Newsletter from the Department of Animal Sciences and Industry
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April 2013

News from KSU Animal Sciences

In This Issue

We Need Your Help!

Please send questions, comments or ideas for future newsletter topics to lschrein@ksu.edu or call (785) 532-1267.

K-STATE Research and Extension

UPCOMING EVENTS…

- **Top Hand Awards to be given at K-State Cattle Feeders College on May 9**. The 2013 K-State Cattle Feeders College will be held on May 9th at the William Carpenter 4-H Building in Scott City, Kansas. Registration begins at 5:00 p.m. followed by dinner at 5:30 p.m. There will be an introduction of speakers and presentation of the "Top Hand" awards at 5:30 p.m. There is no cost to attend, but registration is required by May 3, 2013. To register, please contact Dr. Justin Waggoner (620-275-9164; jwaggon@ksu.edu) or John Beckman (620-872-2930; jbeckman@ksu.edu). For more information, go to www.southwest.ksu.edu.

- **Adult PQA Plus Advisor (PQA+)Training set for May 15**. A swine PQA Plus Advisor Training will be held on Wednesday, May 15, 2013, beginning at 9:00 am. at the KSU Sheep and Meat Goat Center in Manhattan, KS. The National Pork Board has updated the Adult PQA Plus curriculum. This is a MANDATORY training for all current adult PQA Plus advisors, regardless of your renewal date, and for anyone desiring to be a PQA+ Advisor. This certification update is for Adult PQA Plus ONLY. For those doing youth PQA+, nothing has changed at this point.

  The program requires an in-person training session and successful examination for certification. You must be an extension specialist, veterinarian, or ag educator and have either a DVM or B.S. in Animal Science or equivalent to be an advisor. The training is sponsored by the Kansas Pork Association and is offered at no cost to the participants. If you are interested in the participating, please contact Lois Schreiner at lschrein@ksu.edu by May 3. For more information, contact Mike Tokach (mtokach@ksu.edu; 785-532-2032) or Joel DeRouchey (jderouch@ksu.edu; 785-532-2280).

- **K-State Animal Sciences Leadership Academy to be held June 5-8.** Kansas State University will host the Fifth Annual K-State Animal Sciences Leadership Academy on June 5-8, 2013, for young livestock industry leaders in Kansas. The program, hosted by the Department of Animal Sciences and Industry, focuses on increasing participants' knowledge of the Kansas livestock industry, as well as enhancing leadership skills.

  Twenty high school students will be selected to participate, based on educational, community and agricultural involvement. Students will stay in campus housing and receive training in Weber Hall as well as tour the university's animal science facilities and Kansas livestock businesses. The academy is sponsored by the Livestock and Meat Industry Council. For more information, contact Kristine Clowers (clowers@ksu.edu; 785-532-1264).

- **Developing and Implementing Your Company's HACCP Plan** for meat, poultry, and food processors will be held June 11-13, 2013 in Weber Hall, Kansas State University, Manhattan. Registration for the 2.5 day International HACCP Alliance accredited workshop is online at http://animalscience.unl.edu/web/anisci/ANSCExtensionMeatScienceHACCPInformationandCoursesRegistration. The workshop fee is $375 per person, and meets USDA training requirements to become a HACCP trained individual. For more information, contact Dr. Liz Boyle at lboyle@ksu.edu or 785-532-1247.

- **Beef Improvement Federation Convention to be held June 12-15 in Oklahoma City.** Oklahoma State University (OSU), in collaboration with the Beef Improvement Federation (BIF), will host the 45th Annual BIF Research Symposium and Meeting June 12-15, 2013, at the Renaissance Hotel and Convention Center in Oklahoma City. Themed "Where Profit and Progress Intersect," this year's program will bring together industry professionals, producers and researchers to discuss current issues facing the beef industry. Among those issues, speakers will tackle the crossbreeding vs. straightbreeding debate, as well as using genetic tools to address environmental challenges and cow herd efficiency.

  The schedule boasts an array of speakers, socials and tours that promise to be exciting and informative. Special features include an Oklahoma Welcome Reception Wednesday evening, June 12, and a night out at the National Western Heritage Museum and Cowboy Hall of Fame Thursday, June 13. Participants can choose to tour northern or southern Oklahoma Saturday, June 15.

  A complete schedule and links to online registration are available at www.beefimprovement.org or www.BIFconference.com. For more information about the event, contact Megan Rolf at 405-744-9292; mrolf@okstate.edu; or Joe Cassady, BIF Executive Director at jpcassad@gmail.com.

- The **KSU Youth Horse Judging Camp – Beginners Section** will be held June 17, 2013 and the **KSU Youth Horse Judging Camp – Advanced Section** will be held June 13-14, 2013. Both camps will be held in Weber Arena on the KSU Campus. Registration for both camps is due May 1, 2013, with no late entries accepted. Camps will be limited to the first 30 participants for each. For more information and registration, visit the website www.asi.ksu.edu/p.aspx?tabid=1141 or www.YouthLivestock.KSU.edu. You can also contact Teresa Douthit, 785-532-1268, douthit@ksu.edu.

- "**Champions" Livestock Judging Camp planned for June** – This three day, intense judging camp is designed for 4-H and FFA members (ages 14-18) who are seriously interested in enhancing their livestock judging and oral communication skills. Prior livestock judging experience is necessary for this camp. Workouts will be conducted similar to those at a collegiate level. Dr. Scott Schaake, coach of five consecutive National Collegiate Championships, and Chris Mullinix, coach of more than 30 national champion teams and new KSU Livestock Judging Team Coach, will conduct the training for each camp. The camp will focus primarily on the proper format, terminology, and presentation of oral reasons. Camp participants will also be exposed to livestock evaluation skills and incorporating performance records in the decision making process. The following dates are set for the 2013 camps: June 10-12 (Monday-Wednesday); June 14-16 (Friday-Sunday); June 18-20 (Tuesday-Thursday).

  Registration forms and more information are available at www.asi.ksu.edu/livestockjudgingcamp. The registration deadline is May 15. For more information, contact Scott Schaake (simmi@ksu.edu; 785-532-1242) or Kristi Hagemen (klsmith@ksu.edu; 785-532-2996).

- **2013 Dr. Bob Hines' Kansas Swine Classic planned for July,** The 2013 Dr. Bob Hines' Kansas Swine Classic will be held July 12-13, 2013 at Cico Park in Manhattan, KS. The two-day event involves a Prospect Hog Show, Barrow and Gilt Market Hog Show, Swine Showmanship, and educational demonstrations for youth and parents. Entries close July 1. More information is coming soon to www.YouthLivestock.KSU.edu or by calling 785-532-1267.

- **Date set for Kansas 4-H Livestock Sweepstakes.** Mark the dates of August 24-25, 2013 on your calendar for the Kansas 4-H State Livestock Sweepstakes. Watch for more details at www.YouthLivestock.KSU.edu.

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
May 9, 2013	K-State Cattle Feeders College	Scott City
May 15, 2013	PQA+ Advisor Training	Manhattan
June 5-8, 2013	K-State Animal Sciences Leadership Academy	Manhattan
June 10-12, 2013	Champions Livestock Judging Camp	Manhattan
June 11-13, 2013	Developing and Implementing HACCP in Meat, Poultry and Food Processing	Manhattan
June 12-15, 2013	Beef Improvement Federation Annual Convention	Oklahoma City
June 13-14, 2013	KSU Youth Horse Judging Camp Advanced Section	Manhattan
June 14-16, 2013	Champions Livestock Judging Camp	Manhattan
June 17, 2013	KSU Youth Horse Judging Camp Beginners Section	Manhattan
June 18-20, 2013	Champions Livestock Judging Camp	Manhattan
July 12-13, 2013	Dr. Bob Hines' Kansas Swine Classic	Manhattan
August 24-25, 2013	Kansas 4-H State Livestock Sweepstakes	Manhattan
October 2-4, 2013	Developing and Implementing HACCP in Meat, Poultry and Food Processing	Olathe

WHAT'S NEW . . . .

Management Minute – Chris Reinhardt, Ph.D., Extension Feedlot Specialist

"What Do You Celebrate?"

Part of what makes up a family or a community is their celebrations.

As a critical part in demonstrating and living out the "culture of caring", we reach out to a friend or colleague who is experiencing loss or pain in their personal life. But another important aspect to showing that we care is by lifting them up in celebration when they are experiencing a victory, in both their work life and their personal life.

Personal victories may include a wedding, the birth of a child, success of children in school or career, an adult child's wedding, or the birth of a grandchild. The more we express our genuine, shared, joy for our colleagues' victories outside of the workplace, the more that colleague will feel that the workplace is really just an extension of their non-work relationships.

It is important that exceptional colleagues should be celebrated in the workplace. This can take place through some type of formal recognition, either in private or with great public ceremony, or simply private acknowledgement of accomplishments or milestones. Most organizations have some form of structured recognition for certain accomplishments, such as the 5-year pin, or the employee of the month, both of which have merit. But the creative leader will find more ways to identify less obvious demonstrations of leadership.

At a recent training meeting attended by members of numerous competing companies, a committee selected an exceptional candidate from nominations which had previously and secretly been submitted by each attendee's supervisor. A maintenance worker from one of the companies was publicly recognized in front of his peers as an exceptional employee and given an engraved and valuable handmade knife. Walking to the front to accept the award, the man was nearly speechless, but uttered, "I've never won anything in my life!"

Every person who approaches their job with integrity and commitment wants to feel valuable to the organization. Nothing communicates this value more resoundingly than public recognition of their contribution.

For more information, contact Chris at 785-532-1672 or cdr3@ksu.edu.

Speaking of Celebrating, three ASI Professionals receive K-State Awards. Three professionals from the Department of Animal Science and Industry were announced as recent award winners at Kansas State University. Lois Schreiner, Administrative Specialist, has been selected to receive the 2013 K-State Classified Award of Excellence. Frank Jennings, Agricultural Technician at the Swine Teaching and Research Center, was selected to receive one of the College of Agriculture/K-State Research and Extension Classified Employee of the Year awards. Brad Purdue, Research Assistant at the K-State Horse Unit, has been selected to receive a 2013 President's Award of Excellence for Unclassified Professionals. He will receive the Leadership Award under that program. Brad will be recognized at the All University Awards Reception on Wednesday, May 6 at 3:00 p.m. in the Alumni Center Ballroom. Lois and Frank will be recognized at the Classified Employee Recognition Ceremony on Wednesday, April 24. Congratulations to Lois, Frank, and Brad!

Feedlot Facts – Chris Reinhardt, Ph.D., Extension Feedlot Specialist

"Confinement Feeding Cows"

Here's hoping this article is completely irrelevant for 2013.

As spring calving season draws to a close, we move forward to planning for summer grazing. But in the event that spring and summer rains don't provide for a full summer of grazing for all or part of the cow herd, confinement feeding is one viable option.

Confinement feeding of cows should not be approached lightly; there are many critical factors to consider.

Feedlot Facts – "Confinement Feeding Cows" (cont.)

- Do you have adequate feed on-hand?
- Do you have appropriate pens, fences, feed bunks, water tanks, feeding equipment, and processing facilities?
- Can you afford to ship to off-site pasture?
- Do you have access to crop residue?
- Are your cows well-vaccinated?
- Are your costs lower than those of a custom feedyard?
- Where will you calve out the cows next spring?
- Can you alter your breeding, weaning, and culling strategies to minimize costs of shipping and feeding the herd?

Each of these questions leads to numerous additional and essential questions. Culling down the herd, only to rebuild later may be cost-prohibitive. Before you make that very difficult decision, make sure you've explored every possible avenue. Involve multiple trusted outside experts to ensure that even non-traditional feeding options and possibilities are explored.

Confinement feeding of cows is not easy, and may not be right for every producer. But if it is feasible, it may be a cost-effective way for producers to keep the factory together through difficult times.

For more information contact Chris at cdr3@ksu.edu or 785-532-1672.

- **Research Assistant, Analytical Lab** - The Department of Animal Sciences and Industry is looking for a Research Assistant to manage the departmental Analytical Lab. This is a full-time, 12-month, term position. B.S. in chemistry or closely related field is required, MS preferred. Review of applications will begin May 7, 2013, and continue until the position is filled. View complete position announcement and application procedures at: http://www.asi.ksu.edu/positions.

- **Insecticide Ear Tags Improve Grazing Cattle Performance -** A 77-day grazing study was initiated at the Kansas State University Beef Stocker Unit on April 24, 2012. All steers were completely randomized to grazing treatments. Steers were assigned to three treatments with four pasture replicates per treatment. The treatments included a Control group (no ear tags applied), a group that received a single insecticide tag in one ear (One), and a third group that received and insecticide ear tags in both ears (Two).

  Gain and final weight in calves that received the insecticide ear tags were numerically greater than controls, but these differences were not statistically significant. Due to the drought conditions, we were forced to terminate the grazing season prematurely, potentially limiting the cumulative beneficial effects of the insecticide ear tags. This factor, combined with the limited numbers of cattle used in the study, may have restricted our ability to detect significant differences among treatments.

  The Bottom Line… Using insecticide ear tags yielded substantial improvements in gain over the 77-day grazing season, but these improvements were not statistically significant. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact Dale Blasi (785-532-5427; dblasi@ksu.edu).

- **Dosing High-Risk Calves at Processing with Lactipro Decreases the Number of Calves Treated for Bovine Respiratory Disease -** The symptoms of acidosis and bovine respiratory disease are not readily distinguishable from one another, and therapeutic treatments for respiratory disease generally are ineffective for treatment of acidosis. Lactipro is a probiotic that prevents accumulation of lactic acid in the rumen, which is a key organic acid associated with development of feedlot acidosis. Six hundred and forty-five calves (504 bulls, 141 steers) were received from Texas and fed brome hay on arrival. Twenty-four hours later, calves were vaccinated, dewormed, treated with Micotil (Elanco Animal Health, Greenfield, IN), and bulls were castrated (banded). Calves were randomly assigned to a Control group (no Lactipro) or a Lactipro group (100- mL oral dose of Lactipro at processing), placed into 24 pens with 25 to 30 calves/pen, and fed a common receiving diet for 64 days. Calves were monitored daily for clinical signs of respiratory disease, including depression, decreased appetite, increased respiration, nasal and ocular discharge, and diarrhea.

  The Bottom Line… Lactipro improved performance and decreased the number of calves requiring antibiotic therapy for bovine respiratory disease. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact Jim Drouillard (785-532-1204; jdrouill@ksu.edu) or Larry Hollis (785-532-1246; lhollis@ksu.edu).

- **The Effects of Soybean Hulls on Nursery Pig Growth Performance** - Two experiments were conducted to evaluate the effects of soybean hulls on growth performance of nursery pigs. In both experiments, pens of pigs were balanced by initial BW and randomly allotted to 1 of 5 dietary treatments with 6 replications per treatment. In Exp. 1, a total of 210 nursery pigs (PIC, 337 × 1050, initially 14.7 lb and 28 d of age) were used in a 34-d experiment. Diets contained increasing amounts of soybean hulls (0, 5, 10, 15, and 20%) and were not balanced for energy. Overall (d 0 to 34), pigs fed increasing soybean hulls had decreased ADG and poorer F/G, with no

change in ADFI. Despite the linear response, the greatest decreases in pig performance were observed as soybean hulls were added at 10% or greater of the diet; those fed only 5% of the diet were similar to control pigs.

In Exp. 2, 210 nursery pigs (PIC, 337 × 1050, initially 29.9 lb) were used in a 20-d study. Pigs were fed a common diet for 14 d after weaning. The 5 corn-soybean meal–based diets were arranged in a 2 × 2 + 1 factorial, including a corn-soybean meal control diet without soybean hulls and diets containing 10 or 20% soybean hulls either balanced on an NE basis or not. The diets balanced for NE contained 3.6 and 7.15% added fat (soybean oil) in the 10 and 20% soybean hull diets to achieve the same NE value as the control diet.

Overall (d 0 to 20), pigs fed increasing soybean hulls had decreased ADG regardless of formulation method; however, pigs fed increasing amounts of soybean hulls without added fat were similar in ADFI but had poorer F/G. Pigs fed diets containing soybean hulls balanced for NE had decreased ADFI but improved F/G compared with pigs fed soybean hulls with no added fat, resulting in F/G similar to the control-fed pigs.

Bottom Line…In summary, soybean hulls can be included in nursery pig diets up to 5% with no negative effects on ADG, ADFI, and F/G. Higher amounts, up to 20% soybean hulls, can be included in nursery pig diets with F/G similar to pigs fed corn-soybean diets if diets are formulated on an NE basis, but there are reductions in ADFI and ADG. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. *(This study conducted by D. L. Goehring, M. D. Tokach, J. M. DeRouchey, J. L. Nelssen, R. D. Goodband, and S. S. Dritz.)*

- **An Evaluation of Dietary Natural Zeolite or Humic Acid Substances and Sulfate Water on Nursery Pig Performance** – A total of 350 nursery pigs (PIC 1050 barrows, initially 21 d of age) were used in a 21-d study to determine the effects of high-sulfate water, dietary natural zeolite, and dietary humic substances on growth performance and fecal consistency of nursery pigs. Ten treatments were arranged as a 2 × 5 factorial with 2 water treatments (control or water with 2,000 ppm sodium sulfate) and 5 dietary treatments (control, 1 or 2% zeolite, 1% humic acid substance [HA], or 1% humic and fulvic acid blended substance [HFB]). Water treatments remained the same from d 0 to 21 and all diets were fed in 2 phases, with diets containing feed additives at the same inclusion rate in both phases. Phase 1 diets were fed in a pellet form from d 0 to 8 after weaning; Phase 2 diets were fed in meal form from d 8 to 21. Fecal samples were collected on d 5, 8, 15, and 21. These samples were visually assessed and scored on a scale of 1 to 5 to determine consistency of the fecal samples, then analyzed for DM.

  Overall (d 0 to 21), a water source × diet interaction occurred for ADG and F/G. The interaction occurred because pigs fed 1% HA had poorer ADG and F/G than other treatments when drinking 2,000 ppm sodium sulfate water but improved ADG and F/G when drinking control water. Pigs drinking 2,000 ppm sodium sulfate water had poorer ADG and F/G and a tendency for lower ADFI than pigs drinking the control water. No significant main effects of diet were observed for growth performance criteria. Pigs drinking 2,000 ppm sodium sulfate water had more fluid fecal samples than pigs drinking control water. For fecal DM, pigs drinking 2,000 ppm sodium sulfate water had lower fecal DM on d 5 and 8 and lower overall mean fecal DM than pigs drinking control water.

  Bottom Line…Pigs drinking water with 2,000 ppm sodium sulfate had decreased ADG, poorer F/G, and tended to have lower ADFI for the overall trial than those drinking control water; they also had more watery feces on d 5 and 8 as measured by lower fecal DM compared with pigs drinking control water. The zeolite or humic acid products tested did not improve pig performance or alter fecal DM. More information is available on this experiment in the KSU Swine Day Report at www.KSUswine.org. *(This study conducted by J. R. Flohr, M. D. Tokach, J. L. Nelssen, S. S. Dritz, J. M. DeRouchey, and R. D. Goodband*.)

- **Effects of Ingredients of Plant and Animal Origin on Nursery Pig Performance** - A total of 224 weanling pigs were used in a 34-d growth assay. The pigs were sorted by gender and ancestry, blocked by BW, and assigned to pens (7 pigs/pen and 8 pens/treatment) in a randomized complete block design. From d 0 to 10, treatments were arranged as a 2 × 2 factorial with main effects of primary protein sources (plant vs. animal) and inclusion of soybean meal (none vs. 30%). The plant products diets had wheat gluten and corn gluten, and the animal products diets had animal plasma and fish meal as primary protein sources. All diets were formulated to be at least 120, 120, and 110% of the requirements for all essential amino acids, vitamins, and minerals, respectively, as suggested in NRC guidelines. Soybean meal replaced corn in the diet to create the diets containing soybean meal. From d 10 to 34, all pigs were fed the same corn-soybean meal–based diets to allow determination of any carryover effects (or disappearance thereof) for the diets fed for the first 10 d immediately after weaning.

  No interactions were observed for d 0 to 10, 10 to 34, or 0 to 34 among primary protein source and inclusion of soybean meal for ADG, ADFI, or F/G. The use of animal products increased ADG by 61% for d 0 to 10 and 7% for d 0 to 34, respectively. Soybean meal increased ADG by 31% for d 0 to 10 and tended to improve overall ADG by 5%.

  Bottom Line…Thus, we conclude that use of animal products (plasma protein and fish meal) and inclusion of soybean meal (30% of the diet) enhanced growth performance in weanling pigs. 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. Jones, K. M. Sotak, S. A. Lawson, and J. D. Hancock.)*

AS&I Faculty Spotlight

Dale Blasi (dblasi@k-state.edu; 785-532-5427)
Professor/Extension Specialist, Beef Cattle Nutrition and Management

Dale A. Blasi was born and reared on his family's farm and ranch in southeast Colorado, near Trinidad. He received his B.S. in Animal Sciences at Colorado State University in 1984. In 1986, he received his M.S. in Beef Systems Management at Colorado State University. He continued his education at the University of Nebraska where his dissertation addressed protein supplementation strategies for beef cows and growing cattle.

After earning his Ph.D. degree in 1989, he accepted an appointment as a Livestock Specialist in South Central Kansas at Hutchinson for Kansas State University. While there, he focused on cow/calf and stocker nutrition and management strategies, forage quality and harvest efficiency, forage utilization systems and utilization of food industry byproducts. In 1997, he transitioned to the Department of Animal Sciences and Industry at Kansas State University as a State Beef Specialist where he currently has a 10% teaching, 20% research and 70% extension appointment. His responsibilities include providing statewide Extension educational leadership in stocker cattle nutrition and management and utilization of grazed and harvested forages by beef cattle and other livestock, conducting research and interpreting results and serving as a resource person for other state and area specialists, county Extension agents, producers and allied industry personnel. In recent years Dr. Blasi has developed and teaches the class, *ASI 650, Identification and Data Management of Food Animals*, to both undergraduate and graduate students.

Since 1998, he has developed and evaluated information and management applications using handheld computers and individual animal electronic identification technologies for the beef industry. He is manager and director of the KSU Beef Stocker Unit and Animal Identification Knowledge Laboratory, a unique facility designed to evaluate the performance of existing and emerging animal identification technologies in a laboratory and animal management setting.

Duane Davis (davis@k-state.edu; 785-532-1224)
Professor, Swine Reproductive Physiology

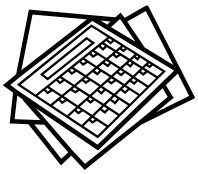
Dr. Davis teaches courses in the reproductive physiology of farm animals to both undergraduate and graduate students. His research program addresses reproduction, embryonic and fetal development, and stem cell biology.

Current projects include studies of pig umbilical cord matrix stem cells, evaluation of transcription factors in the development of pig embryos, and studies of lactational estrus in sows. Dr. Davis teaches courses in the reproductive physiology, stem cells, and research to both undergraduate and graduate student.

Dr. Davis' laboratory is also studying the properties of stem cells that were discovered in the umbilical cord of pigs. These cells are found in a matrix (Wharton's jelly) and are readily harvested and grown in vitro. The umbilical cord matrix stem (UCMS) cells are distinct from those found in umbilical cord blood. UCMS cells are potentially useful for human medicine as replacements for cells damaged or lost due to developmental or degenerative diseases, accidents or aging. In agriculture UCMS cells from pigs and other farm animal have great potential. They provide a cheap, plentiful, and easily harvested source of multipotential cells and may find uses to enhance food safety, food production efficiency, and to stimulate resistance to infectious diseases.

What Producers Should Be Thinking About…..

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN JUNE…….



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

June is a month to let Mother Nature take her course. **Assuming timely precipitation**, native grasses are usually at peak production; therefore, little supplementation is needed, with the exception of some minerals.

Cow-herd nutrition

- ☑ Provide plenty of clean, fresh water.
- ☑ Provide free-choice minerals to correct any mineral deficiencies or imbalances.
- ☑ Monitor grazing conditions and rotate pastures if possible and practical.
- ☑ Consider creep-feeding if it's cost-effective.

Herd health

- ☑ Monitor and treat pinkeye cases.
- ☑ Provide fly control. Consider all options; price and efficiency will dictate the best options to use.
- ☑ Monitor and treat for foot rot.
- ☑ To reduce heat stress, avoid handling and transporting cattle during the hottest times of the day.

Forage and pasture management

- ☑ Check and maintain summer water supplies.
- ☑ Place mineral feeders strategically to enhance grazing distribution.
- ☑ Check water gaps after possible washouts.
- ☑ Harvest hay in a timely manner; think quality and quantity.

Reproductive management

- ☑ If using AI, do not expect all females to conceive. A common practice is to breed once or twice with AI, then turn out cleanup bulls for the balance of a 65-day breeding season. A 42-day AI season with estrus synchronization at the front end gives most females three chances to conceive by AI.
- ☑ Watch bulls for libido, mounting and breeding function.
- ☑ Record breeding dates to determine calving dates.
- ☑ By imposing reproductive pressure (45-day breeding season) on yearling heifers, no late-calving 2-year-olds will result. This will increase lifetime productivity and profits.

Genetic management

- ☑ Monitor herd performance. Then identify candidates to cull because of poor performance.

General management

- ☑ Check equipment (sprayers, dust bags, oilers, haying equipment, etc.), and repair or replace as needed. Have spare parts on hand because downtime can make a big 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, or phone 785-532-1267.*