



Newsletter from the Department of Animal Sciences and Industry
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March 2012

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...

✦ The **35th Midwest Meat Processors Workshop** will be held on Friday, March 30, 2012 in Weber Hall, Kansas State University. At the workshop learn processing strategies to maximize your profit! The schedule includes:

- 8:30 a.m. Registration, coffee and donuts
- 8:50 a.m. Welcome and Introductions - *Liz Boyle, KSU*
- 9:00 a.m. Meat Industry Macro Economics - *Glynn Tonsor, KSU*
- 9:30 a.m. Critical Processing Points in Manufacturing Shelf Stable Snacks – *Jay Wenther, AAMP*
- 10:20 a.m. Refreshment Break
- 10:30 a.m. Alternative Nitrite Delivery Systems and Labeling – *Gary Sullivan, UN*
- 11:30 a.m. Getting the Most out of a Goat – *Terry Houser, KSU*
- 12:00 noon Lunch, Weber 111
- 1:00 p.m. Making Award Winning Summer Sausage – *Kelly Cool, Glasco Locker*
- 1:30 p.m. Making Award Winning Fresh Sausage – *Mark Tittle, Mark's Meats*
- 2:00 p.m. Refreshment Break
- 2:15 p.m. Get a Sharper Knife – *Andy Nichols, PRIMEEdge, Inc.*
- 3:00 p.m. Maximize Cutout Yield of Large Ribeyes and Striploins – *Jay Wenther*
- 4:00 p.m. Nutrition Labeling of Fresh Meat - *Karen Hanson, HyVee Dietitian*
- 4:30 p.m. Adjourn

Registration fee is \$100.00 per plant, which includes lunch for 2 people and parking permit for one vehicle, and is due by March 16. For more information, contact Liz Boyle (lboyle@ksu.edu; 785-532-1247).

✦ Join us for **Kansas Junior Sheep Producer Day on March 31, 2012.**

Presentations and demonstrations by featured speaker, J.B. Massey, Van Buren, Arkansas as well as K-State faculty will cover topics such as selection, facilities and general care, health and vaccinations, nutrition, and showmanship. This interactive workshop is designed for all ages and skill levels. The tentative schedule is as follows:

- 8:45 a.m. Registration
- 9:30 a.m. Welcome and Opening Remarks
- 9:45 a.m. Selecting Your Youth Sheep Project
- 10:15 a.m. Facilities, General Care & Health/Vaccinations
- 11:00 a.m. Break
- 11:15 a.m. Breakout Session: Breeds and Sheep Identification (Beg.)
Shearing/Fitting Demonstration (Sr.)
- 12:00 noon Lunch
- 1:00 p.m. Educational Materials
- 1:15 p.m. Nutrition
- 1:45 p.m. Showmanship Clinic
- 3:00p.m. Nose Printing/DNA/Ultrasound
- 3:45 p.m. Final Questions and Wrap-up

Full registration brochure, along with speaker information is at www.YouthLivestock.KSU.edu. Please contact Brian Faris if you would like more information (brfaris@ksu.edu; 785-532-1255).



UPCOMING EVENTS...

- ↪ **Livestock Fair Management Clinics** have been set for April 3, 2012, at Pottorf Hall in Manhattan and April 4, 2012 in Garden City, Kansas. The clinics are designed for county fair board members, Extension agents and volunteers involved in local livestock fair management and leadership. This professional development opportunity consists of an activity filled day to increase awareness and knowledge and provide a forum for open communication for individuals working with local livestock fairs across Kansas. More information and printable registration forms are available at: www.YouthLivestock.KSU.edu. Registration forms are due March 15, 2012. For more information, contact Joel DeRouchey at 785-532-2280 or jderouch@ksu.edu.
- ↪ The **44th Beef Improvement Federation (BIF) Research Symposium** and annual meeting will be held at the Crowne Plaza Hotel in Houston, TX on April 18 – 20, 2012. This year's meeting is hosted by Texas A&M University AgriLife Extension Animal Science and the American Brahman Breeders Association (ABBA). The symposium's focus is the impact of *Bos indicus* genetics in the U.S.

On the evening of Wednesday, April 18, the symposium will hold an opening night reception, as well as have presentations on the influence of *Bos indicus* genetics in the global beef industry. The symposium will host a variety of events on Thursday, April 19 and Friday, April 20, including presentations on current beef issues, committee sessions to discuss current research, an educational event hosted by the American Breeds Coalition, and the Seedstock and Commercial Producer Award nominees will be announced.
- ↪ The **KSU Poultry Research and Teaching Unit will be offering egg-type pullets for sale** this spring. These pullets are raised on the farm by students and employees for teaching projects. Two breeds will be available. One is a white feathered leghorn hybrid cross that will lay white eggs and the other is a reddish feathered New Hampshire hybrid cross that lays brown eggs. They are extremely feed efficient and good producers of high quality eggs. Each white pullet will cost \$6.50 and each brown pullet will be \$7.50. They will be ready to release at the KSU Open House on **April 21, 2012**. You may pick up the pullets from 8:00 a.m. to 5:00 p.m.

To place an order, please call 785-532-5654 or e-mail poultry@ksu.edu. Reservations are encouraged because the pullets are always sold by the pick-up date. The birds are already a few weeks old and they look fantastic! You will not be disappointed with the quality and performance of these pullets. Future pullet sales will be scheduled for KSU Open House weekend.
- ↪ The **K-State Animal Sciences Leadership Academy** is planned for June 6-9 on K-State's Manhattan campus. This academy will spotlight 20 high school students from across the state wishing to learn more about leadership and production in the animal science industry. Students will receive interactive leadership training and tour facilities in K-State's Department of Animal Sciences and Industry. The second portion of the program will allow students the opportunity to tour businesses and organizations within Kansas' livestock industry.

Any high school student is eligible to apply. Selection will be based on educational, community, and agricultural involvement. Applications are available on K-State's Youth Livestock Program website and are due by March 15, 2012. The academy is sponsored by the Livestock and Meat Industry Council. The cost for the conference is \$50 which includes lodging, tours and meals. More information and printable application forms are available at <http://www.YouthLivestock.KSU.edu> under K-State Animal Sciences Leadership Academy.
- ↪ The **2012 KSU Youth Horse Judging Camps** will be held in Weber Arena on the KSU Campus. The Advanced Section, which will be held June 7-8, is designed for youth that have had some experience judging horses and would like to learn more about note taking and oral reasons. The Beginning Section will be held June 11, and is designed for youth that have had very little experience judging horses. For a brochure and registration information, visit <http://www.asi.ksu.edu/DesktopDefault.aspx?tabid=1141>. For more information, contact Teresa Douthit (785-532-1268; douthit@ksu.edu).

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
March 30, 2012	Midwest Meat Processors Workshop	Manhattan
March 31, 2012	KSU Junior Sheep Producer Day	Manhattan
April 3, 2012	Livestock Fair Management Clinic	Manhattan
April 4, 2012	Livestock Fair Management Clinic	Garden City, KS
April 18-20, 2012	Beef Improvement Federation Symposium & Annual Mtg.	Houston, TX
April 21, 2012	Pullet Sale Release	Manhattan
June 6-9, 2012	K-State Animal Sciences Leadership Academy	Manhattan
June 7-8, 2012	KSU Youth Horse Judging Camp – Advanced Section	Manhattan
June 11, 2012	KSU Youth Horse Judging Camp – Beginning Section	Manhattan

WHAT'S NEW

Management Minute "Buses, Horses and Bridges"

Feedlot Facts "S.O.R.T. – A Four Letter Word"



Management Minute – Chris Reinhardt, Ph.D., Extension Feedlot Specialist *"Buses, Horses and Bridges"*

Communication – a pretty good word. Unfortunately, we (*mea culpa*) in the management and human resources community have so abused, infused, and over-used this word in every conceivable manner, that it has become impotent. Simply reading it our mind glazes over with a milky residue. We've wasted and ruined a really good word.

But although effective communication is a critical part of effective leadership, most managers are so bogged down in the grind of daily decision-making, improved methods of communication are rarely studied by most managers. There may be a perception on the manager's part that they were promoted because one of their myriad skills is an innate ability to communicate. Or, as is often the case in agriculture, "I own this outfit so when I talk, you'll listen." The latter may be a reality, but it doesn't make anyone an effective leader.

We are probably by now all familiar with Jim Collins' "Good to Great" metaphor of getting the right people on the bus---it seems pretty intuitive. Even a bad manager probably gets that one, and gets it right. But what happens after they're all on the bus and it's pointed down the road? That's when we see differences between effective management and less so. If you've gotten the "right" people on the bus, then how much management really needs to happen? Wouldn't you do everything possible to remove obstacles from productivity and give these "right" people increasing freedom to accomplish what they've been put on the bus for? This is when effective leaders give their "horses their head", and trust them to move out in the right direction and with confidence. Or else they weren't the "right" people to begin with.

Or maybe they are only considered "right" if they are automatons which only perform those actions directed by the team leader. I would imagine that would be very satisfying for some managers, but it would also put a very firm ceiling on productivity. Team members couldn't function independent of the leader, and since the leader couldn't be everywhere, the bigger the team, the lower the ceiling on each member's productivity. So let's go back to step one: getting the right people on the bus. Automatons which are incapable of functioning without constant, intrusive, direction from above may be right for some types of businesses, but not many.

Now let's get back to communication. We've hired creative, ambitious, energetic, and qualified people to take the team forward. Most times the effective manager needs to get out of their way, remove obstacles and let them produce---give them their head. But certainly other times, the manager needs to effectively communicate. You can choose two approaches at this point. One: assume all people are just like you and want to be communicated with in exactly the same manner that you want to communicate. Or, two: assume that few if any people are exactly like you and may actually receive the message more effectively if brought in a slightly (or dramatically) different package. This is where the truly effective communicator ALWAYS crosses the bridge to the person to whom they are communicating. Insisting on staying on your side of the valley separating two completely different communication styles and yelling across the chasm may be the most expeditious decision, but rarely the most effective. This may involve using a different media, a different setting, different words, or simply a different tone. .

Management is hard work. But it's not just hard because it requires difficult decisions in a challenging economic environment, it's also hard because it requires homework and preparation. The best coaches come in early and stay late---long after the players have hit the showers. Part of this homework is getting to know who you've got on your bus. The only way to achieve effective communication to a diverse audience of team members is through intentional study of each team member, knowing how they'll best hear your message, and cross the bridge.

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

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

“S.O.R.T. – A Four Letter Word”

Patton is quoted as saying, “No good decision was made from a swivel chair.” So it’s easy for me to sit here and tell you how you “should” be marketing your fed cattle---but “easy” and “right” are seldom the same things.

The questions I would have to ask are myriad, but mostly surround the target (quality grade, carcass weight, grid-type, live vs. carcass value, etc.) you’re trying to achieve. But there is another level that the “consultant” often overlooks, or even avoids: sorting logistics. (See the swivel-chair comment, again).

After sorting, a half-full pen doesn’t maximize yardage (from customer cattle) or maximize facilities utilization (for company-owned cattle). If you feed 80-head pens for logistics of feeder cattle freight, you can’t split those pens into 3 full loads of finished cattle; you could sort into 2 outcome groups but this fails to capture the full value of sorting. If you feed mostly small groups of customer cattle, you can’t easily re-blend non-market-ready cattle from separate original pens into new outcome groups.

It has been estimated that sorting into 3 uniform outcome groups shortly before harvest may increase profitability of the entire pen by \$16 per animal. Sorting allows you to remove potentially overweight and over-fat cattle, which allows you to feed the lighter and leaner animals longer, increasing the total weight sold out of the pen without increasing the percentage of out cattle which, for grid cattle, may bring hefty discounts, and for non-grid cattle, may bring the ire of your packer-partner. Also, an added positive by-product of this opportunity to increase the days on feed for the lighter and leaner cattle is that they also have a greater opportunity to move into higher value quality grades.

The relationship between carcass price and feed costs will dictate the actual endpoint to which cattle can be fed. At high grain-to-cattle prices, cattle may need to be marketed at a low yield grade 3, whereas if carcass value rises relative to grain costs, cattle may be fed well toward mid to upper yield grade 3. However, after cattle reach yield grade 4, efficiencies and cost of gain normally exceed the value of the carcass weight added through additional days on feed.

Finally, if the decision is made to utilize a beta agonist, the logistics of sorting become even more complicated. Ideally, cattle would be sorted into outcome groups prior to feeding the beta agonist, and the marketing date could be determined at time of sorting. If this is not feasible due to lack of sorting pens, another option may be to market the fattest and heaviest cattle from the pen, then initiate feeding the beta agonist and market after that feeding phase is complete.

Sorting does indeed complicate fed cattle marketing. If sorting can be accomplished with minimal stress on the cattle, it can be a source of additional revenue for the astute cattle feeder.

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

↪ The **KSU Sheep and Meat Goat Center Ribbon Cutting Ceremony** was held Saturday, March 3, 2012. The sun was shining brightly as over 125 individuals gathered for the ceremony. The air outside was a little brisk, but judging by all of the smiling faces inside the new facility few were affected by the temperature.



Individuals speaking on the program were Dr. Ron Trewyn, K-State Vice President for Research; Dr. Gary Pierzynski, K-State College of Agriculture Interim Dean; Tom Sloan, Kansas 45th District State Representative; Nancy Smith, Kansas Sheep Association President; Anne McGuire, Kansas Meat Goat Association Vice President; and Burdell Johnson, American Sheep Industry Association Past President. Other Kansas government attendees were Dale Rodman, Kansas Secretary of Agriculture and Sydney Carlin, Kansas 66th District State Representative. Following the program and the ribbon cutting ceremony, attendees were given a guided tour of the facility. For more information on the Sheep and Meat Goat Center, contact Brian Faris (785-532-1255; brfaris@ksu.edu).

↳ The **2012 KSU Cattlemen's Day** was a huge success with over 750 beef producers, allied industry representatives, K-State staff and students registered this year. In upcoming issues of the newsletter, we will be including some of the 2012 Beef Research Highlights. For more information on these trials, visit www.KSUbeef.org.

We appreciate your attendance and support of this educational event and would also appreciate any feedback on suggestions for next year. We will be celebrating the 100th anniversary of Cattlemen's Day (formerly known as Livestock Feeders Day) on March 1, 2013. Please contact Dale Blasi (785-532-5427; dblasi@ksu.edu) or Jim Drouillard (785-532-1204; jdrouill@ksu.edu) with comments and suggestions.

↳ **Nomination Changes** - Please check the Youth Livestock Web site at www.youthlivestock.ksu.edu for the most up to date information on the Nomination Process. The Kansas State Fair and Kansas Junior Livestock Show have implemented DNA-based nominations. Listed below are the changes for the 2012 Livestock Nominations:

- **DNA Hair Samples are required for each nominated animal for ALL SPECIES.**
- NO nose print cards are required.
- NO ear notches are required.
- **Heifer tattoo IS required (this has not changed from last year).**
- **The nomination fee per animal has increased from \$6.00 to \$8.00** to allow more random DNA comparisons at the KSF and KJLS.
- On the forms, there is a place to stick the EID sticker IF the animal has one. Realize that EIDs will not be required until 2013.
- All Market Steer/Heifer nominations are due **May 1**.
- All other species and commercial animal nominations are due **June 15**.
- There is a one-time/year \$10.00 fee if a nomination has to be returned to the family for any reason (ie. incomplete form).

For more information, contact Kristine Clowers, Intern Youth Livestock Coordinator (785-532-1264; clowers@kdu.edu) or Brian Faris (785-532-1255; brfaris@ksu.edu).

↳ **Bedding Material in Dirt-Floor Pens Reduces Heat** – Keeping cattle cooler during hot weather improves animal welfare and animal performance (gain). Providing straw as bedding during times of hot weather has been hypothesized to provide cooler conditions due to the lighter color of the straw and its ability to insulate animals from hot ground temperatures. Plots in a dirt-floor pen, each with a difference surface material, were monitored for temperature on a 97oF day. The plots consisted of bare pen surface, 6 inches of straw bedding, 6 inches of manure, or 12 inches of manure

Bottom Line... Bedding pens with 6 inches of wheat straw resulted in a surface temperature that was 25oF cooler than that of the bare pen surface, potentially providing cattle a cooler place to rest during peak daytime temperatures. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact, Dan Thomson (785-532-4844; dthomson@vet.ksu.edu) or Chris Reinhardt (785-532-1672; cdr3@ksu.edu).

↳ **Spring Burning of Native Tallgrass Pastures Influences Diet Composition of Lactating and Non-Lactating Beef Cows** – The study conducted on 8 pastures in the Kansas Flint Hills; 4 of the pastures were burned in mid-April and 4 had no recent burning history. Treatments consisted of pregnant, lactating beef cows, suckling calves and non-pregnant, non-lactating beef cows. Four lactating and four non-lactating cows were grouped randomly and assigned to graze a single burned or unburned pasture for 120 days. Fecal samples were collected from each animal during each period. Samples were prepared and views on a microscope slide to determine the frequency of appearance of plant fragments, which was assumed to be equivalent to prevalence in grazed diets.

Bottom Line... Forage selection preferences of beef cows can be altered with spring burning of native tallgrass pastures. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact, Dale Blasi (785-532-5427; dblasi@ksu.edu) or KC Olson (785-532-1254; kcolson@ksu.edu).

↳ **Evaluating the Effects of Pelleting, Dried Distillers Grains with Solubles Source, and Supplemental Sodium Metabisulfite in Nursery Pig Diets Contaminated with Deoxynivalenol** - A total of 1,180 mixed sex pigs (initial BW = 24.4 ± 0.7 lb and 35 d of age) were used in a 21-d trial evaluating the effects of pelleting, pelleting dried distillers grains with solubles (DDGS), and the influence of sodium metabisulfite₄ (SMB) in diets containing deoxynivalenol (DON; commonly referred

to as vomitoxin) on nursery pig growth performance. This study was conducted simultaneously at two locations: (1) Kansas State University Swine Teaching and Research Center (PIC 337 ×1050) in Manhattan, KS, and (2) New Fashion Pork Research Nursery (Fast/PIC × TR4) in Buffalo Center, IA. At both locations, pigs were assigned to 1 of 7 treatments in a completely randomized design 2 × 3 +1 arrangement. Apart from the positive control diet at location 1 (4 replications), there were 5 replications (pens) per treatment at each research site, with 5 and 28 pigs per pen at location 1 and 2, respectively.

Initial mycotoxin analyses were conducted at NDSU on the main ingredients, and these results were used in diet formulation. Seven treatments were formulated based on 3 diets fed in meal and pellet form: (1) Positive control; (2) negative control (5.5 ppm DON); and (3) pelleted and crumbled DDGS (5.5 ppm DON); as well as a seventh treatment, based on diet 3 but with 2.5% SMB added prior to pelleting DDGS, fed in meal form (5.5 ppm DON). Following feed manufacturing for both locations at Hubbard Feeds (Mankato, MN), ingredients and diets were analyzed at NDSU.

Bottom Line...Overall (d 0 to 21), DON reduced ADG, ADFI, and pig BW; however, ADG, ADFI and pig BW improved when DON-contaminated diets were pelleted. When comparing high-DON DDGS processing prior to final diet manufacturing, pelleting DDGS had no effect on ADG, ADFI, F/G, or pig final BW, although there was an interaction in which pelleting final diets improved F/G by a greater margin than pelleting DDGS, then crumbling and repelleting in the final diet. Adding SMB prior to pelleting DDGS increased ADG, ADFI, and overall pig BW. Pelleting of diets can improve growth and F/G and thereby offset some of the reductions in performance when feeding high-DON containing diets. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by H. L. Frobose, E. D. Fruge, M. D. Tokach, E. L. Hansen, J. M. DeRouchey, S. S. Dritz, R. D. Goodband, and J. L. Nelssen.)

↳ **Effect of Regrinding Dried Distillers Grains with Solubles on Finishing Pig Growth Performance -**

A total of 1,235 barrows and gilts (PIC, 337 × 1050, initially 77.35 lb) were used in a 103-d study to determine the effects of regrinding dried distillers grains with solubles (DDGS) on finishing pig growth performance. Pigs were blocked by weight and randomly assigned to 1 of 2 treatments with 23 replications per treatment. Treatments included: (1) a corn-soybean meal diet with “normal” DDGS (DDGS average particle size of 780 μ), and (2) the same corn-soybean meal diet with reground DDGS (DDGS average particle size of 691 μ). Diets were fed in 4 phases (77 to 117, 117 to 163, 163 to 196, and 196 to 270 lb for Phases 1, 2, 3, and 4, respectively). Phase 1 and 2 diets contained 40% DDGS, and Phase 3 and 4 diets contained 20% DDGS. To achieve uniform lots of DDGS among treatments, semi-loads were split in half and left either as-received or reground. The DDGS was reground using a RMS 9X36 dual roller mill with corrugations set at 6-6 on top and 13-13 on the bottom. Within each of the individual phases, there were no differences in ADG, ADFI, or F/G. Similarly for the overall experiment, no differences in growth performance were found.

Bottom Line...These data indicate that regrinding DDGS (95 μ reduction in particle size) was not a large enough difference to affect growth performance; however, more research is needed to evaluate a greater reduction in particle size than achieved in the present study. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by J. A. De Jong, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, J. L. Nelssen, and R. D. Goodband.)

↳ **Improving Efficiency Starts with Understanding the Measures** - For commercial beef producers, the

implementation of technologies and breeding systems that increase the quality and volume of production and/or reduce input costs is essential to profitability. Efficiency is a term that refers to the proportion of outputs to inputs and is a frequently mentioned goal of beef producers. There are many different ‘efficiencies’ that affect beef production, especially at the cow calf level. Some of these efficiencies are observed at the individual animal level and some observed at the system or herd level. The various efficiencies can be categorized into measures of biological or economic efficiency. Improvement in individual animal efficiency, especially during the post-weaning growing or finishing phases, may or may not improve efficiency at the herd or system level, and may have an undesirable correlated response in traits of cows.

So, why is improvement in feed efficiency important and why does the beef industry focus on it? During the growing and finishing phase of production, a one percent improvement in feed efficiency has the same economic impact as a three percent increase in rate of gain. Assuming 27 million cattle are fed per year and that 34 percent of cattle in the feedlot are calves and 66 percent are yearlings, the beef industry could save over a billion dollars annually by reducing daily feed intake by just 2 pounds per growing animal.

Different Measures of Efficiency - There are a variety of measures of efficiency discussed and utilized in beef production. Some may or may not be important to cow-calf producers. For improvements in 'efficiency' to positively impact profitability of a cow-calf producer, the efficiency improvement must be realized prior to the marketing endpoint of progeny. In the following sections a variety of 'efficiency' measures are discussed including their applicability and limitations for improvement in efficiency of the cow herd. These measures or their component traits have been shown to be heritable, so selection for improvement is possible but anticipated to be slow, requiring a decade or more to move the population a meaningful distance.

Feed Efficiency or Feed Conversion Ratio: Many cow-calf producers and, certainly cattle feeders, are familiar with the term *feed efficiency* (**FE**; live weight gain per unit of feed consumed) or its reciprocal, *feed conversion ratio* (**FCR**; F:G or pounds of feed per pound of live gain). Both of these measures are most commonly associated with animals during the growing or finishing phases. Both measures are suitable for managerial use during feeding but are poor selection tools.

Their utility is limited in selection due to two issues. First, the measures are ratios of inputs and outputs, so improvement in the ratio can be achieved by changing the numerator, the denominator or both. Therefore breeders don't have control over which parameter in the ratio changes due to selection. Selection tools like an index that consider each input and output separately are more effective. Second, FCR or FE is strongly related to average daily gain (ADG) and composition of gain. Leaner biological types and larger, faster growing animals tend to have better FE and FCR. Selection based on FE or FCR results in larger, later maturing and leaner cows. This type of cow tends to have higher maintenance energy requirements.

Residual Feed Intake: Recently, residual feed intake (**RFI**; Koch et al. 1963) has been reintroduced as an efficiency measure for beef production. It is computed as the difference between actual average daily feed intake (**AFI**) and the predicted daily dry-matter intake based on the animal's gain and maintenance requirements for its body weight. The actual calculation results in an RFI value that is not correlated with phenotypic ADG and body weight (an advantage over FCR or FE).

However, research shows underlying genetic correlations between RFI with FI, ADG and BW as well as measures of composition. Computing RFI on the genetic scale as an index of EPDs assures a selection tool with fewer antagonisms. RFI can and does identify efficient animals that also have slow growth and low feed intake making these candidates undesirable for selection and use in the commercial beef industry. Some research suggests that selection for RFI produces slightly larger and leaner cows over time and cows that have older ages at first calving. In general, selection for favorable (negative) RFI results in animals with equivalent performance, but achieves that output with less feed consumed.

Residual Average Daily Gain: A concept closely related to RFI is residual average daily gain (**RADG**) which was proposed at the same time as RFI as a potential tool for selection for improved feed efficiency. This term is defined as the difference between actual weight gain and the gain predicted based on dry matter intake, maintenance of body weight and fat cover. In the calculation, differences in ADG are controlled/adjusted for differences in AFI and body weight.

Like RFI, RADG, is a transformation of the data and can be computed based on either the live measurements alone (phenotypic) or by information from both the individual and relative data (genetic). While RADG is indicative of differences in efficiency of feed utilization for growing animals, it may have limited utility for prediction of differences in maintenance efficiency of cows. RADG should not be used alone in selection for feed efficiency. Data reveals that some animals with favorable RADG have sub-par feed intake and consequently undesirable ADG.

Average Daily Feed Intake: Also known as **AFI**. AFI is a gross measure of nutrient input. While it cannot be used alone as a predictor of feed efficiency, it provides a useful data input for computation of a selection index. Feed intake represents an economically relevant measure of cost that can be associated with a variety of output or endpoint measures. AFI could be measured on animals during different phases of production and used to capture input:output (efficiency) information. A selection index for AFI or an AFI EPD can be reliably produced analyzing performance records for a variety of growth traits. An AFI EPD produced without actual feed records but based on genetic associations between growth and intake can account for nearly 75% of the variation in observed feed intake. These measures of efficiency are most commonly discussed when considering data that measure individual intake of growing animals in a feedlot setting. Cow/calf producers that retain an interest or ownership of calves through harvest may be considering them as options to improve profitability of the finishing phase of production. Since growth is not a desired output of the cow, other measures of cow efficiency are needed that account for reproduction, maintenance and milk production.

For more information, contact Bob Weaber (bweaber@ksu.edu; 785-532-1460).

AS&I Faculty Spotlight



Randy Phebus (phebus@k-state.edu; 785-532-1215)
Professor/Food Safety & Defense

Dr. Phebus was born and raised in Waverly, Tennessee, a small town 70 miles west of Nashville. He attended the University of Tennessee in Knoxville from 1981-1992, earning B.S. (Animal Science), M.S. and Ph.D. degrees (Food Science). Dr. Phebus joined the K-State ASI department in 1992 and has a 30% teaching and 70% research appointment within the Food Science discipline group. He teaches *FDSCI 302 Introduction to Food Science* and is very active in the distance learning Food Science program and student recruitment. He specializes in food microbiology, food safety, food biosecurity and defense, and public health.

Dr. Phebus coordinates an active applied food safety research program. Much of his research focuses on meat safety and controlling shiga toxin-producing *E. coli* in beef systems. Additionally, he leads an active research program in food defense, particularly, investigating ways to ensure the safety of military food systems. He is a member of the K-State Food Science Institute and the National Agricultural Biosecurity Center. Dr. Phebus holds graduate faculty status in Food Science, Animal Sciences, and Pathobiology and he advises students in the Master of Public Health Program. He works closely with food processors, regulators, and technology providers across the country to improve food quality and safety through laboratory-based and processing-based research and troubleshooting activities.

Personally, Dr. Phebus is a rabid Tennessee Volunteer (beat Florida!) and K-State Wildcat (beat KU!) fan. He lives west of campus near Keats, KS, with his wife Cindy and two children (Anteelah and Cole, both undergraduate Food Science students at K-State). He enjoys hunting and sports with his children and riding his motorcycle through the Flint Hills.



James Marsden (jmarsden@k-state.edu; 785-532-1952)
Regents Distinguished Professor/Meat Science

James Marsden joined the ASI faculty in 1994 as the Regent's Distinguished Professor of Meat Science. He has a 100 % research appointment. He also serves as the Associate Director of the National Agriculture Biosecurity Center – located at KSU.

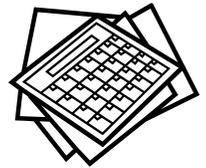
His research focus has been on the safety of meat products. This work has included the control of *E. coli* O157:H7 in raw ground beef and other processed beef products and *Listeria monocytogenes* in processed meats. He also acts as the Senior Science Advisor for the North American Meat Science Association and has been involved in food safety training for the meat industry. Dr. Marsden is the author of numerous publications and book chapters on food safety and quality and is the recipient of awards for research and teaching.

He serves on a number of Advisory Boards for companies that provide food safety technologies to the meat industry and is a regular contributor to the television program –“World Business Review with Alexander Haig”. He has also appeared on numerous television news programs as a food safety expert.

He enjoys spending time with his wife and five children and two grandchildren. His hobbies include collecting rare books, music and theater.

What Producers Should Be Thinking About.....

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



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

Breeding season is beginning or continuing for many operations; therefore, both females and males must be reproductively fit.

- 1) Several estrus synchronization procedures have been developed. To determine the correct synchronization program to use, consider the following: age group of females (yearling replacement heifers vs. cows), commitment of time and efforts for heat detection, potential number of females that are anestrus (days post partum, body condition, calving difficulty), labor availability, and the return on investment for total commitment to the breeding program.
 - 2) Handle semen properly and use correct AI techniques to maximize fertility.
 - 3) Natural service bull should have body condition, eyes, feet, legs and reproductive parts closely monitored during the breeding season. Resolve any problems immediately.
 - 4) All bulls should have passed a breeding soundness examination prior to turnout.
- Begin your calf preconditioning program. Vaccination, castration and parasite control at a young age will decrease stress at weaning time. This is a time to add value to the calf crop.
 - Implanting calves older than 60 days of age will increase weaning weight.
 - Properly identify all cows and calves. Establish premises numbers for compliance with state and national programs.
 - Use best management practices (BMPs) to establish sustainable grazing systems.
 - Use good management practices when planting annual forage sources and harvesting perennial forages.
 - Maintain records that will verify calving season, health programs, and management practices.

*We need your input! If you have any suggestions or comments on **News from KSU Animal Sciences**, please let us know by e-mail to lschrein@ksu.edu, or phone 785-532-1267.*