



News from KSU Animal Sciences

October, 2017

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UPCOMING EVENTS...

- **Make plans now to attend the 2017 KSU Swine Day.** The 2017 KSU Swine Day will be hosted Thursday, November 16, 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. Ken Odde, Department Head, Animal Sciences and Industry*
 - 9:30 a.m. Latest update on K-State Applied Swine Nutrition Research – K-State Swine Faculty
 - 11:45 a.m. Lunch with Trade Show
 - 1:30 p.m. KSU Disease Research Update – Emerging Diseases, PRRSV, Microbiome, Virus Survival in Feed - *Dr. Megan Niederwerder, Dr. Bob Rowland, and Dr. Dick Hesse, KSU*
 - 2:30 p.m. Transitioning to Loose-Housed Gestating Sows *Dr. Hyatt Frobose, US Territory Manager and Swine Nutrition Specialist, JYGA Technologies*
 - 3:30 p.m. Question and Answer Session
 - 4:00 p.m. Reception with K-State Ice Cream
 Pre-registration fee is \$25 per participant by November 9; with registration at the door \$35 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.
- The 2018 **K-State Swine Profitability Conference** has been scheduled for Tuesday, February 6, 2018, at the Stanley Stout Center, Manhattan, KS. Watch for more details coming soon at www.KSUswine.org.
- Save the Date! The **Kansas Junior Beef Producer Day** has been scheduled for March 24, 2018 in Weber Arena at Kansas State University. Mark your calendars now and plan to join us for this fun and educational day dedicated to youth beef projects. Registration details and the tentative program will be released later this fall.

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
October 13, 2017	AS&I Family and Friends Reunion	Manhattan
November 16, 2017	KSU Swine Day	Manhattan
February 6, 2018	KSU Swine Profitability Conference	Manhattan
March 24, 2018	Kansas Junior Beef Producer Day	Manhattan



WHAT'S NEW.....

Management Minute "Are Your Position Descriptions Saying the Right Things?"

☞ **Management Minute** – Justin Waggoner, Ph.D., Beef Systems Specialist ***"Are Your Position Descriptions Saying the Right Things?"***

In 2015, Millennials surpassed the Baby Boomers as the largest generation in the American workforce according to various sources. The question then becomes how you as employer or manager reach the most qualified members of this generation for your open positions.

All position descriptions should be concise, including the job title, a summary of the general responsibilities and the minimum qualifications and skills required for the position. However, millennials are generally looking for more. This generation views themselves as part of a "greater good" and want to make the workplace, the community and the world a better place. Adding a brief description of the "why your company does what it does" and how this position contributes to that "why" is a great addition to a generic job description that appeals to the "greater good" this generation is looking for.

Generational research indicates that millennials are also interested in the opportunity to learn and grow within a position. Given that this group is relatively new to the workforce, statements such as "5 years of previous experience preferred or required" are unattractive to those that meet the minimum requirements or have the skills but limited work experience.

Millennials are generally viewed as an educated and well-connected generation that wants to know "what else they can do outside of work." So if your organization is involved in community organizations, providing links to more information about those activities or the community might also be appealing. The ultimate goal of a job description or posting in the digital era is to generate that second "click" that leads the right person to apply for your position.

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

Feedlot Facts "Weaning: Help Your Calves Make the Transition"

☞ **Feedlot Facts** – Justin Waggoner, Ph.D., Beef Systems Specialist ***"Weaning: Help Your Calves Make the Transition"***

Weaning is our opportunity as cattle producers to prepare calves for the next phase of the beef production cycle. Weaning represents a transition and how well we prepare calves for the transition is essential to the outcome.

The goal of weaning is to produce a healthy calf that is comfortable without its dam, readily consumes feed and has successfully acclimated to a new environment. One of the essential transitions a calf has to make during weaning is the transition from mother's milk and grazed forage to grazed forage and supplement, hay and supplement, or a ration containing novel feeds delivered in a bunk.

Feeding both cows and calves a small amount of the supplement or weaning ration prior to weaning, in the weaning pen or pasture can be used to help acclimate calves to both the feeds and the environment. Additionally, feed intake of weaned calves is often low (1 to 1.5% of bodyweight, dry basis) immediately following weaning.

Calves also have relatively high nutrient requirements. Thus, the weaning diet must be nutrient dense to meet the nutrient requirements of the calves at the expected intakes previously mentioned. Unfortunately, the dry feeds calves are often most familiar with (typically grass hays) are not necessarily nutrient dense. At the K-State Agriculture Research Center, Hays, KS, a feeding management protocol for weaning calves has been developed that works well for transitioning weaned calves to a total mixed ration.



Feedlot Facts – “Weaning: Help Your Calves Make the Transition” (cont.)

The protocol is summarized in the table below. Essentially, high-quality grass hay and the weaning ration are offered each at 0.5% of the calves’ current bodyweight, dry basis, on the day of weaning. The weaning ration is placed in the bottom of the bunk and the hay is placed on top. The amount of the weaning ration is steadily increased, while the amount of hay offered remains constant. In addition, on day 4 the hay is placed on the bottom of the bunk. Over a period of 7-10 days the dry intake of the calves is steadily increased and should reach approximately 2.2-2.5% of the calves bodyweight by 10-14 days following weaning.

Table 1. K-State ARC-Hays Weaning Feed Management Protocol*

Day	Weaning Diet	Hay	Feedstuff Order
1	0.5% Bodyweight	0.5% Bodyweight	Diet bottom/hay on top
2	0.7% Bodyweight	0.5% Bodyweight	Diet bottom/hay on top
3	0.9% Bodyweight	0.5% Bodyweight	Diet bottom/hay on top
4	1.1% Bodyweight	0.5% Bodyweight	Hay bottom/diet on top
5	1.3% Bodyweight	0.5% Bodyweight	Hay bottom/diet on top
6	1.5% Bodyweight	0.5% Bodyweight	Hay bottom/diet on top
7	1.8% Bodyweight		
8	---Increase diet by 0.25 to 0.50 lb per calf/day---		

*Remove any uneaten feedstuffs before feeding current days ration

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



The Department of Animal Sciences and Industry is seeking applicants for the position of **Research Assistant at its Cow-Calf Unit**. This is a full-time, Unclassified Staff position (job no. 502427). The successful candidate will be responsible for the cattle and the handling of those animals, data collection, data processing and laboratory analyses; training graduate and undergraduate students in routine field and laboratory procedures used to conduct range-based livestock research; and maintaining records dealing with worker training, worker safety, animal welfare, regulatory compliance, research documentation and herd productivity. This position is primarily responsible for management of herd health, pasture resources and undergraduate student workers. Research at the Cow-Calf Unit and care of the animals under our management occurs in locations remote from campus and communication with the supervisor is not always possible. The Research Assistant must be able to make sound, independent judgments in the interest of animal welfare, research integrity and worker safety in order to ensure the success of our mission. Screening begins immediately and will continue until filled. To apply, go to <http://careers.k-state.edu/cw/en-us/job/502427/research-assistant>. For more information, contact Dr. KC Olson, Search Committee Chair, at 785-532-1254 or kcolson@ksu.edu.



Crane Joins K-State Animal Sciences and Industry Department as Sheep and Meat Goat Specialist - Dr. Alison Crane has been hired as assistant professor and extension sheep and meat goat specialist for the Kansas State University Department of Animal Sciences and Industry. Crane was born and raised in Warrior, Alabama. She received her bachelor’s degree from Berry College, her master’s in ruminant nutrition from North Dakota State University (NDSU) and recently a doctorate in reproductive physiology from NDSU.

At K-State, Crane’s appointment will be 70% extension and 30% teaching. In her role, she will develop and lead extension, teaching and applied research programs in sheep and meat goat production and management; oversee the K-State Sheep and Meat Goat Center; and teach undergraduate sheep and meat goat science, advise undergraduate and graduate students and coach the collegiate wool judging team.

Crane will join the ASI faculty on October 23, at that time you can reach her at arcrane@ksu.edu.



IRM Redbooks for Sale – The 2018 IRM Redbooks are here and will be sold on a first-come, first-served basis. The price is \$6/book for orders of 10 or more; \$6.25/book for orders of less than 10 which includes postage. To order your supply of redbooks, please contact Lois Schreiner (lschrein@ksu.edu; 785-532-1267).

↪ **A Survey of Dry Processed Corn Particle Size and Fecal Starch in Midwestern U.S. Feedlots** – The purpose of this study was to provide the feedlot industry with an indication of average particle size distribution from current manufacturing practices of dry processed corn, fecal starch content, and co-product and roughage inclusion levels in Midwestern feedlots. Feedlots were asked to participate in a survey to evaluate dry-rolled corn processing practices, processed corn particle size distribution, and fecal starch content in finishing cattle. Feedlots were located in the central U.S. states of Kansas, Nebraska, South Dakota, Minnesota, Colorado and Iowa. Samples of dry processed corn and finishing diet were collected from each feedlot, along with samples of freshly voided feces collected from three pens of finishing cattle with samples collected from three animals per pen with a total of nine samples per feedlot composited. The survey was conducted from November 2013 through March 2014. Sample collection included a dry processed corn sample, diet sample, and fecal samples. Dry processed corn samples were collected from the ground corn storage pile. Grain samples were typically collected from three locations in the pile from approximately 5.9 in deep. If corn was ground directly into the mixer truck, the sample was collected in the mixer truck during loading. Diet samples were collected across five locations in the bunk immediately after feeding. Diet samples were placed in a 20 quart bucket, hand-mixed, and poured onto a clean concrete surface. Piles were quartered, and two aliquots of diet were sub-sampled from two opposite quarters, placed in a plastic bag and frozen. Diet samples were analyzed at a commercial lab for moisture, dry matter, crude protein, acid detergent fiber, neutral detergent fiber, fat, calcium, phosphorus, potassium, and magnesium.

Bottom Line... These results do not directly compare dry-rolled corn particle size and fecal starch concentration, but the combined results suggest that dry-rolled corn particle size may affect total tract starch digestion. Diets formulated with a higher co-product level could include more finely processed grain in the diet. Co-products fed at higher levels could dilute the concentration of rapidly fermentable starch found in finely processed grain, thus achieving greater total tract starch digestion without affecting rumen function. For more information contact, Dan Thomson (785-532-4254; dthomson@ksu.edu) or Bob Weaber (785-532-1460; bweaber@ksu.edu).

↪ **Relationship Between Trauma Sustained at Unloading and Carcass Bruise Prevalence in Finished Cattle at Commercial Slaughter Facilities** – An observational study was performed to determine whether a relationship exists between trauma experienced at unloading and carcass bruising in finished beef cattle at commercial slaughter facilities. A total of 9,860 finished cattle were observed at unloading at commercial slaughter facilities. Traumatic events were recorded as cattle exited trailers onto the unloading docks at each facility and were categorized by location in which they occurred (back, shoulder, rib, or hip). Carcass bruising was observed on the same animals after the hide had been removed using the Harvest Audit Bruise Scoring System, which divided the carcass into a grid of nine sections. Bruise size was recorded as Small (<2 in. in diameter), Medium (2-6 in. in diameter), or Large (>6 in. in diameter). Bruise color was used as an exclusion factor. Yellow bruises were presumed to be more than 24 hours old, therefore were recorded, but not included in the statistical analysis. These measures were used to explore the relationship between trauma sustained at unloading and carcass bruising observed on the harvest floor.

Bottom Line... More than half of the carcasses observed in this study had at least one bruise present, and a number of carcasses had multiple bruises. More than half of the bruising observed was along the dorsal midline, or topline, of the animals (Regions 2, 5, and 8; 53.5%), where the most expensive cuts of meat are located. For more information contact, Dan Thomson (785-532-4254; dthomson@ksu.edu) or Travis O'Quinn (785-532-3469; travisquinn@ksu.edu).

↪ **Diet Formulation Method Influences the Response to Increasing Net Energy for Growing-Finishing Pigs** - The objective of this study was to compare the effects of increasing dietary net energy (NE) in growing-finishing diets with maintaining a standardized ileal digestible (SID) Lys:NE ratio or not adjusting this ratio and keeping SID Lysine (Lys) constant across increasing NE density. A total of 150 pigs (Line 600 Duroc × Line 241, DNA, Columbus, NE) were used in a 91-day trial. Pens of pigs were blocked by gender and BW before being randomly assigned to treatments with two pigs per pen and 15 pens per treatment. Treatment diets included a low-energy negative control diet and a 2 × 2 factorial arrangement of treatments with main effects of increasing dietary NE (medium vs. high) and formulation method (constant SID Lys:NE ratio vs. constant percentage SID Lys). Increasing NE increased daily NE intake and improved F/G with both formulation methods; however, ADG and HCW only increased when a constant SID Lys:NE ratio was maintained as dietary NE increased.

Bottom Line... These results demonstrate the importance of maintaining a constant Lys:NE ratio when changing the NE of the diet for growing pigs. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by D.A. Marçal, M.D. Tokach, S.S. Dritz, J.C. Woodworth, R.D. Goodband, and J.M. DeRouchey.)

↵ **Effects of Crude Protein and Amino Acid to Lysine Ratio on Finishing Pig Growth Performance and Carcass Characteristics**

Characteristics - The increased availability of synthetic amino acids has reduced the amount of intact protein sources used in swine diets. The objective of this study was to determine the effects of different CP levels and AA to Lys ratios on growth performance and carcass characteristics in late finishing pigs. A total of 1,682 pigs were used in a 25-d growth trial arranged in an unbalanced randomized complete block design with 25 pigs per pen and initially 8 or 16 pens per treatment. Dietary treatments were arranged in a 2 × 2 + 1 factorial consisting of combinations of 10.3 or 13.5% CP and 2 AA to Lys ratios plus a control diet (13.5% CP from soybean meal). The standardized ileal digestible (SID) ratios to Lys were 55% Met+Cys, 68% Thr, 17% Trp, 65% Val, 56% Ile, and 32% His for PIC (2013) and 60% Met+Cys, 68% Thr, 20% Trp, 72% Val, 55% Ile, and 37% His for the Modified ratio.

Overall, from day 0 to 25, pigs fed the control diet had increased ADG compared with pigs fed diets formulated with the PIC or Modified AA:Lys ratios. There were no statistical differences in ADFI observed between the treatments. For F/G, there was a two-way marginally significant interaction where F/G was improved for pigs fed the PIC AA:Lys ratios with 13.5% CP compared to those fed diets with 10.3% CP; however, there were no statistical differences in F/G between CP levels in pigs fed Modified AA:Lys ratios. Final BW was increased in pigs fed the control compared to pigs fed diets formulated with the PIC or Modified AA:Lys ratios. Pigs fed 10.5% CP provided by glutamic acid and glycine, regardless of AA:Lys ratio, had increased carcass yield; however, there were no statistical differences between the dietary treatments regarding HCW, backfat, loin depth, and percentage lean.

Bottom Line... In conclusion, reducing intact protein (soybean meal) decreased growth performance and the inclusion of a nitrogen source (glycine and glutamic acid) was not able to recover growth performance in this commercial study. The two amino acid ratios in the low crude protein diets evaluated in this study did not improve growth performance or carcass characteristics. More information is available on this experiment in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by M.A.D. Gonçalves, M.D. Tokach, S.S. Dritz, K.J. Touchette, J.M. DeRouchey, J.C. Woodworth, and R.D. Goodband.)

↵ **Effects of Increasing Levels of Copper from Either CuSO₄ or Combinations of CuSO₄ and a Cu-Amino Acid Complex on Growth Performance, Carcass Characteristics, and Economics of Finishing Pigs**

– A total of 1,089 pigs were used in a 105-day experiment to determine the effects of increasing added Cu from either CuSO₄ alone or a 50/50 blend of CuSO₄ and Cu-AA on growth performance, carcass characteristics, and economics of finishing pigs. All six dietary treatments contained 17 ppm Cu from CuSO₄ from the trace mineral premix. Additional treatment diets contained added CuSO₄ to provide 70 and 130 ppm total Cu or a 50/50 blend of added Cu from CuSO₄ and Cu-AA to provide 70, 100, and 130 ppm total Cu. There were 25 or 26 pigs per pen and seven replicate pens per treatment. Overall, added Cu above 17 ppm did not influence ADG; however, pigs fed 70 and 130 ppm added Cu from the 50/50 blend of CuSO₄ and Cu-AA had decreased ADFI and improved feed efficiency compared with those fed 70 and 130 ppm of added Cu from CuSO₄ only. Similar to the F/G response, pigs fed diets that contained CuSO₄ alone had poorer carcass F/G than those fed added Cu from the 50/50 blend of CuSO₄ and Cu-AA. Neither Cu source nor level influenced economics.

Bottom Line... In conclusion, these data suggest pigs fed diets that contained added Cu from CuSO₄ alone consume more feed but have poorer feed efficiency which translates into poorer carcass F/G compared to those fed a 50/50 blend of CuSO₄ and Cu-AA. Copper level did not impact growth performance. Based on our study, it appears that the 50/50 blend of CuSO₄/Cu-AA optimized feed efficiency and carcass feed efficiency of pigs marketed on a constant time basis. More information is available on this experiment in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by C.B. Carpenter, J.C. Woodworth, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, S.S. Dritz, and Z.J. Rambo.)

↵ **Effects of Increasing Space Allowance by Removing a Pig or Gate Adjustment on Finishing Pig Growth Performance**

– A total of 256 pigs were used in a 71 day growth study to compare the effects of increasing space allowance by removing a pig or gate adjustment, on finishing pig growth performance. At the initiation of the trial, pens of pigs were blocked by BW and allotted to 1 of 4 space allowance treatments. The four treatments included: 1) 9.8 ft²/pig or 2) 6.8 ft²/pig for the entire study with treatments 3 and 4 initially providing 6.8 ft², but either a gate was adjusted or the heaviest pig in the pen was removed to provide more space. By using the following equation, space adjustments were made to keep the pigs above their predicted minimum space requirement before growth is impacted: space [(m²) = 0.0336 × BW (kg)^{0.666}]. There were initially eight pigs per pen and eight pens per treatment.

From day 0 to 28, before any gate adjustments or pig removals, ADG tended to be greater for pigs allowed 9.8 ft² compared with pigs stocked at 6.8 ft². Overall, day 0 to 71, pigs allowed 9.8 ft² had greater ADG compared with pigs with all other space allowances. Removing pigs or adjusting the gating increased ADG compared to those maintained at 6.8 ft²; however, both treatments had decreased ADG compared with pigs allowed 9.8 ft². Most of the differences in ADG can be explained by differences in ADFI. Pigs allowed 9.8 ft² had greater ADFI compared with pigs allowed 6.8 ft²; however, intake was similar for pigs allowed increased space by gate adjustment to pigs allowed 9.8 ft². Pigs allowed increased space by pig removal had similar ADFI to pigs allowed 6.8 ft². Space allowance did not influence feed efficiency.

Bottom Line... In summary, as expected, pigs with 9.8 ft² grew faster and consumed more feed than pigs that were restricted in space. Furthermore, either removing a pig or adjusting the gating as pigs reached the critical *k* value influenced growth performance similarly. We speculated that along with pig growth, removing the heaviest pigs could have influenced social dynamics of the remaining pigs in the pen; however, our study indicates the performance benefit from removing the heaviest pig from the pen is primarily from the increased space allowance alone. As pigs grew to the minimum predicted space requirement and were subsequently allowed more space, performance was not similar compared to unrestricted pigs. This indicates the industry accepted minimum space prediction equation [m² = 0.0336 × BW (kg)^{0.666}] doesn't fully explain the impacts on pig performance across multiple body weight ranges. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by C.J. Holder, C.B. Carpenter, M.D. Tokach, J.M. DeRouchey, J.C. Woodworth, R.D. Goodband, and S.S. Dritz.)

AS&I Faculty Spotlight



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

Faculty Member and Undergraduate Internship Program Coordinator

Karol Fike was raised on a diversified crop and livestock (beef cattle and sheep) operation in eastern Iowa. She completed her bachelor's degree in Animal Sciences at Iowa State University in 1991. Karol continued her education at the University of Nebraska-Lincoln, earning her master's and doctorate 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 580), Physiology of Reproduction in Farm Animals (ASI 710), and she coordinates the departmental internship program (ASI 599). 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 three children, Jackson, Marshall and Grace. They have a few cows on their acreage near Westmoreland, Kansas.



Joann Kouba (jkouba@k-state.edu; 785-532-1240)

Associate Professor/Equine Physiology

Dr. Kouba was born and raised in Bellevue, Nebraska. She entered Northeast Missouri State University in 1989, majoring in Animal Science with an Equine emphasis. Following graduation, she began her graduate career in Animal Physiology at Clemson University in Clemson, South Carolina. While at Clemson, she was actively involved in their undergraduate teaching program and her thesis focused on the use of Domperidone to treat pregnant mares grazing endophyte-infected tall fescue. She then moved to Texas and started on her doctorate in Equine Reproductive Physiology at Texas A&M University. While at A&M, Dr. Kouba was also heavily involved in their undergraduate program, teaching courses in horse training, horsemanship, reproduction and management, as well as the introductory animal science labs. Her dissertation dealt with the control of prolactin secretion in

the pregnant mare, and the interaction between various reproductive hormones and endogenous opioids.

In the fall of 2001, Dr. Kouba joined the KSU faculty as the horse teaching and research specialist with an 80% teaching and 20% research appointment. Since 2001, she has taught 10 on-campus equine courses as well as two distance courses, advises 60 students annually, and mentors a number of graduate students pursuing advanced degrees with an equine emphasis. Beyond her on-campus classes, Dr. Kouba also believes in enhancing educational opportunities for students through international experiences. She has led three equine study tours, visiting England, Scotland, Ireland, Spain, Portugal and Morocco. Her research program focuses on understanding how reproduction is controlled in the mare, and the interaction between nutrition and reproductive function.

In addition to her equine interests, Dr. Kouba and her family also enjoy showing and breeding German Shepherds.

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.*