

Michigan State University
Department of Animal Science

Year in Review

a sampling of activities and highlights from

2018/2019



Fall 2018 Student Enrollment

Undergraduate: 451

Graduate, MS: 19

Graduate, PhD: 18



New Faculty

joining the
Department of Animal
Science on a full or
partial appointment

Nick Babcock, extension educator

Paige Bittner, assistant instructor-horse farm

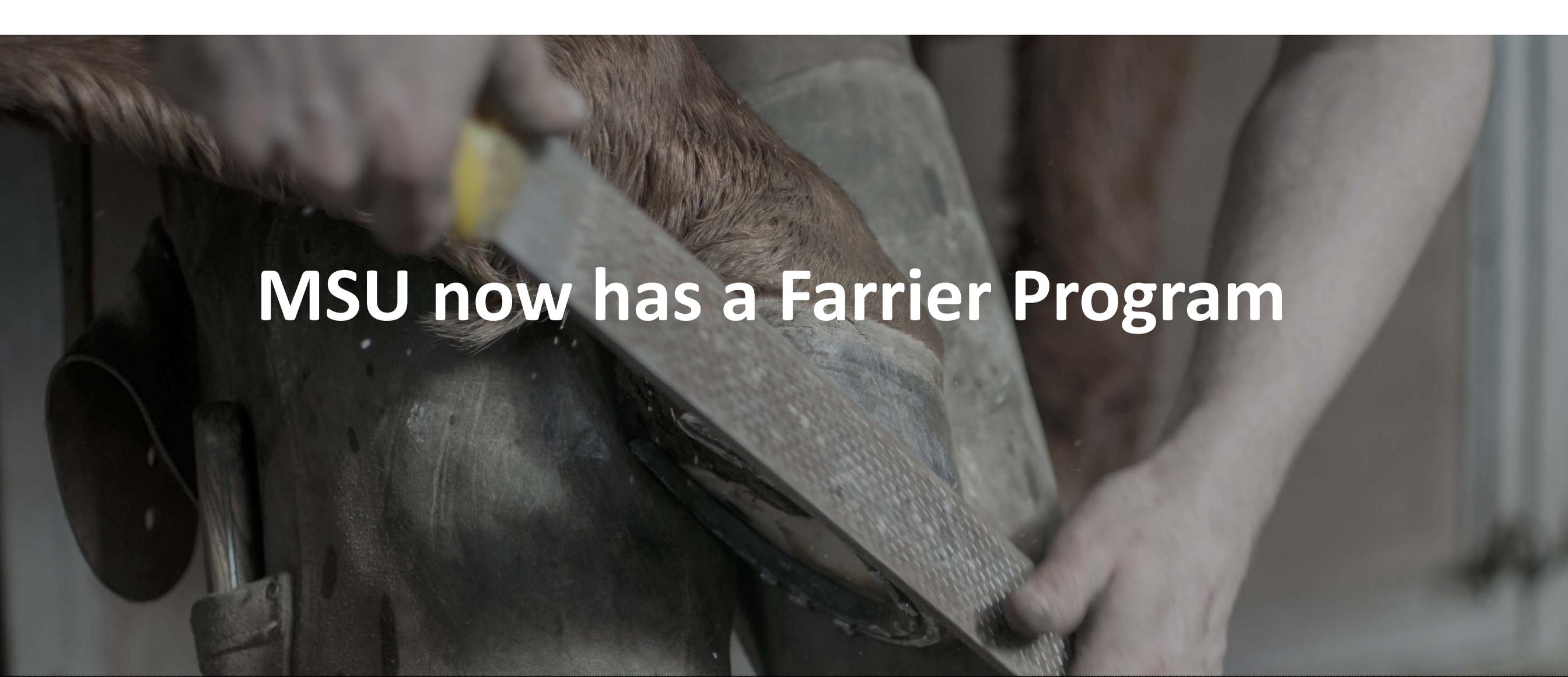
Hanne Hoffmann, assistant professor-reproduction

Jacquelyn Jacobs, assistant professor-companion animals

Gary Smith, specialist-Food Science and Human Nutrition

Zac Williams, academic specialist-poultry

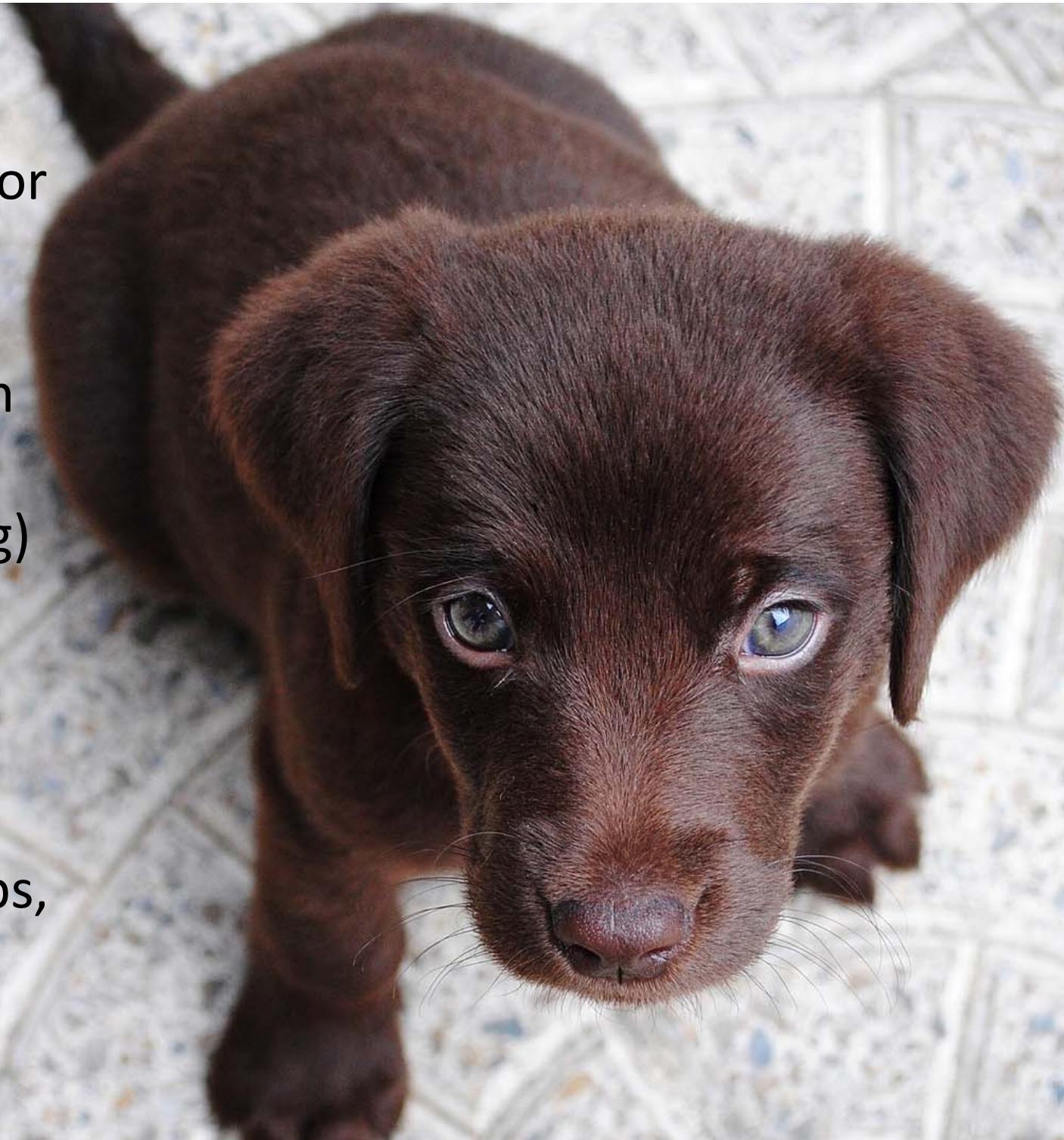
Zheng Zhou, assistant professor-nutrition



MSU now has a Farrier Program

The Michigan State University Farrier School is housed on the MSU Horse Teaching and Research Center and led by MSU alumnus David Hallock, CJF, ASF. Students in the program receive hands-on and classroom-based instruction in hoof and farrier science, equine anatomy and physiology, basic welding, and business.

A Leader Dog Club for MSU students was started in 2018 as a special request from Leader Dogs for the Blind (leaderdog.org) as they continue to grow and need volunteer puppy raisers. Julie Moore and Jacquelyn Jacobs, assistant professor, advise the club.

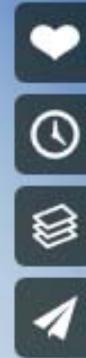


A new Livestock Industries Ag Tech program video was produced by Michigan Farm Bureau. The video features Chastin Leggett, program coordinator for the Livestock Industries program, and students from the program, as well as the south campus farms.

Video on Vimeo:
“MSU Ag Tech Livestock Industries”



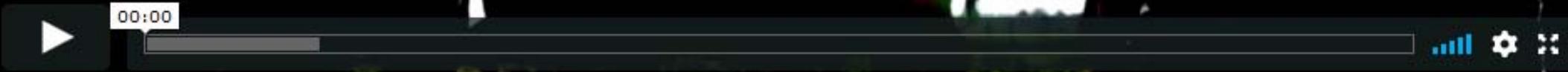
Institute of
Agricultural Technology
MICHIGAN STATE UNIVERSITY



Additional Videos in the series:

“MSU Ag Tech Horse Management”

“MSU Ag Tech Dairy”



Video at <https://vimeo.com/>

<https://vimeo.com/search?q=MSU+Ag+Tech+Horse+Management>

<https://vimeo.com/search?q=MSU+Ag+Tech+Dairy>

<https://vimeo.com/search?q=MSU%20Ag%20Tech%20%20Livestock%20%20Industries>



The **MSU Dairy Challenge Team** took first place at Dairy B at the North American Intercollegiate Dairy Challenge in March in Tifton, Georgia.

Team: Monika Dziuba, Lauren Heberling, Ariana Negreiro, and Jared Sanderson

Coaches: Joe Domecq, Roger Thomson





The MSU Livestock Judging Team highlighted a successful season as 2019 Champion Team Overall at the All East Contest.

Brad Chapman was high individual overall.

Team: Brad Chapman, Brady Littlefield, Rebecca Herzog, Thomas Littlefield, Katie Romzek, Ty Cool, Kelsie Letts, Kollin Johnson, and Zac Hultink. Coach: Chastin Leggett, Asst. Coaches: Tawnie DeJong, Ethan Douglass, Brenden Johnson



The MSU Academic Quadrathlon Team Finished 2nd in the Midwest Competition.

Team: Marisa Henry, Hannah Campbell, Claire Vincent, Andrea Luttman

Advisors: Dale Rozeboom and Keven Turner



One of two MSU Extension's Breakfast on the Farm in 2018 was held at the MSU Beef Teaching & Research Center September 15, drawing 2,181 visitors!

https://www.canr.msu.edu/breakfast_on_the_farm/ingham-county-msu-beef-research-center/index



The **MSU Extension Equine Team** serves on a task force for Detroit Horse Power (DHP) to explore the feasibility of developing an urban equestrian center in Detroit. DHP is a non-profit organization that teaches Detroit youth how to ride and care for horses as a way to develop critical skills that will set them up for future success.

The Equine Team includes Animal Science personnel Christine Skelly, associate professor, Karen Waite, specialist, and Taylor Fabus, educator.

Joe Domecq, academic specialist,
was highlighted in a recent article.



“Facilitator of opportunity,” By Laura Moser, Hoard’s Dairyman, April 25, 2019.



“For nearly 30 years,
Joe Domecq has
helped shape dairy
youth programming in
Michigan.”

Equine Nutrition



Nathalie Trottier, professor, spoke at the 79th Minnesota Nutrition Conference about modeling the amino acid and nitrogen requirements for gestation and lactation in the mare.

Nebraska Grazinglands Coalition Roadshow



Jason Rowntree, associate professor, was this year's speaker. He highlighted the transition of Lake City Research Center into a grazing-based research facility and highlighted his research on grazing, soil carbon sequestration and global work, especially in Africa.

Dairy Nutrition



Project lead: Mike VandeHaar, professor

“The Foundation for Food and Agriculture Research (FFAR) awarded MSU a \$1 million grant to improve dairy cow feed efficiency, which could improve farmer profitability and substantially reduce the greenhouse gas footprint of the dairy industry. The Council on Dairy Cattle Breeding (CDCB) provided matching funds, for a total award of \$2 million.”

Adam Lock, associate professor, gave two invited talks on recent research at MSU on supplemental fat strategies as well as discussing rumen health and milk fat synthesis and how we can improve milk fat production.

Invited speaker at the Feedworks "Feeding Our Future" dairy nutrition conference in Queensland, Australia.



Feed Efficiency



Rob Tempelman, professor, was invited to present on “some insights into the quantitative genetic modeling of feed efficiency and its implications for multiple trait genomic evaluations” at the Genetic Prediction Workshop hosted by the Beef Improvement Federation in December.

Equitana Melbourne



Brian Nielsen, professor, was invited to speak at Equitana Melbourne in Australia on “The role of exercise in determining skeletal strength in horses” and provided results from 25 years of research guiding the type, quantity, and frequency of exercise needed by horses to maintain or improve skeletal strength.

Reproduction



Aritro Sen, assistant professor, presented “The evolving potential translational importance of cumulin (GDF9: BMP15) treatments for female fertility” in November at the Annual 2018 Conference of the Foundation of Reproductive Medicine: Translational Reproductive Biology and Clinical Reproductive Endocrinology.



Zac Williams, extension specialist, Dale Rozeboom, professor/ extension specialist, and others, in collaboration with Michigan Allied Poultry Industries and Kellogg Biological Station, initiated a poultry mass mortality compost research and demonstration project in 2019.

Poultry Composting

The goals of the project are to demonstrate to poultry farmers and government agencies that mortality composting is possible throughout the year, and which compost construction method is most effective.

Animal Welfare

Janice Siegford, professor, co-presented on the **Intercollegiate Animal Welfare Assessment Contest**, which was founded at Michigan State University in **2001**. 35th World Veterinary Association Congress in San Jose, Costa Rica, in April 2019.



Janice Swanson, professor, presented “Animal Welfare and the Animal Science and Veterinary Medicine Curriculum” to the Lala Lajpat Rai University of Veterinary and Animal Sciences (LUVAS), India, faculty in April 2019.



Genetics

International Plant and Animal Genome
XXVII Conference
San Diego, CA, January 2019

“The Largest Ag-Genomics Meeting in the World”

Cedric Gondro, professor, presented “Artificial Intelligence and Feature Selection for Genomic Prediction”



Catherine Ernst, professor, presented “Skeletal muscle eQTL and allele-specific expression associated with phenotypic traits in pigs”

Juan Steibel, associate professor, presented “MSU Station Report: Behavioral Phenotyping and Modeling of Social Genetic Effects”

Co-authors B. Angarita Barajas, J. Han, S. J. Chewning, K. Wurtz, C. O'Malley, R.J.C. Cantet, J.M. Siegford, and C.W. Ernst.



from Reproductive and Developmental Sciences Program (RDSP) researchers...



Keith Latham, professor: “Regulators of early embryo genome function and viability,” presented in 2019 at the University of Kansas Medical Center, Kansas City, MO.

Almudena Veiga-Lopez, assistant professor: “Toxic effects of plastics during fetal development: the emergent role of the placenta,” invited seminar at the Medical School, University of San Martin de Porres, Lima, Peru, March 2019.



more from RDSP researchers...



Hanne M. Hoffmann, assistant professor: “The importance of characterizing Cre-alleles: a comparative study of the impact of neuronal development and behavior in mice with conditional deletion of the homeodomain transcription factors *Six6* and *Vax1* using two different *Gnrh*-promoter driven Cre-alleles,” presented at the Society for Neuroscience (SFN), San Diego, CA, November 2018. (Co-authors: Erica C. Pandolfi, Jessica S. Lee, Rachael J. Hu, Crystal Trang, Viet A. Nguyen, Dorota Skowronska-Krawczyk, Michael R. Gorman, Pamela L. Mellon)



Jim Ireland, professor: “Anti-Mullerian hormone as a predictor of fertility in cattle,” presented at The Use of AMH in Fertility Management workshop at the 22nd Annual Conference of the European Society of Domestic Animal Reproduction (Esdar), University of Cordoba, Cordoba, Spain, Sept 27-29.

Adam Lock, associate professor, is working to help dairy producers increase the value of their product amidst currently suppressed milk prices.



Jason Rowntree, associate professor, is looking at legume impact on animal and forage production, enteric methane and nitrous oxide emissions in Midwest grazing systems.



Three Animal Science researchers with Michigan Alliance for Animal Agriculture (M-AAA) funding were highlighted in the 2018 Legislative Summary...

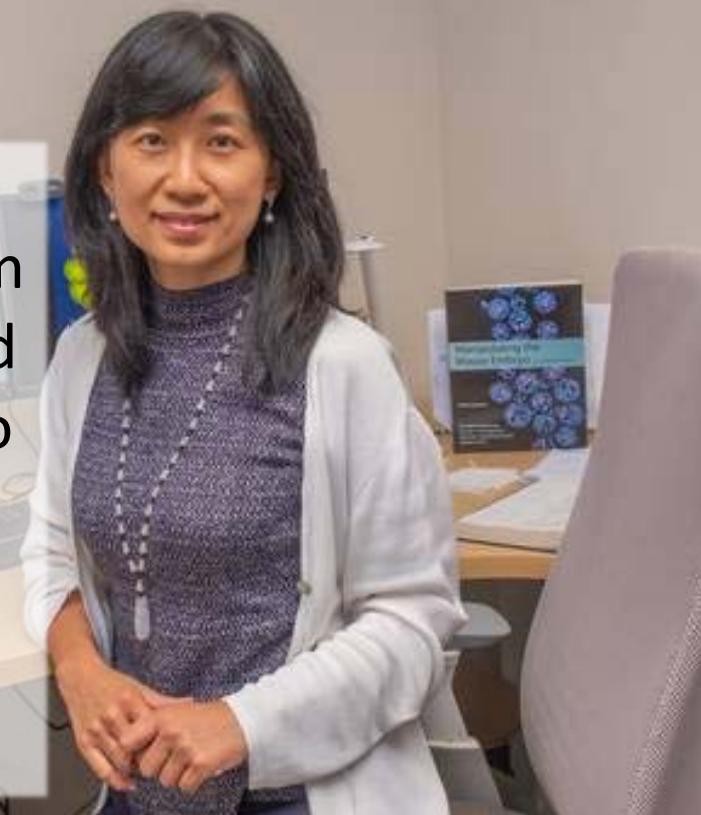


Richard Ehrhardt, extension specialist, is looking at optimizing nutritional management of sheep to improve reproductive outcomes in accelerated production systems.

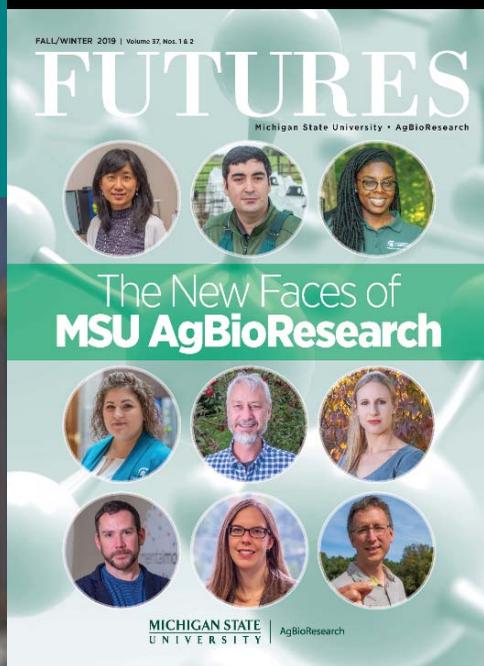
“Safeguarding the foundation of life”
featuring Almudena Veiga-Lopez, assistant professor

Highlighted in the Fall/Winter 2019 issue of AgBioResearch’s Futures Magazine.

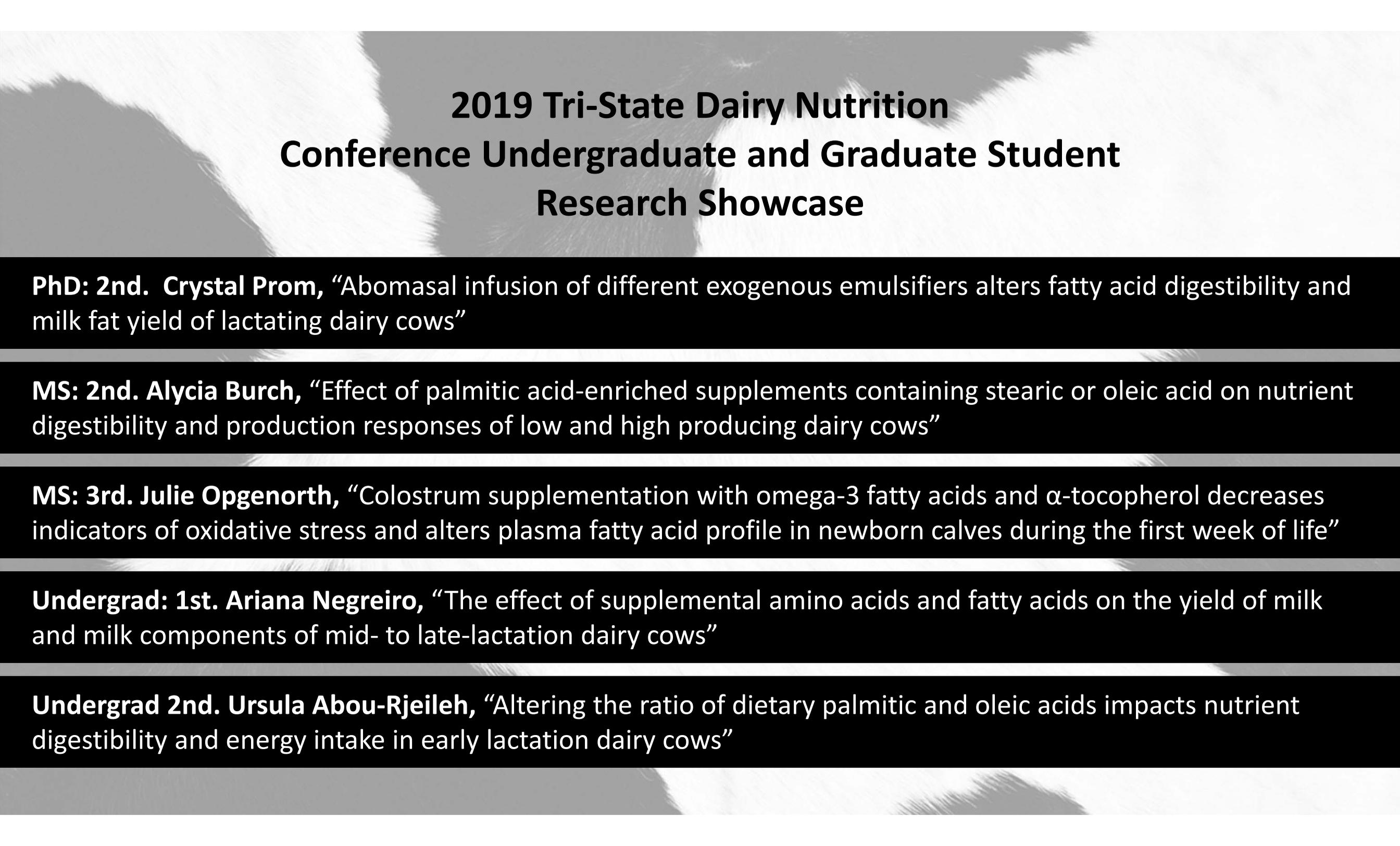
Dr. Wang “believes stem cells may hold the answer to some of medicine’s biggest questions.”



Dr. Veiga-Lopez is “exploring the relationship between chemical exposures during pregnancy and their potential effects on children later in life.”



“Exploring the possibilities of stem cell treatments in humans and animals,”
featuring Yuan Wang, assistant professor

A close-up, black and white photograph of a cow's face, showing its eye and part of its snout, serves as the background for the text.

2019 Tri-State Dairy Nutrition Conference Undergraduate and Graduate Student Research Showcase

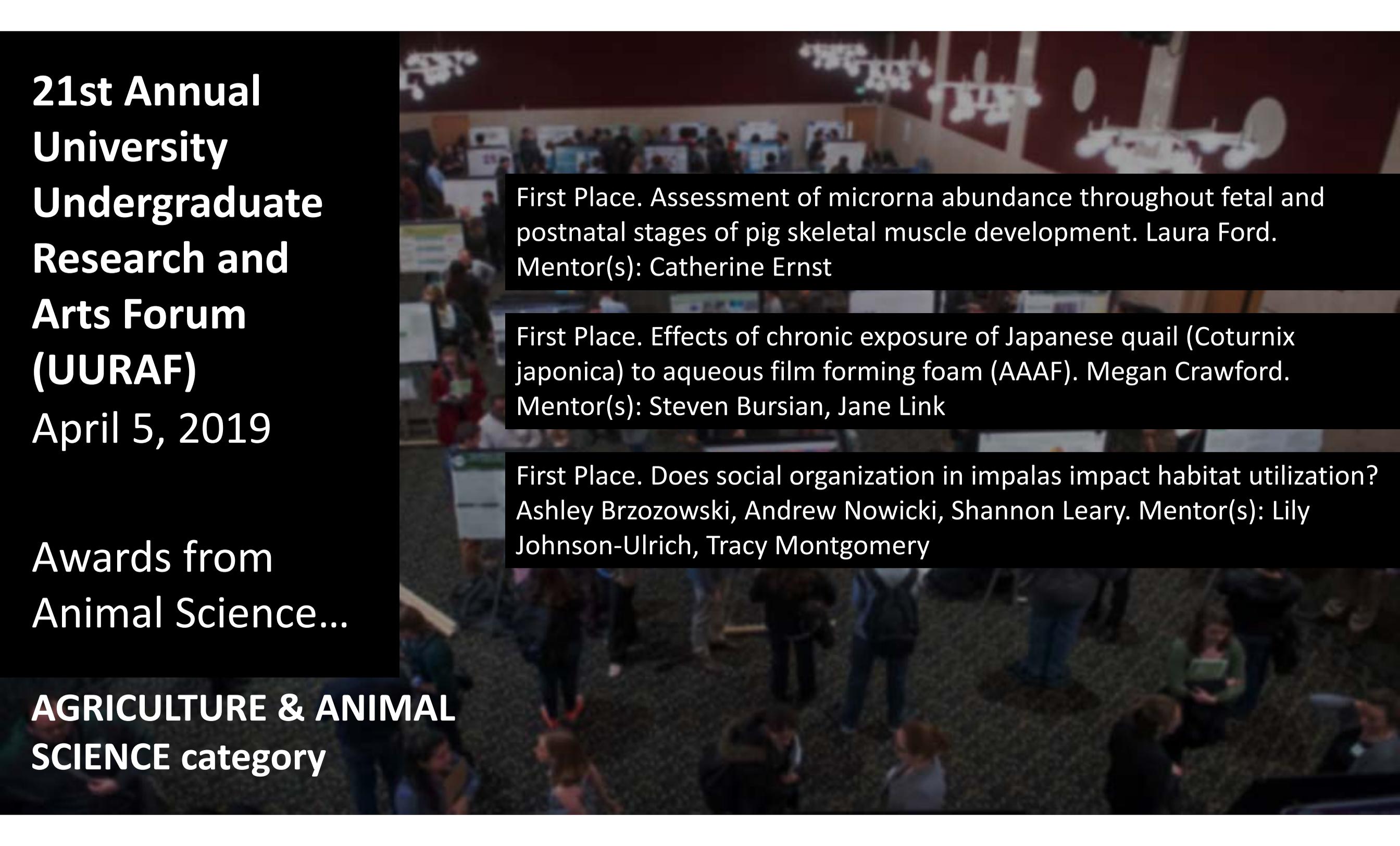
PhD: 2nd. Crystal Prom, “Abomasal infusion of different exogenous emulsifiers alters fatty acid digestibility and milk fat yield of lactating dairy cows”

MS: 2nd. Alycia Burch, “Effect of palmitic acid-enriched supplements containing stearic or oleic acid on nutrient digestibility and production responses of low and high producing dairy cows”

MS: 3rd. Julie Opgenorth, “Colostrum supplementation with omega-3 fatty acids and α -tocopherol decreases indicators of oxidative stress and alters plasma fatty acid profile in newborn calves during the first week of life”

Undergrad: 1st. Ariana Negreiro, “The effect of supplemental amino acids and fatty acids on the yield of milk and milk components of mid- to late-lactation dairy cows”

Undergrad 2nd. Ursula Abou-Rjeileh, “Altering the ratio of dietary palmitic and oleic acids impacts nutrient digestibility and energy intake in early lactation dairy cows”



**21st Annual
University
Undergraduate
Research and
Arts Forum
(UURAF)**

April 5, 2019

**Awards from
Animal Science...**

**AGRICULTURE & ANIMAL
SCIENCE category**

First Place. Assessment of microrna abundance throughout fetal and postnatal stages of pig skeletal muscle development. Laura Ford.
Mentor(s): Catherine Ernst

First Place. Effects of chronic exposure of Japanese quail (*Coturnix japonica*) to aqueous film forming foam (AAAF). Megan Crawford.
Mentor(s): Steven Bursian, Jane Link

First Place. Does social organization in impalas impact habitat utilization? Ashley Brzozowski, Andrew Nowicki, Shannon Leary. Mentor(s): Lily Johnson-Ulrich, Tracy Montgomery



Richard Pursley, professor, received the 2018 National Association of Animal Breeders Research Award.

Richard Ehrhardt was chosen as the 2018 MAEA Extension Specialist.





Adam Lock, associate professor, was named **2019 Undergraduate Research Faculty Mentor of the Year** (science and engineering) for Michigan State University.

Animal science doctoral student **Carly O'Malley** was awarded the **Excellence in Graduate Student Teaching Award** for 2019 from the College of Agriculture and Natural Resources.



Dairy Farmer of the Year

Presented by the
MSU
Department of
Animal Science



**Bakerlads Farms
Blaine and Kim
Baker**



Bakerlads Farms is the brothers' fifth-generation farm in Lenawee County, Clayton, Michigan, which has been in operation since the 1870s. Bakerlads Farms includes a dairy herd of 540 Holsteins and 607 replacements.

This video was brought to you by the
Department of Animal Science
in the College of Agriculture and Natural Resources
at Michigan State University

Visit our website for more information
www.canr.msu.edu/ans

Access the links on slides at the Animal Science Newsletter page to find more
information about the topics in this video:

<https://www.canr.msu.edu/ans/news/animal-science-newsletter>



Department of Animal Science Chair
Pamela Ruegg, professor

Associate Chair for Farm Operations and Stakeholder Relations
Dale Rozeboom, professor

Associate Chair for Graduate Training and Research
Catherine Ernst, professor

Coordinator of the Undergraduate Program
Karen Waite, specialist

Reproductive and Developmental Sciences Program Co-Director
Keith Latham, professor

Video Producer

Michelle Hendrick

Music

Disco Metropolis by Vyra | <https://soundcloud.com/vyramusic>

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https://creativecommons.org/licenses/by/3.0/deed.en_US

Music: <https://www.bensound.com/royalty-free-music>

Retro Soul from Bensound.com



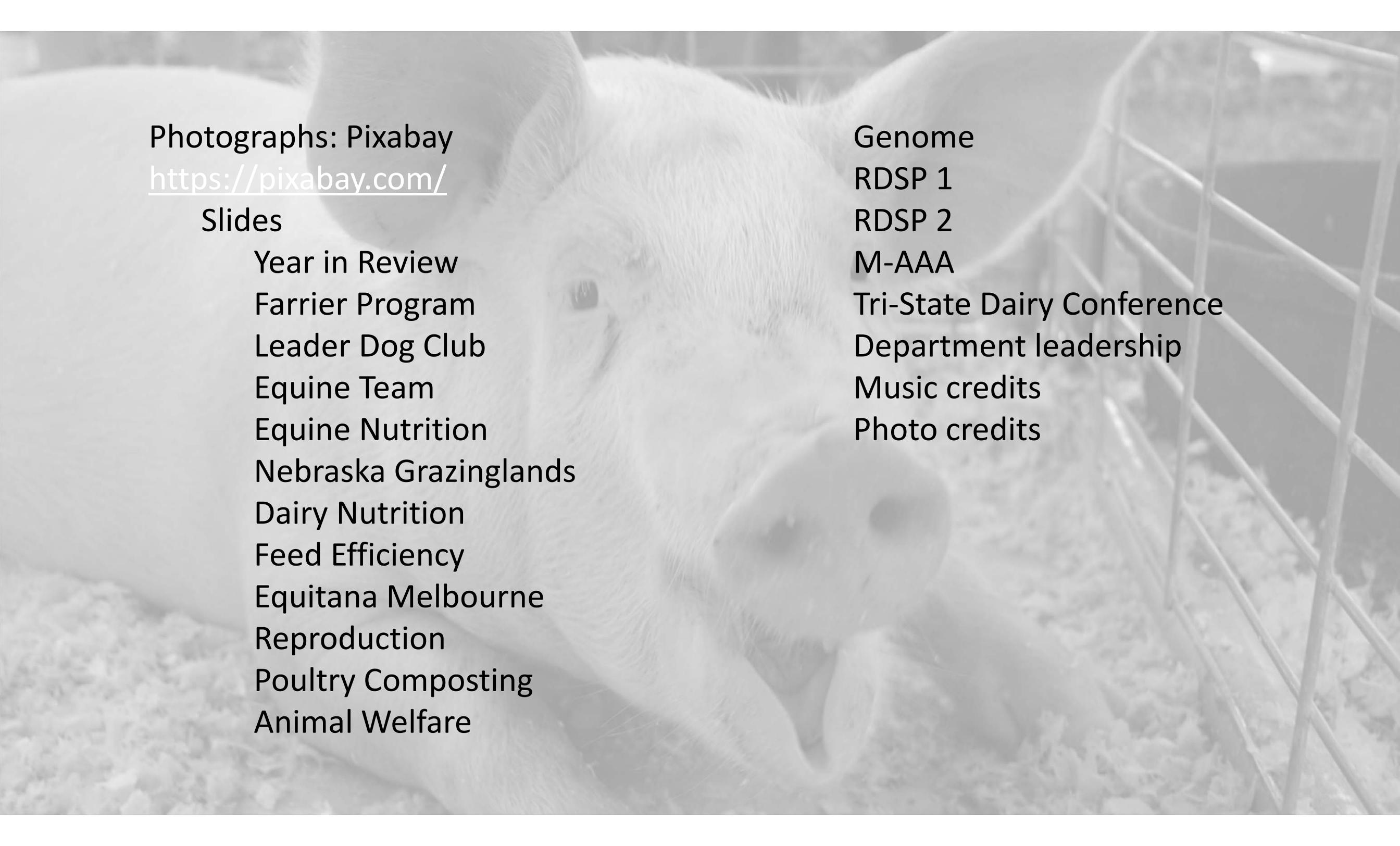
Photographs: Courtesy of MSU Photography Services

Slides

Student Enrollment and Degrees

New Faculty

MSU Photo Credits



Photographs: Pixabay

<https://pixabay.com/>

Slides

Year in Review

Farrier Program

Leader Dog Club

Equine Team

Equine Nutrition

Nebraska Grazinglands

Dairy Nutrition

Feed Efficiency

Equitana Melbourne

Reproduction

Poultry Composting

Animal Welfare

Genome

RDSP 1

RDSP 2

M-AAA

Tri-State Dairy Conference

Department leadership

Music credits

Photo credits

Thank you for watching!