



Newsletter from the Department of Animal Sciences and Industry  
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## UPCOMING EVENTS...

- ✦ The **2014 KSU Swine Day** will be held Thursday, November 20, at the KSU Alumni Center. The schedule for the day includes:
- 8:00 a.m. – 5:00 p.m. Trade Show
  - 9:30 a.m. Welcome - *Dr. Ken Odde, Dept. Head, Animal Sciences and Industry*
  - 9:45 a.m. Delta Corona Virus and PEDV: What Have We Learned in the Last Year?  
*Dr. Dick Hesse, Dr. Steve Dritz, and Dr. Jason Woodworth, KSU*
  - 11:00 a.m. What's Next after a Highly Profitable Period in the Swine Industry: Has the Landscape of Expansion Changed?  
*Dr. Dennis DiPietre, Economist, KnowledgeVentures, LLC*
  - 11:45 a.m. Lunch with Trade Show
  - 1:30 p.m. Potential to Improve the Survivability of Low Birth Weight Pigs and Realize a Full Value Market Hog  
*Dr. Jim Nelssen, Dr. Duane Davis, and Dr. John Gonzalez, KSU*
  - 2:00 p.m. Keeping Up with Diet Formulation with Rapidly Changing Ingredient Prices  
*Dr. Mike Tokach, Dr. Joel DeRouchey, and Dr. Bob Goodband, KSU*
  - 3:00 p.m. The Australian Swine Industry – How Retailers are Changing our Swine Industry  
*Dr. John Pluske, Director of the Animal Research Institute, Murdoch University, Australia*
  - 3:30 p.m. Reception with K-State Ice Cream
- Registration at the door is \$35 per participant. The complete schedule and on-line registration information can be found at [www.KSUswine.org](http://www.KSUswine.org). For more information, contact Jim Nelssen ([jnelssen@ksu.edu](mailto:jnelssen@ksu.edu); 785-532-1251).

- ✦ The **National Junior Swine Association Regional Leadership Conference** will be held December 6, 2014, in Weber Hall on the K-State campus. Don't miss this opportunity to learn about the swine industry, gain leadership skills, have fun and meet new friends interested in pigs from across the country. Registration fee is \$40 which includes lunch, t-shirt and materials. Youth ages 12-18 years old are eligible to attend. Parents, adults and youth over 18 may attend the adult conference. Registration deadline is November 16, 2014 at [nationalswine.com](http://nationalswine.com). For more information, contact the NJSA at 765-463-3594, ext. 109; [kaley@nationalswine.com](mailto:kaley@nationalswine.com) or Joel DeRouchey (785-532-2280; [jderouch@ksu.edu](mailto:jderouch@ksu.edu))

- ✦ A workshop on **Emergency Preparedness for Livestock Operations: When Disaster Strikes** will be held in December. In order for producers to be prepared for high mortality situations resulting from disease, weather (fire, tornado, severe cold or heat, etc.), or other causes, a single day workshop covering all areas has been organized. Workshops will be held on December 10, 2014 at the K-State Salina College Campus Center, Salina, KS; and on December 11, 2014 at the Lane County 4-H Building in Dighton, KS. To register go to [www.AmazingGrazingKansas.com](http://www.AmazingGrazingKansas.com) and click on the Emergency Management Planning for Livestock link. Pre-registration is \$15 per participant by December 5th. For more information, contact Joel DeRouchey (785-532-2280; [jderouch@ksu.edu](mailto:jderouch@ksu.edu)).

November, 2014

### News from KSU Animal Sciences

#### In This Issue

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



↵ The 2015 **Winter Ranch Management Series** will be held in multiple locations in January 2015. Watch for more details at [www.KSUbeef.org](http://www.KSUbeef.org). For more information, contact Bob Weaber ([bweaber@ksu.edu](mailto:bweaber@ksu.edu); 785-532-1460).

↵ The 2015 **KSU Swine Profitability Conference** will be held on February 3, 2015, in Forum Hall of the K-State Student Union. With the cancellation of the 2014 conference due to inclement weather, all those pre-registered for 2014 are already registered for the 2015 event. The schedule for the event includes:

- 9:15 a.m. Coffee and Donuts
- 9:30 a.m. Economic Considerations for Growing the U.S. Swine Industry  
*Glynn Tonsor, KSU Department of Agricultural Economics*
- 10:30 a.m. Special Lecture: Jack and Pat Anderson Lecture in Swine Health Management: Achieving World Class Swine Production: Is There a Silver Bullet?  
*Larry Coleman and Tim Friedel, Vet Care, Broken Bow, NE*
- 11:15 a.m. What Have I Done to Make My Land-Based System Successful  
*Craig Christensen, Ogden, IA*
- 12:00 noon Lunch
- 1:15 p.m. Lessons I've Learned About Marketing Pork to the Chefs of High End Restaurants of New York - *Craig Good, Olsburg, KS*
- 2:15 p.m. Future Technology for the Swine Industry  
*Kim Friesen, Research and Development, Elanco*
- 3:00 p.m. Adjourn

Watch for more details at [www.KSUswine.org](http://www.KSUswine.org). For more information, contact Jim Nelssen (785-532-1251; [jnelssen@ksu.edu](mailto:jnelssen@ksu.edu)).

↵ **Youth learn about raising and showing pigs at the Kansas Junior Swine Producer Day** which will be held Saturday, February 28, 2015, in Weber Arena. This highly interactive, hands-on educational event will be a fun filled day of activities in which youth, parents, swine project leaders and adults can increase their knowledge and experience of swine production and management practices. Presentations and demonstrations will be given by K-State graduate students and faculty, as well as featured speakers. Watch for more details coming soon. A tentative schedule includes:

- 9:00 a.m. Registration
- 9:15 a.m. Welcome and Opening Remarks
- 9:30 a.m. Selecting Your Youth Project
- 10:00 a.m. Breakout Sessions (will attend 2)
  - Meat 101: Know your Pork!
  - Swine Breeds and Ear Notching
  - Proper Grooming and Clipping
- 11:15 a.m. Nutrition and Daily Feeding
- 11:45 a.m. Educational Materials; On-line Youth PQA, and Livestock Nominations
- 12:00 p.m. Lunch
- 12:45 p.m. Daily Care: From Purchase to Show
- 1:30 p.m. Hands-On Showmanship
- 2:15 p.m. Final Questions and Wrap-up

For more information on the event, contact Joel DeRouchey (785-532-2280; [jderouch@ksu.edu](mailto:jderouch@ksu.edu))

#### CALENDAR OF UPCOMING EVENTS

Date	Event	Location
November 20, 2014	KSU Swine Day	Manhattan
December 6, 2014	National Junior Swine Association Regional Leadership Conference	Manhattan
December 10, 2014	Emergency Preparedness for Livestock Operations	Salina, KS
December 11, 2014	Emergency Preparedness for Livestock Operations	Dighton, KS
February 3, 2015	KSU Swine Profitability Conference	Manhattan
February 28, 2015	Kansas Junior Swine Producer Day	Manhattan

# WHAT'S NEW.....

## Management Minute "Trust"

### ↪ Management Minute – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Trust"

One unwritten rule of management writing: if you can squeeze in a Warren Buffett quote, do so. So here's a good one: "Trust is like the air we breathe. When it's present, nobody really notices. But when it's absent, everybody notices."

Soak that up for a second or two, then try to apply it to your own organizational situation.

Imagine an organization in which team members have freedom to create opportunity and to fulfill the expectations of their job description in creative but impactful ways. But also, team mates and supervisors trust that their team mates are working hard to deliver on their individual goals, not cannibalizing efforts of other team members, and synergizing with other team members whenever possible to make the organization greater than if they only worked toward their own individual goals.

Wow. That would be an organization where we would all like to work. Some of you may already work there. It's highly unlikely that organization has many position vacancies.

Now go back to the Warren Buffett quote. When everyone is feeling productive and trusts that others are as or more productive than themselves, and feels like their team supports their own agendas and the greater good of the team, the air feels different and there's a very positive energy throughout the workplace. However, when team members feel isolated in their own endeavor and don't feel supported by their team mates and by the organization leadership, there will be a metaphorical question mark hanging over the workplace day-in and day-out.

Some people actually thrive in this climate, because they do not seek synergism and prefer personal achievement and the personal accolades that come with it. Others feel stifled and may not know why.

Team accomplishment feels different than personal achievement. Imagine the emotions of the sixth man or the dedicated practice player when the team wins the championship vs. those of the league's scoring champion whose team fails to make the playoffs. Some scoring champions would eagerly give back their individual title for a chance at team glory, while others gladly go home to polish their trophy.

If we build our organization with a plethora of trophy-polishers, then we shouldn't be surprised when we get little measurable progress toward team goals. If team goals are paramount, we may need to adjust the workplace such that everyone on the team eagerly subjugates any personal press for individual glory in favor of uplifting the team effort toward the ultimate goal. This adjustment in the work environment may be accomplished through altered individual and team incentives, focused mentoring and teaching by team leaders, or, unfortunately, through attrition and team turnover.

A last thought on the Warren Buffett quote about trust: the manager who is unaware of lack-or-trust issues in the workplace and the general tenor of the team atmosphere needs to simply get out of the office and spend more time talking with and listening to the team. This is not rocket science; it does, however, require a constant and intentional investment of time and energy by the team leader to measure and adjust to the needs of the team.

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

## Feedlot Facts "Value Equation"

### ↪ Feedlot Facts – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Value Equation"

For those ranchers who've received adequate rain this year, the combination of high calf prices and inexpensive feed creates a unique opportunity.

Weaning onto the ranch and backgrounding, if logistically feasible, may have never been a more potentially profitable venture. But also, the question of what to do with open cows is not as cut-and-dried as "normal" years.

## ↪ **Feedlot Facts – “Value Equation” (cont.)**

One option---the conventional option---is to stay the course and market those open females through conventional channels as not fitting their present environment and production system. Open cull females are in demand and have value this fall and can be a ready source of capital.

Another option, depending on the flesh status of the open females, would be to feed them for a period to add flesh and pounds to their selling weight. If feed is plentiful and inexpensive and feeding is logistically feasible, this may be a way to profitably increase the value of open cull females. One key consideration is that, like fish in your refrigerator and visiting in-laws, feeding cows have a very limited shelf-life. Thin cows can be fleshed up and convert feed to gain fairly efficiently and cost effectively for approximately 45-60 days, depending on beginning condition; after that period, nearly all of added gain is fat gain and conversions erode rapidly.

A third option, again depending on cost and availability of feed resources---this is somewhat outside of the box---is to convert open cull females to bred cull females. The current marketplace is actively trying to expand the cow herd and increase the number of calves available in 2015. Breeding open cows this fall and over-wintering them may increase their value by transforming them from likely slaughter cows into a ready-made calf supply for producers who are eager to increase their cow herd and calf marketings, but may not be eager to buy open cows now, feed them throughout this winter and next spring until breeding season, and then feed them through another winter before they calve the following spring.

The rather unique combination of calf value, cow value, and abundant feed supplies provides a very exciting opportunity for ranchers to consider numerous alternative feeding and marketing plans. Some options may not have been on the radar but this is not a “normal” year.

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

## ↪ **Utilization of Omega-3 Fatty Acids is Improved by Embedding Flaxseed in a Matrix of Dolomitic Lime**

**Hydrate** - Crossbred heifers (454 heifers, 763 ± 44 lb) were blocked by weight and randomly assigned to dietary treatments consisting of a control diet without flaxseed; diets with 3 or 6% ground flaxseed; and diets with 2, 4, or 6% of a matrix consisting of 50% ground flaxseed and 50% dolomitic lime hydrate. Blood samples were taken from the jugular vein for analysis of long-chain fatty acid concentrations on day 29 of the study, and cattle were harvested after feeding for 140 to 168 days. The objective of this trial was to evaluate feedlot performance of cattle fed finishing diets supplemented with ground flaxseed or flaxseed embedded within a matrix consisting of dolomitic lime hydrate.

Concentrations of alpha-linolenic acid, the primary omega-3 fatty acid in flaxseed, increased in response to feeding either source of flaxseed, and concentrations in blood plasma were directly proportional to the amount of flaxseed fed. Based on the comparative increases in blood concentrations in response to amounts fed, assimilation of omega-3 fatty acid from the lime-flaxseed matrix was approximately 42% greater than ground flaxseed alone, indicating a protective effect of the lime matrix. Feed intake and average daily gain decreased as the amount of hydrate:flaxseed mixture in the diet increased, but efficiency of feed utilization was not adversely affected.

**Bottom Line...** Encapsulating ground flaxseed in a matrix of dolomitic lime hydrate increased efficiency of omega-3 fatty acid assimilation by 42% compared with ground flaxseed, but levels greater than 2% of the diet can decrease feed intake and daily gain. View the complete research report at [www.asi.ksu.edu/cattlemensday](http://www.asi.ksu.edu/cattlemensday). For more information, contact Jim Drouillard (785-532-1204; [jdrouill@ksu.edu](mailto:jdrouill@ksu.edu)) or Chris Reinhardt (785-532-1672; [cdr3@ksu.edu](mailto:cdr3@ksu.edu)).

## ↪ **Subprimal Type and Quality Grade Affect Fatty Acid Composition and Cooked Firmness of Ground**

**Beef Patties** - After aging for 7, 21, or 42 days, Premium Choice and Select knuckles and chuck rolls were ground twice before fatty acid analyses were conducted. Ground beef patties were formed, frozen, stored at -4°F until thawed, and cooked to an internal temperature of 160°F. A trained sensory panel was conducted, and instrumental properties (slice shear force, textural profile analysis, and Lee-Kramer shear) were evaluated. The objective was to determine the effects of two subprimal types (chuck roll and knuckle), two quality grades (Premium Choice and Select), and three vacuum-packaged storage aging times before processing (7, 21, and 42 days) on ground beef patty sensory properties.

Patties from chuck roll subprimals had more total fatty acids (TFA), greater percentages of saturated fatty acids (SFA), and lower percentages of polyunsaturated fatty acids (PUFA) than those from knuckle subprimals. Patties from Premium Choice subprimals had more TFA, greater percentages of monounsaturated fatty acids (MUFA), and lower percentages of SFA and PUFA than those from Select subprimals. Overall, patties from fatter chuck roll and Premium Choice subprimals were softer (lower peak



forces and hardness) than those from knuckle and Select subprimals. The sensory panel also observed that patties from chuck roll and Select subprimals were firmer.

**Bottom Line...** Subprimal type and quality grade can affect fatty acid profiles. Ground beef patties from Premium Choice chuck rolls are softest in texture, whereas those from Select knuckle subprimals are the firmest. View the complete research report at [www.asi.ksu.edu/cattlemensday](http://www.asi.ksu.edu/cattlemensday). For more information, contact John Unruh (785-532-1245; [junruh@ksu.edu](mailto:junruh@ksu.edu)) or Elizabeth Boyle (785-532-1247; [lboyle@ksu.edu](mailto:lboyle@ksu.edu)).

↪ **Effects of Wheat Source and Particle Size in Pelleted Diets on Finishing Pig Growth Performance, Caloric Efficiency, and Carcass Characteristics-** A total of 576 pigs (PIC 327 × 1050; initially 96 lb BW) from 2 consecutive finishing groups were used to determine the effects of wheat source and particle size of pelleted diets on finishing pig growth performance, caloric efficiency, and carcass characteristics. Pigs were allotted randomly to pens upon entry into the finisher. Pens of pigs were balanced by initial BW and randomly allotted to 1 of 6 dietary treatments with 12 replications per treatment and 8 pigs per pen in two groups of finisher pigs. The experimental diets all had the same wheat-soybean meal formulation, with the 6 treatments formed by including the wheat from 1 of 2 sources (hard red winter vs. soft white winter) that were processed to 1 of 3 mean particle sizes (200, 400, or 600 μ). All diets were fed in pelleted form.

Overall, feeding hard red winter wheat improved ADG, ADFI, and caloric efficiency on both an ME and NE basis compared with soft white winter wheat. There was a tendency for a quadratic particle size × wheat source interaction for ADG, ADFI, and both DM and GE digestibility because the lowest ADG, ADFI, and both DM and GE digestibility values were for 400-μ hard red winter wheat, and the highest were for 400-μ soft white winter wheat. No significant main effects were detected of particle size, or of particle size within wheat source. Finally, dietary treatments did not affect carcass characteristics.

**Bottom Line...** In conclusion, decreasing wheat particle size from 600 to 200 μ in pelleted diets had no effect on growth performance. Feeding hard red winter wheat improved ADG and ADFI compared with feeding soft white winter wheat. More information is available on this experiment and others 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, J.C. Woodworth, C.B. Paulk, C.K Jones, C.R Stark, and S.S. Dritz)

↪ **Effects of 30% Dried Distillers Grains with Solubles and 5% Added Fat Prior to Slaughter on Growth Performance, Carcass Characteristics, and Economics of Finishing Pigs-** Two groups of pigs (n = 1,258, initially 233.2 lb; group 1 PIC 337 × 1050; group 2 PIC 327 × 1050) were used in a 20-d experiment to determine the effects of 30% dried distillers grains with solubles (DDGS) and 5% added fat prior to slaughter on growth performance, carcass characteristics, and economics of finishing pigs. There were a total of 20 replications per treatment. All pigs were fed a common diet with 30% DDGS until 20 d prior to slaughter, at which point they were weighed and allotted to dietary treatments. The dietary treatments were arranged in a 2 × 2 factorial with 2 diet types, a corn-soybean meal-based diet with or without 30% DDGS and added fat of 0 or 5% (group 1 = tallow; group 2 = choice white grease). Diets were formulated on a standardized ileal digestible (SID) lysine basis and balanced on an SID lysine to NE ratio. There were no treatment × group interactions for any of the measured responses, so data for the two groups were combined for analysis. For the overall experiment, there was a tendency for a diet type × added fat interaction for ADG; this interaction was significant for F/G and caloric efficiency on an ME and NE basis. These were the result of pigs fed the diet with 30% DDGS having greater ADG and F/G improvements when fat was included compared with those fed the corn-soybean meal-based diet without DDGS. For the caloric efficiency interaction, pigs fed 30% DDGS had an improvement with added fat, whereas those fed the corn-soybean meal-based diet with added fat had worse caloric efficiency than pigs fed the corn-soy diet without added fat.

Although diet type did not affect final live weight, pigs fed the diet containing DDGS had reduced HCW, which was the result of reduced carcass yield. Adding 5% fat to the diet containing DDGS did not improve carcass yield. Jowl fat iodine value was increased by added fat and feeding DDGS. For economics, there was a diet type × added fat interaction for cost per pound of gain, which was the result of a larger increase in cost for pigs fed added fat in the corn-soybean meal-based diet compared with the diet containing DDGS. Income over feed cost did not differ among dietary treatments.

**Bottom Line...** In conclusion, adding 5% fat to finishing pig diets containing 30% DDGS approximately 20 d prior to slaughter improved ADG and F/G but did not overcome the reduction in carcass yield from feeding DDGS. More information is available on this experiment and others in the KSU Swine Day Report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by K.F. Coble, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, J.C. Woodworth, and S.S. Dritz)

# AS&I Faculty Spotlight



**John Gonzalez (johngonz@k-state.edu; 785-532-3448)**  
**Assistant Professor/Meat Science**

Dr. John Michael Gonzalez grew up in the vast urban setting of San Antonio, TX. He was first introduced to agriculture during his high school years when he visited numerous classmates' ranches located throughout the state of Texas. This led Dr. Gonzalez to pursue and earn his Bachelor of Science degree in Agricultural Economics and Poultry Science from Texas A&M University. He then obtained his Master of Science degree in Animal Science from Sul Ross State University. In 2008, Dr. Gonzalez achieved his Ph.D. in Animal Sciences from the University of Florida. After earning his degree, Dr. Gonzalez spent a 9-month tenure serving as the Technical Services Manager of XL Four Star Beef, Inc. of Omaha, Nebraska. Following this experience, he returned to the University of Florida as a Postdoctoral Associate.

Dr. Gonzalez joined the Kansas State University staff in June of 2011 with a 30% teaching and 70% research appointment. Within his teaching responsibilities, Dr. Gonzalez coordinates and participates in the instruction of the department's graduate Advanced Meat Science course. Dr. Gonzalez also re-established and instructs the yearly offering of the department's Growth and Development course and assisted in establishing a molecular techniques/biotechnology course for first and second year undergraduate students.

Dr. Gonzalez's research interests span two broad areas that include classical Meat Science research and utilizing livestock as models for human physiology. Within the Meat Science discipline, his interests primarily center around exploring the effects of management strategies, feeding regimens, and growth technologies on meat color and quality characteristics of red meat species. Specifically, Dr. Gonzalez utilizes molecular techniques to study the effects of muscle fiber morphometrics and the collagen compartment on meat tenderness and color characteristics. Overall, Dr. Gonzalez contributes to the Meat Science group by explaining global changes in meat quality or color by exploring muscle biology mechanisms with basic science techniques.



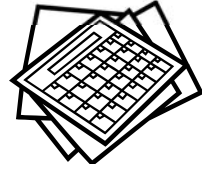
**Charlie Lee (clee@k-state.edu; 785-532-5734)**  
**Extension Specialist/Wildlife Control**

Charlie completed a B.S. degree in 1975 at Kansas State University in Wildlife Biology. After several years of business and being involved with the family farm and feedlot he returned to Kansas State where he completed a M.S. degree in 1988 in Animal Science. He previously worked for Kansas Department of Wildlife and Parks for 6 years directing private land wildlife management programs and Farm Bill conservation issues.

Charlie was first employed as an extension assistant and now as Extension Specialist, Wildlife. Responsibilities include conducting a statewide program in wildlife damage control, wildlife enhancement on private lands, youth outdoor environmental programs, and aquaculture. Current areas of interest include prairie dog and cattle interactions, bird damage control at feedlots and rodent damage in conservation tillage systems.

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

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



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

#### Cow herd management

- Historically, cull cow prices have increased during the next 2 or 3 months. Check your breakevens.
- Continue feeding or grazing programs started in early winter. Weather conditions may require wrapping up grain sorghum and cornstalk field grazing. Severe winter weather may begin to limit crop residue utilization, so be prepared to move to other grazing and feeding systems
- Supplement to achieve ideal BCS at calving.
  - ↳ Use this formula to compare the basis of cost per lb. of crude protein (CP):  
Cost of supplement, \$ per hundredweight (cwt.) ÷ (100 X % CP) = cost per lb. of CP.
  - ↳ Use this formula to compare energy sources on basis of cost per lb. of TDN:  
Cost, \$ per ton ÷ [2,000 X % dry matter (DM) X % TDN in DM] = cost per lb. of TDN.
- Control lice; external parasites could increase feed costs.
- Provide an adequate water supply. Depending on body size and stage of production, cattle need 5-11 gallons (gal.) of water per head per day, even in the coldest weather.
- Sort cows into management groups. BCS and age can be used as sorting criteria. If you must mix age groups, put thin and young cows together, and feed separately from the mature, properly conditioned cows.
- Use information from forage testing to divide forage supplies into quality lots. Higher-quality feedstuffs should be utilized for replacement females, younger cows, and thin cows that may lack condition and that may be more nutritionally stressed.
- Consult your veterinarian regarding pre- and post-partum vaccination schedules.
- Continue mineral supplementation. Vitamin A should be supplemented if cows are not grazing green forage.
- Plan to attend local, state and regional educational and industry meetings.
- Develop replacement heifers properly. Weigh them now to calculate necessary average daily gain (ADG) to achieve target breeding weights. Target the heifers to weigh about 60%-65% of their mature weight by the start of the breeding season. Thin, lightweight heifers may need extra feed for 60-80 days to "flush" before breeding.
- Bull calves to be fed out and sold in the spring as yearlings should be well onto feed. Ultrasound measurements should be taken around one year of age and provided to your breed association.
- Provide some protection, such as a windbreak, during severe winter weather to reduce energy requirements. The LCT is the temperature at which a cow requires additional energy to simply maintain her current body weight and condition. The LCT for cattle varies with hair coat and body condition. Increase the amount of dietary energy provided 1% for each degree (including wind chill) below the LCT.

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.