



Newsletter from the Department of Animal Sciences and Industry  
 213 Weber Hall - Kansas State University - Manhattan, KS 66506  
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## UPCOMING EVENTS...

March 2013

### News from KSU Animal Sciences

#### In This Issue

- Upcoming Events
- Management Minute
- Feedlot Facts
- 2013 KSU Cattlemen's Day Article Featured
- 2012 KSU Swine Day Articles Featured
- Faculty Spotlight
- What Producers Should Be Thinking About...

#### We Need Your Help!

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

➤ **Drought Planning for Kansas Rangelands: Keeping the Ranch in Production for the Long-term** - This program will be held March 19<sup>th</sup> at the Firehouse Meeting Room in Miltonvale, KS from 1 p.m. – 4 p.m. Dwayne Rice, Rangeland Specialist with Kansas NRCS will be presenting "Managing Pasture and Grasslands through Drought Times" and Cade Rensink, Bennington State Bank, will be presenting "Considerations for Drought-Induced Cattle Marketing" and "Limited Forage Nutrition". There is no cost to participate or registration required; just show up! Pie and coffee will be served. For more information contact Robin Slattery with River Valley Extension District 785-325-2121.

➤ **Kansas Junior Meat Goat Producer Day to be held on Saturday, March 23, 2013.** This event is dedicated to meat goat production and management practices. The schedule is as follows:

- 8:45 a.m. Registration
- 9:15 a.m. Welcome and Remarks
- 9:30 a.m. Market/Breeding Goat Selection
- 10:30 a.m. Break
- 10:45 a.m. Facilities
- 11:15 a.m. Skillathon
- 12:00 p.m. Lunch
- 12:45 p.m. Health and Wellness
- 1:30 p.m. Market/Breeding Goat Nutrition
- 2:15 p.m. Break
- 2:30 p.m. Market/Breeding Fitting and Showing
- 4:00 p.m. Closing and Awards

All participants will receive a T-shirt, complimentary lunch, and a Meat Goat Show Guide. Participants with registrations received after March 8 cannot be guaranteed a T-shirt. For more information, contact Brian Faris ([brfaris@ksu.edu](mailto:brfaris@ksu.edu); 785-532-1255) or Kristine Clowers ([clowers@ksu.edu](mailto:clowers@ksu.edu); 785-532-1264).

➤ **Southern Plains Drought Summit to be held March 27.** In response to the persistence of drought conditions across the region. K-State Research and Extension will be holding the Southern Plains Drought Summit, March 27, 2013 at the Pratt Area 4-H Center in Pratt, KS. This is the meeting you and your producers cannot afford to miss as they face another year of dry conditions. and will offer timely information on a number of important drought related topics for both crop and beef cattle producers. The meeting will begin with registration at 9:30 A.M. and will feature 9 speakers. Topics include: Crop Assessment Tools and Techniques; Insurance Considerations; Drought Management Economic Considerations; and much more.

Registration for the Southern Plains Drought Summit is \$10 with an RSVP by 5:00 P.M. March 22<sup>nd</sup> or \$20 after or at the door. Registration includes lunch and a proceedings of all presentation materials. Please Contact the Barber County Extension Office (620)-886-3971 or [marshal@k-state.edu](mailto:marshal@k-state.edu) for more information or to register for this event.



- ↪ Plan to attend the **36th Midwest Processed/Cured Meat Workshop** on Friday, April 5, 2013 in Weber Hall at KSU. At the Meat Processing Workshop, learn techniques for improving product quality. Dr. Terry Houser, will explore production practices, including grass feeding beef, that affect marbling and tenderness to help you know what to look for when purchasing cattle for processing. With Dr. John Unruh, experience a ground beef sensory panel in the KSU sensory lab and find out if differences exist within ground beef. This is also a great opportunity to see, hear and ask questions as state award winning Wayne Beckman demonstrates the manufacture and techniques in making award winning bacon. John Wolf, KSU Meat Lab Manager will demonstrate production of the popular KSU Pepperoni sticks. Patrick Feeney from Sealed Air will discuss how you can improve your product shelf life through the type of packaging that you use for your products. A representative from Victorinox will show you how to select the best knives for cutting and processing meat. Many of you answered a KSU survey exploring the perception of mold in meat plants. Graduate student Alex Christiansen will share the survey results with you during the workshop. Come to the workshop and learn techniques to improve product quality that could result in tastier product, longer shelf life, and greater sales and business opportunities. Registration is \$100.00 per plant and includes lunch for 2 people and a parking permit for one vehicle. Contact Liz Boyle at [lboyle@ksu.edu](mailto:lboyle@ksu.edu) for more information.
- ↪ A swine **PQA Plus Advisor Training** will be held on Wednesday, May 15, 2013, 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, or anyone desiring to be a PQA Plus Advisor. This certification update is for Adult PQA Plus ONLY. For those doing youth PQA plus, nothing has changed at this point. Mark the date on your calendar and watch for more details. For more information, contact Mike Tokach ([mtokach@ksu.edu](mailto:mtokach@ksu.edu); 785-532-2032) or Joel DeRouchey ([jiderouch@ksu.edu](mailto:jiderouch@ksu.edu); 785-532-2280).
- ↪ **K-State Animal Sciences Leadership Academy Planned for June 5-8.** Kansas State University will host the Fifth Annual K-State Animal Sciences Leadership Academy June 5-8 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. Students must apply by Friday, March 15. Candidates have to be enrolled in high school and able to participate in the entire academy. The academy is sponsored by the Livestock and Meat Industry Council. More information, including registration forms, is available on the "Youth Programs" page of the Department of Animal Sciences and Industry website: <http://www.asi.ksu.edu/p.aspx?tabid=58> (Scroll to 2013 K-State Animal Sciences Leadership Academy). For more information, contact Kristine Clowers ([clowers@ksu.edu](mailto:clowers@ksu.edu); 785-532-1264).
- ↪ 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](http://www.asi.ksu.edu/p.aspx?tabid=1141) or [www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu). You can also contact Teresa Douthit, 785-532-1268, [douthit@ksu.edu](mailto:douthit@ksu.edu).

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
March 19, 2013	Drought Planning for Kansas Rangelands	Miltonvale, KS
March 23, 2013	Kansas Junior Meat Goat Producer Day	Manhattan
March 27, 2013	Southern Plains Drought Summit	Pratt, KS
April 5, 2013	Midwest Processed Meats Workshop	Manhattan
May 15, 2013	PQA+ Advisor Training	Manhattan
June 5-8, 2013	K-State Animal Sciences Leadership Academy	Manhattan
June 11-13, 2013	Developing and Implementing HACCP in Meat, Poultry and Food Processing	Manhattan
June 13-14, 2013	KSU Youth Horse Judging Camp Advanced Section	Manhattan
June 17, 2013	KSU Youth Horse Judging Camp Beginners Section	Manhattan
October 2-4, 2013	Developing and Implementing HACCP in Meat, Poultry and Food Processing	Olathe

# WHAT'S NEW.....

## Management Minute "Enough is as Good as a Feast"

### ↪ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist *"Enough is as Good as a Feast"*

A friend recently interviewed for positions at several different corporate agricultural firms and was intrigued by how different the culture or environment felt at the different organizations. Although all were similar in the nature and scale of their business, and probably even their communication and management styles, he sensed a subtle, intangible, difference. While all of the firms appeared to offer pleasant and rewarding work environments, one firm stood out as having more of a "family" or "community" atmosphere.

Granted, my friend is at the upper end of people who value and are sensitive to the more human aspects of the work environment, but that doesn't discount the potential impact of this effect. Who can measure the value of the intangibles of the workplace in hiring and retention of employees?

More than ever, quality employees have choices in their career path. To their credit, ag employers have been tremendously responsive to the demands of prospective employees. Agricultural careers are increasingly promising from the aspects of financial reward, upward mobility, and quality of work life.

The "easy" part of the human resources equation is to continually canvass the entire job marketplace to make sure your compensation package is competitive. Much more difficult to monitor is your internal work environment.

What do current employees tell prospective employees about their work life? Do they "sell" your company for you in your absence, or do they have an attitude of "it's just another job"? Just like the adage of "your customers can be your best advertisers", your current employees can be your most effective recruiters. Or they can scare prospective hires away just as easily.

Although a bit more money in the starting salary may get a new hire's attention short-term, turnover costs a lot more. You want to make "permanent" hires whenever possible. In order to ensure that valuable employees remain content and productive is to continually keep compensation equitable and competitive, but also invest time and energy to keep quality of work life high.

"Enough is as good as a feast." Money will only placate employees for a short while if they have other opportunities. We invest in what we value, and we must invest time and energy to discover ways to create the kind of workplace where people want to stay, and to keep quality people on our team.

For more information, contact Chris at 785-532-1672 or [cdr3@ksu.edu](mailto:cdr3@ksu.edu).

## Feedlot Facts "Mud Mitigation"

### ↪ **Feedlot Facts** – 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 for ranchers and cattle feeders. And each of these factors that forces cattle outside of their comfort zone, called the "thermo neutral zone", steals performance. With respect to mud, however, we know that the cost of fighting mud is high in terms of lost performance, 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. A 500 lb steer gaining 2.8 lb/day, without any environmental stress, uses exactly half of its daily energy intake just for maintenance. So if the calf is eating 20 lbs of feed, 10 lbs are spent just to "keep the lights on and the furnace running", and only 10 lbs are available for gain. But if calves are on a diet designed to gain 1.5 lb/day, only about 1/3 of the total energy is available for gain.

If calves are gaining 2.8 lb/day and environmental stress (cold, rain, mud, heat) increases the energy requirement by 10%, it also decreases the amount of energy available for gain by 10%. But if calves are only gaining 1.5 lb/day, a similar increase in energy requirement will reduce gain by nearly 20%.



### **Feedlot Facts – “Mud Mitigation” (cont.)**

But mud also decreases feed intake, so in addition to the extra energy required to maintain body functions, intake may steal away energy from the other side of the equation. So it's conceivable that gain will be reduced by 1/3 to 1/2 when cattle are fighting deep mud.

Preparing for mud won't totally eliminate these performance costs, but we can reduce the losses:

Mounds within the pen. Cattle should have about 25 ft<sup>2</sup> of mound space per animal on top of the mounds (not including the slopes). 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 from the mound to the bunk.

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

Raising cattle has many rewards. By preparing pens for the wet times of the year cattle can continue to perform up to expectations, even during difficult environmental conditions. Sometimes, if we burn some diesel, we can help the cattle to actually SAVE energy!

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

↳ **Robert Weaber Awarded for Cow-Calf Genetics Work** - An associate professor in the KSU Animal Sciences and Industry Department received recognition for his early career work. Robert Weaber, K-State Research and Extension beef breeding and cow/calf specialist, received the 2013 American Dairy Science Association / American Society of Animal Science Midwest Section Outstanding Young Extension Specialist Award. Weaber's work focuses on cow-calf production and shows producers how to use certain genetic selection tools. By selecting animals with certain genetic traits, cattle producers can improve meat production and animal health. Weaber also encourages cattle producers to collect data and track genetic progress in their herds. The award is presented to honor leaders in the area of Extension. The 2013 award was sponsored by Land O'Lakes Purina Feed LLC.

↳ **Jennifer Minick Bormann Honored for Teaching Excellence** - A Kansas State University associate professor in the Animal Sciences and Industry Department received recognition for her contributions to education. Jennifer Minick Bormann, an associate professor at Kansas State University, received the 2013 American Dairy Science Association / American Society of Animal Science Midwest Section Outstanding Young Teacher Award. Bormann has a 75 percent teaching and 25 percent research appointment at Kansas State University. She is interested in livestock genetics, and currently studies feed efficiency and reproduction in beef cattle. Her main passion is teaching. Bormann helps her students understand genetics, animal breeding and equine science. She teaches six classes and advises 60 undergraduate students at K-State. She is also the primary advisor to the K-State Pre-Vet Club. The award is given to educators who make significant contributions early in their careers. The 2013 award was sponsored by the ASAS Foundation.

↳ **Genetic Selection, Management, and Technology Can Efficiently Increase Productivity, Meat Yield, and Beef Quality** - An extensive assimilation, review, and interpretation of research literature, technical bulletins, trade articles, and industry trends was conducted to reveal the combined and/or integrated benefits of improved genetics, improved management, and optimum use of technology to improve production efficiency, meat yield, and meat quality of cattle.

Drought and its long-term effects, including high prices of feeder and fed cattle, make it more difficult for producers to decide whether to retain more heifers to increase cow numbers. Demand for high-quality beef actually increased during the recent economic recession, which provides incentive for significant expansion if more herds produce more Premium Choice beef. There could be 3 to 4 million more beef cows by 2018 if ranchers were to rebuild herds with cattle that produce beef for high-quality markets. That could mean a 10% increase in overall demand for beef and long-term expansion of ≈6 million cattle. Retail beef reached a record high price of \$5.09/lb in January of 2012, which could have adverse short-term and long-term effects on beef demand. High unemployment, the recession, and higher food prices have strained consumers' budgets. A significant proportion of consumers have or will shift away from beef, particularly rib and loin cuts, because of high retail prices, and they likely will be slow to come back to beef.

Beef produced per animal in the U.S. has increased approximately 30% in the past 35 years, whereas land use by cattle has decreased 33%, but the industry is still producing too much waste fat. Carcasses with a high yield grade 3 average approximately 24% fat trim. Major Premium Choice beef programs now allow yield grade 4 carcasses (about 28% fat trim) to ensure adequate supply of product. In many instances, beef

cattle breeders and/or breeds have failed to make genetic improvements for meat yield and marbling; consequently, a significant proportion of cattle are fed to excessive fatness to attain Choice or Prime grades. Genetic improvement in marbling is an alternative. Sires are available for several breeds that excel in marbling, ribeye area, and fat thickness expected progeny differences (EPDs); even tenderness EPDs are now published for a few breeds. Implants are one of our most economically viable technologies, but aggressive or improper use of implants can decrease marbling and tenderness. A final problem is lack of control over aging periods employed by retailers.

**The Bottom Line:** The beef cattle industry will enjoy great opportunity in the coming years if greater attention is given to genetically improving production efficiency, effectively utilizing technology, and providing high-quality beef without feeding cattle to high levels of fatness. For more information contact Michael Dikeman (785-532-1225; mdikeman@k-state.edu).

↳ **Effects of Xylanase in High Co-Product Diets on Nutrient Digestibility in Finishing Pigs** – A total of 36 pigs (PIC 337 x 1050; initially 185 lb BW) were used in a 14-d study to evaluate the effects of xylanase (Porzyme 9302; Danisco Animal Nutrition, St. Louis, MO) in growing-finishing diets varying in dietary fiber on nutrient digestibility. Pigs were randomly allotted to 1 of 6 dietary treatments in a 2 x 3 factorial. Main effects were increasing dried distillers grains with solubles (DDGS; 35, 42.5, and 50%) with or without xylanase (0 or 4,000 units xylanase per kilogram of diet). The 6 treatment diets were corn-soybean meal-based with 15% added wheat middlings (midds) with 6 replications per treatment. All diets were fed in meal form. Multiple enzyme x DDGS interactive effects were observed for digestibility of various nutrients. The majority of these interactions resulted from differences in response to increasing DDGS with and without xylanase. In diets with xylanase, apparent digestibility generally decreased as DDGS increased. In diets with xylanase, apparent digestibility decreased as DDGS increased from 35 to 42.5% but increased in diets containing 50% DDGS. Overall, despite the interactions, increasing DDGS regardless of enzyme inclusion lowered apparent fecal digestibility of DM, GE, ADF, NDF, and zinc as well as fecal digestibility of fat, Ca, and P.

**Bottom Line...** Despite the interactions, adding dietary xylanase did not improve digestibility in corn-soybean meal-based diets containing fibrous co-products. More information is available on this experiment in the KSU Swine Day report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by M.D. Asmus, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J.L. Nelssen, and S.S. Dritz.)

↳ **Effects of Increasing Wheat Middlings and Net Energy Formulation on Nursery Pig Growth Performance** – A total of 210 pigs (PIC 327 x 1050, initially 15.15 lb) were used in a 29-d trial to evaluate the effects of dietary wheat middlings and NE formulation on nursery pig growth performance. Pens of pigs were balanced by initial BW and randomly allotted to 1 of 5 dietary treatments with 6 replications per treatment. The 5 corn-soybean meal-based diets were: (1) corn-soybean meal (positive control), (2) 10% added midds, (3) 20% added midds, (4) Treatment 2 with 1.4% added soybean oil, and (5) Treatment 3 with 2.8% added soybean oil. Treatments 4 and 5 were balanced on an NE basis equal to that of the positive control. Feed ingredients were assigned NE values for the growing pig by INRA (2004). From d 0 to 12, a midds x fat interaction was observed for ADFI. This was the result of pigs fed increasing midds having increased feed intake with no added fat but decreased intake when increasing fat was combined with increasing midds. From d 12 to 29, no midds x fat interactions were observed. For the main effects of midds (regardless of NE), there was a tendency for decreased ADG and poorer F/G. Feed efficiency was similar among pigs fed either 0 or 10% wheat midds, but decreased when midds increased to 20% of the diet; however, balancing on a NE basis tended to increase ADG compared with not balancing for NE when midds were added.

Overall (d 0 to 29), pigs fed increasing midds exhibited a tendency toward poorer F/G and energetic efficiency when expressed on an ME basis (kcal ME/lb gain), but when balanced on NE, increasing midds had no effect on pig performance. Caloric efficiency and F/G were also poorer on an ME basis as midds were included in the diets regardless of formulated energy value, but no differences were observed for energetic efficiency on an NE basis (kcal NE/lb gain). This result suggests that the ME values slightly overestimated the energy value of the soybean oil or midds added to the diet and that the NE values provided by IRNA (2004) are a closer approximation of the true energetic value of the feed ingredients. For overall economics, feed cost/pig increased as expected with the NE formulation due to the added soy oil, and increasing midds and balancing for NE increased feed cost/lb gain. The main effect of midds level decreased income over feed cost (IOFC); however, the highest numerical IOFC occurred at both 10% inclusion levels with and without balancing for NE.

**Bottom Line...** In summary, 10% midds can be added to nursery diets without influencing performance. Formulating on an equal NE basis did not improve growth over those pigs fed on a ME basis; however, energetic efficiency values indicate that NE may value the energy content in midds more appropriately. More information is available on this experiment in the KSU Swine Day Report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by J.A. De Jong, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, S.S. Dritz, and J.L. Nelssen.)

# AS&I Faculty Spotlight



**Teresa Douthit ([douthit@k-state.edu](mailto:douthit@k-state.edu); 785-532-1268)**  
**Assistant Professor/Equine Nutrition**

A native of St. Francis, KS, Teresa Douthit was raised on a farm that produced a variety of crops and registered horned Hereford cattle. While in St. Francis, Dr. Douthit showed horses, was active in 4H and FFA, and was a member of several state champion judging teams.

Dr. Douthit then judged livestock at Butler County Community College and later at KSU. She was also on the K-State Horse Judging Team that won the Congress in 1998. She graduated *summa cum laude* from KSU with a degree in animal science in 1999. She then completed an MS under Dr. Randel Raub in equine nutrition. While working on her MS, Teresa was an assistant coach for the KSU horse judging team and helped form the very first KSU equestrian team.

Teresa went to Colorado State in 2001 for a PhD in reproductive physiology. There she coached the horse judging team to two national championships at Arabian Nationals. She worked under Drs. Gordon Niswender and Jason Bruemmer in studying luteal function in mares and ewes.

In 2004, Dr. Douthit returned to K-State to accept a joint appointment with animal science (40%) and the equestrian team (60%). After serving as head coach to the KSU varsity equestrian team and coaching the team to a Reserve National Championship (along with producing several national champion riders), Dr. Douthit changed gears and became a full-time faculty member in the ASI department. In November 2006, she became an Assistant Professor in Equine Nutrition here at K-State. She now teaches Horse Science, Equine Nutrition, and Equine Exercise Physiology. She also supervises the KSU horse judging team and the equine evaluation courses. Her current appointment is 70% teaching and 30% research.

Dr. Douthit's research program has looked at the effect of fescue on digital circulation in the horse, and she is currently investigating preventive measures for laminitis. Her research program is also evaluating the glycemic response of horses to a variety of feedstuffs.



**Karol Fike ([karol@k-state.edu](mailto:karol@k-state.edu); 785-532-1104)**  
**Assistant Professor**

Karol Fike was raised on a diversified crop and livestock (beef cattle and sheep) operation in eastern Iowa. She completed her B.S. degree in Animal Sciences at Iowa State University in 1991. Karol continued her education at the University of Nebraska-Lincoln, earning her M.S. and Ph.D. studying reproductive physiology in beef cattle.

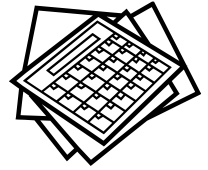
Karol has a passion for teaching and working with students. She taught courses in Anatomy and Physiology, Human Nutrition, and Biology at Western Iowa Tech Community College. She spent four years on faculty at Ohio State University teaching Introductory Animal Sciences, Animal Products, advising students, and coordinating the undergraduate internship program.

Here at K-State, Dr. Fike advises students, teaches Physiology of Reproduction in Farm Animals (ASI 710), Stress Physiology (ASI 825), Senior Seminar (ASI 580), she team-teaches Beef Science (ASI 515), and she coordinates the departmental internship program (ASI 599). Research interests include performance of electronic animal identification technologies and cattle reproductive physiology.

Karol, her husband Gary, and 3 children, Jackson, Marshall, and Grace live near Westmoreland, Kansas.

# What Producers Should Be Thinking About.....

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



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

Breeding season is beginning or continuing for many operations; therefore, both females and males must be reproductively fit.

- 1) Several estrus synchronization procedures have been developed. To determine the correct synchronization program to use, consider the following: age group of females (yearling replacement heifers vs. cows), commitment of time and efforts for heat detection, potential number of females that are anestrous (days post partum, body condition, calving difficulty), labor availability, and the return on investment for total commitment to the breeding program.
  - 2) Handle semen properly and use correct AI techniques to maximize fertility.
  - 3) Natural service bull should have body condition, eyes, feet, legs and reproductive parts closely monitored during the breeding season. Resolve any problems immediately.
  - 4) All bulls should have passed a breeding soundness examination prior to turnout.
- Begin your calf preconditioning program. Vaccination, castration and parasite control at a young age will decrease stress at weaning time. This is a time to add value to the calf crop.
  - Implanting calves older than 60 days of age will increase weaning weight.
  - Properly identify all cows and calves. Establish premises numbers for compliance with state and national programs.
  - Use best management practices (BMPs) to establish sustainable grazing systems.
  - Use good management practices when planting annual forage sources and harvesting perennial forages.
  - Maintain records that will verify calving season, health programs, and management practices.

*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.*