazione Italiana Allevatori, Rome, Italy*, [3]*University of Tuscia, Viterbo, Italy*, [4]*University of the Sacred Heart, Piacenza, Italy*.

3:00 PM 375 **Single-step genomic evaluation of digital dermatitis in Canadian Holsteins.**
F. Malchiodi*[1], D. A. L. Lourenco[2], I. Misztal[2], A.-M. Christen[3], J. Jamrozik[1,4], F. S. Schenkel[1], D. F. Kelton[5], and F. Miglior[1,4], [1]*Centre for Genetic Improvement of Livestock, University of Guelph, Guelph, ON, Canada*, [2]*Department of Animal and Dairy Science, University of Georgia, Athens, GA*, [3]*Valacta, Sainte-Anne-De-Bellevue, QC, Canada*, [4]*Canadian Dairy Network, Guelph, ON, Canada*, [5]*Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, ON, Canada*.

3:15 PM 376 **Genetic control of health treatment cost and the correlation of health treatment cost with production and conformation of first lactation Holstein cows.**
M. R. Donnelly*[1], A. R. Hazel[1], B. J. Heins[2], and L. B. Hansen[1], [1]*University of Minnesota, St. Paul, MN*, [2]*West-Central Research and Outreach Center, Morris, MN*.

3:30 PM 377 **Development of genomic evaluations for direct measures of health in US Holsteins and their correlations with fitness traits.**
K. L. Parker Gaddis*[1], M. E. Tooker[2], J. R. Wright[2], J. H. Megonigal Jr.[1], J. S. Clay[3], J. B. Cole[2], and P. M. VanRaden[2], [1]*Council on Dairy Cattle Breeding, Bowie, MD*, [2]*Animal Genomics and Improvement Laboratory, Agricultural Research Service, USDA, Beltsville, MD*, [3]*Dairy Records Management Systems, Raleigh, NC*.

3:45 PM 378 **Genomic analysis of ketosis susceptibility in Jersey cattle.**
K. L. Parker Gaddis*[1], J. H. Megonigal Jr.[1], J. S. Clay[2], and C. W. Wolfe[3], [1]*Council on Dairy Cattle Breeding, Bowie, MD*, [2]*Dairy Records Management Systems, Raleigh, NC*, [3]*American Jersey Cattle Association, Reynoldsburg, OH*.

4:00 PM 379 **Genome-wide association study for clinical mastitis, metritis, and ketosis in US Holstein cattle.**
A. Sigdel*[1], C. K. Mak[1,2], R. Abdollahi-Arpanahi[1,3], K. Galvão[1], and F. Peñagaricano[1], [1]*University of Florida, Gainesville, FL*, [2]*National Taiwan University, Taipei, Taiwan*, [3]*University of Tehran, Tehran, Iran*.

4:15 PM 380 **Genome-wide DNA methylation patterns and differential methylation in leukocytes from Holstein cattle.**
C. D. Dechow* and W. S. Liu, *Pennsylvania State University, University Park, PA*.

4:30 PM 381 **Genomic evaluation for wellness traits with very large number of genotypes.**
L. Chen*, N. Vukasinovic, D. Fundora, C. Przybyla, J. Brooker, and S. DeNise, *Zoetis Inc., Kalamazoo, MI*.

4:45 PM 382 **Analysis of the genetic trends for wellness traits in US Holstein.**
D. G. Pena*, C. Przybyla, J. Brooker, A. McNeel, B. Vlug, F. Di Croce, N. Vukasinovic, and S. DeNise, *Zoetis, Kalamazoo, MI*.

Dairy Foods Symposium:
Emerging Research and Insights to Drive Innovations in Fluid Milk
Chair: **Rohit Kapoor, National Dairy Council**
Sponsor: **National Dairy Council**
Room 327

2:00 PM **Opening remarks.**
REC Rohit Kapoor, *National Dairy Council.*

2:15 PM 383 **Market insights and consumer trends in fluid milk and beverages.**
REC M. Wilcox*, *Significant Outcomes LLC, Pandora, OH*.

2:45 PM 384 **The influence of protein and fat on sensory properties and consumer perception of fluid milk.**
REC M. A. Drake*[1] and D. M. Barbano[2], [1]*North Carolina State University, Raleigh, NC*, [2]*Cornell University, Ithaca, NY*.

3:15 PM 385 **Preserving milk freshness in retail environment.**
REC
S. E. Duncan*, *Virginia Tech*, *Blacksburg, VA*.

3:45 PM 386 **Building consumer trust: Milk composition as a predictor of sustainability and animal health.**
D. M. Barbano*[1], H. M. Dann[2], and R. J. Grant[2], [1]*Cornell University*, *Ithaca, NY*, [2]*Miner Institute*, *Chazy, NY*.

4:15 PM 387 **Impact of post-pasteurization contamination on milk quality.**
REC
N. Martin*, A. Alles, S. Reichler, K. Boor, and M. Wiedmann, *Cornell University*, *Ithaca, NY*.

4:45 PM **Closing remarks.**
REC
Rohit Kapoor.

Dairy Foods III: Microbiology

Chair: **Mark Johnson, Wisconsin Center for Dairy Research**

Room 328

2:00 PM 388 **Genomics of *Advenella, Psychrobacter*, and *Psychroflexus* strains from the surface of Austrian artisanal hard cheeses: insights into ripening and flavor generation.**
S. Schmitz-Esser*[1,2], E. Nischler[2], M. Dzieciol[2], E. Mann[2], and M. Wagner[2], [1]*Iowa State University, Department of Animal Science*, *Ames, IA*, [2]*University of Veterinary Medicine Vienna, Institute for Milk Hygiene*, *Vienna, Austria*.

2:15 PM 389 **Lactoferrin protect Caco-2, HEK, Hep-G2 and SK-N-SH cell lines inhibits aflatoxin-induced cytotoxicity and oxidative DNA damage.**
H. Zhang[1,4], N. Zheng[1,2], J. Liu[5], Y. N. Gao[1,2], and J. Q. Wang*[1,2], [1]*Ministry of Agriculture-Key Laboratory of Quality & Safety Control for Milk and Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences*, *Beijing, China*, [2]*Ministry of Agriculture-Laboratory of Quality and Safety Risk Assessment for Dairy Products*, *Beijing, China*, [3]*Ministry of Agriculture-Milk and Dairy Product Inspection Center*, *Beijing, China*, [4]*College of Food Science& Engineering, Ji Lin University*, *Chang Chun, China*, [5]*China National Research Institute of Food and Fermentation Industries*, *Beijing, China*.

2:30 PM 390 **Impact of the addition of exopolysaccharides containing β (1→ 4), and β (1→ 3) linkages isolated from *Streptococcus thermophilus* into milk prior to fermentation on physical and rheological properties of fermented milk gels.**
S. N. Khanal*[1] and J. A. Lucey[1,2], [1]*University of Wisconsin, Department of Food Science*, *Madison, WI*, [2]*Wisconsin Center for Dairy Research*, *Madison, WI*.

2:45 PM 391 **Transcriptomic analysis of high exopolysaccharide-producing dairy starter bacterium *Streptococcus thermophilus* ASCC 1275 in milk.**
Q. Wu and N. P. Shah*, *The University of Hong Kong*, *Pok Fu Lam Road, Hong Kong*.

3:00 PM 392 **Un-shielding biofilm forming bacteria of protective extracellular matrix provides novel mean to improve dairy products microbial quality.**
M. Shemesh*[1], N. Ben-Ishay[1,2], D. Inbar[1,3], R. Reifen[2], and D. Steinberg[3], [1]*Department of Food Quality and Safety, Institute for Postharvest Technology and Food Sciences, Agricultural Research Organization*, *Rishon LeZion, Israel*, [2]*The Robert H. Smith Faculty of Agriculture, Food and Environment, The Institute of Biochemistry, Food Science and Nutrition, The Hebrew University of Jerusalem*, *Rehovot, Israel*, [3]*Biofilm Research Laboratory, Institute of Dental Sciences, Faculty of Dental Medicine, Hebrew University-Hadassah*, *Jerusalem, Israel*.

Growth and Development Symposium: Microbial Endocrinology in Ruminant Growth and Development

Chair: **Kristy Daniels, Virginia Tech**

Sponsor: **Pancosma**

Room 315-316

2:00 PM 393 **An introduction and overview of the emerging field of microbial endocrinology.**
REC
M. Lyte*, *Iowa State University, Ames, IA.*

2:45 PM 394 **Microbes, epithelial cells and chemical signals in the digestive tract.**
REC
D. R. Brown*, *University of Minnesota, Department of Veterinary and Biomedical Sciences, St. Paul, MN.*

3:30 PM 395 **Mining metagenomic and transcriptomic data for clues about microbial metabolic functions in ruminants.**
F. Li, A. Neves, B. Ghoshal, and L. L. Guan*, *Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada.*

Lactation Biology I

Chair: **Jimena Laporta, University of Florida**

Room 326

2:00 PM 396 **The effects of serotonin on parathyroid hormone-related peptide and calcium transport in bovine mammary epithelium.**
L. A. Amundson* and L. L. Hernandez, *University of Wisconsin-Madison, Madison, WI.*

2:15 PM 397 **The mammary gland calcium axis responds to 5-HTP in transition period dairy cows.**
S. R. Weaver*, N. L. Maerz, and L. L. Hernandez, *University of Wisconsin-Madison, Madison, WI.*

2:30 PM 398 **Short-term effects of cabergoline for the inhibition of milk secretion in dairy ewes.**
G. Caja*[1], A. A. K. Salama[1], A. Elhadi[1], X. Such[1], and A. I. de Prado[2], [1]*University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*, [2]*Ceva Santé Animale, Libourne, France.*

2:45 PM 399 **Increased expression of glucose transporters in the small intestine and mammary gland of lactating versus dry dairy cows.**
C. K. Reynolds*[1], A. W. Moran[2], L. A. Crompton[1], and S. P. Shirazi-Beechey[2], [1]*School of Agriculture, Policy and Development, University of Reading, Reading, UK*, [2]*Epithelial Function and Development Group, University of Liverpool, Liverpool, UK.*

3:00 PM **Break**

3:15 PM 400 **Impact of heat stress during the early and late dry period on subsequent performance in dairy cattle.**
T. F. Fabris*, J. Laporta, A. L. Skibiel, B. D. Senn, F. N. Corra, S. Wohlgemuth, and G. E. Dahl, *University of Florida, Gainesville, FL.*

3:30 PM 401 **Nutritional and cooling strategies to alter mammary involution and development of heat stressed dry cows.**
T. F. Fabris*[1], J. Laporta[1], D. J. McLean[2], D. J. Kirk[2], J. D. Chapman[2], F. N. Corra[1], Y. M. Torres[1], and G. E. Dahl[1], [1]*University of Florida, Gainesville, FL*, [2]*Phibro Animal Health Corp, Teaneck, NJ.*

3:45 PM 402 **Effect of heat stress and methionine or arginine supplementation on mTOR signaling in bovine mammary cells.**
A. A. K. Salama*[1], L. Wang[2], M. Duque[3], and J. J. Loor[4], [1]*Group of Ruminant Research (G2R), Universitat Autonoma de Barcelona, Bellaterra, Spain*, [2]*Department of Animal Science, Southwest University, Rongchang, Chongqing, China*, [3]*Grupo de Investigación Biogénesis and GRICA. Facultad de Ciencias Agrarias, Universidad de Antioquia, Medellín, Colombia*, [4]*Department of Animal Sciences, University of Illinois, Urbana, IL.*

4:00 PM 403 **Methionyl-methionine restored prolificacy and promoted milk protein synthesis in mice fed with methionine deficiency diet.**
Q. Chen*, W. Dai, J. Liu, and H. Liu, *Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China.*

4:15 PM 404 **Methionyl-methionine promotes milk protein synthesis by enhancing cell proliferation and activating mTOR signaling pathway in bovine mammary gland epithelial cells.**
C. Wang*, J. Liu, and H. Liu, *Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China.*

4:30 PM 405 **The effects of feeding levels on the growth, reproductive performances and mammary gland development in early weaned goats.**
C. Panzuti*[1,2], C. Duvaux-Ponter[3], G. Mandrile[1], and F. Dessauge[1], [1]*PEGASE, Agrocampus Ouest, INRA, Rennes, France*, [2]*MixScience, Bruz, France*, [3]*MoSAR, INRA, AgroParisTech, Paris, France.*

4:45 PM 406 **Postpartum calf management influences dam colostrum components.**
R. R. Cockrum*[1], H. C. Cunningham[2], K. J. Austin[2], E. M. Bart[1], and K. M. Cammack[3], [1]*Virginia Polytechnic Institute and State University, Blacksburg, VA*, [2]*University of Wyoming, Laramie, WY*, [3]*South Dakota State University, Rapid City, SD.*

Production, Management, and the Environment IV
Chair: **Vinicius Moreira, Louisiana State University**
Room 329

2:00 PM 409 **Evaluation and comparison of dairy cow dry matter intake prediction models recommended by the intergovernmental panel on climate change.**
R. A. Jayasooriya*[1] and E. Kebreab[2], [1]*Department of Animal Science, Iowa State University, Ames, IA*, [2]*Department of Animal Science, University of California-Davis, Davis, CA.*

2:15 PM 410 **County-level gridded livestock methane emissions for the contiguous United States.**
A. N. Hristov*[1], M. Harper[1], R. Meinen[1], R. Day[2], J. Lopes[1], T. Ott[1], A. Venkatesh[3], and C. A. Randles[3], [1]*Department of Animal Science, The Pennsylvania State University, University Park, PA*, [2]*Department of Ecosystem Science and Management, The Pennsylvania State University, University Park, PA*, [3]*ExxonMobil Research and Engineering Company, Annandale, NJ.*

2:30 PM 411 **Cow, herd, and farm level productivity, efficiency, and greenhouse gas emission of different strategies for extended lactation.**
J. O. Lehmann*, L. Mogensen, and T. Kristensen, *Department of Agroecology, Aarhus University-Foulum, Tjele, Denmark.*

2:45 PM 412 **Evaluating the effect of herd structure and milk production improvement on farm profitability and enteric methane emission.**
D. Liang*[1], J. Tricarico[2], K. Weigel[1], and V. Cabrera[1], [1]*University of Wisconsin-Madison, Madison, WI*, [2]*Innovation Center for US Dairy, Rosemont, IL.*

3:00 PM 413 **The potential role of gut hydrogenotrophic acetogens from herbivores for biofuel production.**
C. L. Yang*, J. X. Liu, and J. K. Wang, *Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China.*

3:15 PM **Break**

3:30 PM 414 **Effects of precision feeding protein to dairy cattle on emissions from fresh slurry.**
C. Peterson*[1], E. Schusterman[1], E. DePeters[1], Y. Zhao[1], Y. Pan[1], D. Luchini[2], and F. Mitloehner[1], [1]*University of California, Davis, Davis, CA*, [2]*Adisseo, Alpharetta, GA.*

3:45 PM 415 **A novel enzyme (FumD) to degrade fumonisins in rumen fluid: An in vitro study.**
S. Schaumberger*[1], S. Masching[1], D. Schatzmayr[2], I. Dohnal[2], and C. Stoiber[2], [1]*Biomin Holding GmbH, Getzersdorf, Lower Austria, Austria*, [2]*Biomin Research Cente, Tulln, Lower Austria, Austria.*

4:00 PM 416 **Agricultural land use changes in the United States as a function of diet changes, with a focus on dairy.**
A. D. Henderson[1], B. McCarl[2], and Y. Wang*[3], [1]*University of Texas School of Public Health, Austin, TX*, [2]*Texas A&M University, Dept. of Agricultural Economics, College Station, TX*, [3]*Innovation Center for US Dairy, Rosemont, IL.*

Ruminant Nutrition IV
Chair: **Stephanie Ward, North Carolina State University**
Room 317

2:00 PM 417 **Ruminal planktonic, weakly, and tightly feed-adhered bacterial community as affected by two *Trichoderma reesei* enzyme preparations fed to lactating cattle.**
J. J. Romero*[1,2], D. C. Reyes[1], Z. X. Ma[2], and A. T. Adesogan[2], [1]*Animal and Veterinary Sciences, School of Food and Agriculture, University of Maine, Orono, ME*, [2]*Department of Animal Sciences, Institute of Food and Agriculture, Gainesville, FL.*

2:15 PM 418 **Antibiotically disturbed rumen microbiota can be redressed by microbiota transplantation in dairy cows.**
S. Ji*[1], H. Yan[1], Tao Jiang[1,2], C. Y. Guo[3,4], J. J. Liu[1], Z. J. Cao[1], Y. J. Wang[1], and S. L. Li[1], [1]*State Key Laboratory of Animal Nutrition, China Agricultural University, Beijing, China*, [2]*College of Animal Science, Tarim University, Alar, Xinjiang, China*, [3]*Jinzhong Vocational and Technical College, Yuci, Shanxi, China*, [4]*College of Animal Science and Technology, Shihezi University, Shihezi, Xinjiang, China.*

2:30 PM 419 **Heat stress influences the rumen microbiome of mid-lactation dairy cows.**
D. P. Bu[1,6], S. C. Li[2], L. Wang*[3], L. Ma[1,5], L. H. Baumgard[4], and Z. T. Yu[3], [1]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing,China*, [2]*Department of Animal Science, University of Manitoba, Winnipeg, MB, Canada*, [3]*Department of Animal Sciences, The Ohio State University, Columbus, OH*, [4]*Department of Animal Science, Iowa State University, Ames, IA*, [5]*CAAS-ICRAF Joint Lab on Agroforestry and Sustainable Animal Husbandry, World Agroforestry Centre, East and Central Asia, Beijing, China*, [6]*Hunan Co-Innovation Center of Safety Animal Production, CICSAP, Changsha, Hunan, China.*

2:45 PM 420 **Identifying the influence of the rumen microbiome on the feed efficiency phenotype in beef cattle.**
H. A. Paz*[1], K. E. Hales[2], J. E. Wells[2], L. A. Kuehn[2], H. C. Freetly[2], M. L. Spangler[1], and S. C. Fernando[1], [1]*University of Nebraska-Lincoln, Lincoln, NE*, [2]*USDA, ARS, U.S. Meat Animal Research Center, Clay Center, NE.*

3:00 PM 421 **Metatranscriptome sequencing reveals insights into the gene expression of the bovine epimural bacterial community during subacute ruminal acidosis.**
S. Schmitz-Esser*[1,2], S. Wetzels[2,3], Q. Zebeli[3], M. Wagner[2], and E. Mann[2], [1]*Iowa State University, Department of Animal Science, Ames, IA*, [2]*University of Veterinary Medicine Vienna, Institute for Milk Hygiene, Vienna, Austria*, [3]*University of Veterinary Medicine Vienna, Institute of Animal Nutrition and Functional Plant Compounds, Vienna, Austria.*

3:15 PM 422 **Potential role of rumen bacterial communities in shaping milk production and composition of dairy cows.**
M. Y. Xue*[1], H. Z. Sun[1], X. H. Wu[1], D. M. Wang[1], L. L. Guan[2], J. K. Wang[1], and J. X. Liu[1], [1]*Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*, [2]*Department of Agricultural, Food & Nutritional Science, University of Alberta, Edmonton, Canada.*

3:30 PM 423 **Effects of *E. coli* O157:H7 and silage additives on bacterial diversity and composition of alfalfa silage.**
I. M. Ogunade, D. H. Kim*, Y. Jiang, A. A. P. Cervantes, K. G. Arriola, D. Vyas, and A. T. Adesogan, *University of Florida, Gainesville, FL.*

3:45 PM 424 **Urea nitrogen induces changes in rumen microbial and host metabolic profiles in dairy cows.**
D. Jin[1,4], S. G. Zhao*[1,3], N. Zheng[1,2], Y. Beckers[4], and J. Q. Wang[1,2], [1]*Ministry of Agriculture-Key Laboratory of Quality & Safety Control for Milk and Dairy Products, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [2]*Ministry of Agriculture-Laboratory of Quality and Safety Risk Assessment for Dairy Products, Beijing, China*, [3]*State Key Laboratory of Animal Nutrition, Institute of Animal Science, Chinese Academy of Agricultural Sciences, Beijing, China*, [4]*University of Liège, Gembloux Agro-Bio Tech, Precision Livestock and Nutrition Unit, Passage des Déportés 2, Gembloux, Belgium.*

4:00 PM 425 **Circulating ceramide concentrations are influenced by saturated fatty acid chain length in mid-lactation dairy cows.**
J. E. Rico*[1], D. E. Rico[2], Z. C. Phipps[1], Q. Zeng[1], B. A. Corl[3], P. Y. Chouinard[2], R. Gervais[1], and J. W. McFadden[1], [1]*West Virginia University, Morgantown, WV*, [2]*Université Laval, Québec, QC, Canada*, [3]*Virginia Tech, Blacksburg, VA.*

4:15 PM 426 **Characterization of bovine lipoprotein ceramide.**
Z. C. Phipps*, F. Seck, A. N. Davis, J. E. Rico, and J. W. McFadden, *West Virginia University, Morgantown, WV.*

4:30 PM 427 **Micronutrient supplementation and the peripartal plasma lipidome.**
Y. Zang*[1], S. S. Samii[1], H. R. Bailey[1], W. A. Myers[1], A. N. Davis[1], E. Grilli[2], and J. W. McFadden[1], [1]*West Virginia University, Morgantown, WV*, [2]*University of Bologna, Bologna, Italy.*

4:45 PM 428 **Metabolomic study of the short-term effects of β-glucan supplementation to lactating dairy ewes.**
A. Contreras-Jodar*, N. Torrent, N. Mehaba, A. A. K. Salama, E. Albanell, and G. Caja, *University Autonoma of Barcelona, Bellaterra, Barcelona, Spain*.

Ruminant Nutrition V
Chair: **Luiz Ferraretto, University of Florida**
Room 318

2:00 PM 429 **Production performance of high-producing Holstein cows consuming diets containing hulled or hull-less barley as the grain source in diets containing different forage to contcentrate ratios.**
Y. Yang*[1], G. Ferreira[1], C. L. Teets[1], B. A. Corl[1], W. E. Thomason[2], W. Brooks[2], and C. A. Griffey[2], [1]*Department of Dairy Science, Blacksburg, VA*, [2]*Department of Crop and Soil Environmental Sciences, Blacksburg, VA*.

2:15 PM 430 **Substitution of fall-grown oat forage for corn silage affects lactating dairy cow performance.**
M. B. Hall*[1] and W. K. Coblentz[2], [1]*U.S. Dairy Forage, USDA-ARS, Madison, WI*, [2]*U.S. Dairy Forage, USDA-ARS, Marshfield, WI*.

2:30 PM 431 **Effect of forage changes on the dynamic variation of the rumen fermentation in sheep.**
X. Xie*[1], J. K. Wang[1], L. L. Guan[2], and J. LX. Liu[1], [1]*Institute of Dairy Science, MoE Key Laboratory of Molecular Animal Nutrition, College of Animal Sciences, Zhejiang University, Hangzhou, China*, [2]*Department of Agricultural, Food & Nutritional Science, University of Alberta, Edmonton, Canada*.

2:45 PM 432 **Changes in ruminal redox potential and pH of lactating cows during a dietary transition.**
Y. Huang*[1], J. P. Marden[2], C. Julien[2], E. Auclair[2], G. Hanna[1], and C. Bayourthe[1], [1]*GenPhySE, Université de Toulouse, INRA, INPT, INP-ENVT, Castanet-Tolosan, France*, [2]*Phileo Lesaffre Animal Care, Marcq-en-Baroeul, France*.

3:00 PM 433 **Impact of dietary starch concentration formulated with two types of corn silage on the performance of dairy cows.**
J. I. Sanchez-Duarte*[1] and K. F. Kalscheur[2], [1]*South Dakota State University, Brookings, SD*, [2]*US Dairy Forage Research Center, USDA, ARS, Madison, WI*.

3:15 PM 434 **Effects of replacing corn with different levels of starch degradability with beet pulp as a source of soluble fiber on fermentation in continuous culture.**
L. E. Koch*, B. M. Koch, R. N. Klopp, S. M. Hussein, V. R. Trutwin, and G. J. Lascano, *Clemson University, Clemson, SC*.

3:30 PM 435 **Starch degradability in combination with sugar alter fermentation in continuous culture.**
L. E. Koch*, B. M. Koch, R. N. Klopp, S. M. Hussein, V. R. Trutwin, and G. J. Lascano, *Clemson University, Clemson, SC*.

3:45 PM 436 **Metabolic profile of Holstein heifers fed carinata meal.**
K. Rodriguez-Hernandez*[1,2], J. Anderson[1], and J. Clapper[3], [1]*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, [2]*CIRNOC-INIFAP, Torreon, Coahuila, Mexico*, [3]*Department of Animal Science, South Dakota State University, Brookings, SD*.

4:00 PM 437 **Milk production and composition of dairy cows fed hydroponic barley sprouts.**
R. D. Lawrence*, J. L. Anderson, S. I. Martinez Monteagudo, and L. Metzger, *Dairy and Food Science Department, South Dakota State University, Brookings, SD*.

4:15 PM 438 **Efficacy of layer manure ash (LMA) byproduct in lactating dairy cow diets as a replacement for the buffering capacity of sodium bicarbonate.**
M. D. Miller*[1], C. S. Ballard[1], H. M. Dann[1], J. Noland[2], D. Axe[3], L. M. Klaiber[1], K. W. Cotanch[1], and R. J. Grant[1], [1]*William H. Miner Agricultural Research Institue, Chazy, NY*, [2]*EnergyWorks Biopower LLC, Annapolis, MD*, [3]*Axe Agri-Services, Richmond, VA*.

4:30 PM 439 **Growth performance of dairy calves fed microbially enhanced soy protein in starter pellets with pasteurized milk.**
N. D. Senevirathne*[1], J. L. Anderson[1], and W. R. Gibbons[2], [1]*Dairy and Food Science Department, South Dakota State University, Brookings, SD*, [2]*Department of Biology and Microbiology, South Dakota State University, Brookings, SD*.

4:45 PM 440 **Dry period plane of energy and periparturient disease status: Effects on feed intake, energy balance, milk production, and milk composition.**
A. Pineda*, F. C. Cardoso, and J. K. Drackley, *University of Illinois, Urbana, IL*.

Wednesday, June 28

Milk Protein and Enzymes Symposium: Protein Interactions—Aggregations and Interfaces

Chair: **David Everett, California Polytechnic State University**

Room 330

9:30 AM 441 **Milk proteins: Aggregation and interactions at interfaces and within dairy networks.**
S. Gras*, *The University of Melbourne, Melbourne, VIC, Australia.*

10:00 AM 442 REC **Effect of aggregation and interfaces on the digestion of dairy proteins.**
A. Mackie*[1], N. Rigby[1], and A. Macierzanka[2], [1]*University of Leeds, Leeds, United Kingdom*, [2]*Gdansk University of Technology, Gdansk, Poland.*

10:30 AM 443 REC **The role of soluble aggregates on the processing functionality of milk and milk concentrates.**
Milena Corredig*[1,2], [1]*Gay Lea Foods Cooperative, Research and Development, Guelph, ON, Canada*, [2]*University of Guelph, Food Science Department, Guelph, ON, Canada.*

11:00 AM **Break**

11:15 AM 444 REC **Characterizing dairy powder hydration—Some new perspectives.**
M. A. E. Auty*, *Teagasc, Fermoy, Co. Cork, Ireland.*

11:45 AM 445 REC **Impact of protein aggregation on in-process and finished product stability of infant formula.**
M. Fenelon*, A. Buggy, and E. Murphy, *Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland.*

Ruminant Nutrition VI

Chair: **Juan Romero, University of Maine**

Room 310-311

9:30 AM 446 **Ethyl-cellulose rumen-protected methionine enhances animal performance during the periparturient period and early lactation in dairy cows.**
F. Batistel*[1], J. M. Arroyo[1,2], A. Bellingeri[1], L. Wang[3], B. Saremi[4], C. Parys[4], E. Trevisi[5], F. C. Cardoso[1], and J. J. Loor[1], [1]*University of Illinois at Urbana-Champaign, Urbana, IL*, [2]*Unicersidad de la Republica, San José, Uruguay*, [3]*Southwest University, Rongchang, China*, [4]*Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*, [5]*Università Cattolica del Sacro Cuore, Piacenza, Italy.*

9:45 AM 447 **Effect of ethyl-cellulose rumen-protected methionine supplementation on inflammation, oxidative stress and neutrophil function during the periparturient period and early lactation in dairy cows.**
F. Batistel*[1], J. M. Arroyo[1,2], C. I. M. Garces[1], E. Trevisi[3], B. Saremi[4], C. Parys[4], M. A. Ballou[5], and J. J. Loor[1], [1]*University of Illinois at Urbana-Champaign, Urbana, IL*, [2]*Universidad de la Republica, San José, Uruguay*, [3]*Università Cattolica del Sacro Cuore, Piacenza, Italy*, [4]*Evonik Nutrition & Care GmbH, Hanau-Wolfgang, Germany*, [5]*Texas Tech University, Lubbock, TX.*

10:00 AM 448 **Milk protein and intake responses to isoleucine, leucine, methionine, and threonine.**
M. Aguilar*, J. Castro Marquez, R. R. White, and M. D. Hanigan, *Virginia Tech, Blacksburg, VA.*

10:15 AM 449 **Lactational performance of ruminally protected methionine and lysine prototypes.**
A. Myers[1], K. Estes[1], H. Choi[1], R. White[1], B. Barton[2], C. Zimmerman[3], and M. Hanigan*[1], [1]*Virginia Tech, Blacksburg, VA*, [2]*Balchem Corp, New Hampton, NY*, [3]*Balchem Corp, Walkersville, MD.*

10:30 AM 450 **Effects of abomasal infusions of amino acids or glucose on energy and protein metabolism during an induced negative energy balance.**
I. Ansia*[1], Y. Ohta[2], T. Fujieda[2], and J. K. Drackley[1], [1]*University of Illinois, Urbana, IL*, [2]*Ajinomoto Co. Inc., Tokyo, Japan.*

10:45 AM 451 **Branched-chain amino acids direct other essential amino acids to extra-mammary tissues in lactating dairy cows.**
R. V. Curtis[1], J. J. M. Kim[1], L. E. Wright[1], J. Doelman*[2], and J. P. Cant[1], [1]*University of Guelph, Guelph, ON, Canada*, [2]*Nutreco Nederland BV, Boxmeer, the Netherlands*.

11:00 AM 452 **Impact of choline on the inflammatory response of innate and adaptive immune cells.**
M. Garcia*[1], J. Shaffer[1], L. Mamedova[1], B. Barton[2], and B. J. Bradford[1], [1]*Kansas State University, Manhattan, KS*, [2]*Balchem Corporation, New Hampton, NY.*

11:15 AM 453 **Supplementation of rumen-protected choline (RPC) to periparturient dairy cows improved cow and calf performance.**
M. G. Zenobi*[1], R. Gardinal[1], B. A. Barton[2], J. E. P. Santos[1], and C. R. Staples[1], [1]*University of Florida, Gainesville, FL*, [2]*Balchem Corp, New Hampton, NY*.

11:30 AM 454 **Prepartum energy intake and supplementation of rumen-protected choline (RPC) influence biomarkers of the immune system of lactating dairy cows.**
M. G. Zenobi[1], A. M. Lopez[1], J. E. Zuniga[1], C. D. Nelson[1], J. P. Driver[1], K. C. Jeong[1], R. A. Mir[1], B. A. Barton[2], J. E. P. Santos[1], and C. R. Staples*[1], [1]*University of Florida, Gainesville,FL*, [2]*Balchem Corp, New Hampton,NY*.

11:45 AM 455 **Feeding canola meal and Smartamine-M in diets with field peas to lactating dairy cows.**
A. B. D. Pereira*[1,2], A. F. Brito[1], N. L. Whitehouse[1], D. C. Moura[3], B. C. Downey[1,4], and A. S. Oliveira[5], [1]*University of New Hampshire, Department of Biological Sciences, Durham, NH*, [2]*Purina Animal Nutrition LLC, Shoreview, MN*, [3]*Universidade Federal de Mato Grosso, Programa de Pós Graduação em Ciência Animal, Cuiabá, MT, Brazil*, [4]*University of California Davis, Department of Animal Science, Davis, CA*, [5]*Universidade Federal de Mato Grosso, Instituto de Ciências Agrárias e Ambientais, Sinop, MT, Brazil*.

12:00 PM 456 **Influence of trace mineral source on copper, manganese, and zinc rumen solubility and release from the insoluble portion of rumen digesta following a bolus dose of trace minerals in cattle.**
B. Weigel[1], V. N. Kucharczyk[1], K. Sellins[1], E. Caldera[2], J. J. Wagner[1], J. W. Spears*[3], S. L. Archibeque[1], R. S. Fry[4], S. B. Laudert[4], and T. E. Engle[1], [1]*Colorado State University, Fort Collins, CO*, [2]*Purina Animal Nutrition, Dublin, TX*, [3]*North Carolina State University, Raleigh, NC*, [4]*Micronutrients, Indianapolis, IN*.

12:15 PM 457 **Toxy-Nil and Unike Plus reduce aflatoxin M_1 levels in milk of lactating dairy cows fed aflatoxin B_1.**
Ro. O. Rodrigues[1], Ri. O. Rodrigues*[1], D. R. Ledoux[1], G. E. Rottinghaus[1], R. Borutova[2], O. Averkieva[2], and T. B. McFadden[1], [1]*University of Missouri, Columbia, MO*, [2]*Nutriad International NV, Belgium, Belgium*.

Breeding and Genetics III: Methods
Chair: **Daniela Lourenco, University of Georgia**
Room 326

9:30 AM 458 **Phenotypic analysis of daily milk, fat, and protein production with geometric morphometrics.**
Á. A. D. Benítez*[1], J. I. Weller[1], and E. Ezra[2], [1]*Institute of Animal Sciences, Agricultural Research Organization, The Volcani Center, Rishon LeZion, Israel*, [2]*Israel Cattle Breeders Association, Caesaria Industrial Park, Israel*.

9:45 AM 459 **Genetic parameters of bovine milk color and processing characteristics predicted by mid-infrared spectroscopy.**
G. Visentin*[1,2], D. P. Berry[2], M. De Marchi[1], S. McParland[2], A. McDermott[1,2], S. Scarso[1], M. A. Fenelon[3], and M. Penasa[1], [1]*Department of Agronomy, Food, Natural Resources, Animals, and Environment (DAFNAE), University of Padova, Legnaro (PD), Italy*, [2]*Animal and Grassland Research and Innovation Center, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland*, [3]*Teagasc Food Research Center, Teagasc, Moorepark, Fermoy, Co. Cork, Ireland*.

10:00 AM 460 **Genetic parameters of milk fatty acid profile in dairy sheep.**
J. Serdino, F. Correddu, M. G. Manca, A. Puledda, C. Dimauro, A. Nudda, and N. P. P. Macciotta*, *University of Sassari, Sassari, Italy*.

10:15 AM 461 **Genomic predictions for crossbreds from all-breed data.**
M. E. Tooker*, P. M. VanRaden, and G. C. Fok, *Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD*.

10:30 AM 462 **Genetic trends from single-step GBLUP and traditional BLUP for production traits in US Holstein.**
Y. Masuda*[1], I. Misztal[1], P. M. VanRaden[2], and T. J. Lawlor[3], [1]*University of Georgia, Athens, GA*, [2]*USDA, AGIL, Beltsville MD*, [3]*Holstein Association USA Inc., Brattleboro, VT*.

10:45 AM 463 **A Genetic Diversity Index method to improve imputation accuracies of rare variants.**
A. M. Butty*[1], F. Miglior[1,2], P. Stothard[3], F. S. Schenkel[1], B. Gredler[4], M. Sargolzaei[1,5], and C. F. Baes[1], [1]*Centre for Genetic Improvement of Livestock, Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*, [2]*Canadian Dairy Network, Guelph, ON, Canada*, [3]*Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [4]*Qualitas AG, Zug, ZG, Switzerland*, [5]*Semex Alliance, Guelph, ON, Canada*.

11:00 AM 464 **Determination of quantitative trait variants by concordance via application of the a posteriori granddaughter design to the US Holstein population.**
J. I. Weller*[1,2], D. M. Bickhart[2], G. R. Wiggans[2,3], M. E. Tooker[2], J. R. O'Connell[4], J. Jiang[5], and P. M. VanRaden[2], [1]*Agricultural Research Organization, The Volcani Center, Rishon LeZion, Israel*, [2]*Agricultural Research Service, Beltsville, MD*, [3]*Council on Dairy Cattle Breeding, Bowie, MD*, [4]*University of Maryland Medical School, Baltimore, MD*, [5]*University of Maryland, College Park, MD*.

11:15 AM 465 **Impact of SNP selection on genomic prediction for different reference population sizes.**
D. A. L. Lourenco*[1], I. R. Menezes[2,1], B. O. Fragomeni[1], H. L. Bradford[1], S. Tsuruta[1], and I. Misztal[1], [1]*University of Georgia, Athens, GA*, [2]*University of Sao Paulo, Pirassununga, SP, Brazil*.

11:30 AM 466 **Optimum selection of core animals in the efficient inversion of the genomic relationship matrix.**
H. L. Bradford*, I. Pocrnic, B. O. Fragomeni, D. A. L. Lourenco, and I. Misztal, *University of Georgia, Athens, GA*.

11:45 AM 467 **Including causative variants into single-step genomic BLUP.**
B. D. Fragomeni*[1], D. A. L. Lourenco[1], Y. Masuda[1], A. Legarra[2], and I. Misztal[1], [1]*University of Georgia, Athens, GA*, [2]*INRA, Castanet-Tolosan, France*.

12:00 PM 468 **Impact of pedigree truncation on accuracy and convergence of ssGBLUP in a population with long pedigree when only a fraction of animals are phenotyped.**
I. Pocrnic*[1], D. A. L. Lourenco[1], H. L. Bradford[1], C. Y. Chen[2], and I. Misztal[1], [1]*Department of Animal and Dairy Science, University of Georgia, Athens, GA*, [2]*Genus PIC, Hendersonville, TN*.

12:15 PM 469 **Bayesian whole-genome prediction and genome-wide association analysis with missing genotypes using variable selection.**
C. Chen*[1], K. A. Weigel[2], E. E. Connor[3], D. M. Spurlock[4], M. J. VandeHaar[1], C. R. Staples[5], and R. J. Tempelman[1], [1]*Michigan State University, East Lansing, MI*, [2]*University of Wisconsin-Madison, Madison, WI*, [3]*USDA-ARS, Beltsville, MD*, [4]*Iowa State University, Ames, IA*, [5]*University of Florida, Gainesville, FL*.

12:30 PM 470 **SSGP: SNP-set based genomic prediction to incorporate biological information.**
J. Jiang*[1], J. O'Connell[2], P. VanRaden[3], and L. Ma[1], [1]*Department of Animal and Avian Sciences, University of Maryland, College Park, MD*, [2]*University of Maryland School of Medicine, Baltimore, MD*, [3]*Animal Genomics and Improvement Laboratory, ARS-USDA, Beltsville, MD*.

Animal Behavior and Well-Being Symposium: Allowing for Natural Behavior in Dairy Cattle

Chair: **Emily Miller-Cushon, University of Florida**

Sponsor: **Dean Foods**

Room 301-302

9:30 AM 471 REC **The role of natural living in dairy cow welfare.**
M. A. G. von Keyserlingk* and D. M. Weary, *University of British Columbia, Vancouver, BC, Canada*.

10:15 AM 472 REC **Housing and management that promotes natural behavior in dairy calves.**
J. F. Johnsen*, *Norwegian Veterinary Institute, Department of Health Durveillance, Oslo, Norway*.

11:00 AM 473 REC **Designing the maternity pen to allow for maternal behavior in dairy cattle.**
K. L. Proudfoot*[1,2], P. D. Krawczel[3], and M. A. G. von Keyserlingk[1], [1]*The University of Biritsh Columbia, Vancouver, BC, Canada*, [2]*The Ohio State University, Columbus, OH*, [3]*The University of Tennessee, Knoxville, TN*.

11:45 AM 474 **What to build next: Alternatives to freestall housing that promote natural behavior.**
REC J. M. Bewley*, *University of Kentucky, Lexington, KY.*

Dairy Foods Symposium:
Biology LAB Symposium: Recent Developments in Lactic Acid Bacteria
Chairs: **M. Miller, University of Illinois, and J. Broadbent, Utah State University**
Room 328

9:30 AM **Opening remarks.**
M. Miller and J. Broadbent.

9:45 AM 475 **Advances in nonstarter microbiology related to gassy defect in cheese.**
REC C. Oberg*, *Weber State University, Ogden, UT.*

10:15 AM 476 **Lactococcal lantibiotics and bioengineering thereof.**
REC P. D. Cotter*[1,2], [1]*Teagasc Food Research Centre, Moorepark, Fermoy, Cork, Ireland*, [2]*APC Microbiome Institute, Cork, Ireland.*

10:45 AM 477 **Less is more: Improving starter cultures to bring out the best in yogurt.**
REC E. Johansen*, *Chr. Hansen A/S, Hørsholm, Denmark.*

11:15 AM 478 **CRISPR-Cas: Research and application of natural systems in dairy starter cultures.**
REC D. Romero*, *DuPont Nutrition & Health, Madison, WI.*

11:45 AM 479 **Mining and exploiting CRISPR-Cas systems in lactic acid bacteria.**
REC A. Briner* and R. Barrangou, *North Carolina State University.*

12:15 PM **Closing remarks.**
M. Miller and J. Broadbent.

Dairy Foods IV:
Dairy Ingredients
Chair: **Annie Bienvenue, US Dairy Export Council**
Room 329

9:30 AM 480 **Formation of surface composition on spray-dried milk powder.**
M. Foerster[1], T. Gengenbach[2], M. W. Woo[1], and C. Selomulya*[1], [1]*Monash University, Clayton, VIC, Australia*, [2]*CSIRO, Clayton, VIC, Australia.*

10:00 AM 481 **Influence of composition and microstructure on flowability and wetting behaviour of α-lactalbumin enriched whey protein ingredients.**
G. Barone*[1], J. O'Regan[2], and J. O'Mahony[1], [1]*School of Food and Nutritional Sciences, University College Cork, Cork, Cork, Ireland*, [2]*Nestlé R&D Center, Wyeth Nutritionals Ireland, Askeaton, Co.Limerick, Ireland.*

10:15 AM 482 **Characterization of dairy mix powders with maltodextrin and inulin produced by spray drying.**
C. Raimundo da Silva[1], R. Stephani[2], E. Martins[1], P. Schuck[3], A. Fernandes de Carvalho*[1], and Í. T. Perrone[1], [1]*Federal University of Viçosa, Viçosa, MG, Brazil*, [2]*Federal University of Juiz de ForaJuiz de Fora, MG Brazil*, [3]*UMR STLO-INRA, Agrocampus-Ouest, Rennes, France.*

10:30 AM 483 **Effect of milk protein composition on in vitro digestion of a model infant formula.**
N. R. Tari*[1], E. Arranz[1], and M. Corredig[1,2], [1]*Department of Food Science, University of Guelph, Guelph, ON, Canada*, [2]*Gay Lea Foods Research and Development, Guelph, ON, Canada.*

10:45 AM 485 **Hydrogenation of lactose for the production of nutritive sweeteners.**
S. Martínez-Monteagudo*, M. Enteshari, and L. Metzger, *Dairy and Food Science Department, South Dakota State University, Brookings, SD.*

11:00 AM 486 **Enzyme-triggered microcapsules to selectively color Cheddar cheese and obtain white whey powder.**
R. Ravanfar* and A. Abbaspourrad, *Cornell University, Ithaca, NY.*

11:15 AM 408 **Effect of lactoferrin on metallic taste and immunity dysfunction induced by chemotherapy.**
A. Wang*[1], S. Duncan[1], G. Lesser[2], W. Ray[1], and A. Dietrich[1], [1]*Virginia Polytechnic Institute and State University, Blacksburg, VA*, [2]*Comprehensive Cancer Center of Wake Forest University, Winston-Salem, NC.*

Lactation Biology II
Chair: **Rafael Jimenez-Flores, The Ohio State University**
Room 327

9:30 AM 487 **Epigenetic effects of in utero exposure to heat stress on the liver and mammary gland of cattle.**
A. L. Skibiel*, R. Amorín, F. Peñagaricano, B. M. Ahmed, G. E. Dahl, and J. Laporta, *University of Florida, Gainesville, FL.*

9:45 AM 489 **Functional genomics of the mammary gland transcriptome during early involution.**
B. D. Senn*, A. L. Skibiel, T. F. Fabris, F. Peñargaricano, G. E. Dahl, and J. Laporta, *University of Florida, Gainesville, FL.*

10:00 AM 490 **Effects of xanthosine on gene expression of mammary epithelial cells using RNA sequencing of goat milk fat globules.**
S. Choudhary[1], R. K. Choudhary[1], R. Verma[1], R. S. Sethi[1], C. S. Mukhopadhyay[1], D. Bickhart[2], W. Li*[2], and A. V. Capuco[3], [1]*School of Animal Biotechnology, Guru Angad Dev Veterinary and Animal Science University, Ludhiana, Punjab, India*, [2]*Cell Wall Biology and Utilization Research, USDA-ARS, Madison, WI*, [3]*Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD.*

10:15 AM 491 **The effect of dietary grape marc on the bovine milk proteome.**
R. A. Scuderi*[1], D. B. Ebenstein[1], Y. W. Lam[2,3], J. Kraft[1], and S. L. Greenwood[1], [1]*Department of Animal and Veterinary Sciences, College of Agricultural and Life Sciences, The University of Vermont, Burlington, VT*, [2]*Vermont Genetics Network Proteomics Facility, The University of Vermont, Burlington, VT*, [3]*Department of Biology, The University of Vermont, Burlington, VT.*

10:30 AM 492 **RNAseq analysis of sow mammary gland reveals strong transcriptomic regulation of colostrogenesis.**
V. Palombo*[1], J. J. Loor[2], M. Vailati Riboni[2], U. Krogh[3], and P. K. Theil[3], [1]*Università degli Studi del Molise, Campobasso, Italy*, [2]*University of Illinois at Urbana-Champaign, Urbana, IL*, [3]*Aarhus University, Tjele, Denmark.*

10:45 AM **Break**

11:00 AM 493 **Comparative transcriptomic analysis of the lactating and non-lactating bovine mammary gland.**
W. Dai*, Y. Zou, Q. Wang, J. Liu, and H. Liu, *Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou,Zhejiang,China.*

11:15 AM 494 **Understanding the regulatory mechanisms of milk production using integrative transcriptomic and proteomic analyses: Reducing inefficient utilization of crop by-products as forage in dairy industry.**
W. Dai*[1], Q. Wang[1], F. Zhao[2], J. Liu[1], and H. Liu[1], [1]*Institute of Dairy Science, College of Animal Sciences, Zhejiang University, Hangzhou, Zhejiang, China*, [2]*Laboratory of Lactation and Metabolic Physiology, Department of Animal Science, University of Vermont, Burlington, VT.*

11:30 AM 495 **Characterization of the non-genetic causes of variation of bovine milk calcium concentrations on French farms.**
P. Gaignon*[1,2], M. Gele[3], C. Hurtaud[1], and A. Boudon[1], [1]*PEGASE, INRA, Agrocampus Ouest, Saint-Gilles, France*, [2]*CMI, 18 avenue F. Roosevelt, Saint-Malo, France*, [3]*Institut de l'élevage, Angers, France.*

11:45 AM 496 **Milk fat globule size is regulated by phosphatidylethanolamine-dependent fusion: in vitro model.**
N. Argov-Argaman*[1], B.-C. Cohen[1], and A. Shamay[2], [1]*Hebrew University, Rehovot, Israel*, [2]*The Volcani Center, The Ministry of Agriculture, Rehovot, Israel*.

12:00 PM 497 **Once-daily milking during early lactation decreases production but does not affect dry matter intake of primiparous dairy cows fed pasture and total mixed ration.**
A. Capelesso[1,2], G. Kozloski[2], A. Mendoza[3], N. E. Amaro[1], A. F. Bica[1], J. L. Repetto[1], and C. Cajarville*[1], [1]*Universidad de la República, Facultad de Veterinaria, Uruguay*, [2]*Universidade Federal de Santa Maria, Brazil*, [3]*Instituto Nacional de Investigación Agropecuaria, Uruguay*.

Physiology and Endocrinology Symposium: Mediators of Effects of Stress on Reproduction, Growth, and Lactation

Chair: **Peter Hansen, University of Florida**
Sponsor: **BIOMIN America**
Room 315-316

9:30 AM 498 **Consequences of leaky gut on the immune system, metabolism, physiology and animal performance.**
REC
L. H. Baumgard*[1], S. K. Kvidera[1], E. A. Horst[1], M. J. Dickson[1], E.J. Mayorga[1], M. Al-Qaisi[1], S. Lei[1], J. A. Ydstie[1], C. S. Shouse[1], K. L. Bidne[1], J. T. Seibert[1], A. F. Keating[1], J. W. Ross[1], J. T. Selsby[1], R. P. Rhoads[2], [1]*Iowa State University, Ames, IA*, [2]*Virginia Tech University, Blacksburg, VA*.

10:00 AM 499 **Mechanisms linking metabolic stress with innate immunity and endometrial health.**
REC
I. M. Sheldon*, *Swansea University Medical School, Swansea, United Kingdom*.

10:30 AM 500 **Physiology and pathophysiology of the microbiome and immune-related genes in development of the fetal brain.**
REC
C. E. Wood*, M. B. Rabaglino, M. A. Zarate, and E. I. Chang, *Department of Physiology and Functional Genomics, College of Medicine, University of Florida, Gainesville, FL*.

11:00 AM 501 **Effectors of immunometabolic adaptations to lactation: implications on physiology and performance.**
REC
J. J. Loor*, F. Batistel, M. Vailati-Riboni, and Z. Zhou, *University of Illinois, Urbana-Champaign, IL*.

11:30 AM 502 **Lipids as regulators of conceptus development: implications for nutritional regulation of reproduction.**
REC
E. S. Ribeiro*, *Department of Animal Biosciences, University of Guelph, Guelph, ON, Canada*.

12:00 PM 503 **Reduction in oocyte developmental competence by stress is associated with alterations in mitochondrial function.**
REC
Z. Roth*, *Department of Animal Sciences, Robert H. Smith Faculty of Agriculture, Food and Environment, the Hebrew University, Rehovot, Israel*.

Physiology and Endocrinology IV

Chair: **Alex Souza, Ceva Sante Animale**
Room 324

9:30 AM 504 **Effect of osmotic pressure on spermatozoa characteristics of cryopreserved buffalo bull *(Bubalus bubalis)* semen.**
A. Ijaz*[1], D. H. Mughal[2], and U. Farooq[3], [1]*Nur International University, Lahore, Punjab, Pakistan*, [2]*University of Veterinary & Animal Sciences, Lahore, Punjab, Pakistan*, [3]*The Islamia University of Bahawalpur, Bahawalpur, Punjab, Pakistan*.

9:45 AM 505 **Effects of sperm dosage on conception rates of sex-sorted sperm processed using SexedUltra procedures.**
M. D. Utt*[1], B. Harstine[1], L. Helser[1], J. M. DeJarnette[1], R. Lenz[2], C. Gonzalez[2], T. Gilligan[2], J. Moreno[2], and R. Vishwanath[2], [1]*Select Sires Inc., Plain City, OH*, [2]*Sexing Technologies, Navasota, TX*.

10:00 AM 506 **Comparative effect of a commercial and tris-citric-egg-yolk (TCEY) extenders on post-thaw semen quality of Nili-Ravi buffaloes.**
A. Sattar*[1], M. A. Khan[1], S. Ali[1], M. Ahmad[2], A. A. Channa[1], M. U. Mehmood[1], A. Husnain[1], and N. Ahmad[1], [1]*Department of Theriogenology, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*, [2]*Department of Epidemiology and Public Health, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*.

10:15 AM 507 **Triladyl improves post-thaw semen quality of Sahiwal bulls.**
A. Sattar*[1], S. Ali[1], S. Firyal[2], M. A. Khan[1], A. Rehman[1], M. U. Mehmood[1], A. Rehman[1], and M. Z. Tahir[1], [1]*Department of Theriogenology, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*, [2]*Institute of Biochemistry and Biotechnology, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*.

10:30 AM 508 **Effect of royal jelly on post-thaw semen quality of Beetal bucks.**
M. Kaleem[1], A. Rehman[1], M. Avais[2], M. U. Mehmood[1], and A. Sattar*[1], [1]*Department of Theriogenology, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*, [2]*Department of Clinical Medicine and Surgery, University of Veterinary and Animal Sciences, Outfall Road, Lahore, Pakistan*.

10:45 AM 509 **Dietary supplementation of conjugated linoleic acids on sperm quality and freezability in bovines.**
M. S. Liman[1], C. L. Cardoso[1], D. C. Holm[1], S. de Bruyn[2], B. Gasparrini[2], V. Franco[2], V. Longobardi[2], and G. Esposito*[1], [1]*Faculty of Veterinary Sciences, University of Pretoria, Pretoria, South Africa*, [2]*University of Naples, Federico II, Naples, Italy*.

11:00 AM 510 **Expression of TGF-β superfamily genes in bovine embryos developed in vivo from oocytes exposed to endogenous (bovine) or exogenous (porcine) luteinizing hormone.**
A. Behrouzi*[1], A. Ruiz-Sanchez[1], M. G. Colazo[2], and D. J. Ambrose[1,2], [1]*1Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada*, [2]*2Livestock Research Section, Alberta Agriculture and Forestry, Edmonton, AB, Canada*.

Production, Management, and the Environment Symposium: Greenhouse Gas Emissions from Dairy Operations

Chair: **Alex Hristov, Pennsylvania State University, University Park**

Sponsor: **DSM Nutritional Products**

Room 319-320

9:30 AM [REC] **Introduction.**
A. Hristov.

9:30 AM [REC] 512 **Greenhouse gas emissions from confined dairy production systems.**
A. B. Leytem*[1] and E. Kebreab[2], [1]*USDA-ARS, Kimberly, ID*, [2]*University of California, Davis, CA*.

10:00 AM [REC] 513 **Greenhouse gas emissions from pasture-based dairy production systems.**
G. J. Lanigan*[1], W. Burchill[1], J. Humphreys[2], P. Forrestal[1], and K. G. Richards[1], [1]*Teagasc, Johnstown Castle, Wexford, Ireland*, [2]*Teagasc, Moorepark, Fermoy, Ireland*.

10:30 AM [REC] 514 **Manure greenhouse gas emissions: Prediction and mitigation.**
S. O. Petersen*, *Aarhus University, Tjele, Denmark*.

11:00 AM 515 **Enteric methane emissions: Prediction and mitigation, the GLOBAL NETWORK project.**
REC
A. N. Hristov*[1], E. Kebreab[2], M. Niu[2], J. Oh[1], C. Arndt[3], A. Bannink[4], A. R. Bayat[5], A. F. Brito[6], D. Casper[7], L. A. Crompton[8], J. Dijkstra[4], P. C. Garnsworthy[9], N. Haque[10], A. L. F. Hellwing[11], P. Huhtanen[12], M. Kreuzer[13], B. Kuhla[14], P. Lund[11], J. Madsen[10], S. C. McClelland[3], P. Moate[15], C. Muñoz[16], N. Peiren[17], J. M. Powell[18], C. K. Reynolds[8], A. Schwarm[13], K. J. Shingfield[19], T. M. Storlien[20], and M. R. Weisbjerg[11], [1]*Department of Animal Science, The Pennsylvania State University, University Park, PA*, [2]*Department of Animal Science, University of California, Davis, CA*, [3]*Environmental Defense Fund, New York, NY*, [4]*Wageningen University & Research, Wageningen, the Netherlands*, [5]*Milk Production Solutions, Green Technology, Natural Resources Institute Finland, Finland*, [6]*Department of Biological Sciences, University of New Hampshire, Durham, NH*, [7]*Furst McNess Company, Freeport, IL*, [8]*School of Agriculture, Policy and Development, University of Reading, Reading, UK*, [9]*School of Biosciences, University of Nottingham, Nottingham, UK*, [10]*Department of Large Animal Sciences, University of Copenhagen, Denmark*, [11]*Department of Animal Science, Aarhus University, Tjele, Denmark*, [12]*Department of Agricultural Science for Northern Sweden, Swedish University of Agricultural Sciences, Sweden*, [13]*ETH Zurich, Institute of Agricultural Science, Switzerland*, [14]*Institute of Nutritional Physiology, Leibniz Institute for Farm Animal Biology, Germany*, [15]*Agriculture Research Division, Department of Environment and Primary Industries, Australia,* [16]*INIA Remehue, Instituto de Investigaciones Agropecuarias, Chile,* [17]*Institute for Agriculture, Fisheries and Food Research, Belgium;* [18]*USDA-ARS US Dairy Forage Research Center,* [19]*Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, UK,* [20]*Department of Animal and Aquacultural Sciences, Norwegian University of Life Sciences, Norway*.

11:30 AM 516 **Modeling greenhouse gas emissions from dairy farms.**
REC
C. A. Rotz*, *USDA-ARS, University Park, PA*.

12:00 PM **Panel discussion.**
A. N. Hristov, A. B. Leytem, G. J. Lanigan, S. O. Petersen, and C. A. Rotz.

Production, Management, and the Environment V
Chair: **Phil Cardoso, University of Illinois**
Room 321

9:30 AM 517 **Relationship between bulk tank fat and true protein test and milk fatty acid composition.**
D. M. Barbano*[1], M. E. Carabeau[2], H. M. Dann[2], and R. J. Grant[2], [1]*Cornell University, Ithaca, NY*, [2]*Miner Institute, Chazy, NY*.

9:45 AM 518 **The effects of US region on the annual rhythms of milk yield and fat and protein concentration and yield of dairy cattle at the herd level.**
I. J. Salfer*, C. D. Dechow, and K. J. Harvatine, *The Pennsylvania State University, University Park, PA*.

10:00 AM 519 **Relationship of mid-lactation feed efficiency with early and late lactation body condition score in Holstein dairy cows.**
L. Hardie*[1], K. Maxwell[1], M. VandeHaar[2], and D. Spurlock[1], [1]*Iowa State University, Ames, IA*, [2]*Michigan State University, East Lansing, MI*.

10:15 AM 520 **Comparison of growth and meat quality of Holstein and crossbred dairy steers grazing two cover cropping systems.**
H. Phillips*[1], B. Heins[1], K. Delate[2], and B. Turnbull[2], [1]*University of Minnesota, Morris, MN*, [2]*Iowa State University, Ames, IA*.

10:30 AM 521 **Comparison of liquid stored and frozen semen in 2 different timed AI protocols.**
S. Borchardt[1], L. Schueller[1], L. Wolf[1], C. Wesenauer[2], and W. Heuwieser*[1,3], [1]*Clinic for Animal Reproduction, College of Veterinary Medicine, Universitaet Berlin, Berlin, Germany*, [2]*RinderAllianz, Woldegk, Mecklenburg Vorpommern, Germany*, [3]*Department of Population Medicine and Diagnostic Sciences, Cornell University, College of Veterinary Medicine, Ithaca, NY*.

10:45 AM 522 **Progesterone profile of lactating dairy cows with reference to production and cyclicity during P4 supplementation.**
R. S. Balouch*[1], S. Abbas[2], and A. H. Shahzad[2], [1]*L&DD, Punjab, Lahore, Pakistan*, [2]*UVAS, Lahore, Lahore, Pakistan*.

Dairy Foods Symposium:
Chr. Hansen Symposium: Microbial Ecology of Cheese
Chair: **John Lyne, Chr. Hansen Inc.**
Sponsor: **Chr. Hansen Inc.**
Room 406

2:00 PM **Opening remarks.**
John Lyne.

2:15 PM 523 **Dairy species from non-dairy sources: Their genomic and metabolic diversity and potential applications in cheese.**
REC
O. McAuliffe*, *Teagasc Food Research Centre, Fermoy, Cork, Ireland.*

2:45 PM 524 **Development of secondary cultures for consistency and control over cheese ripening.**
J. A. Hannon*, *Chr. Hansen A/S, Boge Alle, Hørsholm, Denmark.*

3:15 PM 525 **Interaction of starter cultures and nonstarter lactic acid bacteria (NSLAB) in the cheese environment.**
G. LaPointe*, *University of Guelph, Guelph, ON, Canada.*

3:45 PM 526 **Interactions of production environment microbiota with food and beverage fermentations: Lessons for cheese production.**
D. A. Mills*, *Department of Food Science & Technology, University of California, Davis, CA.*

4:15 PM 527 **Diversity and dynamics of surface-ripened cheese microbiomes: Implications for cheese quality and safety.**
REC
B. E. Wolfe*, *Department of Biology, Tufts University, Medford, MA.*

4:45 PM **Closing remarks.**
John Lyne.

OTHER EVENTS

Mixed Models Workshop
Room 317-318

Wednesday, 8:00 to 5:00 PM; Thursday, 8:00 to 12:00 PM

Instructors:
Nora Bello, Kansas State University
Nick Keuler, University of Wisconsin
Kevin McCarter, Louisiana State University

Thursday, June 29

Teagasc-Moorepark/University College Cork Cheese Symposium
Chair: **Paul Kindstedt, University of Vermont**
William Penn Ballroom, Omni William Penn Hotel

8:45 AM	528	**Opening address and framing of the Teagasc-Moorepark/University College Cork Cheese Symposium.** P. Kindstedt*, *University of Vermont, Burlington, VT.*
9:00 AM		**Introduction to Teagasc: What is Ireland's dairy research strategy?** M. Fenelon, *Teagasc Food Research Centre Moorepark, Fermoy, Co. Cork, Ireland.*
9:10 AM		**Introduction to University College Cork (UCC).** P. McSweeney, *University of College Cork, Ireland.*
9:20 AM		**Introduction of Professor Emeritus Pat Fox (UCC).** P. Kindstedt, *University of Vermont.*
9:25 AM	529	**How has cheese science evolved? Lessons learned for future challenges.** P. F. Fox*, *University College Cork, Dublin, Ireland.*
9:55 AM	530	**Biochemical, textural, and functional changes in cheese during ripening.** P. L. H. McSweeney*, *University College Cork, Cork Ireland.*
10:25 AM		**Break**
10:45 AM	531	**The cheese microbiome and its relevance to industry.** P. D. Cotter*[1,2], [1]*Teagasc Food Research Centre, Moorepark, Fermoy, Cork, Ireland*, [2]*APC Microbiome Institute, Cork, Ireland.*
11:15 AM	532	**Influence of manufacture parameters on cheese microstructure, microbial localization and their interactions during ripening.** D. (JJ) Sheehan*, *Teagasc Food Research Centre Moorepark, Fermoy, Co. Cork, Ireland.*
12:15 PM	533	**Effect of dairy cow diet on the milk composition and processing characteristics of milk.** A. Gulati[1], T. P. Guinee*[1], M. A. Fenelon[1], J. J. McManus[2], and E. Lewis[3], [1]*Teagasc Food Research Centre Moorepark, Fermoy, Co. Cork, Ireland*, [2]*Department of Chemistry, National University of Ireland Maynooth, Maynooth, Co. Kildare, Ireland*, [3]*Teagasc, Animal & Grassland Research and Innovation Centre Moorepark, Fermoy, Co. Cork, Ireland.*
12:45 PM		**Lunch**
2:00 PM	534	**Profiling the flavor of dairy products from grass-based versus non-grass based milk production systems.** K. N. Kilcawley*, *Teagasc Food Research Centre, Moorepark, Fermoy, Co. Cork, Ireland.*
2:30 PM	535	**Cheese: Nutrition and health.** T. Beresford* and S. Seratlic, *Teagasc, Cork, Ireland.*
3:00 PM	536	**Interfacing next-generation cheese research with industry needs: A strategic challenge.** J. Lucey*, *Wisconsin Center for Dairy Research, University of Wisconsin-Madison, Madison, WI.*
3:20 PM		**Open Forum.** John Lucey, *University of Wisconsin, Center for Dairy Research.*
4:00 PM		**Closing.** Paul Kindstedt and Diarmuid Sheehan.

NOTES

Author Index

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

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.

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