

News from KSU Animal Sciences

July, 2008



Newsletter from the Department of Animal Sciences and Industry
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WHAT'S NEW...

- ↳ **Nutrient Balance of a Commercial Feedlot** - A commercial feedlot with a capacity of approximately 35,000 cattle was used from November 2005 to May 2006. Data were collected from eight adjoining pens; daily logs were kept for each pen. Data included head count, ration, and amount of feed delivered. Samples of all rations were taken at the bunk for nutrient analyses. All pens were cleaned uniformly at the beginning and conclusion of the experiment with weights of removed manure recorded by pen.
- The Bottom Line...*** Significant amounts of nutrient excretion relative to nutrient intake levels occur in feedlot cattle. This, coupled with subsequent losses of excreted nutrients from the pen surface, needs to be addressed further. View the complete research report online at www.asi.ksu.edu/cattlemensday. For more information, contact Joel DeRouchey (785-532-2280; jderouch@ksu.edu) or Jay Ham (785-532-6119; jayham@ksu.edu).
- ↳ **Detection of Noncycling Cows by Heatmount Detectors and Ultrasound before Treatment with Progesterone** - Our objective was to determine accuracy of identifying anovulatory lactating dairy cows before the application of a timed AI protocol [with or without progesterone supplementation via a controlled internal drug release (CIDR) insert and 2 different timings of AI] by using heatmount detectors and a single ovarian ultrasound examination. At 6 Midwest locations, 1,072 cows were enrolled in a Presynch protocol (2 injections of prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) 14 days apart) with the second injection administered 14 days before initiating the Ovsynch protocol (injection of gonadotropin releasing hormone (GnRH) 7 days before and 48 hours after $PGF_{2\alpha}$ injection, with timed AI at 0 or 24 hours after the second GnRH injection). Heatmount detectors were applied to cows at the time of the first Presynch injection, assessed 14 days later at the second Presynch injection and again at initiation of the Ovsynch protocol, and ovaries were examined for presence of a visible corpus luteum (CL) by ultrasound before initiation of treatment. Treatments were assigned to cows based on presence or absence of a visible CL: 1) anovulatory (no CL + CIDR insert for 7 d); 2) anovulatory (no CL + no CIDR); and 3) cycling (CL present). Further, every other cow in the 3 treatments was assigned to be inseminated concurrent with the second GnRH injection of Ovsynch (0 hour) or 24 hours later. Pregnancy was diagnosed at 33 and 61 days after the second GnRH injection. Heatmount detectors and a single ultrasound examination both underestimated proportions of cows classified as anovulatory or having no prior luteal activity compared with those classifications determined by concentrations of progesterone in blood serum. Overall accuracy of heatmount detectors and ultrasound was 71 and 84%, respectively. Application of progesterone to cows without a CL at the time of the first injection of GnRH reduced incidence of ovulation but improved pregnancy rates at day 33 or 61 compared with non-treated cows without a CL at the onset of the Ovsynch protocol. Pregnancy rates and pregnancy survival did not differ for cows having a CL before treatment compared with those not having a CL but treated with progesterone. Pregnancy rates were 1.5-fold greater for cows ovulating in response to the first GnRH injection. Timing of AI at 0 or 24 hours after the second GnRH injection did not alter pregnancy rates, but cows having prior luteal activity before treatment had improved pregnancy rates compared with anovulatory cows. We conclude that identifying anovulatory cows by ultrasound was more accurate than by heatmount detectors. Subsequent treatment of potential anovulatory cows with progesterone failed to improve fertility but had benefit for cows with prior estrous cycles at the onset of the timed AI (TAI) protocol, regardless of luteal status before the final luteolytic injection of $PGF_{2\alpha}$. More information is available on this experiment in Dairy Day 2007 publication. For more information, contact Jeff Stevenson (785-532-1243; jss@ksu.edu)

↪ **Amino Acid Digestibility and Energy Content of Two Different Soy Hull Sources for Swine** – This trial was conducted to determine and compare the digestibility of amino acids and energy of soy hulls from two different sources. Five growing barrows (initially 150 lb) fitted with T-cannulas were each fed three different diets in a crossover design. Each of the first two diets contained 66.7% soy hulls from two different sources (Soy hulls A and Soy Hulls B). The third experimental diet was N-free and based on corn starch and sucrose for determining basal endogenous amino acid (AA) losses. Ileal digesta and fecal samples were collected during each period and analyzed for amino acid and energy contents. Due to poor flowability of digesta through the T-cannula of one pig when fed diets containing soy hulls, it was removed from the experiment and thus, only four pigs were used in all data analyses. Apparent (AID) and standardized (SID) ileal digestibilities, and gross (GE), digestible (DE), metabolizable (ME), and estimated net (NE) energy values were then calculated from these analyses. Both samples were analyzed for particle size using Ro-Tap shaker with a stack of Tyler screens. Particle size of soy hulls A and soy hulls B were 619 and 691 μ , respectively. The results of the trial showed differences in nutrient composition and in amino acid and energy digestibilities between the two soy hulls. Apparent ileal digestibility values of lysine, methionine, and threonine in soy hulls A were 58.38, 65.93, and 50.68%, respectively and 51.10, 57.51, and 37.54%, respectively in soy hulls B. Standardized ileal digestibility values of the same amino acids were 61.13, 69.53, and 62.25%, respectively for soy hulls A and 54.60, 62.32, and 51.96%, respectively for soy Hulls B. As a percentage of CP, standardized ileal digestible lysine, methionine, and threonine values were 4.09, 0.83, and 2.16% for soy hulls A; and 4.01, 0.85, and 2.01% for soy hulls B, respectively. The ME, DE, and estimated NE values were 1,037; 1,097; and 722 kcal/lb for soy hulls A and 989, 1,030, and 680 kcal/lb for soy hulls B, respectively. More information is available on this experiment and others in the KSU Swine Day Report at www.ksuswine.org. (This study conducted by J. Y. Jacela, J. M. DeRouchey, M. D. Tokach, J. L. Nelssen, R. D. Goodband, S. S. Dritz, and R. C. Sulabo.)

↪ **Determination of the Fourth-Limiting Amino Acid in Swine Diets Containing NutriDense® Corn** - Two studies were conducted to determine the fourth-limiting amino acid in swine diets containing NutriDense® corn. Both experiments were conducted at a commercial swine research facility in southwest Minnesota. In Exp. 1, 1,259 pigs (initially 82.1 lb, PIC) were used in a 28-d study. Pigs were blocked by weight, and were randomly allotted to one of six dietary treatments. Pigs were fed NutriDense® corn-soybean meal-based diets. The treatments were 1) a positive control diet containing 0.15% L-lysine HCl and 0.015% added L-threonine; 2) a negative control diet with 0.45% L-lysine HCl, 0.085% added DL-methionine, and 0.15% added L-threonine; 3) treatment 2 with 0.05% L-isoleucine; 4) treatment 2 with 0.05% L-valine; 5) treatment 2 with 0.05% L-tryptophan; and 6) treatment 2 with a combination of 0.05% L-isoleucine, 0.05% L-tryptophan, and 0.05% L-valine. Pigs fed the positive control and the diet with the combination of added isoleucine, tryptophan, and valine had greater ADG than all other treatments. Also, pigs fed added isoleucine or tryptophan had greater ADG than pigs fed the negative control with those fed added valine being intermediate. Pigs fed the diet with the combination of added isoleucine, tryptophan, and valine had greater ADFI than pigs fed the negative control. There were no significant differences in F/G.

In Exp. 2, 1,038 pigs (initially 170.4 lb, PIC) were used in the 28-d study with six dietary treatments similar to Exp. 1 to determine the fourth-limiting amino acid in late finishing pigs. Overall, pigs fed the positive control diet had greater ADG and lower F/G than pigs fed the negative control diet and those fed either L-isoleucine, L-tryptophan, or L-valine. Pigs fed the diet containing added tryptophan or the combination of isoleucine, tryptophan, and valine had improved ADG and F/G compared with those fed the negative control, or added isoleucine or valine. Pigs fed added isoleucine and valine had greater ADG than pigs fed the negative control diet. There was no difference amongst the treatments for ADFI. These results suggest that in the 80 to 130 lb growing pig, tryptophan and isoleucine are the co-limiting fourth amino acid in diets containing NutriDense® corn. In 170 to 220 lb pigs, tryptophan appears to be fourth limiting followed by isoleucine and valine. More information is available on this experiment and others in the KSU Swine Day Report at www.ksuswine.org. (This study conducted by A.W. Duttlinger, J.R. Bergstrom, M.D. Tokach, J.L. Nelssen, S.S. Dritz, R.D. Goodband, J.M. DeRouchey, and J. Snow.)

UPCOMING EVENTS...

- ↳ The **K-State Beef Conference** will be held on August 7-8, 2008 in Frick Auditorium of the KSU College of Veterinary Medicine in Manhattan. This conference is designed to provide take-home knowledge that will enhance the ability of cow/calf producers to improve profitability. The general topic for the conference will be "**Managing Annual Cow Costs.**"

Registration will begin at 9:00 a.m. on Thursday, August 7. The morning program will discuss "*Defining the Problem.*" The afternoon session will follow lunch and discuss "*Defining the Solutions Part 1 – Stretching Your Forage Resources.*" There will be a social gathering and dinner at the Clarion Hotel beginning at 6:30 p.m.



The program will reconvene at 8:00 a.m. on Friday, August 8, discussing "Defining the Solutions Part 2 – Managing the Cow Herd for Optimum Production." We have a great line up of speakers for this conference, including our own Ted Schroeder, Kevin Dhuyvetter, Bob Gillen, KC Olson, Keith Harmony, John Jaeger and Sandy Johnson, as well as keynote speaker Barry Dunn (Texas A&M-Kingsville) and others including Chuck Coffey (Noble Foundation), Rick Rasby (Nebraska), Ted McCollum (Texas A&M-Amarillo) and Bob Weaber (Missouri).

For a complete schedule and details, visit www.asi.ksu.edu/beefconference. For more information, contact Larry Hollis (lhollis@ksu.edu; 785-532-1246).

- ↳ The **K-State Beef 505 Short Course** previously scheduled for August 8-9, 2008 has been postponed due to tornado damages in the KSU Meat Laboratory. A new date and details will be forthcoming. The short course will focus on market cattle and carcass evaluation, grading, fabrication, pricing, sensory evaluation, and new Retail/Food Service cuts. For more information, contact Michael Dikeman (mdikeman@ksu.edu; 785-532-1225) or John Unruh (junruh@ksu.edu; 785-532-1245).

- ↳ Make plans now to attend the **Flint Hills Beef Fest** which will be held August 15-17, 2008. Cattle Division Events include a Grass Futurity Contest, Stocker Cattle Show, Best of Grass and Show, Feedlot Contest and Carcass Show. Events will take place on the Lyon County Fairground in Emporia, Kansas. Other Beef Fest Activities include Arena Events such as Ranch Rodeo, Team Roping, Ranch Horse Competition and more. For more details and a complete schedule of events, please visit <http://www.beefest.com>.

- ↳ Three **KLA/K-State Ranch Management Field Days** have been scheduled. The first field day is scheduled for Tuesday, August 19, at the Mike and Libby Long's ML Ranch in Peru, Kansas. The next field day will be held Thursday, August 21, at the Marty and Sharon Fletchall Ranch in Beloit, Kansas. Each of these field days will start at 4:00 p.m. with educational sessions and will conclude with an evening meal.

The final field day will be held on Friday, September 26, at the Gant-Larson Ranch in Medicine Lodge, Kansas. This field day will begin at 12:00 noon. For more information, visit the KLA website at www.kla.org under Events/Meetings or contact Dale Blasi (dblasi@ksu.edu, 785-532-5427) for more details.

- ↪ The **2008 State 4-H Livestock Judging Contest** will take place on Saturday, August 23 on the KSU campus in Manhattan. The day will begin at 7:30 with registration for the Livestock Contest. The Livestock Contest will begin at 8:00 a.m. and conclude with the Livestock Contest Oral Reasons. Lunch will be provided for contestants. Watch for registration information. For more information, contact Sharon Breiner (glaenzer@ksu.edu; 785-532-1264).
- ↪ The **2008 State 4-H Meat Judging Contest** previously scheduled for Saturday, August 23 has been postponed due to tornado damages in the KSU Meat Laboratory. A tentative date of September 27 has been proposed provided refrigeration in the KSU Meat Lab is restored. More details will be forthcoming as they are available. For more information, contact John Unruh (junruh@ksu.edu; 785-532-1245).
- ↪ The **2008 KSU Beef Stocker Field Day** will be held on Thursday, October 2, at the KSU Beef Stocker Unit in Manhattan. This field day will offer practical information and management tips to optimize your stocker operation. These tools will give you greater flexibility as market and environmental conditions continue to unfold.
The day will conclude with an evening barbecue. Watch for more details. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427).
- ↪ The **2008 KSU Swine Day** will be held Thursday, November 20 at the KSU Alumni Center. Mark the date on your calendar and watch for more details.

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
August 7-8, 2008	K-State Beef Conference	Manhattan
August 15-17, 2008	Flint Hills Beef Fest	Emporia, KS
August 19, 2008	KLA/K-State Ranch Management Field Day	Peru, KS
August 21, 2008	KLA/K-State Ranch Management Field Day	Beloit, KS
August 23, 2008	State 4-H Livestock Judging Contest	Manhattan
September 26, 2008	KLA/K-State Ranch Management Field Day	Medicine Lodge, KS
September 27, 2008	State 4-H Meat Judging Contest (tentative date)	Manhattan
October 2, 2008	KSU Stocker Field Day	Manhattan
November 20, 2008	KSU Swine Day	Manhattan

AS&I FACULTY SPOTLIGHT



Dan Moser (dmoser@k-state.edu; 785-532-2459)
Associate Professor/Beef Cattle Genetics

A native of Effingham, Kansas, Dr. Dan Moser received his B.S. in Animal Sciences & Industry from Kansas State University in 1991, then earned his M.S. (1994) and Ph.D. (1997) in Beef Cattle Genetics from the University of Georgia. He returned to K-State in 1999, and currently serves as Associate Professor with a 50% teaching, 50% research appointment. His teaching responsibilities include undergraduate and graduate courses in genetics and animal breeding. He serves as advisor to 55 undergraduates and 1 graduate student.

Dan remains active in his family's Hereford and Angus seedstock operation. He and his wife [Lisa](#) have two young sons, Justin and Ryan, and a daughter, Allison.



Michael Dikeman (mdikeman@k-state.edu; 785-5321225)
Professor/Meats

Michael E. Dikeman was born September 28, 1943 at Fort Scott, Kansas. He and his wife Earline have a son Mark, and a daughter Becca. Both received B.S. degrees in Animal Sciences & Industry at K-State.

He is a Professor of Meat Science at K-State where he began his research career in 1971. He currently holds a 40% teaching and 60% research appointment in the department. He has taught thirteen different courses at K-State ranging from Introductory Animal Science to graduate courses in Meat Science. He also coached the Meat Judging Team for eight years. He has won two K-State research scholar awards and nine college, regional or national teaching awards, including an USDA-NASULGC award.

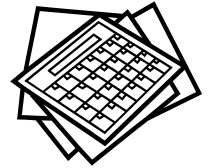
He cooperated on the cattle Germ Plasm Evaluation and Utilization research programs at the U.S. Meat Animal Research Center for 15 years.

Nearly 7,000 cattle of 38 breed combinations were evaluated under his direction for carcass and meat traits. His research program has included production/management systems for bulls, single-calf-heifers, and different biological types of steers; muscle protease differences in *Bos indicus* and *Bos taurus* cattle; ultrasound cooking and computer modeled cooking of beef; animal stress affects on meat quality; vascular infusion of cattle at slaughter; and genetics of beef tenderness. The latter research was an extensive, inter-disciplinary, inter-university x industry research project. Michael has presented invited papers at several international conferences. He is author or coauthor of 123 refereed journal articles, 108 abstracts, 100 bulletin articles, 45 conference proceedings, one book chapter, 5 videos, and Meat Science Encyclopedia.

Michael is past Chair of the Reciprocal Meat Conference, past president of the American Meat Science Association and the Federation of American Societies of Food Animal Sciences (now FASS), and Executive Committee of the American Society of Animal Science. He has been active in church, 4-H and other community activities. He and his wife have a herd of 45 registered Simmentals, and he served two terms on the Board of the American Simmental Association.

WHAT PRODUCERS SHOULD BE THINKING ABOUT...

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



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

September is when forages are maturing rapidly, weaning time can be appropriate, and weather dictates several key management decisions.

Breeding Season

Remove bulls after 60 days with cows, 45 days with heifers (Never run bulls for more than a 90-day breeding season).

Cowherd Nutrition

- Provide ample amounts of clean, fresh drinking water.
- Consider limited-intake creep feeding if:
 - ◆ Drought conditions develop and persist.
 - ◆ Range conditions limit milk production.
 - ◆ Creep feed/grain prices are relatively low.
 - ◆ Value of gain allows for economic benefits.
- Tips for successful limited-intake creep feeding:
 - ◆ Limit duration to last 30 to 75 days before weaning.
 - ◆ Limit intake to less than 2 pounds/head/day.
 - ◆ Use an ionophore or other feed additive to maximize efficiency.
 - ◆ Protein level should be equal to or greater than 16%.
 - ◆ High salt levels may help limit intake, but can be tough on feeders.
- Prepurchase bulk rate winter supplementation needs prior to seasonal price increases.

Herd Health

- If pinkeye is likely to be a problem, consider the following preventive and therapeutic measures.

Preventive:

- ◆ Make sure the herd is receiving adequate vitamins and trace mineral in their diet.
- ◆ Consider using a medicated trace mineral package.
- ◆ Consider vaccination for pinkeye and IBR.
- ◆ Control face flies.
- ◆ Clip pastures with tall, coarse grasses that may irritate eyes.
- ◆ Provide ample shade.

Therapy:

- ◆ Administer an intramuscular injection of long-acting oxytetracycline when symptoms are first noticed.
 - ◆ Shut out irritating sunlight by patching eyes, shade, etc.
 - ◆ Control flies.
 - ◆ Consult your veterinarian.
- Consider revaccinating for the respiratory diseases any animals that will be taken to livestock shows.
 - Vaccinate suckling calves for IBR, BVD, PI3, BRSV, and possibly pasteurella at least 3 weeks prior to weaning.
 - Revaccinate all calves for blackleg.
 - Vaccinate replacement heifers for brucellosis (4 to 10 months of age).
 - Monitor and treat footrot.

Forage/Pasture Management

- ☑ Enhance grazing distribution with mineral mixture placement away from water sources.
- ☑ Observe pasture weed problems to aid in planning control methods needed next spring.
- ☑ Monitor grazing conditions and rotate pastures if possible and(or) practical.
- ☑ If pastures will run out in late summer, get ready to provide emergency feeds. Start supplemental feeding before pastures are gone to extend grazing.
- ☑ Harvest and store forages properly. Minimize waste by reducing spoilage.
- ☑ Sample harvested forages and have them analyzed for nitrate and nutrient composition.
- ☑ Plan winter nutritional program through pasture and forage management.
- ☑ For stocker cattle and replacement heifers, supplement maturing grasses with an acceptable degradable intake protein/ionophore(feed additive) type supplement.

Reproductive Management

- ☑ Remove bulls to consolidate calving season.
- ☑ Pregnancy check and age pregnancies 60 days after the end of the breeding season. Consider culling cows that are short-bred.

These methods contribute to a more uniform calf crop, make winter nutritional management easier, and increase the success rate of next year's breeding season.

General Management

- ☑ Avoid unnecessary heat stress - Don't handle and(or) truck cattle during the heat of the day.
- ☑ Repair, replace and improve facilities needed for fall processing.
- ☑ Order supplies, vaccines, tags, and other products needed at weaning time.
- ☑ Consider early weaning if:
 - ◆ Drought conditions develop and persist.
 - ◆ Range conditions limit milk production.
 - ◆ Cows are losing body condition.
 - ◆ Calf and cull cow prices indicate maximum profit.
 - ◆ Facilities and management is available to handle lightweight calves.
 - ✓ *First calf heifers have the most to gain.*
 - ✓ *Resist the temptation to feed the cows without weaning; feeding early-weaned calves is more efficient.*
- ☑ Look for unsound cows that need to be culled from the herd.
- ☑ Prepare to have your calf crop weighed and analyzed through your state, regional, or breed performance-testing program.
- ☑ Document cost of production by participating in Standardized Performance Analysis (SPA) programs.
- ☑ Plan your marketing program, including private treaty, consignment sales, test stations, production sales, etc.

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.