



K News from KSU Animal Sciences

- ☞ **The 52nd Annual LMIC Stockmen’s Dinner** will honor the Tom Perrier Family as Stockman of the year. The dinner will be held on Thursday, March 2, at the Stanley Stout Center. Go to www.ask.ksu.edu/stockmensdinner for the latest schedule and registration.
- ☞ **Make plans to attend Cattlemen’s Day 2023** –The 110th annual Cattlemen’s Day will be hosted Friday, March 3, 2023. Registration for KSU Cattlemen’s Day will be \$25 per person in advance or \$35 per person at the door. Morning refreshments and lunch are included with registration. For registration and updated information, go to www.asi.ksu.edu/cattlemensday or call 785-532-1267. The trade show and education exhibits will open at 8 am in Weber Arena. The schedule includes:

 - 8:00 am Commercial Trade Show and Educational Exhibits (Weber Arena)
 - 9:30 am *Morning Presentations:*
Weber Hall Room 123
Welcome – *Mike Day, Department Head, ASI*
Navigating the U.S. Carbon Market – *Jason Sawyer, East Foundation Chief Science Officer*
Beef Industry Economic Outlook – *Glynn Tonsor, K-State Agriculture Economics*
 - 12 noon Lunch (compliments of US Premium Beef and Commercial Trade Show exhibitors. Visit the Trade Show and enjoy Call Hall Ice Cream
Afternoon Break-Out Sessions:
Weber Hall Room 123
 - 1:30 pm **Strategies for Optimizing Cow Herd Reproduction with High Feed Costs** – *Sandy Johnson and Jason Warner, KSU*
 - 2:30 pm **Practical Solutions to Environmental Concerns** – *Logan Thompson, KSU*
Weber Hall Room 146
 - 1:30 pm **NBAF Update** – *Ken Burton, National Bio and Agro-Defense Facility Deputy Director*
 - 2:30 pm **Proactive Social Media Strategies** – *Scarlett Hagins, Kansas Livestock Association, Vice President, Communications*
Weber Hall Room 111
 - 1:30 pm **Beef Sensory Update** – *Erin Beyer, KSU*
 - 2:30 pm **Weather Monitoring Tools for Agriculture: The Kansas Mesonet** – *Chip Redmond, Meteorologist and manager of the Kansas Mesonet*
- ☞ **The 46th Annual Legacy Bull and Heifer Sale** will be March 3, 2023 at 4:00 pm at the Stanley Stout Center. Visit www.asi.ksu.edu/bullsale for more information as it becomes available, including the sale catalog.
- ☞ **Spring Shows and Local Youth Livestock Opportunities**-Any county that has a youth livestock educational opportunity open to kids outside of the county is invited to share that information with Lexie Hayes (adhayes@ksu.edu). This includes spring shows, showmanship clinics, skillathons, field days, other related events, etc. These opportunities will be included on the youth livestock website, under the events tab. Information on the site will be updated as approved 2023 opportunities are received directly from extension units.

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 785-532-6533
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UPCOMING EVENTS...

- ☞ **K-State Junior Swine Producer Day** is scheduled for Saturday, March 11, 2023, in Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth swine projects. All ages and knowledge levels are invited! K-State faculty members, graduate students and guest speakers will cover topics including selection, meat science, ear notching, breeds, reproduction, equipment and daily care, herd health, nutrition, clipping and show day prep, and showmanship. An optional instructor led YQCA session will be offered at the conclusion of the program. A session over the state livestock nomination process will also be provided at the end of the day, concurrently with the YQCA training. The cost for junior swine producer day is \$20 per person, if registration is submitted by February 15, 2023, or \$25 per person after that date. All attendees, including youth and adults, must register. Only participants who register by February 15 will receive a t-shirt. Families may register online at <http://bit.ly/ksuasiregister>. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264, or Joel DeRouchey at jderouch@ksu.edu or 785-532-2280.
- ☞ **K-State Junior Meat Goat Producer Day** will be hosted on Saturday, March 18, 2023, in Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth meat goat projects. All ages and knowledge levels are invited! K-State faculty members, graduate students, undergraduate students, and guest speakers will cover topics including selection, meat science, nutrition, reproduction, health and wellness, facilities, and equipment, clipping and grooming, and showmanship. An optional instructor led YQCA session will also be offered at the conclusion of the program. A session over the state livestock nomination process will also be provided at the end of the day, concurrently with the youth YQCA training. The cost for junior meat goat producer day is \$20 per person, if registration is submitted by February 22, 2023, or \$25 per person after the early deadline. All attendees, including youth and adults, must register. Only those who register by February 22 will receive a t-shirt. Families may register online at <http://bit.ly/ksuasiregister>. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.
- ☞ **Reminder to Update YQCA Information-** Last March, Youth for the Quality Care of Animals (YQCA) transitioned to a new platform, including a new website. With this change, the original website became inactive and the program is no longer connected to 4HOnline. **It is imperative that everyone is using the appropriate link!** The correct link is: <https://yqcaprogram.org/>. The old link (yqca.org) should be disregarded from all resources. Everyone is encouraged to utilize the YQCA tab on the K-State Youth Livestock Program website, as it is updated with the most recent information: <https://www.asi.k-state.edu/extension/youth-programs/qualityassurance/qualityassurance.html>. Families who had already received their certification when the transition occurred last year will need to go to the new YQCA Website, create an account for their family, add children to the family, and sign up for their 2022-2023 training. There are several resources available to help guide them through the process, including step-by-step instructions. The YQCA staff also recently released instructional videos to help families correctly create their account and sign youth up for training. Through these videos, they also include common errors that make things more challenging for the families to complete the process. The videos are located at the bottom of the YQCA homepage. All youth who plan to exhibit in the Kansas state Fair Grand Drive and/or KJLS should complete the training at their earliest convenience. It is required for all exhibitors at both state shows. This is an annual training. Those submitting state livestock nominations must have completed their certification at the time of nomination and submit a copy of their completion certificate. Instructor-led trainings are \$3/child, while the web-based course is \$12/child. Youth who are 12 or 15-years-old by January 1 are eligible to test out. Only those two ages have the option to test out, as it is the first year of each age division. For more information about YQCA certification, please contact your local extension office or Lexie Hayes at adhayes@ksu.edu.
- ☞ **Implementing Your Company's HACCP Plan** will be held March 29-31st 2023 in Columbia, Missouri. This workshop uses curriculum recognized by the International HACCP Alliance for meat and poultry processors. The registration fee is \$450 per person and is available on-line at <http://bit.ly/HACCPCourse>. For more information, contact Dr. Liz Boyle (lboyle@ksu.edu; 785-532-1247).

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
March 2, 2023	Stockman's Dinner	Manhattan
March 3, 2023	KSU Cattlemen's Day	Manhattan
March 3, 2023	Legacy Bull and Heifer Sale	Manhattan
March 11, 2023	K-State Junior Swine Producer Day	Manhattan
March 18, 2023	K-State Junior Meat Goat Producer Day	Manhattan
March 29-31 st 2023	HACCP Course	Columbia MO

What's New for Beef Cattle Producers

Management Minute – Justin Waggoner, Ph.D., Beef Systems Specialist

“Winter Safety”

January and February are historically some of the coldest months of the year in Kansas and often bring extreme weather conditions that can be challenging for agricultural workers that work in the elements. Falls, slips, and trips continue to be one of the leading causes of workplace injuries (U.S. Bureau of Labor Statistics) and although falls and slips can occur anytime, extra precautions are required during the winter months. Hypothermia is real, especially for those that work outside for extended periods. Safety experts suggest that clothing be worn in layers to retain body heat. However, how and what type of layers those clothes are made of is important. At least 3 layers is recommended, cotton or other breathable synthetic fiber should be the first or base layer. Wool or down is suggested for the middle layer, and the third or outer layer should be composed of material that will block the wind such as the nylon outer shell found on many ski-jackets.

Portable heaters are often used as heat sources in many shops and barns. Portable heaters are one of the most common causes of carbon monoxide poisoning and structural fires. If heaters are used in confined spaces, always remember that ventilation is required to avoid carbon monoxide poisoning. Additionally, the areas where heaters are used should be checked for combustible materials and heaters should never be left unattended.

The U. S. Department of labor, OSHA website offers other tips and resources for working outside in the winter and may be accessed at <https://www.osha.gov/winter-weather/preparedness>.

For more information, contact Justin Waggoner at jwaggon@ksu.edu.

Feedlot Facts – Justin Waggoner, Ph.D., Beef Systems Specialist

“Feedyard Receiving Protocols”

Receiving cattle management and the process of adapting cattle to grain-based finishing diets are important components of managing feedlot cattle that can ultimately impact cattle performance for the duration of the finishing period. What does a typical industry receiving protocol look like and how do commercial cattle feeders transition cattle to a finishing diet. A survey of consulting nutritionists conducted by Samuelson et al., (2016), summarized responses from 24 consulting nutritionists (servicing more than 14,000,000 head annually) and reported that 66% of the feed yards they service allow cattle to rest 12 to 24 hours prior to initial processing, and approximately 30% allow cattle to rest more than 24 hours. The majority of the consulting nutritionist (64%) suggest that cattle be provided access to hay for 4 days after arrival. Approximately 56% of the nutritionists surveyed used multiple step-up diets with an average forage concentration of 40.7% roughage. On average 4 transition diets were used with diets being fed for 6 days before moving to the next diet. Thus cattle on average are transitioned to the finishing diet within 24 days of feeding the first step-up diet. Alternatively, approximately 40% of the nutritionists utilize a 2-ration blending program to adapt cattle (effectively a starter and finisher diet). Those that used a 2-ration program recommended 38% roughage in the starter ration and cattle adapted to the finishing diet within approximately 27 days.

For more information, contact Justin Waggoner at jwaggon@ksu.edu.

KSU Cow-Calf Checklist – February 2023

Management Considerations for April 2023

By Jason M. Warner, Ph.D., Extension Cow-Calf Specialist

Cow herd management

- Evaluate BCS and adjust nutrition for spring-calving females going into breeding.
 - Ensure thin (BCS \leq 4.0) females are on an increasing plane of nutrition.
 - Females in a BCS \geq 6.0 should not be losing condition.
 - Record cow BCS and use it as a guide for future management.
 - Start lactation rations after first calving cycle.
- Pregnancy check fall calving cows and make culling decisions.
 - How were pregnancy rates relative to last year?
 - Do we need to re-think our fall/winter nutrition program?
- Plan your mineral supplementation for this coming spring and summer.
 - Measure your cows' intake and adjust it as needed.
 - If using fly control products, start them at recommended times for your area.
 - Properly store bagged mineral and avoid damaging bags and pallets.
- Risk of grass tetany is greatest for lactating cows. Consider magnesium levels in mineral supplements, particularly for cows grazing the following:
 - wheat, rye, triticale, oats, bromegrass, and other cool-season forages
- Use the estrus synchronization planner from KSUBeef.org to help plan synchronization protocols.
- Schedule breeding soundness examinations on bulls well prior to turnout.
 - Allow yourself plenty of time to find a replacement bull if needed.

Calf management

- Review health protocols for spring-born calves and schedule processing activities.
- If not already completed, wean and market fall-born calves.
- Consider the economic return by implanting nursing calves and grass cattle.
- If not already done, schedule your breeding protocols for replacement heifers in advance of the breeding season.
 - If synchronizing with MGA, make sure intake is consistent at 0.5 mg of melengestrol acetate per hd per day for 14 days, and remove for 19 days prior to administering prostaglandin.

General Management

- Use the Management Minder tool on KSUBeef.org to plan key management activities for your cowherd for the rest of the year.
- Evaluate forage production potential, particularly on pastures that were drought stressed in 2022, and adjust turn-out dates as needed.
- Consider your storage method for any leftover hay and feed and look for opportunities to minimize shrink during extended storage.
- Good sanitation around winter feeding and bedding areas helps reduce stable fly populations.
- Take a balanced, multi-tool approach to fly/insect control.
- Wrap up any last minute pasture management projects before spring turn-out:
 - Finish repairing fences.
 - Conduct burns, work to control trees and brush.
 - Ensure sufficient water is available when cattle are turned out.

What's New for Swine Producers

↪ **Pigs Weaned from Sows Fed a Feed Flavor Had Improved Nursery Performance, but Feed Flavor in the Nursery Diets did not Impact Performance**- A total of 360 weaned pigs (DNA 241 × 600; initially 12.6 lb) were used to evaluate the effects of previous sow feed flavoring treatment (control vs. flavor) and nursery diets formulated with or without a feed flavor on growth performance in a 38-d trial. Pigs were weaned at approximately 19 d from sows fed diets with or without 0.05% of the feed flavor (Krave AP, Adisseo, Alpharetta, GA). Pigs were placed in pens (5 to 6 pigs per pen) within sow treatment and were randomly assigned to 1 of 2 dietary nursery treatments. There were 14 to 17 replications per treatment. Nursery treatments were either a control diet or a diet containing a feed flavor (Delistart #NA 21, Adisseo, Alpharetta, GA) added at 0.05% of the diet. Dietary treatments were arranged in a 2 × 2 factorial with main effects of sow and nursery treatment. Offspring from sows fed the flavor diet had a higher BW at weaning, which was maintained throughout the study. No significant differences were observed for ADG, ADFI, or F/G during phase 1. During phase 2, there was a tendency for a main effect of both nursery and sow diet on ADG. Pigs from sows fed the flavor diet had greater ADG compared to pigs from sows fed the control diet, and pigs fed the control diet had increased ADG compared to those fed the flavor diet. During phase 2, there was a tendency observed for a main effect of sow treatment on ADFI, with pigs from sows fed the flavor diet having greater ADFI. During phase 3, there was a main effect of nursery treatment on both ADFI and F/G where pigs fed the feed flavor diet had greater ADFI but poorer F/G. A tendency was observed for an interaction between sow and nursery diet for ADG with pigs fed the flavor diet that were obtained from sows fed the flavor diet having greater ADG but no difference was observed when pigs were obtained from sows fed the control diet. Overall, progeny from sows fed a diet containing a feed flavor had greater ADG and ADFI and final BW during the trial. In conclusion, offspring from sows fed a feed flavor had increased ADG, ADFI, and BW, but the presence of a feed flavor in the nursery did not elicit better overall nursery performance. More information is available on this experiment and others in the KSU Swine day report at www.KSUSwine.org. (This study was conducted by Mikayla Spinler, Jordan Gebhardt, Joel DeRouche, Mike Tokach, Robert Goodband, Jason Woodworth.)

↪ **Persistence of African Swine Fever Virus in Feed and Feed Mill Environment over Time after Manufacture of Experimentally Inoculated Feed**-To reduce the risk of disease from harmful feed-based pathogens, some feed manufacturers quarantine high-risk ingredients prior to their inclusion in feed. Data exist that confirms this practice is effective, but to our knowledge there is no information about porcine pathogen survival in mill environments. The objective of this study was to determine survival of African swine fever virus (ASFV) in swine feed and on mill surfaces after manufacture of experimentally inoculated swine feed. A pilot-scale feed mill was placed within a biosecurity level (BSL) 3 facility to manufacture batches of feed. The priming batch, Batch 1, was ASFV-free feed and was followed with Batch 2 which was experimentally inoculated with ASFV (5.6×10^4 TCID₅₀/gram). Four subsequent ASFV-free batches were then manufactured (Batch 3-6). After each batch of feed, 10 feed samples were aseptically collected in a double 'X' pattern. During feed manufacturing, 24 steel coupons were placed on the floor of the manufacturing area and feed dust was allowed to settle onto them overnight. Once feed manufacturing was completed, feed samples and steel coupons were stored at room temperature. On the day of (day 0) and d 3, 7, 14, 28, 60, 90, and 180 after feed manufacturing, feed samples and 3 steel coupons were randomly selected, taken out of storage, and analyzed for ASFV DNA. For feed samples there was a statistically significant batch × day interaction for log₁₀ genomic copies per gram of feed, and a marginal statistical significance for batch × day interaction for cycle threshold (Ct) values. This indicates that the batch of feed and days held at room temperature impacted the amount of the detectable ASFV DNA in feed samples. There was no evidence of ASFV degradation on environmental coupons over the 180-d storage period. This study found that quarantine time can help reduce, but not eliminate ASFV DNA in feed over time. Surprisingly, ASFV DNA is detectable on feed manufacturing surfaces for at least 180 days. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Grace Houston, Jessie Trujillo, Cassandra Jones, Taeyong Kwon, Charles Stark, Konnor Cool, Chad Paulk, Natasha Gaudreault, Jason Woodworth, Igor Morozov, Carmina Gallardo, Jordan Gebhardt and Juergen Richt.)

What's New for Swine Producers

☞ **Effects of Gruel Feeding and Oral Dextrose on the Survivability of Pigs After Weaning**-Two experiments were conducted using 3,087 (Exp. 1) and 988 (Exp. 2) pigs to determine the effect of gruel feeding (Exp. 1) and administering oral dextrose (Exp. 2) on pig survivability after weaning. Upon arrival to the nursery, the smallest 10% of pigs were selected and randomly placed in designated pens with 61 to 108 pigs per pen. Pens of small pigs were assigned to 1 of 2 treatments in a completely randomized design. Treatments consisted of gruel feeding two or four times per day starting 14-d post-placement. At each gruel feeding, approximately 2.5 lb of solid feed was added to a round Rotecna bowl (Rotecna S.A., Agramunt, Spain) located at the front of the pen. Water was added to feed at a decreasing rate over time such that d 0 to 5, 6 to 10, and 11 to 14 the ratio of water to feed was 3:1, 1:1, and 1:3, respectively. In Exp. 2, every other pig removed from general population or pens of small pigs for welfare considerations (lameness, sick, or fallback) received a single 10 mL oral dose of a 50% dextrose solution (Vet One, MWI Animal Health, Boise, ID), as a source of glucose, before being placed in a removal pen. All removed pigs were tagged and weighed, blood glucose measured prior to and 30 min after entering removal pens, and their body temperature recorded. Overall, gruel feeding the small pigs two or four times per day for 14-d post-placement did not influence mortality from weaning to the end of gruel feeding (3.78 vs. 4.25%, respectively). Likewise, dextrose administration did not influence pig mortality after removal to approximately d 38 after weaning (21.4 vs. 23.4% respectively), even though blood glucose levels increased for pigs administered dextrose compared to pigs not administered dextrose (increased by 11.4 vs. 19.1 mg/dL). An interaction was observed for blood glucose and body temperature. Pigs with a blood glucose less than 70 mg/dL had increased mortality as body temperature at removal increased. In contrast, pigs with a blood glucose between 70 and 120 mg/dL or greater than 120 mg/dL had decreased mortality as body temperature increased. Pigs weighing less than 10 lb at removal had an increased mortality compared to pigs weighing greater than 10 lb at removal. In summary, gruel feeding four times per day vs. two times per day or providing removed pigs glucose supplementation did not improve survivability of pigs after weaning. Additionally, removed pigs with low body weight, body temperature below or above the normal range, or high blood glucose had decreased survivability. More information is available on this experiment and others in the KSU Swine day report at www.KSUSwine.org. (This study conducted by Madie Wensley, Mike Tokach, Robert Goodband, Jason Woodworth, Joel DeRouche, Ty H. Kim, Andy Boschert, Ethan Stephenson and Jordan Gebhardt.)

☞ **Effect of Early vs. Late Maturing Sire Lines and Creep Feeding on the Stress Response, Intestinal Permeability, and Growth Performance of Nursery and Finishing Pigs.**- A total of 21 litters (early or late maturing Duroc × DNA 241) and 247 pigs were used in 170-d trial to determine the effect of sire line growth pattern (early vs. late maturing) and creep feeding on the stress response, intestinal permeability, and growth performance of nursery and finishing pigs. Treatments were arranged in a 2 × 2 factorial with main effect of Duroc sire line (early or late maturing) and lactation creep feeding (with or without). Immediately after weaning (initially 14.0 lb), blood cortisol levels were increased in late maturing pigs compared to early maturing pigs, indicating an increased stress response. A greater percentage of late maturing pigs lost weight from d 0 to 3 post-weaning compared to early maturing pigs. Likewise, early maturing pigs had improved ADG and ADFI during the first 3 d in the nursery. A similar response was observed in daily feed intake with early maturing pigs having increased daily feed intake for the first 14 d in the nursery. However, no differences were observed in intestinal permeability between treatments. For overall nursery growth performance, a significant interaction was observed for ADG and ADFI. Early maturing pigs that did or did not receive creep feed had increased ADG and ADFI compared to late maturing pigs that did not receive creep feed, with late maturing pigs that received creep feed intermediate. For overall nursery feed efficiency, early maturing pigs had poorer F/G than late maturing pigs. For overall finishing growth performance, a significant interaction was observed for ADG, with late maturing pigs that received creep feed prior to weaning having increased ADG compared to the other 3 treatment combinations. A significant interaction was also observed for ADFI, with late maturing pigs that received creep feed or early maturing pigs having increased ADFI compared to late maturing pigs that did not receive creep feed. This resulted in a significant interaction for final BW, with late maturing pigs that did not receive creep feed having decreased weights at market. In summary, early maturing pigs had improved ADG and ADFI until approximately 220 lb, at which point late maturing pigs began to exhibit improved ADG. Late maturing pigs also had improved feed efficiency throughout much of the experiment. Interestingly, creep feeding the late maturing pigs resulted in improved growth performance compared to providing no creep feed, whereas creep feed did not impact the early maturing pigs. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Madie Wensley, Jason Woodworth, Mike Tokach, Robert Goodband, Joel DeRouche, and Jordan Gebhardt.)

ASI FACULTY SPOTLIGHT...



Nicholas Wege Dias (diasnw@k-state.edu; 785-532-1222)
Assistant Professor

Dr. Dias is originally from Brazil, where he acquired his degree on Veterinary Medicine from the State University of Sao Paulo in 2016. During his veterinary training, Dr. Dias had the opportunity to closely interact with beef cow calf producers and understand the challenges that cow-calf operations face. After graduating from Vet school, Dr. Dias joined Virginia Tech for his graduate program, where he acquired his master's degree in 2018 and doctorate in 2022.

During his graduate life, he was involved in several research projects aimed to improve fertility of beef cattle. Dr. Dias has a particular interest in studying factors that ultimately influence fertility of cows and heifers that are enrolled in estrous synchronization protocols. With this, Dr. Dias hopes to create cheap and applicable management strategies that help overcome fertility issues.

Currently, Dr. Dias' research interests are to explore the role of vaginal microbiome of cows on reproductive efficiency, as well as to develop smart-farm technologies that will facilitate farm management and decision making. Dr. Dias and his wife, Gabriela, live in Manhattan KS.



Abbey Nutsch (anutsch@ksu.edu; 785-532-4549)
Teaching Associate Professor/FDSCI Undergrad Teaching Coordinator

Dr. Abbey Nutsch received B.S. (1994) and Ph.D. (1998) degrees in Food Science from Kansas State University. A food microbiologist by training, her area of expertise is the microbiological safety of meat products, with particular emphasis on the application of antimicrobial intervention for both fresh and processed meat products. After spending five years as the Director of Technical Services for a commercial food testing and research laboratory, Dr. Nutsch returned to K-State in 2002 to serve within the Food Science Institute as a coordinator for a multi-institutional carcass disposable working group. In 2004 she joined the Department of Animal sciences & Industry as an assistant professor of food safety and security.

In 2021 Dr. Nutsch was appointed to serve as the Food Science Undergraduate Teaching Coordinator for the Department of animal Sciences & Industry, and since 2016 has served as the Assessment Lead for the IFT-approved Food Science Undergraduate Program. She teaches graduate- and undergraduate- Level courses addressing professional and research skills for food scientists. In addition to advising and working with undergraduate students, since 2006 Dr. Nutsch has also advised students in the online Food Science MS program. She also advises students in the Master of Public Health program and the Food Safety and Defense Graduate Certificate program (an inter-institutional graduate program administered through the AG*IDEA Academic Alliance.) In 2017, Dr. Nutsch received the Kansas State University Global Campus Outstanding Advisor Award. Originally from Wakeeney, Kansas, Dr. Nutsch and her husband, Todd, live in Wamego, Kansas, with their two children, Gracyn and Hayden.

*We need your input! If you have any suggestions or comments on **News from KSU Animal Sciences**, please let us know by email to katiesmith@ksu.edu*