

News from KSU Animal Sciences

K-State Winter Ranch Management Seminar Series - The 2021 Winter Ranch Management Seminar Series include presentations focused on enhancing profit in beef production. The series will also include a 'Town Hall' question-and-answer session when producers can ask questions to local/district and state extension specialists. Dates and locations for the seminars include:

January 28, 2021, 6 - 9 pm – Virtual Seminar; For Zoom link, please e-mail bwalton@ksu.edu or aboor@ksu.edu February 16, 2021, 1 - 3 pm – Beaumont Depot Community Center, Beaumont

Taburary 16, 2021, 6 - 9 pm – Marria Carrette Community Pullston, Carrette Community Center, Beaumont

February 16, 2021, 6 - 9 pm – Morris County Community Building, Council Grove

Please RSVP to selected location contacts by close of business one week before the event. A maximum of 40 attendees will be allowed at each location. Online updates about the series can be found at www.KSUBeef.org. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427) or Lois Schreiner (lschrein@ksu.edu; 785-532-1267).

SowBridge, the distance educational series for those who work with sows, boars and piglets, and with genetic and reproductive issues, begins its next program year in February 2021. Registration is now underway. This opportunity pairs electronically provided materials with live presentations via teleconference.

This distance learning approach allows people to take part without having to travel, take time from work or worry about weather conditions. During each session, participants can ask questions of the industry expert presenter and discuss with other participants from the comfort of their home, office or swine unit.

The SowBridge Series \$200 fee includes all 12 sessions and supporting materials. Additional subscriptions from the same operation are half that cost. The registration deadline is Jan. 20, 2021, to ensure participants will receive materials for the first session on Feb. 3. For a complete schedule and registration form, visit www.KSUswine.org. For more information, contact Joel DeRouchey (785-532-2280; jderouch@ksu.edu).

2021 PorkBridge Grow-Finish Education Series enrollment is now available. The 16th year of the PorkBridge distance education series begins February 4, 2021. PorkBridge combines electronic materials with live presentations from topic experts by teleconference six times each program year on an every-other-month basis. All session audio is recorded and made available to ensure participants don't miss a thing! The 2021 dates include February 4, April 1, June 3, August 5, October 7, and December 3. Sessions are scheduled starting at 11:15 a.m. CST and last about 60 minutes.

The cost is \$100 for the entire 2021 PorkBridge program year. Additional registrations from the same entity are half that cost. Registration is due by January 20 to assure receipt of program materials in time for the first session on Feb. 4. For a complete schedule and registration form, visit www.KSUswine.org. For more information, contact Joel DeRouchey (785-532-2280; jderouch@ksu.edu).

Department of Animal Sciences and Industry

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www.asi.ksu.edu - Facebook.com/KSUASI

January 2021 issue



UPCOMING EVENTS...

- Kansas 4-H EID Livestock Tag Orders are now open and can be submitted to the KSU Youth Livestock Program. This process has been transitioned to campus following the retirement of Dave Kehler a couple of years ago. All market animals or commercial females that will be nominated for the 2021 Kansas State Fair Grand Drive and/or Kansas Junior Livestock Show (KJLS) must be tagged with an official Kansas 4-H EID tag. The market beef tag order deadline has passed. Please contact Lexie immediately if you did not submit an order and are still in need of beef tags for this year. Small livestock tag orders are due January 29, 2021. The order forms and other tagging resources, including current order summaries for each specie, may be found on the KSU Youth Livestock Program, under Kansas 4-H EID Tags (https://www.asi.k-state.edu/research-and-extension/youth-programs/). Payment needs to accompany the order form for it to be accepted and processed. Extension units must designate an agent to be responsible for their tags, as well as keep records of the families in which each tag is applied to a project. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.
- Kansas Junior Swine Producer Week This year the junior producer days will be hosted virtually as a week-long educational series. A few sessions will be held on weeknight evenings, with the program wrapping up on Saturday morning. Junior Swine Producer Week is scheduled for February 15-20, 2021. All ages and knowledge levels are invited! K-State faculty members, graduate students and guest speakers will cover topics including selection, nutrition and feeding, meat 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 or 785-532-1264.
- Watch for more details coming soon on the **2021 KSU Cattlemen's Day** to be hosted virtually on Friday, March 5, 2021. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427) or Ken Odde (kenodde@ksu.edu; 785-532-1227).
- The <u>44th Annual Legacy Bull and Heifer Sale</u> will be March 5, 2021. Visit <u>www.asi.ksu.edu/bullsale</u> 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. A few sessions will be held on weeknight evenings, with the program wrapping up on Saturday morning. Junior Meat Goat Producer Week is scheduled for March 15-20, 2021. 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: https://bit.ly/ksujrproducerdays. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.
- The <u>51st Annual LMIC Stockmen's Dinner</u> will honor Pat Koons as Stockman of the Year. The dinner has been postponed to May, 2021. Go to <u>www.asi.ksu.edu/stockmensdinner</u> for the latest schedule and registration.
- Watch the KSU ASI Headlines for November 2020 and find out the latest happenings in the department. Follow the link below: https://youtu.be/IYAoKBI4pvk. For questions about the department, contact Dr. Mike Day, ASI Department Head at 785-532-7624; mlday@k-state.edu.

UPCOMING EVENTS...

| CALENDAR OF UPCOMING EVENTS | | | | | | |
|-----------------------------|--|-------------------|--|--|--|--|
| Date | Event | Location | | | | |
| | | | | | | |
| January 20, 2021 | Registration deadline for SowBridge Series | | | | | |
| January 20, 2021 | Registration deadline for PorkBridge Grow Finish | | | | | |
| | Series | | | | | |
| January 21, 2021 | KSU Calving School | Dodge City, KS | | | | |
| January 28, 2021 | K-State Winter Ranch Management Virtual Seminar | | | | | |
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| 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 | | | | |
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| 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 | | | | | |
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WHAT'S NEW...

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

"Leadership...What's Your Style?"

The most commonly recognized leadership styles are authoritarian, democratic and laissez-faire. However, there may be 7-12 different leadership styles that include styles such as transformational, transactional, servant, charismatic, and situational. Although some of these leadership styles are unique, there is also some degree of similarity or overlap as well and in some situations, a leader may change their leadership style(s) to fit the situation (situational). The concept of situational leadership was first recognized by Paul Hersey and Ken Blanchard (author of the "One Minute Manager"). They recognized that successful leaders often adapted their leadership style or styles to the individual or group they were leading. Collectively, these different leadership styles remind us that not all leaders lead the same way and some leaders even change leadership styles. There is no one way to lead, motivate and inspire individuals or groups to succeed. Leadership is complex and we still have a lot to learn about leadership.

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

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

"Body Condition Scoring: A Herd Management Tool"

Body Condition Scoring is one of the most valuable management tools at the disposal of the cattle manager. This one number gives us a direct indication of an individual cow's previous plane of nutrition and future reproductive capability. Although the individual body condition scores are important, we don't necessarily manage individual cows, we manage groups of cows. Thus, it is important for us to look beyond the individual scores and look at the distribution of body condition scores within the herd. If we have a herd (Herd 1) with an average body condition score of 5 that is essentially characterized by the classic bell curve, with a few thin cows (3's), the bulk of cows in the middle (4's and 5's) and few over-conditioned cows (7's), everything is good. Alternatively, we could have a herd (Herd 2) with an average body condition score of 5 that is essentially the result of a few thin cows (3's) and some over conditioned cows (6's and 7's). Body conditioning scoring also has more value when it is done on the same group of cows at multiple times during the production year. If Herd 2 was scored at calving and had been previously scored at weaning and had an essentially normal distribution (similar to Herd 1), we need to ask ourselves what happened. Did we change anything? Although these examples are somewhat extreme, they illustrate that we have to look beyond the individual body condition scores of cows at one point during the production year to get the most of body condition scoring.

We have several resources on body condition scoring available on the web that may be accessed at https://www.asi.k-state.edu/research-and-extension/beef/feedandwater.html including the quick reference guide to body condition scoring shown below.

Body Condition Scorecard for Cattle

| | Physical Attribute | | | | | | | |
|----------------------|--------------------|---------------------|--------------------------|---------------------|------------------|------------------|--------------|--|
| | BCS | Spine | Ribs | Hooks/ Pins | Tailhead | Brisket | Muscling | |
| Thin | 1 | Visible | Visible | Visible | No fat | No fat | None/atrophy | |
| | 2 | Visible | Visible | Visible | No fat | No fat | None/atrophy | |
| Borderline | 3 | Visible | Visible | Visible | No fat | No fat | None | |
| | 4 | Slightly visible | Foreribs visible | Visible | No fat | No fat | Full | |
| Optimum Condition | 5 | Not visible | 1 or 2 may be visible | Visible | No fat | No fat | Full | |
| | 6 | Not visible | Not visible | Visible | Some fat | Some fat | Full | |
| Over- Conditioned | 7 | Not visible | Not visible | Slightly visible | Some fat | Fat | Full | |
| | 8 | Not visible | Not visible | Not visible | Abundant Fat | Abundant Fat | Full | |
| | 9 | Not visible | Not visible | Not visible | Extremely Fat | Extremely Fat | Full | |

Adapted from Herd & Sprott, 1986; BCS = body condition score

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

WHAT'S NEW...

- Welcome to New Faculty and Staff We would like to welcome our new faculty/staff to the Department of Animal Sciences and Industry. Watch for more details in upcoming issues of our Faculty Spotlight on these additions to our ASI Family.
 - Dr. Morgan Zumbaugh has joined the Department of Animal Sciences and Industry as Assistant Professor, Meat Science. Dr. Zumbaugh has a 30% teaching and 70% research appointment. She recently received her Ph.D. from Virginia Tech. Dr. Zumbaugh is located in 251 Weber Hall and can be reached at mdzumbaugh@k-state.edu.
 - Dr. Achilles Vieira-Neto has joined the Department of Animal Sciences and Industry as Assistant Professor,
 Dairy Cattle Nutrition. Dr. Vieira-Neto has a 40% teaching and 60% research appointment. He recently was
 a Research Assistant Professor in the Department of Veterinary Sciences and School of Veterinary
 Medicine at Texas Tech University. Dr. Vieira-Neto is located in 131 Call Hall and can be reached at
 vieiraneto@k-state.edu.
 - Dr. Chuck Zumbaugh has joined the Department of Animal Sciences and Industry as a Fellow Post Doc working with Dr. Cassie Jones to help coordinate undergraduate research activities and Dr. Alison Crane to provide daily operational support to the Sheep & Meat Goat Center. Dr. Zumbaugh is located in 252 Weber Hall and can be reached at cazumbaugh@k-state.edu.
 - Dr. Drew Ricketts, Assistant Professor, Wildlife and Outdoor Enterprise Management in the Department of Horticulture and Natural Resources, will assume the responsibilities for the Wildlife Management program with the retirement of Charlie Lee. Dr. Ricketts is located in 1603 Throckmorton PSC and can be reached at <u>arickett@ksu.edu</u> or 785-532-1949.
- Determining the Effects of Manganese Source and Level in Diets Containing High Levels of Copper on Growth Performance of Growing-finishing Pigs A total of 1,994 pigs (PIC; 337 × 1050; initially 88.2 lb) 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 (MnSO4; 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 MnSO4. 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 MnSO4. This response is different than our previous study with identical Mn sources, but without high levels of added Cu. 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. (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.)

WHAT'S NEW...

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Efficacy of Feed Additives Against Swine Viruses in Feed - Research has demonstrated that swine viruses can be transmitted via feed. Therefore, strategies are needed to prevent or mitigate swine viruses in feed. Chemical feed additives are one such strategy that has been shown to have potential utility for this purpose. Therefore, the objective of this study was to evaluate the efficacy of a commercially available formaldehyde-based feed additive, medium chain fatty acid blend (MCFA), and commercially available fatty acid-based products for mitigation of porcine epidemic diarrhea virus (PEDV) and porcine reproductive and respiratory syndrome virus (PRRSV) as viral mitigants in a feed matrix. Experimental treatments consisted of: 1) non-treated, individually inoculated virus controls (positive control), 2) 0.33% commercial formaldehyde-based product (Sal Curb; Kemin Industries, Inc.; Des Moines, IA), 3) 0.50% MCFA blend (1:1:1 ratio of C6:0, C8:0, and C10:0, Sigma Aldrich, St. Louis, MO), 4) 0.25%, 5) 0.50%, or 6) 1.00% of commercial dry mono and diglyceride-based product (Furst Strike; Furst-McNess Company, Freeport, IL), 7) 0.25%, 8) 0.50%, or 9) 1.00% of commercial dry mono and diglyceride-based product (Furst Protect; Furst-McNess Company, Freeport, IL), 10) 0.25%, 11) 0.50%, or 12) 1.00% dry mono and diglyceride-based experimental product (Furst-McNess Company, Freeport, IL). In total there were 12 treatments with 3 replications per treatment. A complete swine feed was treated with each chemical treatment before inoculation with 106 TCID50/g of feed with PEDV or PRRSV. Post inoculation feed was held at ambient temperature for 24 h before being analyzed via qRT-PCR. The analyzed values represent the cycle threshold (Ct). A lower Ct value indicates a higher level of detectable viral nucleic acid. Formaldehyde and MCFA decreased the detectable RNA concentration of PEDV and PRRSV compared to all other treatments. Furst Strike, Furst Protect, and the experimental product did not significantly reduce detectable concentrations of RNA for PEDV or PRRSV.

In conclusion... MCFA and formaldehyde chemical treatments are effective at reducing nucleic acid levels of PEDV and PRRSV in feed. More information is available on this experiment and others in the KSU Swine Day report at www.KSUswine.org. (This study conducted by G.E. Nichols, J.T. Gebhardt, C.K. Jones, J.C. Woodworth, S.S. Dritz, J. Bai, J.W. Anderson, E.G. Porter, F.B. Sandberg, A. Singrey, and C.B. Paulk.)

Evaluation of Compensatory Growth of 200 lb Finishing Pigs Previously Fed a Low Lysine Diet - A total of 346 pigs (241 × 600, DNA, Columbus, NE; initially 195.3 lb) were used in a 44-d trial to evaluate the compensatory growth of 200 lb finishing pigs previously fed a low lysine diet. Two diets were manufactured (control and corn diet) and arranged into 4 nutritional strategies. One group of pigs (control) were fed the control diet from d 0 to 44. The other three groups of pigs were fed the corn diet for 2, 3, or 4 weeks and then switched to the control diet until d 44. The control diet contained 13.0% CP and 0.70% standardized ileal digestible (SID) Lys. 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. On average, pigs fed the corn diet grew 49% slower per day than those on the control treatment. The first week after the dietary switch from corn to control diet (recovery period), pigs previously fed the corn diet grew approximately 28% faster than those fed the control treatment, then approximately 12% greater ADG than those fed the control treatment for the rest of the recovery period. Despite this compensatory increase in ADG, final BW was still lower compared to control pigs, with the exception of the pigs that were only fed the corn diet for 2 weeks and then followed with 4 weeks of recovery on the control diet. Weekly ADFI was similar to the control treatment when pigs were fed the corn diet, but like ADG, was greater during the first week of recovery then returned to similar levels as the control treatment. Weekly F/G was worse when pigs were fed the corn diet compared to the control treatment, but improved compared to those on the control treatment during the first week of recovery then returned to a similar level as the control treatment. For the overall period (d 0 to 44), control pigs and pigs fed the corn diet for the first 2 of the 6 weeks had increased ADG compared to pigs fed the corn diet for the first 3 or 4 of the 6 week period. Feed efficiency worsened as the length of time that pigs were fed the corn diet increased. Pigs fed the corn diet for the first 3 or 4 weeks had increased backfat and decreased loin depth compared to pigs fed the control diet.

In conclusion... these data suggest that feeding pigs the corn diet for the first 3 or 4 weeks followed by the control diet within a 6-week-period prior to marketing reduced growth performance and carcass characteristics compared to pigs fed the control diet the entire time. These results allow producers to estimate the reduction in growth rate when feeding a low lysine corn-based diet then recovery when switching back to a control diet and provides insight into compensatory gain responses to dietary amino acid deficiencies. More information is available on this experiment and others in the KSU Swine Day report at 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.)

ASI FACULTY SPOTLIGHT...



Mike Tokach (mtokach@k-state.edu; 785-532-2032) University Distinguished Professor/Extension Swine Specialist

Growing up on a diversified livestock and grain farm in North Dakota taught Dr. Mike Tokach many of the practical day-to-day problems that livestock producers can encounter. In his position as a swine extension specialist and researcher, Mike has the opportunity to help producers solve those problems. Following completion of a bachelor degree in Animal Science at North Dakota State University in 1986, Mike earned a Master's degree in swine nutrition at Kansas State University in 1988. After completing his doctorate in swine nutrition at the University of Minnesota in March 1991, Mike joined the staff of K-State Research and Extension as a livestock specialist.

His position has evolved from a 100% extension position to the current 60% extension and 40% research appointment. Mike's focus is transferring information to swine producers and conducting practical nutrition research. He is a member of a highly

productive swine team. Mike has presented invited seminars at over 300 animal and veterinary science meetings around the world. Mike has co-authored 390 refereed journal papers, 776 abstracts, 1067 extension publications and field day reports, and 11 book chapters. Mike and his colleagues have generated over \$20 million in grants and gifts to Kansas State University to support swine research. Mike was named one of the 50 people that have made the greatest impact on the swine industry in the last 50 years by the National Hog Farmer Magazine. Mike's wife, Lisa, also specializes in swine as a veterinarian in the Abilene Animal Hospital. Mike and Lisa have three children, Sage, Rogan, and Fiona.



Dave Nichols (dnichols@k-state.edu; 785-532-1239) Professor/Teaching Coordinator

Dr. Dave Nichols was raised on a commercial beef cattle, swine and crops operation near Brookston, Indiana. He graduated with honors from Purdue University in December of 1976 and entered graduate school at Kansas State in January of 1977. He completed his M.S. in 1979 and his Phd in 1981 from Kansas State University.

In October of 1981 Dave was hired by Dr. Don Good and joined the KSU faculty as an extension specialist. In 1983 he moved to an 80% teaching and 20% research appointment and in 1998 he became the Undergraduate Teaching Coordinator for the Department of Animal Sciences and Industry upon the retirement of Dr. Miles McKee.

In his current role, he oversees all teaching and advising functions of the department. His primary teaching responsibility is ASI 102, Principles of Animal Science. Through the years, he has taught over 10,000 students in this class and also has taught courses in livestock and carcass evaluation, sales management, and beef systems

management. He was also recently named coordinator of the the Purebred Beef unit.

Dr. Nichols advises approximately 80 students and helps train new faculty advisors. In 2011 he received the University Presidential award for Outstanding Advising. In addition he has received the Commerce Bank Outstanding Teaching Award in 2013 and the Dave Mugler Distinguished Faculty award in 2006. In 2019 he was inducted into the Kansas State Fair Wall of Honor. In 2020 he was recognized as the Outstanding Alumni Award from the Purdue Department of Animal Science.

Dave coached the KSU Livestock Judging team from 1986 to 1988. He has judged numerous county fairs, state fairs and national shows and is a strong supporter of youth livestock activities. He serves on the board of directors for the Kansas Junior Livestock Show and the American Royal.

Dr. Nichols has led student study abroad trips to Costa Rica, Brazil, Canada and China. He recently was a guest speaker at the World Charolais Congress in Porto Alegre, Brazil

Dave and his wife Anita have two children, Drew and Amy, and recently welcomed their first grandchild, Madeline. In addition to his university responsibilities, Dr. Nichols owns and operates A&D ranch near Manhattan.

WHAT PRODUCERS SHOULD BE THINKING ABOUT

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN MARCH......

Manage calving pens and pastures to minimize human, cow and calf stress. Stay organized.

BEEF -- Tips by Dale Blasi, Extension Beef Specialist

checked every two to three hours.

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- ☑ An observation schedule should be implemented for calving first-calf heifers and cows. First-calf heifers should be
- Sanitation is key to reducing and/or eliminating calf scours. An excellent calving pasture management plan by Dr. David Smith from the University of Nebraska Lincoln, can be found at https://beef.unl.edu/a95e3e40-93f8-4893-a296-d706fb4aec9a.pdf.
- ☑ Make sure every calf consumes adequate colostrum during the first four to 12 hours after birth.
- ✓ Keep accurate calving records, including cow identification (ID), calf ID, birth date, calving difficulty score and birth weight. Other traits to consider recording are teat and udder scores, calf vigor score, and other pertinent information. This information, along with Angus sire information, is vital for enrolling cattle into the AngusSourceSM program.
- ☑ Calving books are essential sources of information; make sure you have a backup copy.
- ☑ Body condition score (BCS) cows. Thin and young cows will need extra energy to maintain yearly calving interval.
- If cow diets are going to be shifted from low- (poor quality forage or dormant grass) to high-quality forage (lush green grass) programs, begin a grass tetany prevention program at least three weeks prior to the forage switch.
- Given the high price of mineral supplements, conduct a needs assessment of your cow herd. Moreover, closely monitor daily intake to insure that it is consistent with label directions.
- ☑ When making genetic selections, use the most recent National Cattle Evaluation (NCE) and herd records judiciously.
- If new bulls are purchased, now is the time to start preparing them for their first breeding season. Bulls need to be properly vaccinated and conditioned to be athletic. Moderate body condition with abundant exercise is ideal.
- ☑ After calving and before breeding, vaccinate cows as recommended by your veterinarian.
- ✓ Plan to attend beef production meetings.

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.