



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

November 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 or call (785) 532-1267.

✦ **2013 KSU Swine Day scheduled for November 21** - The 2013 KSU Swine Day will be held Thursday, November 21, at the KSU Alumni Center. The schedule for the day includes:

8:00 a.m. – 3:30 p.m. Trade Show

9:45 a.m. Welcome - *Dr. Ken Odde, Department Head, Animal Sciences and Industry*

10:00 a.m. Current K-State Swine Research to Help Improve Net Return of a Swine Business
KSU Swine Team

11:00 a.m. Recent Disease Challenge to our Industry – Porcine Epidemic Diarrhea

Dr. Dick Hesse, KSU Diagnostic Medicine and Pathobiology
Dr. Steve Henry, Veterinary Clinician, Abilene Animal Hospital

11:45 a.m. Lunch with Trade Show

1:15 p.m. Recent On-Farm and Commercial Feedmill Innovations to Improve Whole Herd Feed Efficiency –

Dr. Charles Stark, KSU Grain Science and Industry

2:00 p.m. Current K-State Swine Research to Help Improve Net Return of a Swine Business
KSU Swine Team

3:30 p.m. Tour of the O.H. Kruse Feed Technology Innovation Center Feed Mill and Reception with K-State Ice Cream

Registration at the door is \$35 per participant. There is no charge for any students if they are pre-registered. More details and on-line registration are available at www.KSUswine.org. For more information, contact Jim Nelssen (jnelssen@ksu.edu; 785-532-1251).

✦ **Chew On This –The Drive to Feed the World** - As part of our KSU Swine Day, the *Chew on This* big rig theater will be set up at the KSU Alumni Center. The *Chew on This* Tour is a unique, interactive road show traveling the nation to heighten awareness about one of the biggest problems facing our world today: hunger. The tour will be set up on Thursday, November 21, from 11:00 a.m. – 1:00 p.m. (free lunch included). For more details on the tour, visit DriveToFeed.com.

✦ The **Range Beef Cow Symposium (RBCS)** will be held at the Rushmore Convention Center in Rapid City, South Dakota on December 3 to 5, 2013. The RBCS is a bi-annual educational event designed as "In-Service Training for Cow-Calf Ranchers." The event will feature well-known speakers who will provide updates on production topics in the areas of beef industry issues, genetics, reproduction, range and forage management, cattle health, beef nutrition, and more. For more information, contact Sandy Johnson, sandyj@ksu.edu.



↪ **Kansas Junior Beef Producer Day planned for December 7** - Kansas Junior Beef Producer Day will be held Saturday, December 7 at K-State's Weber Hall and Arena. The day will bring together youth, parents, beef project leaders and others to increase their knowledge about beef production and management. The schedule is as follows:

8:45 am Registration (Southwest doors of Weber Hall)
 9:30 am Welcome/Opening Remarks, Weber Arena
 9:45 am Selection: Market Beef, Weber Arena
 10:15 am Selection: Breeding Beef , Weber Arena
 10:45 am BREAK
 11:00 am Plans AFTER the Show/Preparing for Calving Season, Weber Arena
 11:45 am LUNCH, Weber Arena
 12:30 pm Nutrition, Weber Arena
 1:15 pm Heat Stress, Weber Arena
 1:45 pm BREAK
 2:00 pm Breakout Session (1)Show diseases/Biosecurity, Weber 123 OR (2)Beef Yield/
 Quality Grade, Weber 111
 3:00 pm Ultra Sound Demo, Weber Arena
 3:20 pm Showmanship Clinic (K-State Livestock Judging Team), Weber Arena
 4:00 pm Final Questions/Wrap Up

All participants will receive a T-shirt and a complimentary lunch. The cost to register is \$15 per person if postmarked by Nov. 15; \$20 if postmarked after that date. Participants who register after Nov. 15 cannot be guaranteed a T-shirt. More information, online registration, and printable registration forms are available at www.YouthLivestock.KSU.edu. For questions, please contact Youth Livestock Coordinator, Kristine Clowers: clowers@ksu.edu (preferred method) or 785-532-1264.

↪ **Beef Improvement Federation to Host Genetic Prediction Workshop** – The Beef Improvement Federation (BIF) will host a Genetic Prediction Workshop in Kansas City, MO on December 12-13, 2013 at the Holiday Inn KCI Airport and KCI Expo Center. The conference is designed to give academic, allied industry, breed association staff and cattle producers a forum to learn about and discuss the latest developments in beef cattle genetic evaluation strategies. The implementation of genomics technologies international cattle evaluation systems will be the focus of discussion.

A USDA multi-state project (NCERA-225) focused on implementation and strategies for national beef cattle genetic evaluation will meet prior to the Genetic Prediction Workshop. This meeting will feature station reports and research updates from a number of committee members.

Registration for the BIF Genetic Prediction Workshop is \$100. For NCERA committee members, an additional registration of \$25 is required. Attendees must preregister for the events by December 1, 2013. Online registration and full agenda are available at www.KSUbeef.org in the “Upcoming Beef Events” section. For more information, contact Bob Weaber (bweaber@k-state.edu; 785-532-1460).

↪ Watch for more information on www.KSUbeef.org on the upcoming **Winter Ranch Management Conference** to be held in January.

↪ The 2014 **KSU Swine Profitability Conference** will be held on February 4, 2014, in Forum Hall of the K-State Student Union. Featured speakers include Dennis DiPietre, Knowledge Ventures; Larry Coleman, Vet Care, Broken Bow, NE; Craig Christensen, Ogden, IA; Craig Good, Olsburg, KS; and Grady Bishop, Elanco Swine Operations. Watch for more details at www.KSUswine.org. For more information, contact Jim Nelssen (785-532-1251; jnelssen@ksu.edu).

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
November 21, 2013	KSU Swine Day	Manhattan
December 3-5, 2013	Range Beef Cow Symposium	Rapid City, SD
December 7, 2013	Kansas Junior Beef Producer Day	Manhattan
December 12-13, 2013	BIF Genetic Prediction Workshop	Kansas City, MO
February 4, 2014	KSU Swine Profitability Conference	Manhattan

WHAT'S NEW.....

Management Minute "Support Your Local Ag Teacher"

↪ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Support Your Local Ag Teacher"

At a conference for ag leaders recently the topic of human resources was addressed and discussed. I've been involved in, and have instigated, many of these types of discussions, and there is usually no shortage of opinions on the topic. Unfortunately, most ag businessmen have a very good handle on what the problem is---a shortage of good people---but few have tangible, feasible solutions.

At this particular meeting, however, an idea was suggested that made a great deal of sense. Our future ag business leaders are, today, sitting in class in high school, trying to decide what they're going to do with their life. What if we gave them the answer?

One of the attendees at the conference went on at length about the vibrancy of his local high school vo-ag program in general, and the advisor in particular. But he went on to lament that many communities are not in the same situation, and that, due to a decline in funding and a rise in community apathy, the ability of many local vo-ag instructors to attract students to ag careers has waned.

Like any business, teaching and mentoring programs will take on the personality of those leading the program. In sports, an intense head coach will foment intensity from the entire coaching staff; practices will be taut and energetic; players will give 110% at practice or they will be invited to spend their free time elsewhere. Likewise, if the vo-ag instructor has an outflowing of passion for (a) agriculture and (b) the successful futures of their students, that passion will be felt and absorbed by their seeking and willing students.

It's up to the local ag community to communicate with local ag teachers what the career opportunities are in modern agriculture. Kids need and want direction; young people sometimes don't know what they don't know. We have the knowledge of our own businesses to pass on to ag students what we want, need, and are willing to pay for, in terms of quality future employees.

As Mark Twain once quipped, "Everybody complains about the weather, but nobody ever seems to do anything about it." Well, we have a growing shortage of good, young people coming into agriculture, but we can do something about it: Support Your Local Ag Teacher.

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

↪ **Feedlot Facts** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Zilmax Update"

You may have heard a great deal about Zilmax® (zilpaterol hydrochloride) lately in either the popular or beef industry press. Zilmax is a growth promotant feed additive in the class called beta agonists, which is used during the final days of the finishing phase to increase carcass weight and lean muscle mass in beef cattle.

Beta agonists have been used in the U.S. cattle finishing industry since 2004 and in the swine industry since 2000, at which times ractopamine hydrochloride was made available for use in cattle (Optaflexx®) and swine (Paylean®). Zilmax was approved for use in cattle in 2006 and became widely available in 2007.

Since their respective approval dates, implementation of both beta agonists increased steadily through 2012 when approximately 70-80% of the finished cattle in the U.S. received a beta agonist. Extreme heat stress conditions occurred in various cattle feeding areas during the summers of 2011, 2012, and 2013, which coincided with greater than anticipated late-term mortality. Because growth in beta agonist use, and Zilmax use in particular increased during that same time frame, questions surrounded the coincidence.

Feedlot Facts "Zilmax Update"

Feedlot Facts – “Zilmax Update” (cont.)

However, because Zilmax increases the lean muscle mass and reduces fat and marbling content of the carcass, cattle are typically fed for an additional number of days and to a greater finished weight, which mitigates the marbling reduction. This increase in number of days fed and the weight of cattle when finished confounds the investigation into changes in heat-related mortality.

In August 2013, a number of packing plants reported that a small percentage of cattle which had been fed Zilmax were “reluctant to move” after arrival at the packing plant, and announced that they would suspend acceptance of cattle fed Zilmax. Merck Animal Health, the manufacturer of Zilmax, suspended sale of Zilmax on August 16, 2013.

In relation to these decisions by the manufacturer and the packing firms, it is important to note that no food safety issues were involved. The decisions were instead made to provide the industry with the opportunity to investigate the issue of certain animals’ reluctance to move after arrival at the packing facility. Also, Optaflexx has not been similarly implicated in this issue.

Merck, Elanco (manufacturer of Optaflexx), the major packing companies, and the beef industry are pursuing investigations into potential causative factors contributing to the impaired mobility issue. Unfortunately, with the cessation of summer heat conditions, and with the withdrawal of Zilmax from the marketplace, thus changing feeding and marketing decisions, it is difficult to duplicate the conditions which may have combined to cause the impaired mobility issue. However, research models are being developed which may provide answers and management practices which will prevent the issue in the future.

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

- ↪ **IRM Redbooks for Sale** – The 2014 IRM Redbooks will be arriving soon and will be sold on a first come first serve basis. The price will be: For orders of less than 10 = \$5.25/book; Orders of 10 or more = \$5.00/book which includes postage. To order your supply of redbooks, please contact Lois (Ischrein@ksu.edu; 785-532-1267).
- ↪ The Department of Animal Sciences and Industry at Kansas State University seeks applicants for a **Research Assistant, Beef Metabolism Facilities position**. This is a full-time, 12-month, term position. A Bachelor of Science degree in Animal Science or related field is required. View complete position announcement at: www.asi.ksu.edu/about/job-announcements.html. Review of applications begins November 20, 2013, and continues until a suitable candidate is identified.
- ↪ The Department of Animal Sciences and Industry at Kansas State University seeks applicants for a **Research Assistant, Stress Physiology and Animal Well-being position**. This is a full-time, 12-month, term position. Applicants must have an M.S. in Animal Science, Dairy Science, Physiology, Nutrition, Applied Ethology or a closely related field at time of hire. View complete position announcement at: www.asi.ksu.edu/about/job-announcements.html. Review of applications begins November 20, 2013, and continues until a suitable candidate is identified.
- ↪ The Department of Animal Sciences and Industry at Kansas State University seeks applicants for a **Research Assistant at the Poultry and Game Bird Research Center**. This is a full-time, 12-month, term position. A Bachelor of Science degree in Animal Science, Wildlife Biology, Wildlife and Outdoor Enterprise Management, Zoology or related field is required. View complete position announcement at: www.asi.ksu.edu/about/job-announcements.html. Review of applications begins December 15, 2013, and continues until a suitable candidate is identified.
- ↪ The Department of Animal Sciences and Industry at Kansas State University seeks applicants for a **Research Assistant position at the Cow-Calf Unit**. This is a full-time, 12-month, term position. A Bachelor of Science degree in Animal Science or closely related discipline is required. View complete position announcement at: www.asi.ksu.edu/about/job-announcements.html. Review of applications begins December 15, 2013, and continues until a suitable candidate is identified.

↪ **Awardees Honored** - The NIFA Partnership Award for Multistate Efforts was recently awarded to the Beef Reproduction Task Force. Sandy Johnson is a member of the Task Force. Congratulations, Sandy!

Several AS&I faculty and staff were recognized at the K-State Research and Extension Annual Conference awards luncheon. Congratulations to all our award winners! They include:

Dr. Fadi Aramouni, Builder Award

Dr. Laman Mamedova, KSRE Unclassified Employee of the Year

Dr. Scott Beyer, 20-year Extension Service Award

Brad Purdue, President's Award of Excellence for Unclassified Professionals

Lois Schreiner, K-State Classified Award of Excellence

Frank Jennings, KSRE Classified Employee of the Year

Safety Committee Award: Cheryl Armendariz, Ken Odde, Ron Pope, Mike Scheffel, Cadra Van Bibber-Krueger, and John Wolf

↪ **Steers Dosed with Lactipro and Placed Directly onto Finishing Diets Consume Less Roughage During the Finishing Period** - Crossbred steers (n = 443) were fed brome hay and processed and assigned to treatments approximately 24 hours later. Steers were fed a traditional 3-diet step-up regimen where each diet was fed for 6 days (Control) or were orally drenched with Lactipro and placed directly onto a finish diet (Lactipro). Study diets were based on steam-flaked corn, wet corn gluten feed, and corn silage. Steers were fed for 115 days and then harvested.

The Bottom Line: Steers dosed with Lactipro and placed directly onto finishing diets consumed 17% less roughage during the finishing period and had similar performance and carcass traits. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact Jim Drouillard (785-532-1204; jdrouill@ksu.edu) or Larry Hollis (785-532-1246; lhollis@ksu.edu).

↪ **Crude Glycerin Improves Feed Efficiency in Finishing Heifers** - Heifers (n = 375, 736 ± 38 lb) were used to evaluate the effects of crude glycerin at 7.5 or 15% of the diet dry matter, with and without added salt. Diets were composed of dry-rolled corn, 10% corn silage, 35% wet corn gluten feed, 20% soybean hulls, and supplement, and crude glycerin replaced dry-rolled corn. Diets were fed once daily for 125 days, and heifers were then transported to a commercial abattoir for harvest and collection of carcass data.

The Bottom Line: Feeding crude glycerin decreased feed intake and improved feed efficiency but tended to decrease carcass weight and accumulation of body fat, including marbling. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact Jim Drouillard (785-532-1204; jdrouill@ksu.edu) or Chris Reinhardt (785-532-1672; cdr3@k-state.edu).

↪ **Evaluation of Feeding Budgeting Strategy or Complete Diet Blending on Finishing Pig Growth Performance and Carcass Characteristics** – A total of 252 mixed-sex pigs (PIC 327 × 1050; initial BW = 79.8 ± 0.9 lb BW) were used in a 95-d growth study to compare feed-budgeting strategies and complete diet blending for finishing pigs on growth performance, carcass characteristics, and economics. Feed was delivered to all pens of pigs using a computerized feed delivery system (FeedPro, Feedlogic Corp., Willmar, MN) that is capable of delivering and dispensing 2 separate diets. Four experimental treatments had 9 pens/treatment and 7 pigs/pen in a randomized complete block design. Dietary treatments included: (1) standard 4-phase (0.91, 0.77, 0.67, and 0.61% standardized ileal digestible [SID] lysine, respectively) complete feed program (Standard), (2) blending a high- and low-lysine complete diet to meet the estimated daily SID lysine requirement from d 0 to d 95 (Curve), (3) Treatment 1 diets with 20% greater feed budget allowance per phase (Over), and (4) Treatment 1 diets with 20% lower feed budget allowance per phase (Under). Diets were corn-soybean meal-based with no added fat. The standard diet was budgeted at 117, 138, 158, and 175 lb for Phases 1 through 4, respectively.

Overall (d 0 to 95), no differences were observed in ADG, ADFI, F/G, or final BW among pigs fed the budgeting strategy diets. Pigs phase-fed a standard phase-feeding program tended to have heavier HCW than pigs fed the Curve and tended to have greater percentage carcass yield than those fed the Curve or the Over diet. No differences were observed in percentage lean, fat depth, or loin depth. Pigs fed diets blended to a lysine curve had lower feed costs than all three phase-feeding treatments, but

because of heavier HCW, pigs fed the standard feed budget had greater revenue per pig and tended to have greater income over feed cost (IOFC) under two separate diet and carcass price scenarios compared with pigs fed with the Curve, with pigs over- and under-budgeted remaining intermediate.

The Bottom Line...Over- and under-budgeting situations in phase feeding programs had minimal impact on growth performance, carcass characteristics, and net returns; furthermore, feeding blended diets to a lysine curve did not improve growth performance and led to lower total revenue than using a standard feed budget. More information is available at www.KSUswine.org. (This study conducted by H. L. Frobose, J. M. DeRouchey, D. Ryder, M. D. Tokach, S. S. Dritz, R. D. Goodband, and J. L. Nelssen.)

↪ **Effect of Sample Size and Method of Sampling Pig Weights on the Accuracy and Precision of Estimating the Distribution of Pig Weights in a Population** - Producers have adopted marketing strategies such as topping to help reduce economic losses from weight discounts, but they are still missing target weights and incurring discounts. We have previously determined the accuracy of sampling methods producers use to estimate the mean weight of the population. Although knowing the mean weight is important, understanding how much variation or dispersion exists in individual pig weights within a group can also enhance a producer's ability to determine the optimal time to top pigs. In statistics and probability theory, the amount of variation in a population is represented by the standard deviation; therefore, our objective is to determine the sample size and method that is optimal for estimating the standard deviation of BW for a group of pigs in a barn.

Using a computer program developed in R (R Foundation for Statistical Computing, Vienna, Austria), we were able to generate 10,000 sample standard deviations for different sampling procedures on 3 different datasets. Using this program, we evaluated weighing: (1) a completely random sample of 10 to 200 pigs from the barn, (2) an increasing number of pigs per pen from 1 to 15 pigs and increasing the number of pens until all pens in the barn had been sampled, and (3) selecting the heaviest and lightest pig (determined visually) in each pen and subtracting the lightest weight from the heaviest weight and dividing by 6. For all 3 datasets, increasing the sample size of a completely random sample from 10 to 200 pigs decreased the range between the upper and lower confidence intervals (CI) when estimating the standard deviation; however, this occurred at a diminishing rate. For the barn with the most variation, increasing the number of pens sampled while keeping constant the total number of pigs sampled led to a reduction in range between the upper and lower CI by 7, 6, and 31% for Datasets A, B, and C, respectively. Sampling method 3 resulted in a reduction of the range between the upper and lower CI from 9 to 62% for the 3 datasets.

The Bottom Line...These data indicated that the distribution of pig weights can be practically estimated by weighing the heaviest and lightest pigs in 15 pens. More information is available at www.KSUswine.org. (This study conducted by C. B. Paulk, G. L. Highland, M. D. Tokach, J. L. Nelssen, S. S. Dritz, R. D. Goodband, J. M. DeRouchey, and K. D. Haydon.)

AS&I Faculty Spotlight



Jeff Stevenson (jss@k-state.edu; 785-532-1243)
Professor/Reproductive Physiology

Jeff was born June 15, 1951, in Salt Lake City, Utah, and attended elementary and secondary schools in Salt Lake City before relocating to Gresham, Oregon in 1967 and graduating from Gresham Union High School in 1969. He attended Utah State University (USU) from 1969-1970 and from 1972-1975, graduating with a B.S. in Dairy Science in 1975. During summers, Jeff worked on his uncle's dairy farm in southeastern Idaho and spent two school years milking cows on a private dairy in Smithfield, Utah and feeding experimental cows for Dr. Melvin C. Anderson, USDA-ARS in Logan, Utah. While a student at USU, he was active in Alpha Zeta (officer) and Dairy Club for 2 and 3 years, respectively. He was honored as Utah's Dairy Shrine Student Recognition Awardee in 1975.

He entered graduate school in Dairy Science at Michigan State University in 1975 and served as a graduate research and teaching assistant until completing the requirements for a M.S. in Dairy Science in 1977. That same year, he relocated to Raleigh, North Carolina, and enrolled in a Ph.D. program in Animal Physiology at North Carolina State University under the continued direction of Dr. Jack H. Britt. While fulfilling the requirements of the Ph.D. during 1977-1980, Jeff served as a graduate and teaching assistant in the Department of Animal Science.

In August, 1980, Jeff was appointed Assistant Professor (70% research/30% teaching) in the Department of Animal Sciences and Industry at Kansas State University. He was promoted to Associate Professor in 1986 and Professor in 1992. His current responsibilities include teaching one undergraduate course, entitled "Dairy-Poultry Science," one graduate course, entitled "Ovarian Physiology," graduate Physiology-Animal Breeding seminar, and serving as faculty coordinator for the Kansas Artificial Breeding Service Unit (KABSU). Research interests include synchronization of estrus and ovulation in dairy and beef cattle. Jeff has served on the editorial boards of the Journal of Dairy Science, Journal of Animal Science, and Animal Reproductive Science. Recently served as senior section editor for the Physiology and Management Section of the Journal of Dairy Science

Jeff received the 1990 American Dairy Science Association Agway Inc. Young Scientist Award, 1998 National Association of Animal Breeders Research Award, 2002 American Dairy Science Association Pharmacia Animal Health Physiology Award, 2002 Kansas State University Research and Extension Team Award, 2006 Kansas Dairy Leader, 2009 American Society of Animal Science Animal Management Award, 2012 American Society of Animal Science Physiology and Endocrinology Award, and named 2012 American Society of Animal Science Fellow. In June 1992, he became a monthly contributing author for the Artificial Breeding column in Hoard's Dairyman. He is the author or coauthor of 151 peer-reviewed journal articles, 16 invited papers, 10 book chapters, 224 popular press articles, and 142 paper presentations at professional meetings.



J. Scott Smith (jsschem@k-state.edu; 785-532-1219)
Professor/Chair, Food Science Graduate Program

J. Scott Smith is a professor of food chemistry on the faculty of the Animal Sciences Department and Food Science Institute at Kansas State University with a 70% research and 30% teaching appointment. He is a native of Owensboro in western Kentucky with degrees from Brescia College (BS, Biology), Kansas State University (MS, Biochemistry) and the Penn State University (PhD, Food Science). He has been a faculty member at K-State since 1989. Before he was a faculty member at Penn State in the Food Science Dept.

He is a member of IFT including past chair of the Food Chemistry and Toxicology and Safety Evaluation divisions, and past chair of graduate student poster competition for the Food Chemistry divisions. He is a member of the American Chemical Society (Agricultural and Food Chemistry division), AOAC International, American Association for the

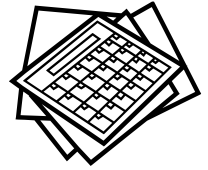
Advancement of Science, and Phi Tau Sigma Honorary Society.

His research programs are in the areas of food analysis and toxicology. Major research areas are Fusarium mycotoxin contaminating of grains, and the formation of heterocyclic amines (HCA) in cooked muscle foods products, factors involved in the formation of AGE products in carbohydrate-rich foods. He is studying methods to evaluate irradiation dose exposure in irradiated meat products, toxicity of unique radiolytic products (the 2-ACBs), and ammonia contamination of foods from refrigeration leaks. Recent research on spice inhibition of HCA formation in muscle food products has received worldwide coverage in numerous news reports.

He currently teaches courses in Food Chemistry, Advanced Food Chemistry, Food Analysis, Food Toxicology and has several offered by Distance Learning.

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. Contrary to tradition, feeding cull cows this year may not be a profitable venture due to higher input costs. 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, or phone 785-532-1267.*