



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

September, 2015

News from KSU Animal Sciences

In This Issue

- Upcoming Events
- Management Minute
- Feedlot Facts
- 2015 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 or call (785) 532-1267.

➤ **Food Preservation Update for Agents** – Is food preservation new to you? Or do you need an update to your food preservation knowledge? As part of a grant from the Kansas Health Foundation, four food preservation classes will be held for Extension Agents in locations across Kansas. The dates and locations are:

September 15 – Abilene, KS September 23 – Dodge City KS
 September 17 – Hays, KS September 29 – Iola, KS

So save the date that works for you! More information and registration will be coming soon. For more information, contact Karen Blakeslee (785-532-1673; kblakesl@ksu.edu)

➤ **KSU Beef Stocker Field Day to be held September 24** - The 2015 KSU Beef Stocker Field Day will be held on Thursday, September 24 at the KSU Beef Stocker Unit in Manhattan. The schedule is as follows:

9:30 a.m.	Registration/Coffee
10:15 a.m.	Introductions
10:30 a.m.	Charting the Course in Choppy Waters – <i>Dr. Glynn Tonsor, KSU</i>
11:15 a.m.	Producer Panel – Breaking into the Stocker Business – Managing Risk Moderator: <i>Wes Ishmael, Contributing Editor, BEEF magazine</i> <i>Rodney Derstein, Kismet, KS</i> <i>Justin Keith, Allen, KS</i> <i>Sam Sterling, Pratt, KS</i> <i>Mike Utech, Emporia, KS</i>
12:15 p.m.	Barbeque Brisket Lunch – View posters/demonstrations
1:15 p.m.	Innate Immunity and BRD in Stocker Calves – <i>Jim Sears, Senior Technical Services Veterinarian, Bayer</i> <i>Veterinarian Panel – Health Issues – What we Think</i> Moderator: <i>Dale Blasi, KSU Beef Cattle Specialist</i> <i>Stan Perry, DVM; Philip Bentz, DVM; and James Allen, DVM</i>
2:15 p.m.	
3:30 p.m.	Break
4:00 p.m.	Breakout Sessions (30 minutes/breakout)
	Dealing with Old World Bluestem – <i>Dr. Walt Fick, Range Specialist, KSU</i>
	Lungs: When Things aren't Right (Wet Lab) – <i>Gregg Hanzlicek, George Kennedy and Chanran Ganta</i> <i>KSU Veterinary Medicine Diagnostic Lab</i>
	New Pen Construction: Considerations, Requirements and Costs – <i>Bill Hollenbeck, Beef Stocker Unit; Pat Murphy and Joe Harner,</i> <i>Livestock Systems Engineers, KSU</i>
5:30 p.m.	Cutting Bull's Lament 2015

The day will conclude with a good old-fashioned Prairie Oyster Fry and Call Hall ice cream. Pre-registration is \$25 by September 15. For complete details and registration, visit www.KSUbeef.org. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427).



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

✈ Join us for the **AS&I Family and Friends Reunion to be held on Friday, October 9, 2015**, 5:30–9:30 pm at the Stanley Stout Center, 2200 Denison Avenue, Manhattan, Kansas. This inaugural event will celebrate the K-State Animal Sciences & Industry family and thank our industry friends for decades of contributions to animal agriculture. Activities include great food, live music, a commemorative limited edition take-home poster created by noted artist and K-State AS&I alum, Dino Cornay, Junior Wildcat Barn Yard and more surprises!!

The first Don L. Good Impact Award will be presented during the reunion. Named for the former department head of K-State Animal Sciences and Industry, the award recognizes positive impact on the livestock and meat industry or agriculture. Dr. Miles McKee, AS&I Professor Emeritus is the first recipient of this award. Dr. McKee has taught, mentored and been a friend to thousands of ASI students spanning more than four decades. Join us as we honor one of the most influential teachers and animal scientists of the century!

For more information and a registration form, visit www.asi.ksu.edu/familyandfriendsreunion.html

✈ **International Conference on Feed Efficiency in Swine - ICFES 2015** - Iowa State University and Kansas State University will be co-hosting the International Conference on Feed Efficiency in Swine, which will be held on October 21-22, 2015 at the CenturyLink Center in Omaha, Nebraska. This forum is to share with the industry the findings of current research and bring world renown experts on feed efficiency to present the full breadth of knowledge on swine feed efficiency. The targeted audience is those involved in the more technical aspects of pork production. For a complete schedule and registration information go to <http://www.swinefeedefficiency.com>. For more information, contact Mike Tokach (mtokach@ksu.edu; 785-532-2032) or Joel DeRouchey (jderouch@ksu.edu; 785-532-2280).

✈ **Make plans now to attend the 2015 KSU Swine Day**. The 2015 KSU Swine Day will be held Thursday, November 19, at the KSU Alumni Center. The schedule for the day includes:

- 8:00 a.m. – 3:00 p.m. Trade Show
- 9:30 a.m. Welcome - *Dr. Ken Odde, Department Head, Animal Sciences and Industry*
- 9:45 a.m. Production Consequences of Low Birth Weight Pigs
Dr. Jim Nelssen, Dr. Duane Davis, and Dr. John Gonzalez, KSU
- 10:30 a.m. Countdown to the New Veterinary Feed Directive – What Do We Need to Know?
Dr. Mike Apley, College of Veterinary Medicine, KSU
- 11:45 a.m. Lunch with Trade Show
- 1:30 p.m. Latest Update on K-State Applied Swine Nutrition Research
Dr. Mike Tokach, Dr. Joel DeRouchey, and Dr. Bob Goodband, KSU
- 2:15 p.m. Impact of Feed Processing on PEDv Mitigation and Pig Performance
Dr. Cassie Jones, Dr. Steve Dritz, and Dr. Jason Woodworth, KSU
- 3:00 p.m. Key Profit Drivers for Future Success in the Pork Business
Dr. Aaron Gaines, The Maschhoff's Pork Group
- 3:45 p.m. Reception with K-State Ice Cream

Pre-registration fee is \$25 per participant by November 9; with registration at the door \$35 per participant. There is no charge for any students if they are pre-registered. The complete schedule and on-line registration information can be found at www.KSUswine.org. For more information, contact Jim Nelssen (jnelssen@ksu.edu; 785-532-1251).

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
September 15, 2015	Food Preservation Update for Agents	Abilene, KS
September 17, 2015	Food Preservation Update for Agents	Hays, KS
September 23, 2015	Food Preservation Update for Agents	Dodge City, KS
September 24, 2015	KSU Beef Stocker Field Day	Manhattan
September 29, 2015	Food Preservation Update for Agents	Iola, KS
October 7-9, 2015	HACCP Workshop	Olathe
October 9, 2015	AS&I Family and Friends Reunion	Manhattan
October 21-22, 2015	International Conference on Feed Efficiency in Swine	Omaha, NE
November 19, 2015	KSU Swine Day	Manhattan

WHAT'S NEW.....

Management Minute "Team Work in Action"

↳ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Team Work in Action"

I recently had the opportunity to work with a highly functional team of about a dozen young researchers working under extreme fatigue and duress. Their behavior shocked and informed me.

Most of the research workers are under 30 years of age, and many are in their early twenties. The project required all parties to operate on less than 4 hours of sleep for several consecutive nights and yet operate at a high level of competency during the day. The party were working with a large food production plant, requiring a great deal of quality communication, both within the team and between the team and plant personnel. Because the plant operates at a very high level of productivity with little room for "slippage" in the system, the data collection needs of the team needed to fit seamlessly into the production schedule, and personnel had to be nearly "invisible" with respect to any interference with the production system.

The team worked well throughout the project, constantly communicating with one another confirming correct data entries, sample identification, etc. Members of the team would ask others if they needed anything---either assistance or a drink or something to eat. Workers strove to maintain an upbeat attitude and some humor throughout the long days. At the end of the final evening of the data collection project---the third 18-hour day in a row---all workers energetically chipped in to clean up every trace of their presence in the food plant, loading out equipment and trash until all remnants were erased.

The researchers' behavior shocked me in that on not one occasion were attitudes short nor did any single member of the team flag and attempt to rest while the others worked to finish the project; I was pleasantly surprised. I've seen much worse on projects less strenuous.

The behavior also informed me on two points:

1. The researchers drew their example from their young project leader. The leader got less sleep than any other team member, staying up late to organize the subsequent days' materials and yet this person had an upbeat and energetic demeanor throughout the project. Leadership sometimes means setting an example not just handing out duties.
2. The researchers were innately team-oriented people. The individuals were each supremely capable of accomplishing their own projects with aplomb, yet subjugated their individual projects for a week to anonymously contribute to their team mate's success, with no additional stimulation other than the satisfaction of knowing they were part of an effective team and that they had contributed to another's success. Team work can be taught and exemplified, but it is nice when the lessons have been learned and fully internalized long before the stressful times begin.

For more information, contact Chris at cdr3@ksu.edu.

↳ **Feedlot Facts** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "It's Time to Precondition"

Vaccine and antimicrobial technology continues to improve at a breakneck pace. Yet we continue to see that calves which are unprepared for life in the feedlot and which undergo significant stress during and after weaning in route to the feedlot will have morbidity upwards of 30% and first treatment success is often 30-50%. Calves which get mild respiratory disease will gain 0.2-0.4 lbs less ADG and those calves requiring multiple treatments will gain 0.6 lbs less for the entire feeding period. This translates to about 15 lb less carcass weight and 10-15% fewer choice carcasses. It pays to keep calves healthy.

Preconditioning can mean everything from giving calves a vaccination prior to weaning, all the way to 2 rounds of vaccination, pre- and post-weaning, weaning from their dams for 45 to 60 days, and transitioned onto a total mixed ration, feedbunks, and waterers.

As far as animal performance is concerned, the extent of preconditioning needed to minimize post-arrival problems and maximize feedlot performance depends on the extent of stress imposed on the calf during transition.

Feedlot Facts "It's Time to Precondition"

↪ **Feedlot Facts** – “It’s Time to Precondition” (cont.)

Recent studies here at K-State suggest that single-source calves shipped 4 hours to a feedlot will benefit from pre-weaning vaccination and weaning and feeding for at least 2 weeks pre-shipment. If calves are going to be shipped a great deal farther, will be extensively commingled either in transit or upon arrival, and may experience adverse weather conditions post-arrival, vaccination and weaning for 6-8 weeks pre-shipment would be preferred.

Investing time, technology, and labor into the calf crop has very real costs for the rancher. But the high purchase price of weaned calves entering the feedlot means the risk of respiratory disease and the financial uncertainty that respiratory disease causes for feedlot producers is at historically high levels as well. Many feedlot producers are willing to pay ranchers a premium to mitigate some of this disease risk which causes them economic uncertainty---consider it “biological risk management.” When certified preconditioned calves are sold at special preconditioned calf sales, they have the potential to bring unprecedented premiums compared to non-preconditioned, “commodity” calves.

Respiratory disease is the most costly disease in the cattle industry, and the greatest factor affecting calf performance in the feedlot. If you can prevent or control disease, you can, to a certain extent, control performance of calves. Feedlots are paying premiums for calves which are prepared for life at the feedlot. Why? Because they perform. As a rancher, you can and should get paid for your investments of time, money, and management.

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

↪ **IRM Redbooks for Sale** – The 2016 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).

↪ **Supplemental Zinc Oxide Does Not Interact With Zilmax in Feedlot Steers-** The objective was to evaluate interactive effects of supplemental zinc and Zilmax on feedlot performance, blood components, and carcass traits of finishing steers. Steers (n = 40; initial body weight 1,437 lb) were sorted by body weight and assigned to treatments. Treatments consisted of 60 or 300 ppm added zinc, with 0 or 7.56 g/ton zilpaterol hydrochloride (Zilmax; Merck Animal Health, Summit, NJ). Steers were housed individually. Zilmax was fed for 22 days then removed 3 days prior to harvest. Plasma samples were collected on days 0 and 21 to assess urea nitrogen, glucose, and lactate concentrations. Steers were weighed on days 0, 21, and prior to shipment on day 25. Carcass data were collected after slaughter.

Bottom Line... Increasing dietary concentrations of zinc does not affect response to Zilmax, but feeding Zilmax alters the circulating concentrations of blood components associated with muscle growth. View the complete report at www.asi.ksu.edu/cattlemensday. For more information, contact Jim Drouillard (785-532-1204; jdrouill@ksu.edu) or Chris Reinhardt (785-532-1262; cdr3@ksu.edu)

↪ **Artificial Insemination Valuable to Commercial and Seedstock Producers-**The objective was to determine how and the extent to which artificial insemination and estrus synchronization contribute to profitability. Artificial insemination and estrous synchronization remain underutilized by U.S. beef producers. The most recent National Animal Health Monitoring Survey (NAHMS 2007–08) reported that 7.6% of producers used artificial insemination and 7.9% used estrous synchronization. The most common reason cited for not using various reproductive technologies was time and labor, followed by cost and difficulty. An online survey was completed by 425 producers who assessed various management practices, ways that artificial insemination contributed to profitability, and the value of calves sired by artificial insemination. Logistic regression was used to determine differences in practices based on involvement in the industry (commercial cow-calf, seedstock, commercial heifer development, veterinarian, artificial insemination technician, other).

Bottom Line... Both commercial and seedstock producers realized greater value from calves sired by artificial insemination compared with calves sired by natural service. Average value was higher for seedstock (\$709/head) producers than for commercial producers (\$187/head), although marketing endpoints may differ. View the complete report at www.asi.ksu.edu/cattlemensday. For more information, contact Sandy Johnson (785-462-6281; sandyj@ksu.edu) or Bob Weaver (785-532-1460; bweaver@ksu.edu)

↪ **Effects of High Levels of Dietary Niacin from Nicotinic Acid on Growth and Meat Quality of Finishing Pigs Raised During Summer-** A total of 1,232 pigs (PIC 337 × 1050; initially 59.4 lb) were used in a 98-d study to evaluate the influence of increasing dietary niacin supplementation on growth, body temperatures, and meat quality of pigs raised in a commercial facility during the summer. There were 28 pigs per pen and 11 pens per treatment. Basal diets contained corn, soybean meal, and dried distillers grains with solubles (DDGS). The four dietary treatments were formed by adding increasing levels of nicotinic acid as the source of niacin at 14, 172, 331, and 490 mg/lb of complete feed. On d 57, 58, and 59, rectal temperatures and skin temperatures on the top of the shoulder and rump were collected from 2 pigs per pen (1 barrow and 1 gilt). On d 98, 2 pigs per pen (1 barrow and 1 gilt) were visually selected as the heaviest pigs in the pen and were harvested for carcass and meat quality data. Carcass traits, pH decline, and subjective loin color and marbling scores were measured at a commercial abattoir. Afterward, a 15.7-in. segment of the loin was used for meat quality analysis, including measurements of ultimate pH and purge loss. Boneless chops (1 in. thick) were cut from the loin segment and were used to determine 24-h drip loss, subjective color and marbling, objective lean color values (L^* , lightness; a^* , redness; and b^* , yellowness), and muscle niacin concentrations.

Average daily temperatures within the barn ranged from 63.8 to 85.5°F throughout the length of the study, with daily low temperatures from 59.9 to 81.0°F and daily high temperatures from 66.1 to 93.3°F. Overall, temperature was cooler than expected for the facility compared with normal seasonal increases associated with the summer months. Time × day interactions were observed for rectal, shoulder, and rump temperatures; however, body temperature was not consistently influenced by dietary niacin concentrations during the collection period.

Overall, increasing dietary niacin did not influence ADG or F/G, but it tended to increase ADFI. Increasing niacin supplementation did not influence carcass traits; however, for meat quality, it did increase pH decline at 45 min and 21 h postmortem. Increases in a^* and b^* were observed for chops from pigs fed increasing niacin, but subjective chop color scores were not affected by increasing niacin supplementation.

Bottom Line... In summary, dietary niacin above the animal's requirement estimate did not consistently influence rectal or skin temperatures and had negligible influences on growth performance, carcass traits, and meat quality parameters. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by J.R. Flohr, J.M. DeRouchey, M.D. Tokach, J.C. Woodworth, S.S. Dritz2, R.D. Goodband, T.A. Houser, C.A. Felder, and K.J. Prusa)

↪ **Effects of Standardized Ileal Digestible Tryptophan:Lysine Ratio on Growth Performance and Economics of 25- to 45-lb Nursery Pigs-** The use of feed-grade tryptophan (Trp) in swine diets has become more economical recently due to the increased cost of soybean meal and the increased usage of dried distillers grains with solubles (DDGS). Therefore, the objectives of this study were to estimate the effects of the standardized ileal digestible (SID) tryptophan:lysine (Trp:Lys) ratio on growth performance and economics of 25- to 45-lb nursery pigs housed in a commercial environment. A total of 1,088 pigs (PIC 337 × 1050; initially 24.8 ± 1.2 lb BW) were used in a 21-d growth trial. Pigs were weaned at 16 d of age and grouped into pens of 27 pigs (14 gilts and 13 barrows). Pigs were fed common diets until d 28 after weaning. On d 28, pens of pigs were weighed and blocked by average BW, then randomly assigned to 1 of 7 dietary treatments in a randomized complete block design with 6 pens per treatment. Dietary treatments contained 30% DDGS and were 14.5, 16.5, 18.0, 19.5, 21.0, 22.5, and 24.5% SID Trp:Lys ratio. The SID Trp:Lys ratio was increased by adding crystalline L-Trp to the control diet at the expense of corn. The SID Lys requirement was 1.07% and was reduced by 0.10 percentage points below the estimated requirement to ensure that lysine was the second limiting amino acid throughout the experiment.

Increasing SID Trp:Lys ratio increased ADG, ADFI, and final BW through the 21.0% SID Trp:Lys ratio with no change thereafter. Consequently, F/G, caloric efficiency, and income over feed cost (IOFC) also improved as the SID Trp:Lys ratio increased from 14.5 to 21.0% of Lys. For ADG, pigs fed the 18% SID Trp:Lys ratio were at 97% of maximum response, whereas for IOFC, pigs fed 18% SID Trp:Lys were at 98% of the maximum. Risk of reduced performance and profitability was much greater when SID Trp:Lys was formulated below 18% than when formulated above 18%.

Bottom Line... In conclusion, formulating nursery diets below 18% SID Trp:Lys reduced feed intake and, consequently, growth performance. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by M.A.D. Goncalves, M.D. Tokach, S.S. Dritz, K.J. Touchette, N.M. Bello, R.D. Goodband, J.M. DeRouchey, and J.C. Woodworth)

AS&I Faculty Spotlight



Barry Bradford (bbradfor@k-state.edu; 785-532-7974)
Associate Professor/Dairy Nutrition

Barry Bradford was raised on a cow/calf operation in southwest Iowa and was heavily involved in the operation from a young age. He received his bachelor's degree at Iowa State University, then went on to obtain his doctorate in animal nutrition at Michigan State University, where his research focused on metabolic regulation of feed intake in dairy cattle. In 2006, Bradford began his current position at Kansas State University with a 60% research, 40% teaching appointment. Bradford oversees an active research program focused on uses of alternative feedstuffs in dairy nutrition, transition cow health, and physiological regulation of carbohydrate and lipid metabolism. He also teaches over 185 students per year as an instructor in Fundamentals of Nutrition, Physiology of Lactation, and Dairy Cattle Nutrition. Barry lives in Manhattan with his wife, Sarah, and their children, Hannah, Kiernan, and Lydia. The Bradfords just returned from a 6-month sabbatical in Australia where Barry worked on a next-generation approach to pharmaceuticals known as RNA interference.



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

Dr. Randy 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 both undergraduate and graduate level courses in 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 also coordinates an active applied food safety research program. 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. 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. Recently, he was appointed by the U.S. Secretary of Agriculture to the National Committee on Meat and Poultry Inspection.

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 K-State food science majors). All of Dr. Phebus's spare time is spent scouting for great Kansas hunting spots and riding his motorcycle around the Kansas Flint Hills.

What Producers Should Be Thinking About.....

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



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

Spring Calving Cows

Cowherd Management

- Pregnancy Check (if not already completed)
- If candidates for culling were not selected in September or October, it should be completed now.
- Consider feeding cull cows to increase body weight, value, and utilize cheap feedstuffs. Value of gain is equal to the difference between the ending value and beginning values divided by the gain. Compare this to cost of gain figures. When cost of gain is less than value of gain, profit will be realized.
- Body Condition Score
 - Provide thin cows (body condition score 3's and 4's) extra feed now. Take advantage of weather, stage of pregnancy, lower nutrient requirements, and quality feedstuffs.
- In late fall and early winter, start feeding supplement to mature cows using these guidelines:

Dry grass	1½ - 2 lb supplement/day of a 40% CP supplement
Dry grass	3 - 4 lb supplement/day of a 20% supplement
Dry grass	10 lb good nonlegume hay, no supplement needed

 - Compare supplements on a cost per pound of nutrient basis.
- Utilize crop residues.
 - Average body condition cows can be grazed at 1 to 2 acres/cow for 30 days assuming normal weather. Available forage is directly related to the grain production levels.
 - Limiting nutrients are usually protein, phosphorus, and vitamin A.
 - Strip graze or rotate fields to improve grazing efficiency.
- Discontinue feeding tetracycline if used for anaplasmosis control

Calf Management

- Participate in National Level Breed Association Performance Programs CHAPS, and(or) other ranch record systems.
- Finalize plans to merchandise calves or to background through yearling or finishing programs

Forage/Pasture Management

- Plan winter nutritional program through pasture and forage management

General Management

- Document cost of production by participating in Standardized Performance Analysis (SPA) programs.
- Review management decisions, lower your costs on a per unit of production concept.
- 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.*