



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

March, 2014

### News from KSU Animal Sciences

#### In This Issue

- Upcoming Events
- Management Minute
- Feedlot Facts
- 2014 KSU Cattlemen's Day Article Featured
- 2013 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.

✉ **Kansas Junior Sheep Producer Day planned for March.** Kansas Junior Sheep Producer Day will be held on Saturday, March 29, 2014 at Kansas State University's Weber Hall in Manhattan, KS. Presentations and demonstrations by a featured speaker(s), as well as K-State faculty will cover topics such as selection, facilities and general care, health and vaccinations, nutrition, and showmanship.

ALL individuals attending (including adults) must register. Please visit the program website at [www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu) for more information and registration. For more information, contact Kristine Clowers ([clowers@ksu.edu](mailto:clowers@ksu.edu)) or Brian Faris ([brfaris@ksu.edu](mailto:brfaris@ksu.edu); 785-532-1255).

✉ **Dates set for Livestock Fair Management Clinics.** Every other year, K-State Research and Extension and the Department of Animal Sciences and Industry hosts a Livestock Fair Management Clinic for county fair board members, Extension Agents, and other adult volunteers involved in local livestock fair management and leadership. This professional development opportunity consists of an activity filled day to increase awareness and how different county fairs operate and provide a forum for open communication for individuals with local livestock fairs across Kansas.

There will be two different locations on two different days with the same general agenda. Tuesday, April 1, will be at the Shawnee County Farm Bureau Office: 3801 SW Wanamaker Road, Topeka, KS 66610. Wednesday, April 2 will be at the Great Bend Front Door: 1615 10th Street, Great Bend, KS 67530. Lunch and refreshments will be provided. The agenda includes:

- |                    |   |
|--------------------|---|
| 8:45 – 9:15 a.m.   | Registration  |
| 9:15 – 9:30 a.m.   | Welcome   |
| 9:30 – 10:15 a.m.  | Balancing the Fair Board and Extension Agent Relationship<br><i>Jim Mengarelli and Bronc Barrows</i>  |
| 10:15 – 10:30 a.m. | Break   |
| 10:30 – 11:30 a.m. | Official Policies of the Extension Role at County Fairs<br><i>Pam Van Horn, Dale Fjell and Chris Onsted</i>   |
| 11:30 – 12:00 noon | Identification of 4-H Animals – Differences between County and State Shows  |
| 12:00 – 12:45 p.m. | Lunch (provided)  |
| 12:45 – 1:30 p.m.  | Timing of Livestock Shows during the Fair <ul style="list-style-type: none"> <li>- Balancing Heat vs. Crowd Attendance</li> <li>- How Long Animals are at the Fair</li> </ul> |
| 1:30 – 2:15 p.m.   | Premium Sale Structure and Marketing Options for Animals  |
| 2:15 – 2:45 p.m.   | On-Your-Mind Open Topic Discussion  |
| 2:45 – 3:00 p.m.   | Wrap-up and Adjourn   |

Registration is \$15/person and is due by March 14. Checks can be made payable to "KSU-ASI" and mailed to "Livestock Fair Management Clinic, Attn: Lois Schreiner, 218 Weber Hall, KSU, Manhattan, KS 66506." For a registration form and a detailed agenda go to [www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu). The form is located in a link on the calendar at the top of the page. If you have any questions please contact Kristine Clowers via email ([clowers@ksu.edu](mailto:clowers@ksu.edu)); Joel DeRouchey (785-532-2280; [jderouch@ksu.edu](mailto:jderouch@ksu.edu)); or Brian Faris (785-532-1255; [brfaris@ksu.edu](mailto:brfaris@ksu.edu)).



- ↳ Plan to attend the **37th Midwest Processed/Cured Meat Workshop** on Friday, April 11, 2014 in Weber Hall at KSU. Terry Kern from Edgewood, Iowa will discuss his strategies for running a successful venison business and Chris Young, AAMP Outreach Specialist will talk about jerky and ham production. This is a great opportunity to see, hear and ask questions as state award winner Rick Weber, Mound City Butcher Block, demonstrates the manufacture and techniques used to make his award winning beef jerky. Have you ever had a problem with gassing in vacuum packaged fresh meat? Dr. Randall Phebus will tell you why this sometimes happens during production and what you can do to prevent this problem. Dr. Kadri Koppel will address the topic of salt flavor and its impact in meat. Shelby Scott, HACCP Coordinator with KDA, will bring you up to date on the current philosophy of regulatory HACCP and raw ground meat HACCP plans. Dr. Londa Nwadike will present information on consumer practices in meat handling and offer ideas on how processors can provide information to consumers. She will also discuss material that is being developed on food safety for vendors at farmers market. John Wolf, KSU Meat Lab Manager will share his expertise on bar coding and scanning for inventory management. Mark your calendar and come to this workshop to learn techniques to improve business strategies and product quality that could result in tastier product, longer shelf life, and greater sales and business opportunities. Contact Liz Boyle at [lboyle@ksu.edu](mailto:lboyle@ksu.edu) for more information.
- ↳ The **2nd Biennial K-State Sheep & Goat Conference** will be held May 2-4, 2014 at the K-State Sheep & Meat Goat Center and Weber Hall on campus. The event is targeted towards all sheep and goat producers. Producers focusing on commercial, purebred, show animal, and other production systems will all benefit from this conference. We will have nationally recognized speakers addressing topics related to selection, management, health, reproduction, nutrition, carcass evaluation, and lamb/chevon marketing. Please watch our website <http://www.ksusheepandgoats.org> (Click on "educational programs") for registration information and more details regarding the conference. Please contact Dr. Brian Faris at 785-532-1255 or [brfaris@ksu.edu](mailto:brfaris@ksu.edu) for any additional information.
- ↳ The **KSU Youth Horse Judging Camp – Beginners Section** will be held June 5, 2014 and the **KSU Youth Horse Judging Camp – Advanced Section** will be held June 3-4, 2014. Both camps will be held in Weber Arena on the KSU Campus. Registration for both camps must be paid by May 10, 2014. Camp will be limited to the first 30 participants. For more information, camp agenda and registration forms, 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)) or Tasha Dove at ([tashakd@ksu.edu](mailto:tashakd@ksu.edu)).
- ↳ **K-State Animal Sciences Leadership Academy Planned for June 11-14, 2014.** Kansas State University will host the sixth Annual K-State Animal Sciences Leadership Academy June 11-14 for young livestock industry leaders. This four-day event will focus on increasing young leaders' knowledge of Kansas' diverse livestock industry as well as building participant's leadership skills. Participants will be led by the Youth Livestock Program Coordinator, as well as three K-State students and will stay in K-State housing for the duration of the event.
- Twenty high school students will be selected to participate based upon educational, community, and agricultural involvement; as well as through an extensive essay application. Applications must be submitted via e-mail to [clowers@ksu.edu](mailto:clowers@ksu.edu) by 11:59 pm on Saturday, March 15, 2014. No late applications will be accepted. More information, including application form, is available at [www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu). For more information, contact Kristine Clowers ([clowers@ksu.edu](mailto:clowers@ksu.edu)).

#### CALENDAR OF UPCOMING EVENTS

Date	Event	Location
March 15, 2014	Application deadline for AS&I Leadership Academy	
March 29, 2014	Kansas Junior Sheep Producer Day	Manhattan
April 1, 2014	Livestock Fair Management Clinic	Topeka, KS
April 2, 2014	Livestock Fair Management Clinic	Great Bend, KS
April 11, 2014	37 <sup>th</sup> Midwest Meat Processing Workshop	Manhattan
May 2-4, 2014	KSU Sheep and Goat Conference	Manhattan
June 3-4, 2014	KSU Youth Horse Judging Camp – Advanced Section	Manhattan
June 3-5, 2014	Developing and Implementing HACCP in Meat, Poultry and Food Processing	Manhattan
June 5, 2014	KSU Youth Horse Judging Camp – Beginners Section	Manhattan
June 11-14, 2014	K-State Animal Sciences Leadership Academy	Manhattan

# WHAT'S NEW.....

## Management Minute "Spring Cleaning"

### ↪ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Spring Cleaning"

A friend of mine was once the assistant manager of a large ranching corporation. He enjoyed the outside work and was very good at it. But his job as a manager required mountains of paper work to be completed on a daily basis. When the heavy work seasons of calving and weaning came around, his extra pair of skilled hands was always needed outside: by the chute, on a horse, in a feed truck, in the shop, etc.

The problem is that the paper work didn't complete itself, and there was no "day-worker" for hire who could complete federal permits or tax ID statements. So when my friend came back into the office at 5 p.m. after an already long day, not only was his work not done, but it was piling up and getting away from him. This led to a great deal of stress and tension between himself and the general manager, not to mention a fair bit of confusion, frustration, and burnout.

As we head into the busy spring season, there may be a need to be exceptionally intentional about delineating job duties and priorities. In small businesses, everyone wears several hats, and that is especially true in agriculture. There will be opportunities for inside folks to get their hands dirty. The thinking is that the paper work will get done when the outside work slows down, and that may be true enough.

The question is, "What toll is that accumulating pile of inside work taking on those whose responsibility it will be to complete it?" Every properly designed job description will have duties clearly stated, and the duties will be clearly prioritized. If it is someone's priority to complete payroll before Friday, then there shouldn't be a 'temporary' priority change until after the field work is completed. That's not to say emergencies don't happen and flexibility isn't required, but there may be unintended consequences. After the emergency is alleviated, what steps can be taken to assist the person who wasn't permitted to complete their priority duties? Simply asking them to "go get your work done" is a good recipe for burnout and failed morale.

As we all get busy this spring, take time to discuss any potential deviations from "business as usual" ahead of time with all the affected parties, and then discuss ways to keep these deviations from settling around the shoulders of a few, key, individuals. They may be committed to the organization and may be able to deal with the stress for a short while, but concessions should be made to ensure their long-term satisfaction by rewarding their short-term sacrifices.

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

## Feedlot Facts "Grain Processing Matters"

### ↪ **Feedlot Facts** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Grain Processing Matters"

Livestock feeders often may feel like they are held hostage by the vagaries of the rest of the global market, particularly when it comes to feed cost. But there are a few things you can do to make sure you're getting the most out of your substantial investment.

Making sure you have an active implant with less than 100 days working in the cattle at all times is one idea. Another is ensuring adequate extent of grain processing to get thorough digestion and efficient utilization of the grain.

For decades, Midwestern feedlot nutritionists have recommended that "a coarse crack" is sufficient to get acceptable levels of digestion without risking bloat and acidosis. Interestingly, however, in the high plains, away from the corn belt, the feedlot industry felt the need for extensive grain processing 40 years ago when we all lived in a kinder, gentler, grain market. Now that grain prices have risen to stratospheric levels, we need a new paradigm. Some research data suggests we can improve the efficiency of corn utilization by 4-5%---\$20/head in today's corn market---by fine grinding (1,000-2,000 microns) instead of coarse cracking the grain.

## **Feedlot Facts – “Grain Processing Matters” (cont.)**

The other factor which can help us change our paradigm is our ubiquitous use of wet corn milling byproducts. These products are routinely priced at a value to corn, and are often included from 20-60% of the ration dry matter. This makes the diet a completely different beast than what nutritionists had to work with in the '70's, '80's, and '90's. If all the ingredients are dry, finer particles will tend to sift through the diet mixture and fall to the bottom of the bunk. If these fine particles contain mostly rapidly fermentable starch, there's a good risk of bloat.

Although the particle size of distillers grains is very fine, due to their fibrous nature, distillers grains fines do not present nearly as great of risk for causing bloat as corn fines. And the high moisture content improves the positional stability of the total mixture such that the fine particles remain mixed as opposed to settling to the bottom of the bunk. Those fines which do settle out will be a blend of corn fines and distillers grains, with a reduced risk of bloat.

Grinding corn to hog-feed consistency flies in the face of convention. But if you are using at least 20% (dry matter basis) of a wet milling byproduct ingredient, consider grinding the grain to a finer particle size to ensure maximum utilization of your sizable investment.

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

 **Free BQA Certification Offer for Beef and Dairy Producers** - As an agricultural leader in your state and community, we want to share the details about an important opportunity for beef and dairy producers in your area — FREE Beef Quality Assurance (BQA) certification until April 15.

Normally, the cost of certification is \$25 to \$50, but thanks to a partnership of the checkoff-funded Beef Quality Assurance (BQA) program, Boehringer Ingelheim Vetmedica, Inc. (BIVI) and the Beef Cattle Institute (BCI) housed at Kansas State University, certification is FREE. Visit [www.bqa.org/team](http://www.bqa.org/team) or [www.BIVI-BQA.com](http://www.BIVI-BQA.com) for details and to get started.

The beef industry has embraced the checkoff-funded [BQA](#) program because it is the right thing to do. As you know and understand, BQA provides practical management tools that cattlemen need to produce safe, high-quality beef. BQA develops practices that can also help improve efficiency and profitability for beef producers.

The BQA online programs are customized for cow/calf, stocker, feedlot and dairy operations. Developed and managed by the independent [Beef Cattle Institute](#), these easy-to-use modules teach sound management techniques that can be applied to their operations and used as employee training tools, too. They help cattle operations tell their story to consumers who might not understand all of the safety measures cattlemen take in producing the food on the table.

In 2013, more than 3,500 producers took advantage of BIVI's support of BQA online certification. And, in this second year of the BIVI partnership, they are hoping to certify or recertify even more producers.

We would appreciate your help in sharing this BQA certification opportunity with beef and dairy producers in your area. To get started, visit [www.BQA.org/team](http://www.BQA.org/team) or [www.BIVI-BQA.com](http://www.BIVI-BQA.com). For more information about your beef checkoff, visit [MyBeefCheckoff.com](http://MyBeefCheckoff.com).

 The Department of Animal Sciences and Industry at Kansas State University seeks applicants for a **Postdoctoral Research Assistant, Physiology and Behavior position**. This is a full-time, 12-month, term position. Applicants must have a Ph.D. in Animal Science, Dairy Science, Applied Ethology, Physiology, Immunology, or a closely related field at time of hire. View complete position announcement at: [www.asi.ksu.edu/about/job-announcements.html](http://www.asi.ksu.edu/about/job-announcements.html). Review of applications begins April 15, 2014, and continues until a suitable candidate is identified.

 **Suggested Guidelines for Tagging 4-H Pigs to Limit Disease Risk now available** - An updated "Suggested guidelines for tagging 4-H pigs to limit disease risk" has been posted to [www.YouthLivestock.KSU.edu](http://www.YouthLivestock.KSU.edu). With the current swine producer concerns with porcine epidemic diarrhea virus (PEDV) we recommend that counties review their procedures for swine tagging. Contact Dr. Larry Hollis, DVM, Extension Veterinarian (785-532-1246; [lhollis@ksu.edu](mailto:lhollis@ksu.edu)), Dr. Steve Dritz, DVM, Swine Specialist (785-532-4202; [Dritz@vet.k-state.edu](mailto:Dritz@vet.k-state.edu)), Dr. Mike Tokach, Extension Swine Specialist (785-532-2032; [mtokach@ksu.edu](mailto:mtokach@ksu.edu)) or Dr. Joel DeRouchey, Extension Livestock Specialist (785-532-2280; [jderouch@ksu.edu](mailto:jderouch@ksu.edu)) for more information.

Additional information about PEDV can be found at the National Pork Board website – [www.pork.org/pedv](http://www.pork.org/pedv). Factsheets specifically directed towards exhibitors and organizers of yourh swine expositions are available.

↪ **Dry Matter Intake Decreases When Feeding Zilmax During the Summer** - This trial was designed to evaluate relationships between feed dry matter intake before and after initiation of Zilmax (Merck Animal Health; Summit, NJ) feeding in three commercial feedyards and determine how this relationship is affected by season, gender, and pre-Zilmax feed intake. 1,515 pens of steers and heifers fed at three commercial feedlots in Kansas were used to investigate the prevalence and extent of changes in dry matter intake (DMI) after initiation of Zilmax feeding. Feed intake after introduction of Zilmax decreased in 75% of pens and increased in 25% of pens. Feed intake declined within one day after initiation of ZIL feeding; however, this effect was greater in the summer and winter than during the spring or fall. As pre-Zilmax feed intake increased, percentage of pens with a decrease in feed intake after introduction of Zilmax also increased.

**The Bottom Line:** Because dry matter intake of cattle fed Zilmax declines during the summer months and for cattle consuming greater amounts of dry matter prior to feeding Zilmax, performance and quality grade projections should be adjusted accordingly. View the complete research report at [www.asi.ksu.edu/cattlemensday](http://www.asi.ksu.edu/cattlemensday). For more information, contact Chris Reinhardt (785-532-1672; [cdr3@ksu.edu](mailto:cdr3@ksu.edu)).

↪ **Evaluation of Antibiotics and Benzoic Acid on Growth Performance of Nursery Pigs** - A total of 240 weanling pigs (PIC 327 × 1050, initially 16.1 lb, 3 d postweaning) were used in a 28-d trial to evaluate the effects of benzoic acid and antibiotics on growth performance. Treatments were arranged as a 2 × 2 factorial (with or without 0.5% Vevovitall, a source of benzoic acid; DSM Nutritional Products, Parsippany, NJ), and with or without Mecadox (Philbro Animal Health Corp., Ridgefield Park, NJ). The 4 dietary treatments included a control (1) without Mecadox or Vivovitall, (2) without Mecadox and with Vevovitall, (3) with Mecadox and without Vevovitall, and (4) with Mecadox and Vevovitall. No interactions were observed between Mecadox and Vevovitall on growth performance. From d 0 to 14, there were no differences in ADG or ADFI between pigs fed diets with or without Mecadox, but pigs fed Mecadox tended to have poorer F/G than pigs fed diets without Mecadox. From d 14 to 28, pigs fed Mecadox had improved ADG, ADFI, and F/G compared with pigs fed diets without Mecadox. Overall (d 0 to 28), pigs fed Mecadox had increased ADG and ADFI. For the main effect of Vevovitall, there were no differences in ADG, ADFI, or F/G during either phase or for the overall data. Feeding Mecadox increased ADG and ADFI, but no improvements in growth were found when benzoic acid was included in the diets.

**Bottom Line...** Feeding Mecadox increased ADG and ADFI, but no improvements in growth were found when benzoic acid was included in the diets. More information is available in the KSU Swine Day Report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by J.E. Nemechek, M.D. Tokach, S.S. Dritz, R.D. Goodband, J.M. DeRouchey, and J.R. Bergstrom.)

↪ **Feed Processing Parameters and Their Effects on Nursery Pig Growth Performance** - A total of 180 nursery pigs (PIC 327 × 1050; initially 27.8 lb) were used in an 18-d study to determine the effects of conditioning parameters and feed form on pig performance. All diets were the same corn, dried distillers grains with solubles (DDGS), and soybean meal-based formulation with different processing parameters used to create the experimental treatments. Treatments included: (1) negative control mash diet, (2) positive control pelleted diet conditioned at 60 rpm, (3) pelleted diet conditioned at 30 rpm and reground, (4) pelleted diet conditioned at 60 rpm and reground, and (5) pelleted diet conditioned at 90 rpm and reground. The different rpm values among treatments represent the time in the conditioner during processing. The lower the rpm value, the longer time feed was in the conditioner. Pigs were weaned and fed a common acclimation diet for 21 d prior to the start of the experiment. Average daily gain and F/G did not differ between treatments overall, but ADFI decreased for pigs fed the pelleted, positive control diet compared with all other diets. Although no overall treatment effects were significant for ADG or F/G, the experiment was designed more specifically to evaluate treatment differences using preplanned comparisons. When considering preplanned contrasts, we observed that pigs fed mash diets tended to have greater ADG than those fed pelleted and reground diets, suggesting that processing may have had a negative influence on feed utilization, a hypothesis that is further supported because pigs fed mash diets tended to have greater ADG compared with those fed diets that were heat-processed, regardless of regrinding. Considering these results, it was not surprising that pigs fed mash diets had greater ADG and ADFI than those fed pelleted diets. When directly comparing diets conditioned at 60 rpm, fed either as whole pellets or reground to mash consistency, pigs fed pelleted diets had improved F/G due to lower ADFI but similar ADG. This unexpected negative impact of pelleting on ADG may be due to a negative influence of heat treatment on palatability.

**Bottom Line...** The expected improvement in F/G from pelleting (6.8%) was observed but lost when diets were reground to near original mash particle size. This result may indicate that diet form (high-quality pellets vs. mash) affects F/G more than degree of starch gelatinization or other intrinsic factors associated with conditioning ingredients. More information is available in the KSU Swine Day Report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by L.L. Lewis, C.K. Jones, A.C. Fahrenholz, M.A.D. Goncalves, C.R. Stark, and J.M. DeRouchey)

# AS&I Faculty Spotlight



**Scott Schaake (simmi@k-state.edu; 785-532-1242)**  
**Associate Professor/Beef Cattle Production & Management**

Dr. Scott Schaake was raised on a cow-calf ranch/row crop operation near Lawrence Kansas. He graduated from Kansas State University in 1984 with a B.S. in Animal Sciences and Industry. He earned his M.S. at Clemson University and Ph.D. at the University of Kentucky, specializing in the area of Meat Science.

He served as the coach of the Livestock Judging Team from 1992 to 2013. His teams won five National Championships during his tenure as a coach at Kansas State University. He is also involved with teaching Introductory Animal Science Lab and Livestock and Meat Evaluation. In addition to his teaching responsibilities he advises 30-40 undergraduate students each year.

Dr. Schaake has judged livestock shows in 32 states, Canada, South America and Mexico. His personal interest includes all types of sports, hunting, fishing and attending his sons' sporting events. His family includes wife, Kandi, and sons Shane and Shilo.



**Bob Goodband (goodband@k-state.edu; 785-532-1228)**  
**Professor/Extension Swine Specialist**

Dr. Bob Goodband was born in 1961 in Walpole, Massachusetts. He graduated from The Pennsylvania State University in 1984. He obtained his M.S. (1986) and Ph.D. (1989) in Swine Nutrition at Kansas State University, and then joined the Department of Animal Sciences and Industry as an Assistant Professor with a 60% extension and 40% teaching appointment. In 1995, Bob was promoted to associate professor and in 2001 full professor with a 40% extension, 40% teaching, and 20% research appointment.

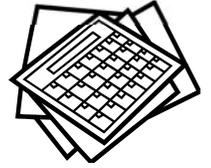
Bob's current teaching assignment includes ASI 535, Swine Science which is taught both fall and spring semesters. This class covers the basics of modern, sustainable swine production and includes a laboratory session where students are exposed to hands-on training at the Swine Teaching and Research Farm. Bob also advises approximately 40 undergraduate students each year and has been the major professor for 9 M.S. and 5 Ph.D. students. Bob has excelled in his teaching appointment by his enthusiastic and practical approach to classes. As a result of his accomplishments, in 2013 Bob was selected by the students as the College of Agriculture Advisor of the year.

Bob, his wife Dani, and son Brady enjoy K-State football games, and spending time on their small farm outside of Riley, KS.

# 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.*