

Register Now for 2024 Cattlemen's Day

Registration is open for the 111th Cattlemen's Day to be hosted on Friday, March 1 in Weber Hall and Arena in Manhattan, Kansas.

The schedule includes:

- 8:00 a.m. Trade Show and Educational Exhibits
Morning refreshments sponsored by DSM-Firmenich
- 10:00 a.m. Welcome
K-State Strategy for the Future
Richard Linton, K-State President
ASI Embraces Past, Looks to the Future
Mike Day, K-State ASI department head
Beef Industry Economic Outlook
Glynn Tonsor, K-State agriculture economics professor
- Noon Lunch- Weber Arena
Smoked brisket compliments of U.S. Premium Beef.
Following lunch, enjoy Call Hall Ice Cream sponsored by Huvepharma in the Trade Show.
- 1:30 p.m. K-State ASI Beef Research Update
ASI Beef Team
- 2:30 p.m. Breakout Sessions
Beef Cuts that Add Value
Michael Chao, K-State ASI associate professor
Reproduction Update
Sandy Johnson, K-State ASI extension beef specialist and Nicholas Dias, K-State ASI assistant professor
Wildlife & Ranching
Drew Ricketts, K-State extension wildlife management and control specialist
- 3:00 p.m. Repeat of 2:30 p.m. sessions

Pre-registration is \$25 in advance or \$35 per person at the door. Morning refreshments and lunch are included with registration. For more information or to register visit www.asi.ksu.edu/cattlemensday. If you are interested in exhibiting at Cattlemen's Day or have any questions, please contact Katie Smith (katiesmith@ksu.edu or 785-532-1267).

53rd Annual Stockmen's Dinner



The 53rd Annual Stockmen's Dinner will be Thursday, February 29, 2024, at the Stanley Stout Center. Galen and Lori Fink, Randolph, Kansas, will be recognized as the 2024 Stockman of the Year.

Register at asi.ksu.edu/stockmensdinner. For registration questions, contact Katie Smith (katiesmith@ksu.edu or 785-532-1267).

Department of Animal Sciences and Industry

Kansas State University
218 Weber Hall, 1424 Claflin Road
Manhattan, KS 66506
785-532-6533 | asi@ksu.edu



STOCKMEN'S DINNER

FEB. 29 | STANLEY STOUT CENTER | 6 P.M.

CATTELEMEN'S DAY

MARCH 1 | WEBER HALL | 8 A.M.

LEGACY BULL SALE

MARCH 1 | STANLEY STOUT CENTER | 4 P.M.

Upcoming Events

- February 15-18, 2024**
Annual K-State NIRA College Rodeo
Manhattan, KS
- February 29, 2024**
Stockmen's Dinner
Manhattan, KS
- March 1, 2024**
Cattlemen's Day
Manhattan, KS
- March 1, 2024**
Legacy Sale
Manhattan, KS
- March 2, 2024**
K-State Junior Beef Producer Day
Manhattan, KS
- March 16, 2024**
K-State Junior Sheep Producer Day
Manhattan, KS
- March 26-28, 2024**
HACCP Course
Columbia, MO
- April 6, 2024**
KSU Open House and
Little American Royal
- April 15 & 18, 2024**
Livestock County Fair
Management Clinic

Upcoming Events

K-State Junior Beef Producer Day



K-State Junior Beef Producer Day is scheduled for Saturday, March 2, 2024, in historic Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth beef projects. All ages and knowledge levels are invited! K-State faculty members, the K-State Livestock Judging Team, graduate students, former exhibitors, and guest speakers will cover topics including selection, meat science, reproduction, health, nutrition, hair care, grooming, fitting, 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 deadline to receive a t-shirt has passed, but registrations to attend are still being accepted. The cost for junior beef producer day is \$25 per person. All attendees, including youth and adults, must register. Families may register online at <http://bit.ly/ksuasiregister>. For more information, contact Lexie Hayes (adhayes@ksu.edu or 785-532-1264).

K-State Junior Sheep Producer Day



The 2024 K-State Junior Sheep Producer Day will be hosted on Saturday, March 16, 2024, in Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth sheep projects. All ages and knowledge levels are invited! K-State faculty members, graduate students, undergraduate students, former exhibitors, and guest speakers will cover topics including selection, meat science, nutrition, reproduction, the starter flock program, wool, health and wellness, facilities and equipment, clipping and grooming, 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 youth YQCA training. The cost for junior sheep producer day is \$20 per person, if registration is submitted by February 26, 2024, or \$25 per person after the early deadline. All attendees, including youth and adults, must register. Only those who register by February 26 will receive a t-shirt. Families may register online at <http://bit.ly/ksuasiregister>. For more information, contact Lexie Hayes (adhayes@ksu.edu or 785-532-1264).

Livestock County Fair Management Clinic

The biennial Livestock County Fair Management Clinic will be hosted virtually April 15 and 18, 2024. This clinic is designed for county fair board members, Extension agents, and volunteers involved in local livestock fair management and leadership. The program consists of a forum of open communication for individuals working with livestock at their local fairs. Although some of the topics can be applied generally to the county fair, this program focuses on the livestock perspective. K-State faculty, staff, fair board members, and extension agents will facilitate discussion directly related to livestock activities at local fairs in Kansas. The program is geared towards the input and participation of county fair board members, superintendents, and extension agents, so fair board members and superintendents are highly encouraged to attend! The program has been divided over two evenings, scheduled for 7-9 p.m., with different topics being covered each night. This year, each evening will open with a general session, followed by concurrent round table discussions. It would be advantageous for counties to have several individuals attend to cover all the breakout sessions. The sessions will be recorded and available to attendees after the program. The program is free, but participants need to register online at https://kstate.qualtrics.com/jfe/form/SV_2nLMofH3lkeU182 by April 8. For more information, contact Joel DeRouchey (jderouch@ksu.edu or 785-532-2280), Lexie Hayes (adhayes@ksu.edu or 785-532-1264), or Kelsey Nordyke (knordyke@ksu.edu or 620-222-1311).

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 2024 opportunities are received directly from extension units. Events, activities, and shows must be submitted by local KSRE professionals to be included on the website.

HACCP Workshop Hosted in March

Implementing Your Company's HACCP Plan will be March 26-28, 2024, 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 online at <http://bit.ly/HACCPcourse>. For more information, contact Dr. Liz Boyle (lboyle@ksu.edu or 785-532-1247).

Upcoming Events

Final College Rodeo in Weber Arena to be Hosted in February

With completion of the new Bilbrey Family Event Center expected in the fall 2025, the 50th and last college rodeo in historic Weber Arena will be hosted February 15-18. Performances will take place Thursday night, Friday night, Saturday afternoon and Saturday night, with the short-go hosted Sunday afternoon. Slack will be Friday and Saturday at 9 a.m.

The Thursday, Friday and Saturday night performances will start at 7:30 p.m., with the Saturday and Sunday afternoon sessions beginning at 1 p.m. Thursday will be Student and Alumni Night. Friday is Tough Enough to Wear Pink Night. Saturday afternoon is Kids' Day, when those 10 and under will be admitted free with a donation at the door to the local food bank and one paid adult. Saturday evening is Purple Night. Sunday is the traditional military appreciation performance.

There will be no tickets sold at the door, so buy them in advance at the following Manhattan locations: Call Hall Dairy Bar, Tractor Supply, Yee-Haw Outfitters and Outpost Western Store. Tickets are available in Topeka at R Bar B Saddle and Tack. Thursday night tickets are \$15 for adults and \$10 for students, military and K-State alumni. Friday and Saturday night tickets are \$20 for adults and \$15 for students, military and alumni. Saturday and Sunday afternoon performances are \$15 for adults and \$12 for students. For more information contact K-State rodeo coach, Casy Winn (435-681-0201 or ccwinn@ksu.edu).



47th Annual Legacy Bull Sale

The 47th Legacy Sale will be Friday, March 1, 2024, at the Stanley Stout Center.

This year's offering will include 17 Angus, 14 Simmental and 12 Hereford bulls, 10 bred cows and 18 commercial heifers.

For more information, to view the catalog and for videos after Feb. 20 visit asi.ksu.edu/legacysale.



47th Annual Sale
March 1 • 4 p.m. CST
Stanley Stout Center, Manhattan



KSU Resilient 2405
 Reg No.: 20625013
 +97 WW • Top 1%
 +176 YW • Top 1%
 +85 CW • Top 2%
 +87 SW • Top 1%
 +115 SF • Top 10%
 +178 SB • Top 15%
 +302 SC • Top 15%



KSU Iconic 3177
 Reg No.: 20709044
 -1.2 BW • Top 10%
 +79 WW • Top 15%
 +32 MILK • Top 15%
 +1.61 MARB • Top 2%
 +88 SW • Top 1%
 +95 SG • Top 4%
 +304 SC • Top 10%

SELLING:
40 FEED-EFFICIENCY TESTED BULLS
& 35 FEMALES



KSU Barricade 3158
 Reg No.: 20709013



KSU Theford 315
 Reg No.: 20707889
 +15 CED • Top 3%
 -3.1 BW • Top 1%
 +1.16 RE • Top 3%
 +97 SM • Top 1%
 +81 SW • Top 4%



KSU BOLD RULER I
 Reg No.: 4195322
 +17.9 CE • Top 2%
 -2.3 BW • Top 5%
 +142.1 YW • Top 10%
 +22.2 DOC • Top 1%
 +.61 MARB • Top 4%
 +178 API • Top 3%
 +102.9 TI • Top 2%



KSU Houston 306
 Reg No.: 44454512
 +80 WW • Top 1%
 +127 YW • Top 1%
 +68 MG • Top 7%
 +86 CW • Top 7%
 +.91 REA • Top 1%
 +465 SBMI • Top 5%
 +564 SBI • Top 4%

K-STATE PUREBRED BEEF UNIT

2200 Denison Ave • Manhattan, KS 66502

asi.ksu.edu/bullsale | Shane Werk, 785.565.1881 | Chris Mullinix, 316.323.0395 | Jason Warner, 308.962.4265



Jobs Available - Now Hiring

Professor-Assistant/Associate, Dairy Foods Processing and Innovation (Job #515982)- We are seeking applicants for a 12-month, tenure-track position (40% Teaching, 60% Research) at the rank of Assistant or Associate Professor (commensurate with experience) that will contribute primarily to our teaching and research missions in dairy foods processing within the Animal Sciences and Industry Department (ASI). The ASI Department is a national leader in teaching, research and outreach focused on animal and food sciences. ASI is home to the undergraduate Food Science & Industry degree program, which is accredited through the Institute of Food Technologists. The successful individual will be expected to develop a nationally recognized, externally funded research program in dairy food processing that is linked with a dynamic graduate research program. Teaching responsibilities will include Dairy Foods Processing & Technology (ASI 608) and other coursework consistent with the program's needs and the selected individual's interests. K-State is also home to the cross-disciplinary Food Science Institute (FSI) which provides many opportunities to participate in world-class interdisciplinary research, graduate training and teaching activities. Some of these opportunities involve agricultural security and sustainability, functional and healthy food systems, and the K-State Global Food Systems Initiative (<https://www.k-state.edu/research/global-food/>). Major facility construction and renovations are underway in the food/animal/grain science areas at K-State, including renovation of the K-State dairy processing plant, Call Hall Dairy Bar and research laboratories. Experience in creamery operations, fluid milk processing, and/or manufacture of dairy ingredients is desirable as the successful applicant will supervise the managers of these dairy foods facilities and use them in support of their program. To apply, go to <https://careers.k-state.edu/cw/en-us/job/515982/assistant-or-associate-professor>.

KSU Beef Cattle Research Center- Research Assistant (Job # 516431)- This is a full-time unclassified professional staff, term contract position. This position will function as part of the KSU Beef Cattle Research Center by conducting research and basic maintenance operations with undergraduate and graduate students related to growing and finishing cattle health and nutrition management. This position must be able to independently conduct and direct subordinates on specific tasks and ensure that all cattle are fed and water is available. All cattle are evaluated for potential illness, removed if necessary, appropriately treated as per protocol and returned to the correct pen. This position will ensure that all research data are correctly collected, entered into a spreadsheet and submitted for analysis. This position will ensure that the unit is in compliance with Institutional Care and Use Requirements and oversee the daily care of esophageal, ruminally and/or intestinally fistulated cattle located at the facility. This position will be able to communicate with cattle owners as needed and generate invoices in a timely manner. This position will order feed supplies and process hay in a timely manner. The incumbent may be expected to recruit and interview undergraduate students for labor and mentor their development in skills. To read more details and to apply, go to <https://careers.k-state.edu/cw/en-us/job/516431/research-assistant>

Dairy Teaching and Research Center Manager (Job #515771) – This is a full-time, unclassified professional staff, Term Contract. The DTRC Manager is responsible for the day-to-day management of personnel, animals, and unit facilities at the DTRC. The incumbent will also work closely with faculty and students to facilitate research trials at the DTRC. Animal care – The DTRC Manager oversees the routine care (feeding, milking, reproductive management, herd health, waste management, etc.) of the mature cows and young stock. The incumbent will work with herd veterinarians and faculty supervisors to establish, execute, and evaluate standard operating protocols for maintaining optimum animal care, herd production, and research study outcomes. Operational management – The DTRC Manager will oversee and conduct routine daily operational management of the facility. Supervision – The DTRC Manager will lead a talented team of employees to ensure adequate care of livestock and daily operations of the DTRC. To read more details and to apply, go to <https://careers.k-state.edu/cw/en-us/job/515771/dairy-teaching-and-research-center-manager>.

Animal Technician Supervisor—Dairy Teaching and Research Center (Job # 515576) -This is a full-time, unclassified professional staff, term contract position. This position is critical to the overall operation of the KSU Dairy Teaching and Research Center. It involves supervision of other employees and the care and comfort of the animals housed at the DTRC at Kansas State University. Incumbent functions as the assistant manager of the Dairy Teaching and Research Center and is responsible for ensuring the safety of the cows and other dairy unit employees. Assumes responsibility for operation of the dairy unit in the manager's absence. Incumbent is responsible for milking cows at least two days each week and for making vital animal observations during the milking process. Incumbent is responsible for collecting sterile samples of milk to be tested for antibiotics or bacteria. To apply, go to <https://careers.k-state.edu/cw/en-us/job/515576/animal-technician-supervisor>.

Jobs Available - Now Hiring

Professor-(Assistant/Associate) Animal Nutrition- (Job #516477)- We are seeking applicants for a 12-month, tenure-track faculty position (60% Teaching, 40% Research) that will be located in Manhattan, KS. The position will be available for either an Assistant or Associate Professor of Animal Nutrition with a preference for ruminant nutrition as the sub-discipline. The successful individual 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, and expectations include teaching and advising both graduate and undergraduate students. The successful individual is expected to lead a productive research program in animal nutrition and participate in relevant interdisciplinary activities. The department is home to the full array of animal facilities dedicated to research and teaching that are all located in close proximity to campus. To read more details and apply go to <https://careers.k-state.edu/cw/en-us/job/516477/assistantassociate-professor-animal-nutrition>.

Professor- Assistant/Associate, Sustainable Fresh Meat Industry (Job # 516491)- We are seeking applicants for a 12-month, tenure-track faculty position (60% extension, 40% research). The position will be at the rank of Assistant or Associate Professor and located in Manhattan, KS. The successful individual is expected to develop an innovative extension and research program addressing issues facing the Kansas and U.S. meat industry in addition to contributing to the core missions of the Department. Support and collaboration with an interdisciplinary team with efforts related to sustainability research and extension programming consistent with team, ASI, COA, and K-State goals is expected. Research efforts will be consistent with the successful individual's expertise, interests, and needs of the Department. To read more details and to apply, go to <https://careers.k-state.edu/cw/en-us/job/516491/assistantassociate-professor-sustainable-fresh-meat-industry>.

Professor-Assistant/Associate, Sustainable Small Ruminant Production- (Job #516476)- We are seeking applications for a 12-month, tenure-track position (60% Extension, 40% Research, 15% Teaching). The position will be at the rank of Assistant or Associate Professor and located in Manhattan, KS. The successful individual is expected to develop an innovative and impactful extension program addressing issues facing the Kansas and U.S. small ruminant industry. The research focus will be consistent with the successful individual's expertise in small ruminants, and may include nutrition, physiology, meat science, genetics or other related disciplines. Teaching efforts will primarily focus on direct leadership for the 'Sheep and Meat Goat Science' undergraduate class, with the potential for development of other relevant courses of interest. To read more details and apply go to <https://careers.k-state.edu/cw/en-us/job/516476/assistantassociate-professor-sustainable-small-ruminant-production>.



Check out the monthly ASI
headlines at
<https://bit.ly/KSUASIHeadlines>

What's New for Beef Cattle Producers

Management Minute

“How to Find More Time”

One of the more common issues for many of us in the workplace is trying to find more time for family, friends, exercise or some new activity. However, the question becomes how we can find more time within the day or week for the aforementioned activity of choice? One of the ways that many people try to find more time (including myself) is the “do I really need that much sleep” method of finding more time. Although, this method does work; it may also result in some undesirable outcomes, especially if the activity involves interacting with others. Time management experts suggest that the best way to make more time for any new activity is to become more efficient within our day. Efficiency is essentially organizing and prioritizing the daily “to do list” but it also includes looking for places in our day where we simply waste time. The most common “time waster” for many people involves a computer or a phone in today’s world. Procrastination is also another common “time waster” that reduces our ability to get things done. Many strategies have been developed to combat procrastination. One simple strategy that I recently came across is the 2-minute rule and it essentially targets all those little things that we encounter during the day that eventually add up. This informal rule essentially says that when we encounter anything in our day that will take less than 2-minutes that we should do it, be it a quick email response or cleaning up our computer files. It is difficult to find more time in our busy work schedules, but one thing is clear seconds turn into minutes, minutes into hours, hours into days and so forth, which proves that little things do add up over time.

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

Feedlot Facts

“Mineral Supplement Selection for the Cow Herd”

Although, the upcoming grazing season may be hard to picture at this point, it’s not too early to begin making preparations. Among those preparations is selecting a mineral supplement, especially for those operations that are looking to take advantage of “early booking” discounts for mineral orders. It can be challenging to select a mineral program, as there are many different products and mineral formulations currently available. When evaluating mineral supplements the phosphorous concentration may be used as basic guide to determine if the mineral fits the production stage of the herd and forage base. Phosphorous is one of the most common mineral deficiencies in grazing systems around the world and is one of the primary reasons we provide mineral supplements to grazing beef cattle. The table below illustrates the amount of phosphorous required in a mineral supplement required for cattle at various production stages consuming forages with different phosphorous concentrations. Forage phosphorous concentrations vary and are typically greatest during the spring and lowest in the winter. In Kansas, phosphorous content of native range during the grazing season is typically between 0.15 and 0.20%. Thus, the maintenance requirements of lactating cow (20 lbs milk/d) could be met by a mineral with at least 8% phosphorous (average of 6 and 10 in the table).

	Total diet P, %			
	0.05	0.10	0.15	0.20
Maintenance	-----% P needed in mineral supplement-----			
1000 lb BW	8	6	6	6
1200 lb BW	10	6	6	6
1400 lb BW	12	8	6	6
Gestation				
Last 1/3	16	10	6	6
Lactation				
20 lb milk/d	16	16	10	6
30 lb milk/d	16	16	16	6

Intake assumption: 2% bodyweight during maintenance and gestation. Intake increases with milk production
Wright, 2003

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

KSU Cow-Calf Checklist - February 2024

Management Considerations for April 2024

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.
 - BCS 5.0+ females should be maintaining weight and condition.
 - Record cow BCS and use it as a guide for future management.
 - Start lactation rations/supplementation by end of 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.
 - Make effort to measure intake regularly and adjust it as needed.
 - If using fly control products, start them at recommended area times.
 - Properly store bagged mineral and avoid damaging bags and pallets.
- Risk of grass tetany is greatest for lactating cows and older 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 to help plan synchronization protocols.
 - <https://www.iowabeefcenter.org/estrussynch.html>
- Schedule breeding soundness examinations on bulls well prior to turnout.
 - Allow plenty of time to re-test or 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.
 - <https://cowweb.exnet.iastate.edu/CowWeb/faces/Index.jsp>
- Adjust turn-out dates as needed for drought stressed pastures.
- 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

Dietary Acid-Binding Capacity-4 Influences Nursery Pig Performance and Fecal Dry Matter-A total of 360 pigs (200 × 400 DNA; initially 12.9 lb) were used to evaluate the impact of increasing the acid-binding capacity-4 (ABC-4) of the diet on nursery pig performance and fecal dry matter (DM). At weaning, pigs were allotted to 1 of 6 dietary treatments. There were 5 pigs per pen and 12 replications per treatment. Pigs were fed experimental diets in two phases with phase 1 being from d 0 to 10 post-weaning followed by phase 2 from d 10 to 23. Diets were formulated with increasing ABC-4 levels ranging from 150 meq/kg (diet 1, low ABC-4) to 312 meq/kg (diet 5, high ABC-4) in phase 1 and 200 meq/kg (diet 1, low ABC-4) to 343 meq/kg (diet 5, high ABC-4) in phase 2. For diet 1, the low ABC-4 diets were formulated using specialty soy protein concentrate (AX3 Digest; Protekta; Newport Beach, CA) at 12.50 and 10.00% of the diet in phase 1 and 2, respectively. The low ABC-4 diet also utilized fumaric acid and formic acid at 0.50 and 0.48% of the diet, respectively for both phase 1 and 2. For diets 2 (medium low), 3 (medium), 4 (medium high), and 5 (high), increasing ABC-4 of the diet was achieved by progressively decreasing the level of acidifiers and replacing specialty soy protein concentrate with enzymatically treated soybean meal (HP 300; Hamlet Protein; Findlay, OH) on an SID Lys basis. Diets 1 through 5 were formulated without the inclusion of ZnO. For diet 6, a positive control diet was utilized which had the same formulation as the highest ABC-4 diet but with the addition of pharmacological levels of Zn from ZnO. Following phase 2, all pigs were placed on a common diet until d 38 of the study. In the experimental period (d 0 to 23) and overall (d 0 to 38), a quadratic response was observed ($P \leq 0.030$) where BW and ADG were highest for pigs fed the medium low and medium ABC-4 diets. During the experimental period (d 0 to 23), pigs fed increasing ABC-4 levels had poorer (linear, $P = 0.002$) F/G. For overall F/G, a quadratic response was observed ($P = 0.023$) where F/G was most improved for pigs fed the medium low and medium ABC-4 levels. Pigs fed diets with ZnO had increased ($P \leq 0.038$) ADG compared to pigs fed diets without ZnO during the experimental period and overall. In summary, pharmacological levels of Zn improved nursery pig performance as expected. The medium low and medium ABC-4 levels improved performance compared to higher ABC-4 levels, suggesting an optimal ABC-4 level of the diet for this study would be at or below 256 and 295 meq/kg in phase 1 and 2, respectively. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. (This study conducted by Ethan B. Stas, Mike D. Tokach, Jason C. Woodworth, Joel M. DeRouchey, Robert D. Goodband, and Jordan T. Gebhardt.)

Effect of the Feed Additive Fytera Start on Growth Performance and Stool Quality of Nursery Pigs Fed Nutritional and Pharmacological Copper and Zinc Diets- A total of 340 barrows (DNA 200 × 400; initially 13.4 ± 0.17 lb BW) were used in a 38-d growth study to determine the effect of Fytera Start (Selko, Indianapolis, IN) in diets with or without pharmacological levels of Zn and Cu on growth performance and stool quality of nursery pigs. Fytera Start is a blend of botanical extracts that has recently been introduced for use in nursery pig diets. Pigs were weaned at approximately 21 d of age, randomly allotted to pens based on initial BW, and then allotted to 1 of 4 dietary treatments in a completely randomized design. There were 5 pigs per pen and 17 pens per treatment across two barns. Treatment diets were formulated in three dietary phases and fed from d 0 to 10, d 10 to 21, and d 21 to 38, respectively. Treatments were arranged in a 2 × 2 factorial with main effects of Fytera Start (none or 100 ppm) and nutritional vs. pharmacological levels of Zn and Cu. The nutritional mineral concentrations were 110 ppm Zn and 16.5 ppm Cu throughout phases 1 to 3. The pharmacological mineral concentrations were 3,000, 2,000, and 110 ppm Zn in phases 1, 2, and 3, respectively, combined with 250 ppm Cu throughout phases 1 to 3. To achieve expected levels of Zn and Cu in the diet, Zn from zinc oxide and Cu from copper sulfate were added. On d 0, there was an unintentional main effect of Fytera Start ($P = 0.008$) on BW. As a result, d 0 BW was used as a covariate for all other growth performance responses. From d 0 to 21 and d 0 to 38, there was a Fytera Start × Zn/Cu interaction on ADG and ADFI ($P < 0.05$) in which the addition of Fytera Start resulted in a numeric increase in ADG and ADFI in pigs not fed pharmacological levels of Zn/Cu; however, in pigs fed pharmacological levels of Zn/Cu, the inclusion of Fytera Start resulted in a numeric reduction in ADG and ADFI. There was a tendency for a main effect of Zn/Cu level on overall feed efficiency ($P < 0.10$) where pharmacological levels of Zn/Cu improved feed efficiency. For fecal dry matter, there was a Zn/Cu × day interaction ($P = 0.001$) in which there was no difference in fecal DM regardless of Zn/Cu level on d 10 ($P > 0.10$), but pigs fed pharmacological levels of Zn/Cu had lower fecal DM ($P < 0.001$) compared to those not fed pharmacological levels of Zn/Cu on d 21. There was a main effect of day resulting in increased fecal DM ($P < 0.001$) on d 10 compared to d 21. There was a main effect of day on fecal score ($P = 0.010$) resulting in a lower frequency of softer feces at d 10 compared to d 21. The lower frequency of softer feces observed on d 10 is consistent with the higher fecal DM on d 10 compared to d 21. In summary, feeding pharmacological levels of Zn and Cu resulted in increased BW, ADG, and ADFI. The inclusion of Fytera Start numerically increased BW, ADG, and ADFI in pigs fed nutritional levels of Zn/Cu and numerically decreased BW, ADG, and ADFI in pigs fed pharmacological levels of Zn/Cu. There was no impact of Fytera Start or Zn and Cu level on fecal DM on d 10. However, feeding pharmacological levels of Zn and Cu resulted in lower fecal DM at d 21. Fecal DM was higher on d 10 compared to d 21, and fecal score was numerically lower on d 10 compared to d 21. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. (This study conducted by Ty H. Kim, Jason C. Woodworth, Mike D. Tokach, Joel M. DeRouchey, Robert D. Goodband, Jordan T. Gebhardt, and Chris P. A. van de Ligt.)

What's New for Swine Producers

Evaluating the Distribution of Porcine Epidemic Diarrhea Virus, Porcine Reproductive and Respiratory Syndrome Virus, and Seneca Valley Virus 1 Inoculated Feed After the Use of Physical or Chemical Mitigants to Flush a Feed Manufacturing Facility

Contaminated feed is a route of virus transmission between feed mills and swine farms. To reduce the risk of transmission, an understanding of the virus distribution and mitigation strategies are needed. The objective of this study was to evaluate the distribution of porcine epidemic diarrhea virus (PEDV), porcine reproductive and respiratory syndrome virus (PRRSV), and Seneca Valley virus 1 (SVV1) inoculated feed in the environment and feed of a feed mill before and after the use of chemical mitigants. A 50-lb batch of feed was run through a mixer and bucket elevator followed by a batch inoculated with PEDV, PRRSV, and SVV1. Following the virus-inoculated batch, a flush treatment of either 1) ground corn (GC); 2) GC + 1.5% liquid formaldehyde (LF; SalCURB LF Liquid, Kemin, Des Moines, IA); 3) GC + 1.5% LF + 25% abrasive material (SalCURB; Shell & Bone Builder, Iowa Limestone Company, Urbandale, IA); 4) double flush – GC + 25% abrasive material followed by GC +1.5% LF (Shell & Bone Builder; SalCURB); or 5) dry formaldehyde (SalCURB F2 Dry, Kemin, Des Moines, IA) was utilized, followed by 3 virus-free batches of complete feed. Feed and environmental samples were collected from each piece of equipment following every batch. Dust samples were collected after manufacturing from the inoculated, flush, and final batches from non-feed contact surfaces. Non-feed contact surfaces were considered those where dust would accumulate during manufacturing but would not be included in the final diet. The surfaces included the grates of the mixer, the top of the discharge bin following the bucket elevator, and the floor surrounding the same discharge bin. Samples were analyzed via a triplex PCR at the Kansas State University Veterinary Diagnostic Laboratory. A treatment × batch × location interaction was not observed ($P > 0.05$) in feed or the environment for any of the viruses. A flush treatment × batch interaction was observed for SVV1 where greater quantities of viral RNA ($P < 0.05$) were present in the positive batches and the ground corn flush than in those batches which used chemical mitigants or the post-flush batches. A lower quantity of viral RNA ($P < 0.05$) in dust was observed in the last batch of feed compared to the inoculated batch for all viruses; however, SVV1 RNA was still detectable in the dust following the last batch in all treatments. A batch effect ($P < 0.05$) was observed in all sample matrices for PEDV and PRRSV as viral RNA decreased after the implementation of the flush regardless of treatment. The use of chemical mitigants and the implementation of a flush batch reduced the quantity of viral RNA for PEDV, PRRSV, and SVV1. However, viral presence was still observed in feed and the dust on non-feed contact surfaces which could be a source of contamination if re-introduced into finished feed. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. (This study conducted by Olivia L. Harrison, Haley K. Otott, Jianfa Bai, Vaughn A. Hamill, Aaron Singrey, Phillip C. Gauger, Marcelo N. Almeida, Jason C. Woodworth, C. R. Stark, Roman M. Pogranichniy, Cassandra K. Jones, Jordan T. Gebhardt, and Chad B. Paulk.)

A Meta-Regression Analysis to Evaluate the Effects of Narasin on Grow-Finish Pig Performance

A meta-regression analysis was conducted to evaluate the effects of added narasin in growing-finishing pig diets to predict the influence on average daily gain (ADG), feed efficiency (G:F), and carcass yield. A database was developed containing 21 technical reports, abstracts, and refereed papers from 2012 to 2021 representing 35 observations for growth performance data in studies ranging from 35 to 116 days in length (overall data). In addition, within these 35 observations, individual period data were evaluated (143 observations) using weekly, bi-weekly, or monthly performance intervals (period data). Regression model equations were developed, and predictor variables were assessed with a stepwise manual forward selection procedure. Important variables in predicting the response to added narasin included ADG, average daily feed intake (ADFI), and G:F of the control pigs, feeding duration (shorter or longer than 65 days) and body weight (greater than or less than 230 lb). Using median values from the database for predictor variables, the meta-analysis indicated narasin would be expected to improve ADG between 1.06 to 1.65%, G:F between 0.71 to 1.71%, and carcass yield by 0.31% when fed for longer than 65 days. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. (This study conducted by Larissa L. Becker, Jordan T. Gebhardt, Mike D. Tokach, Jason C. Woodworth, Robert D. Goodband, Joel M. DeRouchey, Jenna A. Seltzer, Roger A. Arentson, Michael Shields, and Christopher L. Puls.)



ASI Faculty Highlight



Teresa Douthit (douthit@ksu.edu or 785-532-1268) **Professor- Equine Nutrition**

A native of St. Francis, Kansas, Teresa Douthit was raised on a farm that produced a variety of crops and registered horned Hereford cattle. While in St. Francis, Dr. Douthit showed horses, was active in 4H and FFA, and was a member of several state champion judging teams.

Dr. Douthit then judged livestock at Butler County Community College and later at KSU. She was also on the K-State Horse Judging Team that won the Congress in 1998. She graduated summa cum laude from KSU with a degree in animal science in 1999. She then completed an MS under Dr. Randel Raub in equine nutrition. While working on her MS, Teresa was an assistant coach for the KSU horse judging team and helped form the very first KSU equestrian team.

Teresa went to Colorado State in 2001 for a PhD in reproductive physiology. There she coached the horse judging team to two national championships at Arabian Nationals. She worked under Drs. Gordon Niswender and Jason Bruemmer in studying luteal function in mares and ewes.

In 2004, Dr. Douthit returned to K-State to accept a joint appointment with animal science (40%) and the equestrian team (60%). After serving as head coach to the KSU varsity equestrian team and coaching the team to a Reserve National Championship (along with producing several national champion riders), Dr. Douthit changed gears and

became a full-time faculty member in the ASI department. In November 2006, she became an Assistant Professor in Equine Nutrition here at K-State. She now teaches Principles of Feeding (ASI 220), Horse Science (ASI 521), Monogastric Nutrition (ASI 675), Equine Nutrition (ASI 678) and Equine Exercise Physiology (ASI 695).

Her current appointment is 70% teaching and 30% research. Dr. Douthit's research program has focused on hindgut function in the horse.

Dr. Douthit was elected to serve on Faculty Senate to be President Elect for 2023-24, President for 2024-25, and Past President for 2025-26.



Justin Waggoner (jwaggon@ksu.edu or 620-275-9164) **Professor & Beef Systems Extension Specialist**

Justin Waggoner was hired as the Beef Systems Specialist at Kansas State University's Southwest Area Extension Office in Garden City. Waggoner was raised on his family's farm in central, Kansas and obtained his Bachelor's (2000) and Master's (2001) degrees in Animal Science from Kansas State University. He completed his Doctorate in Ruminant Nutrition at New Mexico State University in 2007, where his work evaluated the impacts of morbidity on performance and profitability in feedlot cattle and nutrient utilization in stressed cattle.

Waggoner assists beef cattle producers in all sectors of the industry by providing them with information regarding nutritional and management strategies that improve profitability. Waggoner also continues pursuing his research interests regarding the influence of nutrition and management practices on cattle health and performance.

"As a Kansas native, I am excited about the opportunity to serve beef cattle producers and county agents in Southwest Kansas."

Waggoner hopes to assist beef cattle producers in all sectors of the industry by providing them with information regarding nutritional and management strategies that improve profitability. Waggoner also intends to continue pursuing his research interests regarding the influence of nutrition and management practices on cattle health and performance.

*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*