



Newsletter from the Department of Animal Sciences and Industry
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WHAT'S NEW...

↪ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist “Winter Therapy”

Winter in Kansas can be a beautiful time of rest, rejuvenation, and relaxation---unless you're in agriculture. In that case, winter in Kansas can be a time of exhaustion, cold, endless mud, and constantly broken equipment. Am I getting 'warmer'?

Unfortunately, I can't do anything about our glorious Kansas winters. But I would like to encourage you to find time to consider that if you are exhausted, how are your employees faring this long winter season?

If work hours have been abnormally taxing to all involved, consider providing extra time off. This may be especially essential if the hectic schedule of spring planting time will not allow for any extra breaks. Maybe there just aren't enough people to do what needs to be done as it is and therefore there can be no additional time off.

Perhaps there are jobs which could be deferred or outsourced. On the one hand you can't afford to increase short-term cost outlays by outsourcing equipment repair or maintenance. But burnout, frustration, and dissatisfaction are inevitable if we don't *actively* prepare for and prevent it. And the natural product of that burnout is turnover. The costly part may be that the turnover could happen when we can least afford to be short-handed: calving time, spring planting, harvest, weaning, the fall run.

Consider workplace burnout like a huge boulder rolling downhill, gathering steam, directly towards your place of business at the bottom of the hill. The boulder has inertia, which could be defined as its 'unwillingness to change direction', and the 'unwillingness' is increasing. The only way to intervene is to invest energy and resources to stop or turn the boulder away from your workplace. The longer you wait, the more resources you'll need to turn the boulder. Your INTENTIONALITY OVERCOMES INERTIA. Things will stay on the same course until you decide to *actively* change their course.

Keeping your workplace satisfying and rewarding in order to keep your good people engaged and working hard will require that you are an active participant in determining the course your work environment is headed. For more information, contact Chris at 785-532-1672 or cdr3@ksu.edu.

↪ **2010 Protocols for Synchronization of Estrus and Ovulation** - Updated recommended synchronization protocols from the Beef Reproduction Task Force can be found at www.beefrepro.info. Protocol information is available as 1-page diagrams for cows or heifers and in a 2-page fact sheet format. Protocol sheets are updated annually and the current recommendations show the 2010 date. A link to complete web coverage of the last two Applied Reproductive Strategies in Beef Cattle Workshops (Dec. 2008 and Jan. 2010) is also available at www.beefrepro.info. For more information contact Sandy Johnson, sandyj@ksu.edu or 785-462-6281.

↪ **Nomination Changes** - Please check the Youth Livestock Web site at www.youthlivestock.ksu.edu for the most up to date information on the Nomination Process. The Kansas State Fair and Kansas Junior Livestock Show have shown an interest in DNA-based nominations, but at this time both shows have agreed they will not implement DNA-based nominations for 2010. In 2010, both shows will continue to use the same nomination process as in 2009, with minor paperwork adjustments to increase efficiency. For more information, contact Sharon Breiner, Youth Livestock Coordinator at sbreiner@ksu.edu.

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

“Mud Mitigation”

As cattle people, we grudgingly accept the various natural elements as part of the cost of doing business. Rain, snow, ice, and extreme temperatures are part of life in Kansas for ranchers and cattle feeders. And each of these factors that move animals outside of their comfort zone, called the “thermo neutral zone”, steals a measure of performance. With respect to mud, however, we know that the cost of fighting mud on lost performance is high, and we can prepare for the inevitability of it.

Researchers have estimated that although pastern-level mud has little effect on performance, hock-deep mud is costly. Gain will be reduced by 1/3 to 1/2 when cattle are fighting mud. The energy required to reach the bunk or water trough increases dramatically so part of their intake energy is lost to this expenditure; the stress of fighting the mud will actually discourage cattle from making the trek to the bunk reducing intake; cattle have a hard time finding a comfortable resting area causing an increase in energy use just standing around; wet hide from resting in the mud will cause cold stress to increase. When we consider that only about half of animals’ normal daily energy intake is going toward gain on “stress-free” days, all these increases in energy expenditures dramatically cut into what is left over for gain.

Preparing for mud won’t eliminate these costs, but we can reduce them.

1. Mounds within the pen. Cattle should have about 25 ft² of mound space per animal. Mounds should have a slope of about 1:5 on the sides to facilitate moisture to flow away from the cattle and the ‘valleys’ between mounds should slope about 3-4% away from the bunk. The end of the mound nearest the bunk should connect to the concrete pad so cattle don’t have to slog through deep mud to get to the bunk.

2. Increase pen space per animal. Whereas 125 ft² of pen space might be adequate during dry conditions in the summer, 350 ft² may be barely sufficient during wet conditions. Adapt as conditions dictate.

3. Smooth pen surfaces whenever the weather allows. The longer muddy conditions persist, the worse the pen conditions become and cattle will have an even greater difficulty moving throughout the pen.

Living and raising cattle in Kansas has many rewards. By preparing pens ahead of time for the wet times of the year we can survive long enough reap the rewards.

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

Effects of an Enzyme Blend (Livestock Answer) in Diets Containing Dried Distillers Grains with Solubles on Growth Performance of Nursery and Finishing Pigs

–Two trials were conducted to determine the effects of an enzyme blend (Livestock Answer; Environmental Care and Share, Golden, CO) on growth performance of nursery and wean-to-finish pigs. Livestock Answer contains amylases, cellulases, proteases, lipases, and phytases. In Exp. 1, a total of 180 pigs (PIC TR4 × 1050, initially 12.3 lb and 21 d old) were used in a 28-d trial. Pigs were blocked by weight and allotted at weaning to 1 of 3 enzyme levels (0%, 0.125%, and 0.175%). There were 6 pigs per pen and 10 replications per treatment. Diets were corn-soybean meal based and contained 15% dried distillers grains with solubles (DDGS) during Phase 1 (d 0 to 14) and 25% DDGS during Phase 2 (d 14 to 28). From d 0 to 14, increasing enzyme level improved ADG (quadratic; $P = 0.04$) and F/G (linear; $P = 0.05$) and tended to improve ($P < 0.07$) ADFI and pig weight on d 14. From d 14 to 28, enzyme level had no effect ($P > 0.20$) on ADG or ADFI but worsened F/G (quadratic; $P = 0.04$). Pigs fed an enzyme blend for the first 14 d after weaning had improved growth performance. However, over the entire 28-d nursery period, enzyme level had no effect ($P > 0.22$) on pig performance. In Exp. 2, a total of 224 nursery pigs (PIC TR4 × 1050, initially 13.4 lb and 21 d of age) were blocked by weight and allotted to 1 of 4 treatments. There were 8 pigs per pen and 7 pens per treatment. Livestock Answer was added at 0.125% to either the nursery or finisher stage or both in a 2 × 2 factorial arrangement (with and without in nursery and with and without in finisher). Diets were corn-soybean meal based and contained 15% DDGS from d 0 to 14, 25% DDGS from d 14 to 35, and 30% DDGS from d 35 to d 126. On d 126, pigs were harvested and carcass data were collected. Adding the enzyme to nursery, finishing, and nursery and finishing combined diets containing DDGS did not influence ($P > 0.20$) ADG, ADFI, F/G, or any of the carcass criteria measured in Exp 2. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by J.M. Benz, J.L. Nelssen, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, and S.S. Dritz.)

↪ **Concurrent Metaphylaxis with Chlortetracycline and Tulathromycin on High-Risk Calves Has No Additive Effects on Cattle Health and Performance** - High-risk stocker calves were delivered to the Kansas State University Beef Stocker Unit in November 2007 and March 2008 (n = 463, initial body weight = 447 lb). All calves received Draxxin upon arrival. Treatments consisted of no pellets, pellets containing chlortetracycline, or pellets containing no chlortetracycline. There were no effects of treatment on performance or incidence of clinical disease. The objective of this experiment was to examine the effects of concurrent metaphylaxis with tulathromycin (Draxxin) and chlortetracycline (Aureomycin) upon arrival on high-risk stocker calf health and performance.

Bottom Line.... This experiment showed no additive effects of metaphylaxis by using Draxxin concurrently with Aureomycin. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Chris Reinhardt (785-532-1672; cdr3@ksu.edu).

↪ **Evaluation of PEP2 in Nursery Pig Diets** - A total of 300 nursery pigs (PIC 327 × 1050, initially 12.0 lb and 21 d of age) were used in a 25-d study to determine the effects of PEP2 (proteins enzymatically processed) on growth performance of weaned pigs. PEP2 is a combination of refined porcine intestinal mucosa co-dried with enzymatically processed vegetable protein. There were 5 dietary treatments: (1) negative control containing no specialty protein sources, (2) positive control containing 4% spray-dried animal plasma (SDAP) in Phase 1 and 4% select menhaden fish meal in Phase 2, (3) 4% PEP2, (4) 8% PEP2, and (5) 12% PEP2. All diets were fed in 2 phases, and treatments containing PEP2 had the same inclusion rate in both phases. Phase 1 diets were fed in pellet form from d 0 to 11 after weaning. Phase 2 diets were fed in meal form from d 11 to 25. In Phase 1, increasing PEP2 improved (linear; $P < 0.01$) F/G. However, pigs fed SDAP had greater ($P < 0.01$) ADG and improved F/G compared with pigs fed the PEP2 diets. In Phase 2, increasing PEP2 increased (quadratic; $P < 0.01$) ADG, and F/G. Pigs fed PEP2 had greater ($P < 0.01$) ADG and ADFI than pigs fed the positive control diet containing fish meal. Overall (d 0 to 25), pigs fed the positive control diet had improved ($P < 0.01$) ADG and F/G compared with those fed the negative control. Pigs fed the diet containing PEP2 had similar performance to pigs fed the positive control diets. In conclusion, although pigs fed SDAP in Phase 1 had better ADG and F/G than pigs fed the increasing levels of PEP2, in Phase 2, pigs fed PEP2 had greater ADG and improved F/G compared with pigs fed 4% select menhaden fish meal. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by A.J. Myers, M.D. Tokach, R.D. Goodband, S.S. Dritz, N.W. Shelton, G. Papadopoulos, J.M. DeRouchey, J.L. Nelssen, and D. McKilligan.)

↪ **Effects of Meal or Pellet Diet Form on Finishing Pig Performance and Carcass Characteristics** - Two experiments were performed to determine the effects of feeding diets in meal or pellet form on finishing pig performance. A corn-soybean meal-based diet was fed in Exp. 1, and a diet containing alternative ingredients was used in Exp. 2. All pelleted diets were processed through a CPM pellet mill (California Pellet Mill Co., Crawfordsville, IN) equipped with a 3/16 in. die.

In Exp. 1, a total of 1,072 pigs (60.7 lb) were used in a 112-d trial. Treatments were arranged in 2 × 2 factorial design (10 pens per treatment) with main effects of diet form (meal or pellet) and gender (barrows or gilts). Diet formulation and particle size (approximately 660 microns) was identical among the treatments. From d 0 to 112, pigs fed pelleted diets had increased ADG (2.04 vs. 1.92 lb, $P < 0.01$) compared with pigs fed diets in meal form. There was no difference ($P = 0.69$) in ADFI, but pigs fed pelleted diets had a 5.3% improvement (2.68 vs. 2.83, $P < 0.01$) in F/G compared with pigs fed meal diets. With the improvements in F/G driving the growth response, pigs fed pellets were 13.6 lb heavier ($P < 0.01$) at off test than pigs fed meal diets.

In Exp. 2, a total of 1,214 pigs (58.3 lb) were used in a 42-d trial to evaluate diets containing alternative ingredients in pellet or meal form. Barrow and gilt pens were randomly allotted to a meal or pellet treatment group (11 pens per treatment). Like Exp. 1, diet particle size (approximately 660 microns) and formulation were identical among the treatments. Pigs fed a by-product-based diet in pellet form had greater (2.05 vs. 1.95 lb, $P < 0.01$) ADG than pigs fed the identical diet in meal form. There were no differences ($P \geq 0.15$) in overall (d 0 to 42) ADFI or F/G between pigs fed meal and pelleted diets. Pigs fed pelleted diets had a numerical ($P = 0.14$) weight advantage of 4.1 lb on d 42 compared with pigs fed meal diets.

These data demonstrate that feeding a pelleted diet improved ADG compared with feeding a meal diet; however, the magnitude of the response was inconsistent between trials. In addition, F/G was improved by pelleting in the first trial, with no effect found in the second trial. One explanation for this difference might be the quality of the pellets. Samples of the pelleted diets collected in Exp. 1 contained approximately 25% fines, whereas samples of the pelleted diets in Exp. 2 were composed of approximately 35% fines. Diets formulation (corn-soybean vs. corn-alternative ingredients) can influence pellet quality, which may explain differences between the experiments. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by M.L. Potter, S.S. Dritz, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, and J.L. Nelssen.)

UPCOMING EVENTS...

- ↳ Mark your calendars for the 97th annual **KSU Cattlemen's Day** which will be held on Friday, March 5, 2010 at Weber Hall. This program is designed to provide producers, allied industry and individuals with information about new developments in the beef industry.
The day will begin with the Commercial Trade Show and Educational Exhibits at 8:00 a.m. in Weber Arena. The morning program will start at 10:00 a.m. with a welcome by Dr. Ken Odde and President Kirk Schulz, followed by "*Feeding the World in 2050*" presented by Dr. Ted Schroeder, Kansas State University. The morning program will conclude with "*Climate Change: Implications for Agriculture*" by Dr. Patrick Michaels, George Mason University.
The afternoon program will include various breakout sessions at Weber Hall, KABSU and the Beef Cattle Research Center. For a complete schedule of events and registration information, visit www.asi.ksu.edu/cattlemensday. Online registration is available. For more information, contact Jim Drouillard (jdrouill@ksu.edu; 785-532-1204) or Dale Blasi (dblasi@ksu.edu; 785-532-5427).
- ↳ The KSU **Legacy Bull and Heifer Sale** will be held on March 5, 2010, at the conclusion of KSU Cattlemen's Day. The sale will begin at 3:30 p.m. at the Purebred Beef Unit. For more information or a sale catalog, contact Ryan Breiner (rbreiner@ksu.edu; 785-532-6127).
- ↳ The **2010 Goat Production and Marketing Conference** will be held on Saturday, March 6th, 2010 at the Phillips County Fairgrounds, Phillipsburg, Kansas. The Conference will run from 9:00 a.m. CST to about 4:00 p.m. and is intended to address current topics within the goat industry. A Trade Show for commercial exhibits will be offered during the conference with door prizes given away throughout the day. For more information, please contact the Phillips – Rooks District Extension Office at (785) 425-6851 or email rboyle@ksu.edu.
- ↳ The **2010 High Plains Dairy Conference** has been scheduled for March 11 & 12, 2010 in Amarillo, Texas. New for this year will be a Dairy and Feedlot Facilities Tour held on March 10, 2010, prior to the conference. The seminar schedule is 8:00 a.m. – 5:00 p.m. on March 11 and 8:00 a.m. to 12:00 noon on March 12. Seminar topics include: *UPS Solutions Manager; Achieving Optimal Cow Performance with the Aid of Information Systems; Designing the Management System for your Dairy; Food Economics and Consumer Choice; Global Dairy Market Outlook: Perspectives for the US; Busting Mastitis Treatment Myths; Needle Free Injections: Pros and Cons*, and much more.
For a complete schedule and registration information, visit www.highplainsdairy.org or call 785-532-2370. For more information, contact John Smith (jfsmith@ksu.edu; 785-532-1203).
- ↳ Plans for Junior Livestock Days are underway for 2010. On March 13th, K-State Animal Sciences and Industry will host **K-State Junior Beef Day**. K-State faculty will provide hands-on education over topics such as feeding, reproduction, meat evaluation, and more. In the afternoon, clinician Bob May will teach exhibitors how to prepare their beef project for the showing. **K-State Youth Sheep Day** will be held on March 27 at Weber Arena on the K-State Campus. Zane Bone, sheep producer from Wimberly, Texas will be the featured presenter. The program will focus on topics such as nutrition, feeding, health, and breeding. For more information and registration forms for both events visit www.YouthLivestock.KSU.edu.
- ↳ The 2010 **K-State Sheep Day** will be held on Saturday, March 27, 2010 at Weber Hall. K-State Sheep Day is aimed at those who are new to sheep production, as well as established sheep producers. Participants will learn about appropriate drug use in small ruminants, parasite management, FAMACHA certification and more. All information presented will also be applicable for goat producers. Featured speakers include Meredyth Jones, DVM, and Shelie Laffin, DVM, K-State Vet Med Teaching Hospital.
Pre-registration deadline is March 19. Registration fee is \$20 for the first person & \$10 per additional person from same household; \$5 for students, college age and younger. FAMACHA certification is also offered for an additional \$10. For registration information, contact Brian Faris (brfaris@ksu.edu; 785-532-1255).

- ↪ Two **Livestock Fair Management Clinics** are being planned for this spring. These events are designed for county fair boards, volunteers, and extension staff to share ideas about livestock fair management and leadership. A March 30 meeting will take place in Burlington at the 4-H Building, and an April 1 meeting is planned at the Research Center in Hays. More information and registration forms are available at www.YouthLivestock.KSU.edu.

- ↪ **High Plains Horseman's Day** will be April 17th in Oakley, KS at the Logan County Fairgrounds. Registration begins at 8:30 am and program continues to 4 pm. Topics will include Conformation – Understanding Form and Function, Before you Trailer your Horse, Saddle Fit, trainer sessions and special youth session. Pre-registration required for youth session. For more information contact Clint Milliman, milliman@k-state.edu, 785-460-4582.

- ↪ The **KSU Youth Horse Judging Camp – Beginning Section** will be held Friday, June 4, 2010 in Weber Arena on the KSU Campus. This camp is designed for youth that have had very little experience judging horses and would like to learn more about note taking and oral reasons. Emphasis will be on the placings of classes commonly seen in Kansas judging contests.
Camp registration will begin at 8:30 a.m. on Friday, June 4, in Room 146, Weber Hall. Camp registration fee is \$30/per student and must be paid by May 1. No entries will be accepted after this date. Camp will be limited to the first 30 participants. For a brochure and registration, go to <http://www.asi.ksu.edu/DesktopDefault.aspx?tabid=1141>. For more information, contact Teresa Slough (785-532-1268; tslough@ksu.edu).

- ↪ The **KSU Youth Horse Judging Camp – Advanced Section** will be held June 7-8, 2010 in Weber Arena on the KSU Campus. This camp is designed for youth that have had some experience judging horses and would like to learn more about note taking and oral reasons. Emphasis will be on the placings and reasons of classes commonly seen in Kansas judging contests.
Camp registration will begin at 8:30 a.m. on Monday, June 7, in the dorm lobby. Camp registration fee is \$115/per student and must be paid by May 1. No entries will be accepted after this date. Camp will be limited to the first 30 participants. Youth will be housed in KSU dorm rooms. All meals are included in the registration fee. For a brochure and registration, go to <http://www.asi.ksu.edu/DesktopDefault.aspx?tabid=1141>. For more information, contact Teresa Slough (785-532-1268; tslough@ksu.edu).

- ↪ The **Second K-State Animal Sciences Leadership Academy** will be June 9-12, on the Kansas State University campus. This hands-on event is designed for current high school students to gain animal sciences industry knowledge and develop their leadership skills. Twenty students will be selected to participate in this year's event. You can find applications and more information at www.YouthLivestock.KSU.edu. Cost to participate is only \$50. A special thank you to the Livestock and Meat Industry Council (LMIC) for continuing to support this program.

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
March 5, 2010	KSU Cattlemen's Day	Manhattan
March 5, 2010	KSU Legacy Bull and Heifer Sale	Manhattan
March 6, 2010	Goat Production and Marketing Conference	Phillipsburg, KS
March 11-12, 2010	High Plains Dairy Conference	Amarillo, TX
March 13, 2010	K-State Junior Beef Day	Manhattan
March 27, 2010	K-State Sheep Day and Youth Sheep Day	Manhattan
March 30, 2010	Livestock Fair Management Clinic	Burlington, KS
April 1, 2010	Livestock Fair Management Clinic	Hays, KS
April 17, 2010	High Plains Horseman's Day	Oakley, KS
June 4, 2010	KSU Youth Horse Judging Camp – Beginning Section	Manhattan
June 7-8, 2010	KSU Youth Horse Judging Camp – Advanced Section	Manhattan
June 9-12, 2010	K-State Animal Sciences Leadership Academy	Manhattan

AS&I FACULTY SPOTLIGHT



Abbey Nutsch (anutsch@k-state.edu; 785-532-4549)
Assistant Professor/Food Microbiology

Dr. Abbey Nutsch is an Assistant Professor of food safety and security. A food microbiologist by training, she received B.S. (1994) and Ph.D. (1998) degrees in Food Science from Kansas State University. After spending five years as the Director of Technical Services for a commercial food testing and research laboratory, Dr. Nutsch returned to K-State in 2002 to serve within the Food Science Institute as a coordinator for a multi-institutional carcass disposal working group. In 2004 she joined the Department of Animal Sciences & Industry as an Assistant Professor of food safety and security. Dr. Nutsch coordinates and facilitates interdisciplinary initiatives within the K-State Food Safety and Security program, coordinates distance education courses that address food safety and defense, and serves as an advisor for graduate

students in K-State's Food Science and Master's of Public Health programs. Originally from WaKeeney, Kansas, she and her husband, Todd, currently reside in Wamego, KS with their two children.



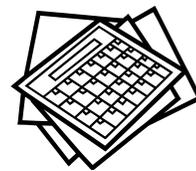
Kelly Getty (kgetty@k-state.edu; 785-532-2203)
Assistant Professor/Meat Microbiology; Meat Safety and Quality

Kelly J.K. Getty is an assistant professor in the Food Science Institute and Department of Animal Sciences and Industry at Kansas State University. She received her B.S. (1988) and Ph.D. (1999) in Food Science from Kansas State University and M.S. (1994) from Pennsylvania State University in Food Science. Dr. Getty teaches Fundamentals of Food Processing (on campus and distance) and team-teaches Food Product Development (on campus) and Meat Technology (a distance course). She coordinates distance education efforts for the Food Science program and advises both on-campus and distance graduate students. Her research focuses on control of pathogens in fermented and direct-acidified sausages, jerky, and meat snack products. Prior to Kansas State

University, Getty was an assistant professor at Clemson University where she taught meat science courses and conducted meat and food safety research. Getty also worked at Pizza Hut, Inc. and the American Meat Institute. Dr. Getty and her husband Chris reside in Manhattan with their two children.

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, or phone 785-532-1267.*