



K News from KSU Animal Sciences

Merry Christmas and Happy New Year. The holidays provide a time to pause and reflect upon events of the past year. While it is easy to wrap ourselves in the challenges we face, we must also reflect on the opportunities that we have been presented with as well. For livestock producers, 2021 overall allowed producers to have market prices that helped ease the burden of financial losses of 2020. While revenue was excellent across commodity sectors, input costs this past year and looking to 2022 will present challenges for producers to overcome. This helps reinforce the opportunities through local, area and state Extension personnel. We in Extension have an impact on citizens lives every day, and that is something each of you should take great pride and satisfaction in. We in the Department of Animal Science and Industry are proud to be associated with the excellent team of professionals across the state of Kansas partnering in our mission to meet the needs of our clientele in the livestock industries.

*Thank you and have a Merry Christmas and Prosperous New Year.
Joel DeRouchey, Extension State Leader, Animal Sciences and Industry*

📧 **Kansas 4-H EID Tag Orders** – The deadline to order beef EID tags is here! Order forms and payment are due by December 15. The deadline has been moved up a couple of weeks due to expected supply chain challenges with the manufacturer. Tag orders received after the listed deadline will be considered a special order, and there may be a delay in getting those tags delivered. It is a 8 - 12-week turnaround from the time orders are received until the tags arrive on campus. Payment must accompany the tag order form for it to be accepted and completed. The mailing address and deadlines may be found on the top of the order forms. The deadline to order small livestock tags is Friday, January 28, 2022, for those who need swine, sheep, and meat goat tags.

Several important EID tag resources may also be found on the K-State Youth Livestock Program website, <https://www.asi.k-state.edu/research-and-extension/youth-programs/kansas-4-h-eid-tags.html>. The resources include the order forms, tag application instructions, applicator configuration, best practices for tag retention, and information on utilizing EID technology at the local level.

State accepted tags – there has been no change in the 4-H/EID tags that will be accepted for nomination to the Kansas Junior Livestock Show and the Kansas State Fair, with the exception of a new meat goat tag. Due to some concerns with the previous ribbon tag, we have worked diligently with Allflex to provide another option and will be transitioning to the tag piloted last year. The visual (male) portion of the tag is a small round piece, but you will be able to use the same red total tagger. Both types of tags will be accepted in state nominated animals (ribbon tags and new round tags). So, if you still have some of the ribbon tags left, you may use them in state nominated animals this year. You can see pictures of these tags on the K-State Youth Livestock Program website. Livestock projects must be tagged by the appropriate deadline with a Kansas 4-H EID tag to be eligible for nomination and to exhibit at the Kansas State Fair and/or KJLS.

SPECIAL NOTE ABOUT TAG USE: It is important that counties/units use their oldest tags first. Additionally, each Extension unit will need to keep an accurate record of the animals/families in which each tag is applied, per the acknowledgement signature on the tag order form. Only Kansas 4-H 840 EID tags will be accepted in cattle and swine, with 982 tags being used in sheep and goats. If you have old cattle 982 tags, please refrain from using them in state nominated animals.

Tag Order Form Mailing Address: KSU Youth Livestock Program; c/o Lexie Hayes; 214 Weber Hall; 1424 Claflin Road; Manhattan, KS 66506. For more information contact Lexie at adhayes@ksu.edu or 785-532-1264.

Department of Animal Sciences and Industry

Kansas State University
218 Weber Hall, 1424 Claflin Road
Manhattan, KS 66506
785-532-6533
www.asi.ksu.edu - Facebook.com/KSUASI

December 2021 issue



UPCOMING EVENTS...

✦ The **2022 K-State Swine Profitability Conference** has been scheduled for Tuesday, February 8, 2022, at the Stanley Stout Center, Manhattan, KS. The schedule includes:

9:15 a.m. Coffee and Donuts
 9:30 a.m. Welcome
 9:45 a.m. US and Global Meat/Pork Outlook
Joe Kerns, CEO/Founder of Partners for Production Agriculture, Ames, IA
 10:30 a.m. Schwartz Farms, Inc.: Our Family Business and Entering the Kansas Pork Industry
Tim Schwartz and Dr. Annie Lerner, Sleepy Eye, MN
 11:15 a.m. Growth and Success in the Swine Industry
Dr. Daryl Olsen, Audubon-Manning Veterinary Clinic, Audubon, IA
 12:00 noon Lunch
 1:15 p.m. Dunn Swine LLC: Our Story and Continuing a Swine Farm Legacy
Leon and Janice Dunn Family, St. John, KS
 2:00 p.m. K-State Student Success with Swine Industry Careers
Dr. Cassie Jones and Dr. Jason Woodworth, Kansas State University
 3:00 p.m. Adjourn

Pre-registration fee is \$25 per participant by January 24; registration at the door is \$50 per participant. The complete schedule and online registration information can be found at www.KSUSwine.org. For more information, contact Lois at lschrein@ksu.edu or 785-532-1267.

✦ **Make plans to attend Cattlemen's Day 2022** –The 109th annual Cattlemen's Day will be hosted Friday, March 4, 2022. The trade show and educational exhibits will open at 8 a.m. in Weber Arena.

Registration for KSU Cattlemen's Day will be \$20 per person in advance or \$30 per person at the door. Morning refreshments and lunch are included with registration. A complete schedule will be coming soon to www.asi.ksu.edu/cattlemensday or call 785-532-1267.

If you are interested in exhibiting at Cattlemen's Day or have any questions, please contact Dale Blasi (dblasi@ksu.edu; 785-532-5427).

✦ The **45th Annual Legacy Bull and Heifer Sale** will be March 4, 2022, at 4:00 p.m. at the Stanley Stout Center. Visit www.asi.ksu.edu/bullsale for more information, as it becomes available, including the sale catalog.

✦ The **2022 Kansas Junior Producer Day** dates have been set! We are excited to return to hosting in-person events next spring. Kansas Junior Beef Producer Day will be Saturday, March 5, with Kansas Junior Sheep Producer Day scheduled for Saturday, March 19. Both events will be hosted in Weber Hall on the K-State campus in Manhattan. These events are one-day educational events for families to learn more about the selection and management of a specific specie. Youth, adults, extension agents, project leaders, and volunteers are invited to attend! Presentations will be provided by K-State faculty, staff, students, extension agents, and guest speakers. Topics range from selection, to nutrition, to meat science and showmanship. Tentative schedules and registration information are forthcoming. For more information, including details to sign up, please follow the @ksuylp Facebook page and check the KSU YLP website: <https://www.asi.k-state.edu/research-and-extension/youth-programs/ks-jr-producer/index.html>. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.

✦ Watch the **KSU ASI Headlines** for November 2021 and find out the latest happenings in the department. Follow the link at <https://www.youtube.com/watch?v=QHSPS2u6WJs&t=19s>. For questions about the department, contact Dr. Mike Day, ASI Department Head, at 785-532-1259; mlday@ksu.edu.

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
February 8, 2022	K-State Swine Profitability Conference	Manhattan
March 4, 2022	KSU Cattlemen's Day	Manhattan
March 4, 2022	Legacy Bull and Heifer Sale	Manhattan
March 5, 2022	Junior Beef Producer Day	Manhattan
March 19, 2022	Junior Sheep Producer Day	Manhattan

WHAT'S NEW...

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

“Why Do You Do What You Do?”

Have you ever given any thought to what your organization, farm, feedlot or operation is really about? Do you have a mission statement, a set of core values that you believe your organization or operation embodies? Previously, I used to think that mission statements and core value statements were idealistic and a waste of thought. However, my attitude has changed. These statements provide the organization with a foundation, a clear objective that serves to guide the organization as it makes decisions that hopefully move the organization forward into the future. Regardless of the size of the enterprise, putting some thought into what an organization or business is really about has value. These statements do not have to be long or dramatic. I recently visited a family livestock operation in which the sign on the front lawn (along a major highway) simply said “Our Family Feeding Yours”. This simple statement tells everyone that drives by that this is a family operation that is foremost engaged in the process of sustaining not only themselves but other people. So, challenge yourself a bit and ask yourself “Why do you (or your business) do what you do?”

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

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

“Tips to Aid Cost Conscientious Producers on Commodity Prices”

The increased commodity prices we are experiencing have many cattle producers considering the costs associated with their feeding and management programs. Here are a few tips that might aid cost conscientious producers.

- Evaluate commodities on a cost per unit of energy or crude protein basis. These calculations should be done on a dry matter basis, to facilitate an appropriate comparison between dry commodities, such as corn, and wet commodities, such as silage or wet distiller’s grains. Additional costs such as freight, grain processing, and shrink may also be included.
- Maximize use of commodities or ration ingredients produced on-farm. I am sure there are many different versions of the old saying “the best way to make a profit with land and livestock is to walk the crops off the farm”. On-farm commodities, especially forages, are usually more cost-effective than purchased commodities. Increasing the inclusion of on-farm produced commodities in the diet or even including a small amount of lower-cost ingredients like straw may reduce ration costs. However, the impacts of these changes must be evaluated against cattle performance.
- Reduce commodity shrink and feed waste. How much of the commodities you purchase are lost in storage and handling before they make it into the bunk? On most operations, these losses range from 2-10% depending on the commodity. Although these losses are minimal, they do add up (1% of a ton = 20 lbs; 1% of 20 tons = 400 lbs). The cost associated with minimal losses may add substantial cost to a commodity (400 lbs at \$250/ton = \$50 or \$2.50/ton). These losses often occur when commodities are handled or being loaded into feed mixers. The key to reducing commodity loss comes down to increased awareness.
- Focus on efficiency. Feed to gain is always important, period. It is the benchmark by which feeding programs can most easily be evaluated on. Feeding technologies like ionophores or feeding management strategies such as limit-feeding should also be considered to further improve feed conversions.
- Seek the counsel of a nutritionist or other professionals. Nutritionists, not only balance rations but also assist producers with evaluating commodities and estimating the effects of any ration changes on animal performance. Most Extension professionals can also assist producers with evaluating commodities or put them in contact with Extension specialists with training in nutrition.

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

WHAT'S NEW...

↪ **Assistant Professor (2 positions) and Assistant or Associate Professor (1 position) in Animal Science (Job #511957) –**

The Animal Sciences & Industry Department houses the largest undergraduate degree program at Kansas State University in combination with a robust research focus across most primary disciplines and species/products in the animal and food sciences. We are seeking applicants for three 12-month, tenure-track faculty positions, each 60% Teaching, 40% Research. At least two positions will be at the Assistant Professor level and potentially one position at the Assistant or Associate Professor level; commensurate with experience. The positions will be located in Manhattan, KS. The successful individuals will contribute primarily to the department's land-grant missions in teaching and research. Teaching responsibilities will be consistent with the successful individual's training, interests, and needs of the Department. Teaching expectations will include teaching undergraduate and/or graduate classes and serving as a faculty advisor to undergraduates. The successful individuals are expected to lead productive research programs relevant to animal agriculture in either reproductive physiology, nutrition, animal genetics, or other related disciplines, train graduate students, and participate in relevant interdisciplinary activities. Review of positions begins February 1, 2022. For more information, contact Bob Goodband, Search Committee Chair, at goodband@ksu.edu or 785-532-1228. To apply, go to <https://careers.pageuppeople.com/742/cw/en-us/job/511957/assistant-professor-2-positions-and-assistant-or-associate-professor-1-position-in-animal-science>.

↪ **Consumer Sensory Evaluation of Plant-Based Ground Beef Alternatives in Comparison to Ground Beef of Various Fat Percentages** - The objective of this study was to determine if current plant-based protein ground beef alternatives offer similar palatability characteristics to ground beef patties of varying fat percentages.

Fifteen different production lots of 3 lb ground beef chubs of three different fat levels (10%, 20%, and 30%) were collected from retail markets in the Manhattan, KS, area. Additionally, alternative products, including a soy and potato protein-based foodservice ground beef alternative, a pea protein-based retail ground beef alternative, and a traditional soy protein-based ground beef alternative, currently available through commercial channels, were collected from retail markets and a commercial foodservice chain. All ground beef and alternative treatments were formed into 0.25-lb patties and frozen at -40 degrees F until consumer sensory analysis.

All three ground beef samples rated higher than the three alternative samples for appearance, overall flavor, beef flavor, and overall liking. Retail alternative rated lowest for appearance, overall flavor, texture, and overall liking. Of the alternative samples, foodservice alternative rated highest for juiciness, beef flavor, and texture liking, and traditional alternative rated lowest for juiciness. However, the foodservice alternative rated higher for tenderness than the 20% fat ground beef samples. Moreover, of the alternative samples, the foodservice alternative and traditional alternative rated similar for appearance, tenderness, overall flavor liking, and overall liking. Among the ground beef samples, no differences were found for appearance, juiciness, overall flavor liking, beef flavor liking, or overall liking. For the percentage of samples rated acceptable for each palatability trait, all three ground beef treatments had a higher percentage of samples rated acceptable for appearance, overall flavor liking, beef flavor liking, texture, and overall liking than the three alternatives. Retail alternative had the lowest percentage of samples rated acceptable for appearance, overall flavor, texture, and overall liking. Traditional alternative had the lowest percentage of samples rated acceptable for juiciness. Among the alternative samples, foodservice alternative had the highest percentage of samples rated acceptable for juiciness and beef flavor liking. Furthermore, among the alternative treatments, foodservice alternative and traditional alternative had a similar percentage of samples rated acceptable for appearance, overall flavor liking, texture liking, and overall liking.

The Bottom Line... While the ground beef alternative products attempt to mimic ground beef, they provide very different consumer eating experiences than traditional ground beef. More information is available on this experiment and others in the KSU Cattlemen's Day report at www.KSUBeef.org. (This study conducted by S.G. Davis, K.M. Harr, S.B. Bigger, D.U. Thomson, M.D. Chao, J.L. Vipham, M.D. Apley, D.A. Blasi, S.M. Ensley, M.D. Haub, M.D. Miesner, A.J. Tarpoff, K.C. Olson, and T.G. O'Quinn.)

WHAT'S NEW...

- ↪ **Effects of Providing Enrichment Cubes to Suckling Pigs in Late Lactation and After Weaning on Post-Weaning Pig Performance** - A total of 28 litters and 356 nursery pigs were used in 28-d trial (4-d pre-weaning and 24-d post-weaning) to determine the effect of providing enrichment cubes (supersized pellets that resemble cattle cubes and range in size from 1.1 to 2.0 in. in length and 0.6 to 0.8 in. in diameter) to suckling pigs in late lactation and after weaning on post-weaning feed intake and growth. Treatments were arranged in a 2 × 2 × 2 factorial with main effects of: 1) pre-weaning treatment (without or with enrichment cubes); 2) post-weaning treatment (with or without enrichment cubes); and 3) body weight category (light or heavy). Overall, providing enrichment cubes to litters pre-weaning did not have a significant effect on piglet weaning weight or post-weaning ADG; however, pigs offered enrichment cubes prior to weaning had improved G:F in the nursery. Post-weaning cube application had no effect on the growth performance of pigs after weaning. The percentage of pigs that lost weight after weaning was reduced by 11.7 percentage points when pigs were offered enrichment cubes for 3 d post-weaning compared to no cubes. Conversely, pre-weaning cube application had no effect on the percent of pigs that lost weight after weaning. In summary, providing enrichment cubes to pigs post-weaning appears to encourage activity around the feeder, therefore reducing the percentage of pigs that lost weight after weaning. However, more research is needed to validate these results in a commercial setting and to better understand the effect of reducing the percentage of pigs that lost weight after weaning on morbidity and mortality. More information is available on this experiment in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Madie R. Wensley, Mike D. Tokach, Robert D. Goodband, Jordan T. Gebhardt, Jason C. Woodworth, Joel M. DeRouchey, Denny McKilligan, and Nathan Upah).
- ↪ **Evaluation of Supplemental Fat Sources and Pre-Farrow Essential Fatty Acid Intake on Lactating Sow Performance and Essential Fatty Acid Composition of Colostrum, Milk, and Adipose Tissue** - A total of 91 sows were used to evaluate the effects of supplemental fat sources and essential fatty acid intake on lactating sow farrowing performance, litter growth performance, and essential fatty acid composition of colostrum, milk, and adipose tissue. At approximately d 107 of gestation, sows were blocked by body weight and parity, then allotted to 1 of 5 experimental treatments as part of a 2 × 2 + 1 factorial arrangement. Experimental diets were corn-soybean meal-based with a control diet that contained no added fat, or diets with 3% added fat as either beef tallow or 3% soybean oil, with consumption of the added fat diets starting on d 107 or 112 of gestation. Thus, sows were provided low essential fatty acids (EFA; as linoleic and α-linolenic acid) in diets without supplemental fat, or with beef tallow or high EFA in the diet with soybean oil. Sows were provided approximately 6 lb/d of their assigned lactation diet pre-farrow. After farrowing, sows were provided *ad libitum* access to their assigned dietary treatment. Although sows consuming diets with beef tallow had greater lactation ADFI, daily linoleic acid (LA) and α-linolenic acid (ALA) intake was lower than for sows that consumed diets with soybean oil. Supplemental fat sources providing either low or high EFAs did not influence litter growth performance. Pre-farrow consumption of EFA for sows provided by beef tallow did not influence LA composition of colostrum. However, lactation diets with high EFA provided by soybean oil on d 107 of gestation increased colostrum LA composition compared to providing diets on d 112 of gestation. Additionally, regardless of pre-farrow timing, ALA composition of colostrum increased when sows consumed diets with soybean oil compared to beef tallow. Both LA and ALA composition of milk at weaning was greater for sows that consumed diets with soybean oil compared to beef tallow. Furthermore, concentrations of LA and ALA within adipose tissue were higher at weaning when sows consumed diets with high EFA compared to low EFA. These responses suggest that providing dietary fat sources with high concentrations of EFAs can increase colostrum LA and ALA concentrations that can be maintained throughout lactation. However, in this experiment, changes in colostrum and milk composition did not alter litter growth performance. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Julia P. Holen, Jason C. Woodworth, Mike D. Tokach, Robert D. Goodband, Joel M. DeRouchey, and Jordan T. Gebhardt.)
- ↪ **The Effect of Live Yeast and Yeast Extracts Included in Lactation Diets on Antimicrobial Susceptibility of Fecal *Escherichia coli* in Sows** - A total of 27 sows were used in a study to evaluate the effect of feeding live yeast and yeast extracts to lactating sows on antimicrobial susceptibilities of fecal *E. coli*. Sows were blocked by BW and parity on d 110 of gestation and allotted to 1 of 2 dietary treatments. Dietary treatments consisted of a standard corn-soybean meal lactation diet or a diet that contained yeast-based pre- and probiotics. Diets were fed from d 110 of gestation until weaning. Sow fecal samples were collected to determine the antimicrobial susceptibility of *E. coli* upon entry into the farrowing house and at weaning for each treatment. The *E. coli* was isolated from fecal samples, and species confirmation was accomplished by PCR detection of *uidA* and *clpB* genes. Microbroth dilution method was used to determine the minimal inhibitory concentrations (MIC) of *E. coli* isolates to 14 different antimicrobials. Isolates were categorized as either susceptible, intermediate, or resistant based on Clinical and Laboratory Standards Institute guidelines. An interaction of diet × sampling day was observed for cefoxitin where fecal *E. coli* isolates showed no significant differences in MIC values at entry, but sows fed the control diet had lower MIC values at weaning compared to sows fed yeast additives.

WHAT'S NEW...

There were no significant diet main effects on the antimicrobial resistance (AMR) of fecal *E. coli*. There was an increased trend towards resistance for 11 of the 14 antimicrobials over time. Fecal *E. coli* isolates were resistant to tetracycline and ceftriaxone at weaning. All other isolates were considered susceptible or intermediate across sampling day. In conclusion, feeding live yeast and yeast extracts did not influence either sow or litter performance measurements or the AMR of fecal *E. coli* during lactation except for ceftiofur, which had a higher MIC at the end of lactation when live yeast and yeast extracts were present in the diet. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Jenna A. Chance, Jordan T. Gebhardt, Joel M. DeRouche, Raghavendra G. Amachawadi, Victor Ishengoma, T.G. Nagaraja, Mike D. Tokach, Jason C. Woodworth, Robert D. Goodband, Qing Kang, Joseph A. Loughmiller, and Brian Hotze.)

☞ **Effects of Providing a Sensory Attractant Powder to Suckling Pigs in Late Lactation and After Weaning on Post-Weaning Pig Performance** - A total of 28 litters and 355 nursery pigs were used in a 29-d trial (4 d pre-weaning and 29 d post-weaning). The trial was conducted to determine the effect of providing a sensory attractant powder to suckling pigs in late lactation and after weaning on post-weaning feed intake and growth. Treatments were arranged in a 2 × 2 × 2 factorial with main effects of: 1) pre-weaning treatment (without or with powder); 2) post-weaning treatment (without or with powder); and 3) body weight category (light or heavy). Overall, pre-weaning powder application did not have a significant effect on piglet weaning weight or post-weaning growth performance. Likewise, post-weaning powder application had no effect on the growth performance of pigs after weaning. The percentage of pigs that lost weight in the first 3 d after weaning was reduced by approximately 20 percentage points when pigs were provided powder both pre- and post-weaning compared to the other three treatment combinations. This interaction diminished by d 7 and no other treatment effects were observed for the percentage of pigs that lost weight after weaning. In summary, sensory attractant powder had limited effects on growth performance of pigs after weaning. However, sensory attractants may encourage activity around the feeder after weaning when pigs also receive the same sensory attractant pre-weaning, as indicated by the percentage of pigs that lost weight after weaning. More research is needed to better understand the implications of early sensory learning and its effect on subsequent feed intake. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Madie R. Wensley, Mike D. Tokach, Robert D. Goodband, Jordan T. Gebhardt, Jason C. Woodworth, Joel M. DeRouche, Denny McKilligan, and Nathan Upham.)

☞ **Evaluation of Vomitoxin Control Strategies on Nursery Pig Growth Performance and Blood Measures** - A total of 4,318 pigs were used in a 35-d growth trial to evaluate mycotoxin control strategies on nursery pig performance and blood measures. Pigs were weaned at approximately 21 d of age and randomly allotted to 1 of 5 dietary treatments. The randomized complete block design was blocking structure including sow farm origin, date of entry into the facility, and average pen BW. A total of 160 pens were used with 80 double-sided 5-hole stainless steel fence line feeders, with feeder serving as the experimental unit. For each feeder, 1 pen contained 27 gilts and 1 pen contained 27 barrows. There were 16 replications per dietary treatment. A common phase 1 diet was fed in pelleted form to all pigs for 7 d prior to treatment diets. Experimental treatments were fed in a single phase and included a 1) low deoxynivalenol (DON) diet; 2) high DON diet; 3) high DON + sodium metabisulfite (SMB); 4) high DON + Technology1; or 5) high DON + Technology1+. Overall, pigs fed the high DON diet had reduced ADG, ADFI, and final BW compared to the pigs fed the low DON diet. Furthermore, pigs fed the high DON+SMB diet had greater ADG, ADFI, and final BW compared to the pigs fed the high DON, high DON+Technology1, or high DON+Technology1+ diets. An improvement in feed efficiency was observed in pigs fed high DON+SMB or high DON+Technology1+ diets compared to the low DON or high DON+Technology1 diets with high DON diets intermediate. Pigs fed high DON+SMB or high DON+Technology1 diets had reduced total removals and mortality compared to pigs fed low DON diets with high DON and high DON+Technology1+ intermediate. For economic analysis (d 0 to 35), pigs fed high DON+SMB diets had the greatest feed cost, revenue, and IOFC compared to all other treatments. The LC-MS/MS analysis of dried blood spots at the end of the trial revealed that pigs fed high DON or high DON+Technology1 had increased DON concentrations in the blood compared to pigs fed low DON, with high DON+SMB and high DON+Technology1+ intermediate. Interestingly, while not statistically significant in this study, the reductions in presence and concentration of other important mycotoxins like fumonisin B1, B2, beta-zearalenol, and the emerging beauvericin—as well as the trends in circulating neutrophil-to-lymphocyte ratio and GGT in blood—when pigs were fed high DON+Technology1+ suggest that other important metabolic processes may be influenced. In summary, pigs fed high DON diets had reduced performance compared to pigs fed low DON diets. In our trial, SMB supplementation to high DON diets led to the greatest improvement in growth performance, but other metabolic changes associated with Technology1+ warrant further investigation. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Larissa L. Becker, Jordan T. Gebhardt, Mike D. Tokach, Robert D. Goodband, Joel M. DeRouche, Jason C. Woodworth, Arnau Vidal, and Christos Gougoulis.)

ASI FACULTY SPOTLIGHT...



Mike Day (mlday@k-state.edu; 785-532-7624)

Department Head

Dr. Mike Day was raised in central Missouri on a farm that included swine, beef and hay production. Growing up, cattle were of greatest interest to him, and reproductive management always sparked his curiosity.

Dr. Day has prioritized his career by focusing on the three things that he enjoys most — animals, science and people. He explains these three interests stemmed from his time growing up on the family farm and through his education and now his career.

After obtaining his bachelor's degree in animal husbandry from the University of Missouri, Day went on to earn his master's and doctorate from the University of Nebraska in animal science with an emphasis in reproductive physiology.

Upon completion of his doctorate, Day was hired at The Ohio State University (OSU). He was on faculty in the department of animal sciences for 30 years (1985-2015), holding a research and teaching appointment focused on reproductive physiology of beef cattle. His teaching responsibilities stretched from introductory classes, through various reproductive classes and the capstone beef production class for seniors. His research at

OSU was a continuation of his graduate work in replacement heifer development and included research in estrous synchronization and gene expression during early pregnancy in cattle.

While at OSU, he took a sabbatical in New Zealand where he worked on early development of the CIDR (controlled internal drug release) device. He was also able to travel to Brazil, Japan and Australia for research and educational programs during his time at OSU.

For the four years prior to joining KSU ASI, Day served as the University of Wyoming Animal Science department head. At Wyoming he led a department with approximately 15 faculty and 280 undergraduate students. Day joined the KSU ASI department on August 11, 2019.

Day and his wife, Toni, built a house south of Olsburg on some acreage used for hay production and wildlife management. Toni enjoys gardening and is working towards an Extension Master Gardener, as well as recently becoming a new member of the Pottawatomie Extension Council. They have two grown children. Their son, Travis, and his fiancé Amanda Crace, recently moved to Manhattan. Travis is a mechanic at Prairieland Partners in Wamego, KS, and Amada works for the Veterinary and Biomedical Research Center in Manhattan. Their daughter Leslie has started the 3rd year of a five-year PhD program in the Department of Plant and Microbial Biology on the St. Paul campus of the University of Minnesota.



Jeanette Thurston (jthurston@k-state.edu; 785-532-1234)

Director of the Food Science Institute/Professor

Dr. Jeanette Thurston was raised in Tucson, Arizona, which presented a wonderful living laboratory where she gained an appreciation for the diversity of flora and fauna in the Sonoran Desert as well as its fragile nature due to its limited natural resources. Dr. Thurston received her bachelor's degree in Microbiology, Master's degree in Environmental Science, and Ph.D. in Soil, Water and Environmental Science all from the University of Arizona. She studied and performed research in public health water microbiology, developing detection methods and evaluating practices and technologies to reduce and remove waterborne and foodborne pathogens in water and wastewater. Upon graduation, she began as a Research Microbiologist at the USDA Agricultural Research Service in Lincoln, NE conducting pathogen fate and transport research on dairy farms, cattle feedlots, and within cow-calf pastures. In 2009, Dr. Thurston applied her expertise in a new science administration position in Washington D.C. As a National Program Leader for Food Safety at the USDA's National Institute for Food and Agriculture (NIFA), she provided leadership and direction for the agency's food safety research, education, and extension

portfolio. In 2015, Dr. Thurston joined NIFA's leadership team in a new position as the agency's Science Program Officer and provided leadership to the agency's science portfolio and budget. Dr. Thurston was elated with her opportunity to get back to academia, joining K-State's Food Science Institute (FSI) in 2019, working alongside faculty, staff, and students to deliver excellence in addressing the land grant mission. Since her arrival, Dr. Thurston has focused her efforts on FSI, College, and University level priorities including the food science graduate degree program and supporting the undergraduate food science and industry degree program, development of the Preparing Leaders in Agriculture: Navigating for Success program focused on ensuring the success of College of Ag graduate students and postdoctoral scientists, and leading the development of the K-State Economic Prosperity topic "Food and Agriculture Systems Innovation."

WHAT PRODUCERS SHOULD BE THINKING ABOUT

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN FEBRUARY...

BEEF -- *Tips by Dale Blasi, Extension Beef Specialist*

- ☑ Historically, cull cow prices are beginning to rise. Finish culling cows in order of priority:
 1. Those that fall within the "Four-O Rule" (Open, Old, Onry, Oddball).
 2. Those with physical/structure problems (feet and legs, eyes, teeth, etc.).
 3. Poor producers.
- ☑ Continue feeding or grazing programs started in early winter. Fully utilize grain sorghum and cornstalk fields. Severe winter weather may begin to limit crop residue utilization. Be prepared to move to other grazing and feeding systems.
- ☑ Supplement to achieve ideal body condition scores (BCS) at calving.
- ☑ Control lice, external parasites will increase feed costs.
- ☑ Provide an adequate water supply. Depending on body size and stage of production, cattle need 5-11 gallons of water per head per day, even in the coldest weather.
- ☑ Sort cows into management groups. Body condition score and age can be used as sorting criteria. If you must mix age groups, put thin and young cows together, and feed separately from the mature, properly conditioned cows.
- ☑ Use information from forage testing to divide forage supplies into quality lots. Higher-quality feedstuffs should be utilized for replacement females, younger cows, and thin cows that may lack condition and that may be more nutritionally stressed.
- ☑ Consult your veterinarian regarding pre- and postpartum vaccination schedules.
- ☑ Continue mineral supplementation. Vitamin A should be supplemented if cows are not grazing green forage.
- ☑ Plan to attend local, state, and regional educational and industry meetings.
- ☑ Develop replacement heifers properly. Weigh them now to calculate necessary average daily gain (ADG) to achieve target breeding weights. Target the heifers to weigh about 60 to 65% of their mature weight by the start of the breeding season. Thin, light weight heifers may need extra feed for 60 to 80 days to "flush" before breeding.
- ☑ Bull calves to be fed out and sold in the spring as yearlings should be well onto feed. Ultrasound measurements should be taken around one year of age and provided to the association.
- ☑ Provide some protection, such as a windbreak, during severe winter weather to reduce energy requirements. The lower critical temperature (LCT) is the temperature at which a cow requires additional energy to simply maintain her current body weight and condition. The LCT for cattle varies with hair coat and body condition (Dry, heavy winter coat = 18 degrees, wet coat = 59 degrees). Increase the amount of dietary energy provided 1% for each degree (including wind chill) below the LCT.

*We need your input! If you have any suggestions or comments on **News from KSU Animal Sciences**, please let us know by e-mail to lschrein@ksu.edu or phone 785-532-1267.*