

# K News from KSU Animal Sciences

- ↪ **Kansas Junior Swine Producer Week** - This year, the junior producer days will be hosted virtually as a week-long educational series. Junior Swine Producer Week is scheduled for February 15-20, 2021. There will be two sessions hosted via Zoom on the evening of Tuesday, February 16, two on Thursday, February 18, and the remaining sessions will be presented on Saturday morning, February 20. The sessions will be recorded and shared with those who pre-register, so they may participate at their own pace and as their schedule allows. All ages and knowledge levels are invited! K-State faculty members, graduate students, and guest speakers will cover topics including selection, nutrition and feeding, meats science, health, grooming and clipping, showmanship, and the state livestock nomination process. The program will be free this year, but all attendees, including youth and adults, must register online (<https://bit.ly/KSUJrSwineWeek>). The deadline to register is February 8. A flyer, which includes more details and the tentative schedule, is posted here: <http://bit.ly/ksujrproducerdays>. For more information, contact Lexie Hayes at [adhayes@ksu.edu](mailto:adhayes@ksu.edu) or 785-532-1264.
- ↪ **Implementing Your Company's HACCP Plan** will be held February 23-25, 2021, via Zoom on-line. This workshop uses curriculum recognized by the International HACCP Alliance for meat and poultry processors. The registration fee is \$450 per person and is available on-line at <http://bit.ly/HACCPCourse>. For more information, contact Dr. Liz Boyle ([lboyle@ksu.edu](mailto:lboyle@ksu.edu); 785-532-1247).
- ↪ Plan to join us for the **2021 KSU Cattlemen's Day** hosted virtually on Friday, March 5, 2021. Visit [www.KSUbeef.org](http://www.KSUbeef.org) for online registration and more information. Thanks to our sponsors, registration is complimentary. The tentative schedule includes:
- 9:30 am Welcome - *Mike Day, KSU ASI department head*
  - 9:45 am Pandemic Effects on the US Beef Industry  
*Jayson Lusk, Purdue University distinguished professor and Ag Economics department head*
  - 10:30 am 2020 Beef Processing, Retail and Foodservice COVID-19 Insights  
*Jason Rumley, Radian Group principal*  
*Robert Norris, Radian Group director*
  - 11:15 am Reproductive Technology Resources and Current Tools  
*Sandy Johnson, KSU ASI livestock production specialist*
  - 11:35 am Pandemic Effects on Small Kansas Processors  
*Liz Boyle, KSU ASI extension meat science specialist*
  - Noon Question-and-Answer Session
- For more information, contact Dale Blasi ([dblasi@ksu.edu](mailto:dblasi@ksu.edu); 785-532-5427) or Ken Odde ([kenodde@ksu.edu](mailto:kenodde@ksu.edu); 785-532-1227).

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February 2021 issue



# UPCOMING EVENTS...

- ✎ The **44<sup>th</sup> Annual Legacy Bull and Heifer Sale** will be March 5, 2021. Visit [www.asi.ksu.edu/bullsale](http://www.asi.ksu.edu/bullsale) for more information, as it becomes available, including the sale catalog.
- ✎ **Kansas Junior Meat Goat Producer Week** - This year, the junior producer days will be hosted virtually as a week-long educational series. Junior Meat Goat Producer Week is scheduled for March 15-20, 2021. There will be two sessions hosted via Zoom on the evening of Tuesday, March 16, two on Thursday, March 18, and the remaining sessions will be presented on Saturday morning, March 20. The sessions will be recorded and shared with those who pre-register, so they may participate at their own pace and as their schedule allows. All ages and knowledge levels are invited! K-State faculty members, graduate students, and guest speakers will cover topics including selection, nutrition and feeding, livestock guardian dogs, health, grooming and clipping, showmanship, and the state livestock nomination process. The program will be free this year, but all attendees, including youth and adults, must register online (<https://bit.ly/KSUJrMeatGoatWeek>). The deadline to register is March 8. A flyer, which includes more details and the tentative schedule, is posted here: <http://bit.ly/ksujrproducerdays>. For more information, contact Lexie Hayes at [adhayes@ksu.edu](mailto:adhayes@ksu.edu) or 785-532-1264.
- ✎ **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](mailto:adhayes@ksu.edu)). This includes virtual events, spring shows, showmanship clinics, skillathons, field days, etc. These opportunities will be included on the youth livestock website. Information on the site is updated as 2021 opportunities are received directly from county offices.
- ✎ Watch the **KSU ASI Headlines** for January 2021 and find out the latest happenings in the department. Follow the link at <https://youtu.be/cxAvarbpPIM> . For questions about the department, contact Dr. Mike Day, ASI Department Head at 785-532-1259; [mlday@k-state.edu](mailto:mlday@k-state.edu).

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
February 15-20, 2021	Junior Swine Producer Week – Virtual event	
February 16, 2021	K-State Winter Ranch Management Seminar	Beaumont, KS
February 16, 2021	K-State Winter Ranch Management Seminar	Council Grove, KS
February 23-25, 2021	Implementing Your Company’s HACCP Plan	
March 5, 2021	KSU Cattlemen’s Day – Virtual event	
March 5, 2021	Legacy Bull and Heifer Sale	
March 15-20, 2021	Junior Meat Goat Producer Week – Virtual event	

# WHAT'S NEW...

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

## *“Winter Safety”*

January and February are some of the coldest months of the year and often bring extreme weather conditions that can be challenging for agricultural workers that work in the elements. Falls, slips, and trips continue to be one of the leading causes of workplace injuries (U.S. Bureau of Labor Statistics, 2019) and although falls and slips can occur anytime, extra precautions are required during the winter months. Hypothermia is real, especially for those that work outside for extended periods. Safety experts suggest that clothing be worn in layers to retain body heat. However, how and what type of layers those clothes are made of is important. At least three layers are recommended, cotton or other breathable synthetic fiber should be the first or base layer. Wool or down is suggested for the middle layer, and the third or outer layer should be composed of material that will block the wind, such as the nylon outer shell found on many ski-jackets.

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

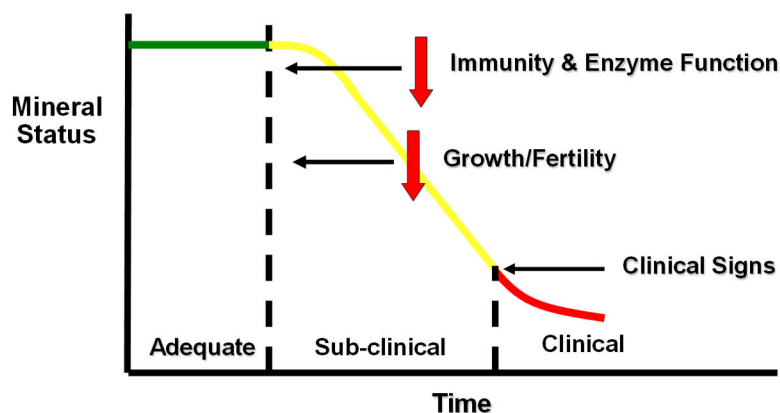
The U. S. Department of Labor, OSHA website offers other tips and resources for working outside in the winter and may be accessed at <https://www.osha.gov/winter-weather/preparedness>.

For more information, contact Justin Waggoner at [jwaggon@ksu.edu](mailto:jwaggon@ksu.edu).

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

## *“Mineral Nutrition”*

Most beef cattle producers recognize that mineral nutrition is important. However, a mineral program is only one component of an operation’s nutrition and management plan. An exceptional mineral program will not compensate for deficiencies in energy, protein or management. Additionally, the classical signs associated with clinical deficiency of a particular mineral (wasting, hair loss, discoloration of hair coat, diarrhea, bone abnormalities, etc.) are not often or are rarely observed in production settings. The production and economic losses attributed to mineral nutrition in many situations are the result of sub-clinical deficiencies, toxicities, and antagonisms between minerals which are often less obvious (reduced immune function, vaccine response, and sub-optimal fertility). The figure below, adapted from Wikse (1992), illustrates the effect of trace mineral deficiency on health and performance and the margin between adequate mineral status and clinical deficiency.



There are 17 minerals required in the diets of beef cattle. However, no requirements have been established for several minerals that are considered essential (Chlorine, Chromium, Molybdenum, and Nickel). Minerals may be broken down into two categories. 1. The macrominerals whose requirements are expressed as a percent of the total diet (calcium, phosphorous, magnesium, potassium, sodium, chlorine and sulfur). 2. The microminerals or trace minerals (required in trace amounts) whose requirements are expressed as parts per million (ppm) or milligrams per kilogram of dry matter consumed (chromium, cobalt, copper, iodine, iron, manganese, molybdenum, nickel, selenium, and zinc).

# WHAT'S NEW...

Mineral status of an animal is a function of the total diet (both water and feed) and stored mineral reserves within the body. Water may be a substantial source of mineral; however, the variation in water consumption makes estimating the contribution of mineral from water sources difficult. Mineral content of forages is influenced by several factors including plant species, soil, maturity, and growing conditions. These factors, and others not mentioned, make estimating the dietary mineral content of grazing cattle challenging.

Most commercial mineral supplements are formulated to meet or exceed the requirements for a given stage of production. This ensures that deficiencies are unlikely, but providing supra-optimal levels of minerals may be unnecessary unless specific production problems exist. Minerals are an important component of beef cattle nutrition that should not be over-looked as sub-clinical deficiencies of minerals likely contribute to more production and economic losses than we realize.

For more information, contact Justin Waggoner at [jwaggon@ksu.edu](mailto:jwaggon@ksu.edu).

↳ **Effects of Iron Injection Timing on Suckling and Subsequent Nursery and Growing-Finishing Performance and Hematological Criteria under Commercial Conditions** - A total of 1,892 newborn pigs within 172 litters were used in a 168-d study to evaluate the effects of Fe injection timing after birth on suckling and subsequent nursery and growing-finishing growth performance and hematological criteria. One day after birth, piglets were weighed and 11 pigs within each litter were allotted to 1 of 6 treatments consisting of no Fe injection or 200 mg of injectable Fe provided on d 1, 3, 5, or 7 of age, or 200-mg on d 1 plus 200-mg on d 12 of age. Piglets were weighed individually and bled at weaning (19 d of age) to determine blood Fe status and lactation growth performance. Pigs were weaned and placed in a commercial wean-to-finish facility in a total of 15 pens with equal representation of treatments in each pen. Pigs were individually weighed on d 72 and 168 after birth to determine subsequent nursery and growing-finishing ADG. During the lactation phase, marginal significance for a decrease in preweaning ADG was observed with increasing the age at which pigs received a 200-mg Fe injection; however, there was no evidence for a difference in d 19 BW. The absence of an Fe injection decreased preweaning ADG and d 19 BW compared to pigs receiving an Fe injection. Providing a 200-mg Fe injection on d 1 plus d 12 of age showed no evidence of a difference in preweaning ADG or d 19 BW compared to pigs receiving a 200-mg Fe injection on d 1 only. During the nursery (d 19 to 72 d of age) or finishing (d 72 to 168) phases, increasing the age at which pigs received a 200-mg Fe injection after birth provided no evidence for a difference in subsequent nursery or finishing ADG. The absence of an Fe injection post-farrowing decreased subsequent nursery ADG and d 72 ending BW. Overall (d 1 to 168 d of age), increasing the age at which pigs received a 200-mg Fe injection provided no evidence for a difference in overall ADG. The absence of an Fe injection post-farrowing decreased overall ADG. Providing a 200-mg Fe injection on d 1 plus d 12 of age showed no evidence of a difference in overall ADG compared to pigs receiving a 200-mg Fe injection on d 1 of age only. Furthermore, there was no evidence that Fe injection treatments influenced preweaning or wean-to-finish mortality. The absence of an Fe injection post-farrowing provided no evidence for a difference in preweaning or wean-to-finish mortality. For hematological criteria, increasing the age at which pigs received an Fe injection decreased Hb and Hct values at d 19 of age. The absence of an Fe injection post-farrowing decreased Hb and Hct values at d 19 of age compared to pigs receiving an Fe injection after birth. Providing a 200-mg Fe injection on d 1 plus d 12 of age increased Hb and Hct values at weaning compared to pigs receiving a 200-mg Fe injection on d 1 only.

**In conclusion...** this study provides evidence that administering 200-mg of Fe from gleptoferron within 7 d after birth optimizes preweaning and subsequent nursery and grow-finishing growth performance. Not administering 200-mg of Fe after birth significantly reduces preweaning and subsequent growth performance and blood Fe status at weaning compared to pigs receiving a 200-mg Fe injection regardless of timing after birth. More information is available on this experiment and others in the KSU Swine Day report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by H.E. Williams, B. Carrender, R. Maurer, J.M. DeRouchey, J.C. Woodworth, S.S. Dritz, M.D. Tokach, R.D. Goodband, A.J. Holtcamp, and K.F. Coble.)

# WHAT'S NEW...

↪ **Evaluation of Nutritional Strategies to Reduce Growth Rate of Pigs Beyond 200 lb Bodyweight** - A total of 356 finishing pigs were used in a 44-d growth trial to evaluate nutritional strategies to reduce growth rate of pigs beyond 200 lb bodyweight. A total of 3 diets were manufactured (control, Lys-deficient, and corn) and arranged into 4 nutritional strategies. In stage 1 (d 0 to 28), pens received one of two dietary treatments (control or Lys-deficient). Then on d 28, pens of pigs previously fed the control diet were separated into 2 groups, one fed the control diet and the other the corn diet. Pens of pigs previously fed the Lys-deficient diet were separated into 2 groups, one fed the Lys-deficient diet and the other the corn diet. The control diet contained 13.0% CP and 0.70% standardized ileal digestible (SID) Lys; the Lys-deficient diet contained 10.3% CP and 0.50% SID Lys; and the corn diet contained 8.1% CP and 0.18% SID Lys. There were 9 to 10 pigs per pen and 9 pens per treatment. Pens were assigned to 1 of the 4 nutritional strategies in a randomized complete block design with initial weight as a blocking factor. In stage one (d 0 to 28), pigs fed the Lys-deficient diet had decreased ADG, F/G, and d 28 BW compared to pigs fed the control diet. There was no evidence of difference in ADFI between control and Lys-deficient diet. In stage 2 (d 28 to 44), pigs fed the corn diet had decreased ADG and poorer F/G compared to pigs fed the control or Lys-deficient diets. Pigs fed the Lys-deficient diet in both stages had decreased ADG and poorer F/G compared to pigs fed the control diet in both stages. For the overall period (d 0 to 44), pigs fed the Lys-deficient diet (stage 1) then corn diet (stage 2) had decreased ADG and final BW, and poorer F/G compared to the three other treatments. There was no evidence of difference for ADG, F/G, and final BW between pigs fed the Lys-deficient diet in both stages and pigs fed the control diet (stage 1) then corn diet (stage 2). Pigs of these two treatments had decreased ADG, F/G, and final BW, compared to pigs fed the control diet in both stages. For carcass characteristics, there was no evidence of difference in carcass yield between treatments. Pigs fed the Lys-deficient diet (stage 1) then corn diet (stage 2) had decreased HCW, percentage lean, and loin depth, and increased backfat compared to pigs fed the control diet in both stages. There was no evidence of difference in backfat, loin depth and percentage lean between pigs fed the Lys-deficient and corn diet in stage 2.

**In conclusion...** low dietary Lys levels reduced the growth rate of pig beyond 200 lb, which resulted in up to 26 lb difference in final BW. These results allow producers to have flexible strategies to slow growth-rate and try to maintain ideal marketing weights to cope with the reduced capacity of processing plants. More information is available on this experiment and others in the KSU Swine Day report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by Z.X. Rao, J.T. Gebhardt, M.D. Tokach, J.C. Woodworth, J.M. DeRouchey, and R.D. Goodband.)

↪ **Determining the Effects of Manganese Source and Level in Diets Containing High Concentrations of Copper on Growth Performance of Growing-Finishing Pigs** - A total of 1,994 pigs were used to determine the effect of manganese (Mn) source and level on finishing pig growth performance. This experiment was a follow-up to a previous Mn source by level study conducted last year. However, unlike last year's study, in the present study all diets contained 150 ppm added Cu from Cu hydroxychloride (IBC; Micronutrients, Indianapolis, IN). Dietary treatments were arranged in a 2 × 3 factorial with main effects of Mn source (MnSO<sub>4</sub>; Eurochem, Veracruz, Mexico, or Mn hydroxychloride (IBM); Micronutrients, Indianapolis, IN), and increasing added Mn concentration (8, 16, and 32 ppm). The trace mineral premix was formulated without added Mn. There were 27 pigs per pen and 12 pens per treatment. Diets were corn-soybean meal-distillers dried grains with solubles-based and were fed in 4 phases. Overall, there was no Mn source × level interaction observed for ADG, ADFI, and F/G. Pigs fed IBM had increased final BW, ADG, and ADFI compared to pigs fed MnSO<sub>4</sub>. Pigs fed 16 ppm of Mn tended to have reduced ADFI when compared to pigs fed 8 and 32 ppm of Mn. In conclusion, there appears to be little benefit in growth performance by feeding more than 8 ppm of added Mn. However, pigs fed IBM had improved growth performance compared with those fed MnSO<sub>4</sub>. This response is different than our previous study with identical Mn sources but without high levels of added Cu.

**In conclusion...** further research is needed to understand why we observed a Mn source difference to Mn hydroxychloride when fed in conjunction with pharmacological levels of Cu on pig growth performance. More information is available on this experiment and others in the KSU Swine Day report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by H.R. Kerkaert, J.C. Woodworth, J.M. DeRouchey, S.S. Dritz, M.D. Tokach, R.D. Goodband, and N.E. Manzke.)



# ASI FACULTY SPOTLIGHT...



**Ron Pope** ([rvpope@k-state.edu](mailto:rvpope@k-state.edu); 785-532-5404)

## **Instructor, Beef Cattle Production and Management**

Ron Pope is from Oklahoma and Texas. He received his BS from Oklahoma State University, MS from Texas A&M University, and PhD from Kansas State University. Dr. Pope teaches three sections of ASI 105, Animal Sciences & Industry laboratory, during the fall semester and two sections in the spring semester. He advises 45 undergraduate students. He is also responsible for conducting tours of the department for outside visitors. This includes school field trips, prospective students, and interested groups.

Ron and his wife, Nita, have four children (all K-State alums), five grandsons, Blake, Rhett, Chisum, Bret, and Ryatt and two granddaughters, Vanessa and Kate. Their children are Russell ASI, BS 1999 and his wife Misty EDEL, BS 1999; Marie EDEL, BS 2002 and her husband Jeff Jones ASI, BS 1999; Bill ASI, BS 2005 and his wife Heather ASI, BS 2005, DVM 2010 from Colorado State University; and Ronny ASI, BS 2006 and his wife Kelsey AGECE, BS 2008, MS 2009.



**Alison Crane** ([arcrane@k-state.edu](mailto:arcrane@k-state.edu); 785-532-1672)

## **Assistant Professor/Extension Sheep Specialist**

Dr. Alison Crane was raised in Warrior, Alabama, on a small horse farm, assisting her father in shoeing horses as well as barrel racing and team roping. Alison's interest in agriculture grew through her father's business, and also working for a Brangus ranch and large animal veterinarian in North Alabama. Alison attended high school at the Alabama School of Fine Arts where she was a dance major. She graduated with her bachelor's in Animal Science (minor: chemistry and religion) from Berry College in 2012 and her M.S. (2014) and Ph.D. (2017) in Ruminant Nutrition and Reproductive Physiology from North Dakota State University. She was hired in 2017 as the State Sheep and Meat Goat Extension Specialist for Kansas State University with a 70% Extension and 30% Teaching appointment. She teaches ASI 524, Sheep and Goat Science, and ASI 385, Wool Evaluation in the Fall, while she co-teaches ASI 404, Lambing with Dr. Rozell in the Spring.

A brief listing of Alison's Extension and Research interests involve:

1. Mentor and train graduate students with a sheep and meat goat interest.
2. Conduct applied sheep and meat goat nutrition, reproduction, and management research.
3. Provide information and education to sheep and meat goat producers for increased efficiency and streamlined production.
4. Coordinate youth and college sheep and meat goat activities to increase industry knowledge and awareness of career opportunities in sheep and meat goat production.

# WHAT PRODUCERS SHOULD BE THINKING ABOUT

## WHAT PRODUCERS SHOULD BE THINKING ABOUT IN APRIL.....

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

Many producers should consider calving in this month. Stress is minimized and forage/grass management may be optimized.

- ☑ Keep calving areas as clean and dry as possible. Give each calf a dry, comfortable and clean environment.
- ☑ Supplement and feed cows to maintain or improve body condition prior to the breeding season (cows should be in moderate body condition by the start of the breeding season to maximize fertility).
- ☑ For thin, young cows, consider feeding fat to improve rebreeding rates. Research indicates that when feeding about 0.4 lb. per head per day of a plant source (soybean, sunflower, safflower oils), fat can increase first-service conception and pregnancy rates (0% to 15%). Feeding fat can be effective both before and after calving. Consult your nutritionist.
- ☑ Mineral supplementation should include greater levels of magnesium (intake should be between 15 to 30 grams (g) per head per day, or at least 11% of the mineral mix) for grass tetany prevention.
- ☑ Plan your breeding season, both AI and natural service. Make sure all supplies and semen are on hand prior to the breeding season. For natural-service programs assign yearling bulls to 10-15 cows, 2- and 3-year-old bulls to 20-25 cows, and older bulls to 25-40 cows. Breeding for 65 days should be long enough; less than 90 days is a key sign of good management. Some suggest the service capacity of a yearling bull (less than 24 months) is equal to his age in months at turn out.
- ☑ Bulls should be in good body condition prior to the breeding season. Thin bulls can run out of stamina. Now is the time to make sure bulls are physically capable of performing for the upcoming summer breeding season.
- ☑ Breeding soundness examinations are recommended for all bulls!
- ☑ Consider using estrus synchronization and AI. Several synchronization systems to overcome anestrus are available. Selection depends on labor, facility and implementation costs.
- ☑ Consider breeding heifers three weeks prior to the mature cow herd to give them a greater chance to rebreed.
- ☑ Maintain top management concerning calf scours (sanitary conditions, early detection, electrolyte/dehydration therapy).
- ☑ Vaccinate calves as per veterinarian consultation. Castrate males that are not candidates for breeding stock prior to pasture turnout. Implant calves that will be sold at weaning.
- ☑ Wait for fly control until critical numbers are reached (100 to 200 horn flies per animal).
- ☑ Deworm cows and bulls if needed. Expect performance response to be variable dependent on location, weather, grazing system, history, infestation level and management.
- ☑ Use prescribed burning techniques to eradicate Eastern Red Cedar trees and improve forage quality.
- ☑ Good fences make good neighbors. Summer pastures should have had fences checked, repaired or replaced by now.
- ☑ Check equipment (sprayers, dust bags, oilers, haying equipment) and repair or replace as needed. Have spare parts on hand; downtime can make a large difference in hay quality.

*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](mailto:lschrein@ksu.edu) or phone 785-532-1267.*