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.

https://www.canr.msu.edu/farrierschool/
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”

Video at https://vimeo.com/

Additional Videos in the series:
“MSU Ag Tech Horse Management”
“MSU Ag Tech Dairy”
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.


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.

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

“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.

https://foundationfar.org/2019/05/21/ffar-awards-msu-grant-to-enhance-milk-production/
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.
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.
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 composting research and demonstration project in 2019.

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.
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.
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”

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

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

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

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

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

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

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

https://www.canr.msu.edu/publications/the-new-faces-of-msu-agbioresearch
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”
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.
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:
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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Slides
Student Enrollment and Degrees
New Faculty
MSU Photo Credits
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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!