



Newsletter from the Department of Animal Sciences and Industry
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May, 2015

News from KSU Animal Sciences

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We Need Your Help!

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



UPCOMING EVENTS...

↗ **Kansas State University continues Barbecue 101 workshops in May and June.** Very successful BBQ 101 workshops were held in May in Olathe and Manhattan. You can still sign up sessions to be held in Hays and Arkansas City. Barbecue 101 is a one day workshop focusing on teaching the basics of grilling and smoking to consumers of all ages and experience levels. Dates and locations for the remaining workshops include:

May 30 – Ag Research Center, Hays, KS

June 6 – Brown Center, Cowley College, Arkansas City, KS

The schedule includes:

8:00 Welcome

8:15 Meat Cutting Basics

9:15 All About Rubs & Spices

9:45 Break

10:00 BBQ Food Safety

10:30 Science of Smoking

11:30 Lunch

12:30-3:00 Afternoon Station Rotations

Selecting the Right Smoker for You

BBQ Regionality: A Difference in Sauce

Meat Cuts to Stretch the BBQ Dollar

Taste the Difference: It's All in the Wood

Meat Preparation & Selection

3:30 Competition BBQ Expert Roundtable

4:00 Closing & Evaluations

Registration is \$50 for an individual or \$80 for a couple. Registration closes one week prior to each scheduled event. Registration fee includes lunch, apron and Barbecue 101 Course Book containing cooking guides, recipes and barbecue tips and tricks. Space is limited at each location. For a registration form and more information, visit www.asi.k-state.edu/barbecue101workshop.html. For more information, contact Travis O'Quinn (travisquinn@ksu.edu; 785-532-3469).

↗ The **KSU Youth Horse Judging Camp – Beginners Section** will be held June 2, 2015 and the **KSU Youth Horse Judging Camp – Advanced Section** will be held June 3-4, 2015. Both camps will be held in Weber Arena on the KSU Campus. For more information, visit the website www.asi.ksu.edu/p.aspx?tabid=1141. You can also contact James Lattimer (785-532-2840; jlattimer@ksu.edu) or Tasha Dove at (tashakd@ksu.edu).

↗ **Developing and Implementing Your Company's HACCP Plan** for meat, poultry, and food processors will be held June 2-4, 2015, in Weber Hall, Kansas State University, Manhattan and October 7-9, 2015 in Olathe, KS. Information and registration for the 2.5 day International HACCP Alliance accredited workshop is online at <http://haccp.unl.edu>. The workshop fee is \$400 per person, and participants will be presented with a certificate with an International HACCP Alliance seal upon completion of the course. For more information, contact Dr. Liz Boyle (lboyle@ksu.edu; 785-532-1247).

- ☞ **K-State Livestock Judging Camps** - A three day, intense judging camp 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. . The camp will focus primarily on the proper format, terminology, and presentation of oral reasons. The registration deadline is May 18. The following dates are set for the 2015 camps: June 8-10; June 12-14; and June 16-18. Please read the camp information at [http://www.asi.k-state.edu/students-and-programs/JudgingCamp15 Information.pdf](http://www.asi.k-state.edu/students-and-programs/JudgingCamp15%20Information.pdf). For more information, contact Kristi Hageman (785-532-2996; klsmith@ksu.edu).
- ☞ **K-State Animal Sciences Leadership Academy will be held in June.** Kansas State University will host the 7th Annual K-State Animal Sciences Leadership Academy for young livestock industry leaders in Kansas on June 10-13 and June 17-20, 2015. This intensive four day educational experience will focus on increasing the participant's knowledge of a dynamic and sustainable livestock industry and its importance to a global food system. Please contact Sharon Breiner with questions at sharonjbreiner@gmail.com.
- ☞ **The 2015 Beef Improvement Federation (BIF) Research Symposium and Convention is set for June 9-12, in Biloxi, Mississippi.** - For nearly 50 years the Beef Improvement Federation has hosted their annual research symposium and convention. The convention serves to facilitate discussion and provide education on current issues facing the beef industry. For the latest information about the 2015 BIF Symposium and Convention along with registration and hotel information, visit www.beefimprovement.org.
- ☞ **2015 Dr. Bob Hines' Kansas Swine Classic planned for July.** The 2015 Dr. Bob Hines Swine Classic is scheduled for July 10-11, at CiCo Park in Manhattan. This two-day event includes educational workshops, showmanship contest, and a prospect and market hog show. It is open to all Kansas youths ages 7 through 18 as of 1/1/2015 This year's Classic will feature an Extemporaneous Speaking Contest and Swine Photo Contest along with an educational program which includes information on "Keeping your Show Gilt for Breeding." More information and registration is coming soon to www.KSUswine.org. For more information, contact Joel DeRouchey (785-532-2280; jderouch@ksu.edu), or Jim Nelssen (785-532-1251; jnelssen@ksu.edu).
- ☞ The **2015 KSU Beef Stocker Field Day** will be held on Thursday, September 24, 2015 at the KSU Stocker Unit, Manhattan, KS. Watch for more details coming soon to www.KSUbeef.org. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427).
- ☞ Join us for the **AS&I Family and Friends Reunion to be held on Friday, October 9, 2015**, from 6:00–9:30 p.m. at the Stanley Stout Center, 2200 Denison Avenue, Manhattan, Kansas. This inaugural event will celebrate the K-State Animal Sciences & Industry family and thank our industry friends for decades of contributions to animal agriculture. The first Don L. Good Impact Award recipient will be announced at this event. Other activities include great food, live music, a commemorative limited edition take-home poster created by noted artist and K-State AS&I alum, Dino Cornay, Junior Wildcat Barn Yard and more surprises!!
- We will also be hosting a Tailgate/Watch Party for the football game (KSU vs. TCU) on Saturday, October 10, 2015. Time will be 2 hours before the scheduled game time which is to be determined. Come join us for the fun! For more information and a registration form, visit www.asi.ksu.edu/familyandfriendsreunion.html

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
May 30, 2015	Barbecue 101 Workshop	Hays
June 2, 2015	KSU Youth Horse Judging Camp – Beginners Section	Manhattan
June 2-4, 2015	Developing and Implementing Your Company's HACCP Plan	Manhattan
June 3-4, 2015	KSU Youth Horse Judging Camp – Advanced Section	Manhattan
June 6, 2015	Barbecue 101 Workshop	Arkansas City
June 8-10, 2015	KSU Livestock Judging Camp	Manhattan
June 9-12, 2015	Beef Improvement Federation Research Symposium	Biloxi, MS
June 10-13, 2015	Animal Sciences Leadership Academy	Manhattan
June 12-14, 2015	KSU Livestock Judging Camp	Manhattan
June 16-18, 2015	KSU Livestock Judging Camp	Manhattan
June 17-20, 2015	Animal Sciences Leadership Academy	Manhattan
July 10-11, 2015	Dr. Bob Hines Kansas Swine Classic	Manhattan
September 24, 2015	KSU Beef Stocker Field Day	Manhattan
October 9, 2015	AS&I Family and Friends Reunion	Manhattan

WHAT'S NEW.....

Management Minute "Making Room"

↙ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist **"Making Room"**

The sentiment is nearly universally felt: Good employees are hard to find. Hence, there is a need for progressive employers to be constantly recruiting rather than only recruiting during a crisis. Also, they need to be recruiting otherwise satisfied employees rather than only those who are either out of work or simply miserable in their current situation.

There is a potential downside to this shift in recruitment strategy, however. What happens when you recruit someone who is (a) hard-working, (b) intelligent, (c) creative, (d) team-oriented, and (e) not suited to the job opening you currently have?

Obviously, this is a good problem to have. But the question is, can you afford to take on a person who fits your organization in every way except one---the actual job description of the open position? How do you manage this challenge? That's why you, the manager, earn the Big Bucks!

If the opening posited truism---Good employees are hard to find---is actually true, then you can hardly turn away an unexpected gift. If the person is of high quality, the person will not be available very long. The key to making this situation work, in the short-term and the long-term, is having an organizational philosophy that allows and encourages flexibility within the team to make space for talented people.

If the job opening is for Job A but the person brings assets better suited for Job B (which isn't currently open), is there any way to harness at least some of the person's Job B talents and interests while stretching the person to complete some or most of the duties of Job A? Can one or more current members of the team be asked to shift some of their existing duties to partner with the new team member in order to completely cover the entirety of Job A? Can the person, although not ideally suited to nor thoroughly interested in Job A, be asked to fulfill the duties of Job A on a short-term basis, until a more permanent compromise solution can be fitted?

Without abundant flexibility on the parts of the organization, the manager, the team, and the prospective new team mate, there is no solution; you shouldn't hire this person.

But if all parties feel there can be a fit, and are willing to work differently and adapt to create a novel solution to the challenge, this could be a successful marriage. Organizations who work this way are attractive to talented people, and tend to lead, rather than follow, in the industry.

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

Feedlot Facts "Watch the Fat – an Update"

↙ **Feedlot Facts** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist **"Watch the Fat – an Update"**

Since the advent of cattle feeding, we learned early on that cattle make very good use of by-product feeds that monogastrics---pigs, chickens, and people---can use very little of productively, especially if cellulose---fiber---makes up the majority of the feed. The corollary to that guideline is that if cattle have to compete with humans for a feedstock, humans win.

Three decades ago, wheat was a common ingredient in feedlot diets throughout the high plains. Today, the opportunity only occasionally presents itself due to temporary pricing inversions. We like our bread and Twinkies---humans win.

A similar, but more subtle phenomenon has taken place gradually over the past few years, since the ethanol industry boom began. Corn oil is worth more marketed to humans as that---corn oil---than to livestock in the form of distillers' grains (DG), and the ethanol plants have developed novel technologies to extract an increasing amount of that oil from the by-product.

Early on, the fat content of corn DG was commonly between 11 and 13%; however, today, some corn DG with fat levels near 8%, and some as low as 4%. Fat in cattle feed contains 2.25 times the energy of carbohydrates, so removing fat such that the void left is filled with predominantly cellulose, would be expected to result in a lower energy feed.

↪ **Feedlot Facts – “Watch the Fat – an Update” (cont.)**

As a capitalist, I am in favor of ethanol companies finding a way to increase their revenue from secondary product streams. But as a cattle nutritionist, I must also be aware that removal of oil from DG will dramatically reduce the value of the by-product for cattle feed.

Recent research conducted at the University of Minnesota concluded that for every 1% decrease in fat content of the DG, we should expect nearly 2 Mcal NEg / cwt reduction in energy value. Or, if your DG are 8% fat instead of 12% fat, the NEg for those DG is 65 instead of 73. So if DG makes up 40% of the finishing diet, and fat content of those DG was formerly 12% and is now 8%, we've lost 3.2 Mcal NEg in the final diet. We're feeding a 61 Mcal NEg finishing diet when we used to feed a 64 Mcal NEg diet. That's a substantial change. If the DG has 4.5% fat, we're feeding a 58 Mcal NEg finishing diet---a “hot” grower diet really. Low-fat DG has less value for finishing cattle than does high-fat DG.

Fat content is a major reason DG have value in the finishing diet. If the fat percentage in DG has decreased over time, the feed value of DG for a cattle finishing diet is also decreased, and the astute cattle feeder should adjust pricing expectations accordingly.

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

↪ The Department of Animal Sciences and Industry, Kansas State University seeks applicants for a **Student Services Coordinator**. Full-time, 12-month, regular position; B.S. required. Strong computer skills (including MS Word, Excel, Access, PowerPoint) and webpage editing software. View complete position announcement at: www.asi.ksu.edu/about/job-announcements.html. KSU is EOE of individuals with disabilities and protected veterans and actively seeks diversity among its employees. Background check required. For additional information, please contact Dr. John Unruh at junruh@ksu.edu. Review of applications begins on 5/22/2015 and continues until the position is filled.

↪ Please welcome **Lexie Hayes to the AS&I family as our new Youth Livestock Coordinator**. She will begin her role in the Animal Sciences Department on June 7, 2015. Lexie is a Kansas native who received her BS from Kansas State University and MS from Texas A&M University. She has worked for the Oklahoma Cooperative Extension Service and served as the 4-H Youth Development Extension Educator in Comanche County, Lawton, Oklahoma since 2009. Her primary responsibilities included assessing the needs of the youth in her community, developing educational programs to address those needs, and evaluating those programs. Lexie has won several awards for her educational programs. She has also assisted with a variety of livestock shows, from the county fair to nationally renowned events, like the Tulsa State Fair Jr. Market Steer Show. She has been actively involved on the Oklahoma 4-H Horse Council and the SW District 4-H Horse Council. While growing up, Lexie showed several different livestock species as an active 4-H'er. She also was an active FFA member.

↪ **Effects of Growth-Promoting Technologies on Feedlot Performance and Carcass Characteristics of Crossbred Heifers** – The objective was to determine the effects of two growth-promoting programs on feedlot heifer performance and carcass characteristics. Two groups of crossbred heifers (n = 33 and 32) were subjected to exogenous growth-promoting technologies. Treatments consisted of: control (no implant or Optaflexx [Elanco Animal Health, Greenfield, IN]); implant (Component TE-200 [Elanco Animal Health] on day 0 and no Optaflexx); Optaflexx/implant (Component TE-200 on day 0 and Optaflexx supplementation at 400 mg per head for the final 28 days for group 1 and 29 days for group 2). After the feedlot phase, cattle were shipped to a commercial abattoir and carcass characteristics were recorded.

Bottom Line... Animals subjected to growth-promoting technologies utilized similar amounts of feed yet produced greater amounts of lean muscle tissue, as shown through improvements in strip loin weights and ribeye area. View the complete report at www.asi.ksu.edu/cattlemensday. For more information, contact John Gonzalez (785-532-3448; johngonz@ksu.edu) or Chris Reinhardt (785-532-1672; cdr3@ksu.edu)

↪ **Lactipro (*Megasphaera elsdenii*) Increases Ruminal pH and Alters Volatile Fatty Acids During Transition to an 80% Concentrate Diet-** The objective was to evaluate changes in ruminal pH and ruminal concentrations of organic acids during transition to a diet containing 80% concentrate after orally administering 0, 25, 50, 75, or 100 mL of *Megasphaera elsdenii* culture (Lactipro; MS-Biotec, Wamego, KS). Crossbred heifers (n = 240, body weight 1,100 lb) were sorted by weight and assigned to one of five treatments. Treatments consisted of oral dosages of 0, 25, 50, 75, and 100 mL of Lactipro administered orally before transition to an 80% concentrate diet. Intakes were measured and ruminal samples were collected at 5, 10, 15, 20, 25, and 30 hours after dosing. Ruminal samples were measured for pH, volatile fatty acid, and lactic acid concentration.

Bottom Line... Dosing heifers with Lactipro (*Megasphaera elsdenii*) increased pH, altered volatile fatty acid concentrations, and improved feed efficiency. View the complete report at www.asi.ksu.edu/cattlemensday. For more information, contact Jim Drouillard (785-532-1204; jdrouill@ksu.edu) or Chris Reinhardt (785-532-1262; cdr3@ksu.edu).

↪ **Evaluation of Specialty Soy Protein Sources on Nursery Pig Performance** - A 35-d growth trial was conducted to evaluate the effects of a new soy protein source, Nutrivance (TechMix, Stewart, MN), on nursery pig growth performance. Nutrivance is a modified soy protein produced via a proprietary process combining extraction and enzymatic treatment of soybeans. Pigs ($n = 1,188$, PIC 337 × 1050; initially 9.8 lb BW) were weaned at 21 d of age and allotted by weight to pens with 27 pigs per pen. Pigs were fed a common diet for 15 d before the start of the study. Pens of pigs (13.5 lb BW) were then allotted to 1 of 4 dietary treatments fed for 14 d followed by a common diet fed for 21 d. The 4 experimental treatments were a corn-soybean meal-based control diet, or a corn-soybean meal-based diet with either 8% Nutrivance, 8.65% HP-300 (Hamlet Protein, Findlay, OH), or 6.85% Soycomil P (Archer Daniels Midland Co., Decatur, IL). The diets were formulated to the same standardized ileal digestible lysine level with specialty soy protein products replacing a portion of soybean meal in the control diet to form the experimental treatments.

From d 0 to 14, there were no differences in ADG or F/G; however, pigs fed the diets containing Nutrivance or HP-300 had decreased ADFI compared with those fed the control diet, with pigs fed diets containing SPC intermediate. From d 14 to 35 when a common diet was fed, pigs previously fed the diet with the HP-300 had lower ADFI compared with pigs fed the control diet, with pigs previously fed diets containing Nutrivance or SPC intermediate. From d 0 to 35, pigs fed diets containing Nutrivance or HP-300 had decreased ADG and ADFI compared with pigs fed the control diet, with pigs fed diets containing SPC intermediate. Final weight (d 35) was greatest for pigs fed the control diet and lowest for pigs fed the diet with Nutrivance, and pigs fed the diets with HP-300 or SPC were intermediate.

Bottom Line... In conclusion, differences exist between alternative specialty soy protein sources, but, the corn-soybean meal control diet elicited the greatest growth performance in this study. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by K.E. Jordan, M.A.D. Goncalves, M.D. Tokach, S.S. Dritz, R.D. Goodband, J.M. DeRouchey, and J.C. Woodworth.)

↪ **Effects of PepSoyGen Processing Method on Nursery Pig Growth Performance** - A total of 292 weaning pigs (PIC 327 × 1050; 13.3 ± 2.4 lb BW and 21 d of age) were used in a 31-d experiment evaluating the effects of alternative PepSoyGen processing methods for nursery pig diets. There were 11 replicate pens per treatment and 6 or 7 pigs per pen. At weaning, pigs were allotted to pens by initial weight to 1 of 4 treatments in a completely randomized design. A 3-phase diet series was used with treatment diets fed during Phase 1 (d 0 to 7) and Phase 2 (d 7 to 21), with a common diet fed from d 21 to 31. Diets were: (1) negative control (corn, soybean meal, and dried whey), (2) positive control (4% DPS 50 + 1% PepSoyGen), (3) PepSoyGen processing method 1 (PSG1; 5%), and (4) PepSoyGen processing method 2 (PSG2; 5%). The alternative PepSoyGen processing methods incorporated increasing levels of a proprietary additive post-fermentation (PSG2 > PSG1) aimed at further breakdown of anti-nutritional factors associated with soybean meal. Nutrient analyses generally matched formulated levels for negative and positive control diets, but for both PSG1 and PSG2, CP and amino acid concentrations were lower than formulated, with PSG1 generally 10% lower than PSG2.

In Phase 1, pigs fed the positive control diet had improved ADG and feed efficiency compared with pigs fed the negative control, whereas pigs fed PSG1 and PSG2 diets were intermediate for feed efficiency but tended to have increased ADG compared with those fed the negative control. For Phase 2, there were no significant differences in growth performance between treatment diets. For the overall experimental period (d 0 to 21), pigs fed the positive control diet and PSG2 diet had improved ADG, whereas pigs fed the positive control, PSG1, and PSG2 diets had improved feed efficiency compared with pigs fed the negative control diet. Also, pigs fed PSG1 tended to have lower ADG compared with pigs fed the positive control diet. During the Phase 3 common period, no difference in growth performance was observed. Overall (d 0 to 31), ADG was greater for pigs fed the positive control diet and tended to be greater for pigs fed diets containing PSG2 than the negative control diet, with pigs fed PSG1 intermediate.

Bottom Line... In conclusion, pigs fed the PSG1 or PSG2 diets had similar performance to pigs fed the positive control diet. Numerically, the PSG2 diet elicited greater performance than the PSG1 diet, but it is unclear whether this response is reflective of the reduced CP and amino acid content in the PSG1 diet or if the differences in processing method affected growth response. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by A.B. Clark, H.L. Frobose, J.M. DeRouchey, M.D. Tokach, S.S. Dritz, R.D. Goodband, and J.C. Woodworth)

AS&I Faculty Spotlight



Jim Drouillard (jdrouill@k-state.edu; 785-532-1204)

Professor/Beef Cattle Nutrition

Jim Drouillard joined the K-State faculty in 1995, and he, his wife Patti, daughter Kameron, and son Jason are residents of Olsburg.

A two-time Gator, Jim received his Bachelor's (Animal Science) and Master's (Animal Breeding) degrees from the University of Florida in 1985 and 1986, and his Ph.D. from the University of Nebraska in 1989. Jim has responsibilities in teaching (20%) and research (80%), and is faculty coordinator for the Beef Cattle Research Center. His research has focused on feedlot cattle production, emphasizing grain processing, pre-harvest food safety, byproduct utilization, and the effects of diet on cattle health, performance, carcass quality, and meat composition.

He currently teaches Formulation of Livestock and Poultry Diets (ASI 682) and Nutrition of Feedlot Cattle (ASI 684).



Joann Kouba (jkouba@k-state.edu; 785-532-1240)

Associate Professor/Equine Physiology

Dr. Kouba was born and raised in Bellevue, Nebraska (south of Omaha). She entered Northeast Missouri State University (now formally named Truman State University) in 1989, majoring in Animal Science with an Equine emphasis. Following graduation, she began her graduate career in animal physiology at Clemson University in Clemson, South Carolina in the fall of 1993. While at Clemson, she was actively involved in their undergraduate teaching program, and had responsibility for teaching two popular equine courses. Her thesis focused on the use of Domperidone to treat pregnant mares grazing endophyte-infected tall fescue. After completing her M.S. in 1995, she moved to Texas and started on her Ph.D. in equine reproductive physiology at Texas A&M University in the spring of 1996. While at A&M, Dr. Kouba was also heavily involved in their undergraduate program, teaching courses in horse training,

horsemanship, reproduction and management, as well as the introductory animal science labs. Her dissertation dealt with the control of prolactin secretion in the pregnant mare, and the interaction between various reproductive hormones and endogenous opioids.

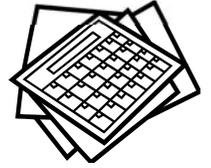
In the fall of 2001, Dr. Kouba joined the KSU faculty as the horse teaching and research specialist with a 80% teaching and 20% research appointment. She currently teaches 7 on-campus equine courses as well as 3 distance courses, advises ~60 students, serves as the faculty coordinator for the KSU Horse Teaching and Research Unit, is the advisor for the KSU Horseman's Association, and mentors a number of graduate students pursuing advanced degrees with an equine emphasis.

Beyond her on-campus classes, Dr. Kouba also believes in enhancing educational opportunities for students through international experiences. In May of 2008, she led a study tour with Dr. Guy Kiracofe that focused on the diverse equine industries in Ireland, Scotland and England.

Dr. Kouba's research program currently focuses on the role of omega-3 fatty acids in equine reproduction and foal growth and immunity. The overall goal of this research is to make better recommendations to consumers about incorporating omega-3 fatty acids into the diets of their mares and foals.

What Producers Should Be Thinking About.....

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



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

Cowherd Nutrition

- Provide plenty of clean, fresh water.
- Provide free-choice mineral to correct any mineral deficiencies or imbalances.
 - ✓ Monitor intake to insure levels are consistent with label specifications.
- Monitor grazing conditions and rotate pastures if possible and/or practical.
- If ammoniated wheat straw is planned for winter needs, follow these rules:
 - ✓ Best time is immediately after harvest, prior to weather deterioration.
 - ✓ Ammoniation process is temperature sensitive, fastest during hot days.
 - ✓ Apply 3% Anhydrous Ammonia (60 pounds/ton of straw).
 - ✓ Do ***not*** ammoniate wheat hay or any other intermediate or high quality forage; production of imidazole can cause cattle hyperactivity and death.
 - ✓ Will double crude protein content, enhances intake, and be cost effective.
- Consider early weaning if drought conditions develop and persist.
- Consider creep feeding only if cost effective.

Herd Health

- Monitor and treat Pink Eye cases.
- Provide fly control. Consider all options, price and efficiency will dictate the best option(s) to use.
- Monitor and treat foot rot cases.
- Avoid handling and transporting cattle during the hottest part of the day-reduce heat stress.
- Vaccinate replacement heifers for Brucellosis if within proper age range (4 - 10 months).
- Continue anaplasmosis control program (consult local veterinarian).

Forage/Pasture Management

- Check and maintain summer water supplies.
- Place mineral feeders strategically to enhance grazing distribution.
- Check water gaps after possible washouts.
- Harvest hays in a timely manner, think quality and quantity.
- Harvest sudan and sudan hybrids for hay in the boot stage (normally three to four feet in height). It is a good idea to run a routine nitrate test on a field before harvesting hay.
- Plan hay storage placement wisely. Putting hay conveniently near feeding sites reduces labor, time demands, and equipment repair cost.

General Management

- Good fences and good brands make good neighbors.
- Check equipment (sprayers, dust bags, oilers, haying equipment) and repair or replace as needed. Have spare parts on hand, down time 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.*