



K News from KSU Animal Sciences

☞ The **K-State Fall Ranch Management Seminar Series** will be hosted on Tuesday, October 26 in Cassoday, KS and Wednesday, November 10 in Larned, KS. The 2021 Fall Ranch Management Seminar series includes presentations focused on enhancing profit in beef production and a “Town Hall” question and answer session where producers can ask questions to local/district and state extension specialists. The schedule includes:

- 5:30 p.m. Meal
- 6:00 p.m. Town Hall: What’s on your mind? Open questions and answers
- 6:30 p.m. Late Fall Supplementation Programs for Your Cow Herd
Justin Waggoner, KSU Extension Specialist
- 6:50 p.m. Forage Sampling is Important - *District and County Agents*
- 7:10 p.m. Why Vaccines Seem to Fail - *Greg Hanzlicek, KSU Clinical Associate Professor*
- 7:30 p.m. Alternative Meats Discussion and Tasting - *Lane Egger, KSU Meat Science Extension Assistant*
- 8:00 p.m. Wrap-Up

Please RSVP to your selected location contacts by at least a week prior to the event. Registration fees and payment forms may vary by site. Online updates and more information about the series can be found at www.KSUBeef.org. If necessary, the option to conduct the meetings virtually will be made by the RSVP date for each respective location.

For more information, contact Dale Blasi (785-532-5427; dblasi@ksu.edu).

☞ **Make plans now to attend the 2021 KSU Swine Day.** The 2021 KSU Swine Day will be hosted Thursday, November 18, at the KSU Alumni Center. The schedule for the day includes:

- 8:00 a.m. – 4:00 p.m. Trade Show
- 9:15 a.m. Welcome
Dr. Mike Day, Department Head, Animal Sciences and Industry
- 9:30 a.m. Latest Update on K-State Applied Swine Nutrition Research: 15-minute rotation including topics on Swine Nutrition, Feed Safety and Feed Processing
K-State Swine Faculty
- 11:30 a.m. Lunch with Trade Show
- 1:30 p.m. Latest Update on K-State Applied Swine Nutrition Research (continued)
- 2:00 p.m. Swine Health Improvement Plan
Dr. Rodger Main, Director at Iowa State University Veterinary Diagnostic Laboratory
- 2:30 p.m. Adapting to a Changing Swine Industry Landscape
Dr. Jon De Jong, President, Pipestone Nutrition, Pipestone, MN
- 3:00 p.m. Question and Answer Session
- 3:30 p.m. Reception with K-State Ice Cream

Pre-registration fee is \$25 per participant by November 10, with registration at the door \$50 per participant. There is no charge for any students if they are pre-registered. The complete schedule and online registration information can be found at www.KSUswine.org. For more information, contact Lois Schreiner at lschrein@ksu.edu or 785-532-1267.

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October 2021 issue



UPCOMING EVENTS...

↪ The national, multi-species youth livestock quality assurance program, **Youth for the Quality Care of Animals (YQCA)**, launched its fifth year of the program on October 1. Therefore, a new set of educational modules are now available for youth to complete. Extension Agents and Ag Teachers who requested to become certified instructors to teach face-to-face classes should have received an email the first week of October. The training is completed entirely online, through an instructor's account. Once the certification process is complete, approved instructors will receive the 2021-2022 curriculum via email and are welcome to begin teaching classes. The YQCA Board released some important reminders for instructors earlier this month. The first being that instructor-led courses may not be taught virtually. Members who would like to participate in an online training should complete the web-based course. Since Kansas has a special agreement with YQCA regarding 7-year-olds, those youth may participate in an all ages instructor-led course, with a parent/guardian, to receive their certification. Youth may complete the online training for \$12/child or participate in an instructor-led session for \$3/child. The test-out option is only available for youth who are 12 or 15 as of January 1. All participants must register and pay through the YQCA site, regardless of the type of training. A young person's YQCA certification is valid for one year, so youth need to re-certify annually. The Kansas State Fair Grand Drive and KJLS are expected to continue requiring all exhibitors to complete YQCA to be eligible to exhibit in the 2022 shows. Youth will need to re-certify prior to nomination (market animals and commercial females) or entry (those only showing registered breeding females). For more information, contact Lexie Hayes (adhayes@ksu.edu; 785-532-1264).

↪ **KSU ASI HEADLINES:** For highlights from September, visit the K-State Department of Animal Sciences and Industry Facebook page at <https://www.facebook.com/watch/?v=2072260199589304&ref=sharing> or YouTube at <https://www.youtube.com/watch?v=4KH3lYqIZwk>.

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
October 15, 2021	K-State ASI Family & Friends Reunion	Manhattan
October 26, 2021	K-State Fall Ranch Management Seminar	Cassoday
November 10, 2021	K-State Fall Ranch Management Seminar	Larned
November 18, 2021	K-State Swine Day	Manhattan

WHAT'S NEW...

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

“Be a Better Coach in the Workplace”

Being a manager and managing people isn't easy, especially when an employee or group of employees' performance needs improvement. The goal of coaching is to improve the quality of the work of the employee or group and is not necessarily part of a disciplinary action (although it is often associated with it). Coaching in the workplace can be an effective way to address issues that limit performance. Below are a few tips from www.thebalancecareers.com on coaching in the workplace.

- State the issue or the problem directly. Keep the focus on the issue or problem and not the person.
- Involve the employee(s) in the process. Asking the employee or group for help in creating a solution is a great way to show you have confidence in them.
- Identify what issues or roadblocks exist that limit the employee or group's performance. The most common issues are time, additional training, or resources.
- Come up with a plan that identifies specific actions that need to be done to address the issue by everyone involved (including the manager).
- Schedule time for a follow-up conversation. Feedback is essential, but should be positive.

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



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

“Forage Analysis: What Numbers Do I Need?”

One of the more common questions I receive regarding analytical testing of forages and other feedstuffs is “I have the sample, now what do I test for or what analysis package should I select?”

The basic components that nutritionists need to evaluate a feedstuff or develop a ration are dry matter or moisture, crude protein, an estimate of the energy content of the feedstuff [Total Digestible Nutrients (**TDN**), Net Energy for Maintenance (**NEm**), Net Energy for gain (**NEg**)], and the macro minerals, Calcium and Phosphorous. These are the most basic numbers that are required, but including some additional analyses in the report can give us additional insight into the quality of the feedstuff or improve our ability to predict animal performance, which is the primary reason we analyze feedstuffs. I recommend that the report include acid detergent fiber (**ADF**) and neutral detergent fiber (**NDF**). The amount of NDF in forage reflects the amount of cell wall contents (hemicellulose, cellulose, and lignin) within the sample. The NDF fraction is often associated with the respective bulkiness of forage and is correlated with dry matter intake of the forage or feedstuff. Therefore, the amount of NDF may be used to estimate the expected dry matter intake associated with the forage. The ADF number represents the amount of cellulose and lignin within the forage and is correlated with the respective digestibility of the forage. In general, a higher ADF value is associated with forage that has a greater proportion cellulose and lignin and would likely be more mature. Additionally, the ADF fraction is used to calculate the energy estimates TDN, NEm, and NEg that appear on the report. There are a number of different mathematical equations that the testing laboratory may use to calculate these numbers, based on the type of sample (corn silage, alfalfa, grass hay, etc.). If the ADF is included in the report, the nutritionist can adjust or recalculate the energy estimates if necessary.

If the forage will be fed in combination with a byproduct feed such as wet distiller's grain, including an analysis for sulfur can be beneficial if the forage will be used in a growing or feedlot ration. Additionally, if the forage is a known nitrate accumulator (forage sorghums, sudangrass) or may have been stressed due to drought, including a nitrate analysis should always be considered, especially if the forage will be fed to pregnant cows.

Most analytical laboratories have a number of different analysis packages which encompass the most common procedures or numbers that a nutritionist or producer needs to know about their feeds. These packages will typically include the basic procedures (DM, CP, TDN) and then add on specific analyses such NDF, or the Macrominerals (Ca, P, Mg, K, Na, Cl, S). Some laboratories may group analysis packages by the type of sample (Forage vs. mixed ration) or production purposes (dairy vs. beef).

The objective of analytical testing of forages and feedstuffs is to improve our ability to meet the animal's nutrient requirements and ultimately predict animal performance. The unequivocal best method of evaluating the quality of a feedstuff is feeding the feedstuff to an animal and evaluating performance over a set period of time, under a specific set of conditions. Since that would not be cost effective or timely, analytically evaluating feedstuffs in a laboratory is the next best thing and although it is not perfect, it is unequivocally better than the “this looks like really good stuff” method of evaluating feedstuffs.

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

WHAT'S NEW...

- ☞ **Assistant or Associate Professor, Extension Cow-Calf Specialist (Job #511436)** - The Department of Animal Sciences and Industry is the largest department (approximately 1,100 undergraduates and 150 graduate students) in Kansas State University's College of Agriculture. We are seeking applicants for a 12-month, tenure-track position (70% Extension, 30% 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 and impactful extension program addressing issues facing the Kansas and U.S. beef cow-calf industry. Research focus will be consistent with the successful individual's expertise, and participation in interdisciplinary research and extension team efforts is strongly encouraged. Kansas State University cow/calf resources include the Department of Animal Sciences and Industry's commercial cow/calf and purebred herds located on campus, as well as two commercial herds located at Research and Extension Centers in Hays and Parsons, Kansas. Review of applications begins: October 31, 2021. For more information, contact Dale Blasi, Search Committee Chair, at 785-532-5427 or dblasi@k-state.edu. To apply, go to <https://careers.pageuppeople.com/742/cw/en-us/job/511436/assistant-or-associate-professor>.
- ☞ **Relationships Among Terminal Traits and Sale Prices of Red Angus Bulls Sold at Auction From 2017 Through 2019** - The objective of this study was to evaluate the influence of terminal traits in the form of selection indices and expected progeny differences on the sale price of Red Angus Bulls sold at auction from 2017 through 2019 across the United States. Information describing factors about Red Angus bulls marketed through auctions were obtained from the Red Angus Association of America in an electronic format. Data were collected for 21,362 Red Angus bulls offered for sale from 2017 through 2019. Multiple regression models were developed using backward selection procedures to examine the effect of terminally related genetic factors in the form selection indices and expected progeny differences on bull sale price. Various terminal factors in the form of selection indices and expected progeny differences were significant factors influencing Red Angus bull sale price. Sale price was found to be positively associated with GridMaster Index. Results indicated significant relationships between sale price and various expected progeny differences including birth weight expected progeny difference, marbling score expected progeny difference, carcass weight expected progeny difference, ribeye area expected progeny difference, and 12th rib fat thickness expected progeny difference. However, relatively low R² values across both models indicating that only a small amount of price variation was accounted for with these factors. Other factors likely affecting sale price were breeder reputation and visual aspects of bull quality.
- The Bottom Line...** In addition to genetic factors, buyers may be considering other characteristics not captured within this data such as physical attributes, marketing tactics, and breeder reputation. Continued research and understanding of the various terminal factors affecting beef bull sale price may prove valuable to the beef industry. More information is available on this experiment and others in the KSU Cattlemen's Day report at www.KSUBeef.org. (This study conducted by M.J. Smith, K.E. Fike, M.E. King, E.D. McCabe, G.M. Rogers, and K.G. Odde.)
- ☞ **Effects of Timing and Amount of Feed Prior to Farrowing on Sow and Litter Performance Under Commercial Conditions** - A total of 727 mixed parity sows were used to evaluate the effects of timing and size of meals before farrowing on sow and litter performance. Upon entry to the farrowing house, sows were blocked by weight within parity and allotted to one of three feeding management strategies until farrowing: 1) 6.0 lb lactation diet (1.15% standardized ileal digestible lysine and 1,150 kcal/lb NE) once daily at 0700 h; 2) 4 daily meals of 1.5 lb (0100 h, 0700 h, 1300 h, 1900 h); 3) ad libitum lactation diet and encouraged to consume feed at 0100 h, 0700 h, 1300 h, and 1900 h. After farrowing, all sows were provided lactation diet ad libitum until weaning. Data was analyzed for treatment effects within parity category in a mixed model with block as a random effect. Feeding sows ad libitum before farrowing tended to reduce sow body weight loss and reduce backfat loss from entry into the farrowing house until weaning compared to sows fed 4 daily meals, with sows fed once daily intermediate. Litter gain from 24 h to weaning tended to be greater in sows fed ad libitum or 4 times daily prior to farrowing compared to sows fed one meal. Piglet weaning weight increased in sows fed ad libitum before farrowing compared to those fed one meal, with those fed 4 times daily intermediate. There was no evidence for difference in farrowing duration, stillborn rate, colostrum yield, or 24 h piglet survival regardless of treatment. However, from 24 h after farrowing to weaning, sows fed one daily meal prior to farrowing had an increased percentage of fall-behind pigs compared to sows fed ad libitum, and increased preweaning mortality compared to sows fed four daily meals, resulting in reduced weaned percentage compared to sows fed four daily meals. There was no evidence for difference in subsequent reproductive performance regardless of treatment.
- In conclusion...** when sows were fed ad libitum from two to three days before farrowing there was an observed improvement in sow body weight and backfat maintenance and piglet weaning weight during lactation. Increased frequency of meals prior to farrowing improved the survival of pigs to weaning compared to sows fed a single meal prior to farrowing. More information is available on this experiment and others in the KSU Swine Day report at www.KSUswine.org. (This study conducted by K.M. Gourley, A.J. Swanson, R.Q. Royall, J.C. Woodworth, J.M. DeRouchey, M.D. Tokach, S.S. Dritz, R.D. Goodband, H.I. Calderon, K.J. Milnes, and C.W. Hastad.)

WHAT'S NEW...

☞ **Impact of Storage Conditions and Premix Type on Phytase Stability** - Potential use of medium chain fatty acids (MCFA) and increased environmental temperatures and exposure time may be implemented to mitigate biological hazards in premixes and feed ingredients. The objective of Exp.1 was to determine the impact of 0, 30, 60, or 90 d storage time on phytase stability when vitamin premix (VP) and vitamin trace mineral premix (VTM) containing phytase are blended with 1% inclusion of medium chains fatty acids (MCFA; 1:1:1 blend of C6:C8:C10) or mineral oil (MO) with different environmental conditions. Treatments were arranged as a $2 \times 2 \times 2 \times 4$ factorial, with 2 premix types (VP or VTM), 2 oil types (MO or MCFA), 2 storage conditions [room temperature (RT) or high-heat, high-humidity (HTHH)], and 3 storage times (0, 30, 60, or 90 d). Samples were stored at room temperature in a temperature-controlled laboratory (approximately 72°F) for RT or in an environmentally controlled chamber (Caron model 6030, Marietta, OH) set at 104°F and 75% humidity for HTHH. The sample bags were pulled out at day 0, 30, 60 and 90 for RT condition and at day 30, 60 and 90 for HTHH condition. For Exp. 1, there were no four-way and three-way interactions among premix type, oil type, storage condition and storage time for phytase stability. There were two-way interactions for premix type \times storage condition and storage condition \times storage time. For the premix type \times storage condition interaction, the samples stored at HTHH had decreased phytase stability compared to those stored at RT; however, the VTM containing phytase had greater phytase stability as compared to VP containing phytase when they were stored at HTHH. There was no difference for phytase stability between VP and VTM containing phytase when they were stored at RT. For the storage condition \times storage time interaction, there was a significant decrease in phytase stability as the storage time increased from 30 to 90 days when the premixes containing phytase were stored at HTHH, but not when stored at RT. The oil type did not affect phytase stability when premixes containing phytase were added as either MO or MCFA. For Exp. 2, treatments consisted of a 2×2 factorial, with 2 premix types (VP or VTM) and 2 oil types (MO or MCFA). All treatments were heated in an environmentally-controlled chamber at 140°F and 20% humidity. The sample bags were pulled out after they were stored for 11 hours and 48 min. For Exp. 2, there was no interaction or main effects of premix type and oil type. In conclusion, phytase was stable when mixed with both VP and VTM premix and stored at 48.5°F with 28.4% RH. The phytase stability was dramatically decreased when the phytase was mixed with premixes and stored at 87°F with 78.8% RH. Also, MCFA did not influence phytase degradation during storage up to 90 days and in the heat pulse process. The phytase activity was decreased to a stability of approximately 80% after the premixes were heated at 140°F for approximately 11 hr and 48 min.

In conclusion... If both MCFA and heat pulse treatment have similar efficiency at neutralizing or reducing the target pathogen, the process of chemical treatment could become a more practical practice. More information is available on this experiment and others in the KSU Swine Day report at www.KSUswine.org. (This study conducted by M. Saensukjaroenphon, C.E. Evans, C.K. Jones, J.T. Gebhardt, J.C. Woodworth, C.R. Stark, J.R. Bergstrom, and C.B. Paulk.)

☞ **Evaluation of Conditioning Temperature and Die Specifications on Nursery Pig Performance** - The objective of this study was to determine the effects of conditioning temperature and die specifications when pelleting diets on the growth performance of nursery pigs. A total of 315 barrows were used in a 35-d growth trial. Upon arrival, pigs were weighed and assigned to pens in a completely randomized design with 5-pigs per pen, and each pen was randomly assigned to 1 of 7 dietary treatments with nine replications per treatment. Treatments consisted of a mash control (MC) and six pelleted diets manufactured using two different pellet dies (length/diameter [L:D]: 6.7 and 2.7) and 3 different conditioning temperatures (low, medium, high). Conditioning temperatures for phase 1 diets pelleted using the 6.7 L:D die were 80, 100, and 120°F and for the die with a L:D 2.7 were 100, 120, and 140°F for the low, medium, and high, respectively. Phase 2 conditioning temperatures for diets pelleted using the die with a L:D of 6.7 were approximately 120, 140, and 160°F and for the 2.7 L:D die were 140, 160, and 180°F for the low, medium, and high, respectively. Diets were fed in three phases as follows, Phase 1: d 0 to 10, Phase 2: d 10 to 25, and Phase 3: d 25 to 35. During phase 3 all pigs were fed a common mash diet. Overall, from d 0 to 35, similar ADG was observed for pigs fed the MC or pelleted diets with the exception of the diet pelleted at the low conditioning temperature using the 6.7 L:D die which had decreased ADG compared to MC. When pelleting diets using the 2.7 L:D die, there was a tendency for increased ADG in pigs fed diets conditioned at increasing temperatures, with the medium temperature having the greatest ADG. There was a tendency for increased ADG in pigs fed diets pelleted using the 2.7 L:D die compared to the 6.7 L:D die. Pigs fed pelleted diets, with the exception of the medium temperature on the 2.7 L:D die, had decreased ADFI compared to the MC. However, diets pelleted using the 6.7 L:D die as well as the diet manufactured at the medium conditioning temperature on the 2.7 L:D die had improved F/G compared to the MC diet. Additionally, pigs fed diets manufactured using the 6.7 L:D die had decreased ADFI compared to those fed diets pelleted using the 2.7 L:D die. In summary, pelleted diets showed poorer ADG, but decreased ADFI and improved F/G and no differences in final BW compared to the MC. Additionally, there was also a numerical decrease in pellet quality when treatments were manufactured on the 2.7 L:D die; however, these differences did not result in a growth performance response due to conditioning temperature or die.

In conclusion... overall increasing conditioning temperature decreased available lysine and pigs fed pelleted diets had poorer ADG, but decreased ADFI and improved F/G compared to those fed the MC. More information is available on this experiment and others in the KSU Swine Day report at www.KSUswine.org. (This study conducted by M.B. Braun, K.M. Dunmire, C.E. Evans, C.R. Stark, J.C. Woodworth, and C.B. Paulk.)

ASI FACULTY SPOTLIGHT...



Teresa Douthit (douthit@k-state.edu; 785-532-1268)

Professor, Equine Nutrition

A native of St. Francis, KS, Teresa Douthit was raised on a farm that produced a variety of crops and registered horned Hereford cattle. She graduated *summa cum laude* from KSU with a BS in animal science, followed by an MS under Dr. Randel Raub in equine nutrition.

She completed her formal education with a PhD in reproductive physiology from Colorado State University.

Dr. Douthit returned to K-State to accept a joint appointment with ASI (40%) and the Athletic Department (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. She is now a full professor with a 70% teaching and 30% research appointment. She teaches Principles of Feeding, Horse Science, Monogastric Nutrition (online), Equine Nutrition, and Equine Exercise Physiology. She also advises about 50 undergraduate students and supervises the KSU horse judging team and the equine evaluation courses. Dr. Douthit's research program has focused on hindgut function in the horse. Dr. Douthit is also Chair of the Ag Caucus for Faculty Senate and active on the ASI Teaching Advisory Committee. Dr. Douthit, her husband Tom Svoboda, and their children live south of Junction City. They have a small feedlot, farming, and heifer development operation, and they compete in a variety of horse shows throughout the year.



Karol Fike (karol@k-state.edu; 785-532-1104)

Teaching Associate Professor

Karol Fike was raised on a diversified crop and livestock (beef cattle and sheep) operation in eastern Iowa. She completed her B.S. degree in Animal Sciences at Iowa State University in 1991. Karol continued her education at the University of Nebraska-Lincoln, earning her M.S. and Ph.D. studying reproductive physiology in beef cattle. Karol has a passion for teaching and working with students. She taught courses in Anatomy and Physiology, Human Nutrition, and Biology at Western Iowa Tech Community College. She spent four years on faculty at Ohio State University teaching Introductory Animal Sciences, Animal Products, advising students, and coordinating the undergraduate internship program. Here at K-State, Dr. Fike advises students, teaches Farm Animal Reproduction (ASI 400), Animal Sciences Career Preparations (ASI 480), Physiology of Reproduction in Farm Animals (ASI 710), and she coordinates the

departmental internship program and K-State Feedlot Boot Camp and Teaching program. She also provides leadership to the Animal Sciences Academic Quadrathlon competition. Research interests include beef cattle reproductive physiology and management and evaluation of factors affecting sale price of beef calves marketed via video auction. Karol and her husband Gary have 3 children, Jackson, Marshall, and Grace. They have a few cows on their acreage near Westmoreland, Kansas.

WHAT PRODUCERS SHOULD BE THINKING ABOUT

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN DECEMBER...

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

Cow herd management for spring-calving cows

- ☑ In late fall and early winter, start feeding supplement to mature cows using these guidelines:
 - Dry grass — 1-2 pounds (lb.) per day of a 40% crude protein (CP) supplement
 - Dry grass — 3-4 lb. per day of a 20% CP supplement
 - Dry grass — 10 lb. good nonlegume hay, no supplement needed
- ☑ Compare supplements based on cost per pound of nutrient.
- ☑ Utilize crop residues.
- ☑ Strip-graze or rotate cattle to improve grazing efficiency.
- ☑ Cows in average body condition can be grazed at 1-2 acres per cow for 30 days, assuming normal weather. Available forage is directly related to grain production levels.
- ☑ Limiting nutrients are usually rumen degradable protein, trace minerals and vitamin A.
- ☑ Control lice.

General management

- ☑ Document your cost of production by participating in Standardized Performance Analysis (SPA) programs.
- ☑ Review management decisions; lower your costs per unit of production.
- ☑ Check your financial management plan and make appropriate adjustments before the end of the year.

*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.*