



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

↪ **Kansas Junior Beef Producer Day** will be held on January 7, 2012 at 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. Registration begins at 9:00 a.m., with the program starting at 9:30 a.m. Featured speakers and K-State faculty and staff will cover such topics as:

- Selecting Your Youth Beef Project
- Facilities and General Care
- Breeds and Beef Identification
- Meat and Carcass Evaluation
- Selecting Your Next Show Heifer Project to be a Great Cow
- Nutrition
- Showmanship Clinic
- Nose Printing/Tattooing/Fitting Demonstration/Ultrasound

All participants will receive a T-shirt and a complimentary lunch. For more information, contact Chelsea Tomascik (tomascik@ksu.edu or 785-532-1264) or Scott Schaaque (simmi@ksu.edu or 785-532-1242) or online at www.YouthLivestock.KSU.edu.

↪ Make plans now to attend the **K-State Winter Ranch Management Seminar** to be held on Tuesday, January 10, 2012, from 4:00 – 8:30 p.m. Locations for the event include Manhattan (Kansas State University), Ashland (Ashland Community Center), Lebanon (New Lebanon Community Center), Highland (Highland Community College), Russell (Russell County 4-H Building), and Parsons (Frontier Farm Credit). The schedule is as follows:

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| 4:00 p.m. | Registration |
| 4:30 p.m. | Winter Ration Development |
| 5:15 p.m. | Ranch Management Focus (Trey Patterson, Padlock Ranch, via webinar) |
| 6:00 p.m. | Dinner |
| 7:00 p.m. | Cattle Business Outlook (Glynn Tonsor, K-State Ag Economist, via webinar) |
| 7:45 p.m. | Hunting Lease Management |

The webinar speakers will be addressing the audiences at all 5 locations simultaneously. Local speakers at each location will address winter ration development using a computerized ration balancing program and diversifying ranch income with hunting leases. Brochures for the event are available at your local county office and at www.KSUbeef.org. For additional information, contact Larry Hollis (lhollis@ksu.edu; 785-532-1246).

↪ **Cattle Disease Identification and Management** will be held on January 19, 2012 from 5:00 – 8:00 p.m. at the American Legion in Linn, KS. This is an opportunity to learn how to identify, prevent and manage common cattle diseases as well as understand how vaccines work and proper administration. For more information, contact Robin Slattery (785-325-2121; rslat@ksu.edu).

↪ **EPD/Genetics School** will be held on January 25, 2012 from 11:30 a.m. to 3:00 p.m. at the Community Hall in Cuba, KS. Learn how to evaluate bulls and heifers using EPD's to select the best

genetics for your environment and management style. For more information, contact Robin Slattery (785-325-2121; rslat@ksu.edu).

↳ **Prescribed Burning Workshop** will be held on February 16, 2012 from 5:30 – 9:00 p.m. at the Fire Department Meeting Room in Miltonvale, KS. This program covers the reasons why to burn, when to burn to meet your pasture goals, and procedures to conduct a safe and effective burn. For more information, contact Robin Slattery (785-325-2121; rslat@ksu.edu).

↳ The **2012 KSU Swine Profitability Conference** will be held Tuesday, February 28 in Forum Hall of the K-State Student Union. A great program has been lined up including presentations from Dr. Gene Nemechek, Pfizer Animal Health; Kent Condray, Clifton, KS; Glynn Tonsor, KSU; and Cindy Cunningham, National Pork Board as well as a presentation on “Humor for the Heart of Agriculture” from Damian Mason. The schedule is as follows:

- 9:15 a.m. Coffee and Donuts
- 9:30 a.m. *Special Lecture: Jack and Pat Anderson Lecture in Swine Health Management: Lessons from Large Production Systems that Can Help the Competitiveness of Land-Based Producers - Dr. Gene Nemechek, Pfizer Animal Health, Wilson, NC*
- 10:30 a.m. *What Have I Done to Make My Land-based System Successful - Kent Condray, Clifton, KS*
- 11:15 a.m. *Short and Long-Term Price Outlook: How Will Consumer Preferences on the Welfare Front Impact Your Operation? - Dr. Glynn Tonsor, Kansas State University*
- 12:00 noon Lunch
- 1:15 p.m. *How to Keep Your Swine Operation off You-Tube - Cindy Cunningham, National Pork Board*
- 2:00 p.m. *Humor for the Heart of Agriculture - Damian Mason*
- 3:00 p.m. Adjourn

Registration fee of \$30 per participant is due by January 25, 2012. Watch for more details on the conference at www.KSUswine.org. For more information, contact Jim Nelssen (785-532-1251; jnelssen@ksu.edu).

↳ The 99th annual **KSU Cattlemen’s Day** will be held on Friday, March 2, 2012. Mark your calendars and watch for more details. The program and registration information will be coming soon to www.asi.ksu.edu/cattlemensday. For more information, contact Jim Drouillard (jdrouill@ksu.edu; 785-532-1204) or Dale Blasi (dblasi@ksu.edu; 785-532-5427).

↳ The **KSU Sheep Day and Ribbon Cutting Ceremony for the new KSU Sheep and Meat Goat Unit** have been planned for Saturday, March 3, 2012. Watch for more details. For more information, contact Brian Faris (brfaris@ksu.edu; 785-532-1255).

↳ The **Midwest Meat Processors Workshop** will be held on Friday, March 30, 2012 in Weber Hall, Kansas State University. Mark the date on your calendar and watch for more details. For more information, contact Liz Boyle (lboyle@ksu.edu; 785-532-1247).

↳ Mark March 31, 2012 on your calendar for the **Kansas Junior Sheep Producer Day**. More information will be available on the Youth Livestock Program website.

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
January 7, 2012	Kansas Junior Beef Day	Manhattan
January 10, 2012	Winter Ranch Management Seminar	Manhattan
January 19, 2012	Cattle Disease Identification and Management	Linn, KS
January 25, 2012	EPD/Genetics School	Cuba, KS
February 16, 2012	Prescribed Burning Workshop	Miltonvale, KS
February 28, 2012	KSU Swine Profitability Conference	Manhattan
March 2, 2012	KSU Cattlemen’s Day	Manhattan
March 3, 2012	KSU Sheep Day and Ribbon Cutting Ceremony	Manhattan
March 30, 2012	Midwest Meat Processors Workshop	Manhattan

WHAT'S NEW....

Merry Christmas and Happy New Year! On behalf of the Department of Animal Sciences and Industry, we would like to thank you for your help during the past year in providing timely information for Kansas Livestock Producers. We are proud to be associated with the excellent team of professionals partnering in our mission to meet the needs of our clientele in the livestock industries. Please let us know if there is anything that we can do to help you better serve our joint clientele.

Although we are turbulent times, 2012 appears to be shaping up like a banner year for livestock production. I hope it also a banner year for you and your families.

Thank you for the hard work that you continue to do.

Mike Tokach, Extension State Leader, Animal Sciences and Industry

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

“The Christmas Bonus”

It's that time of year again---bonus time. And you've probably tried or considered every conceivable idea to make your bonus program something meaningful and impactful.

Some have suggested that if the bonus comes every year and isn't tied to something extraordinary, the employee simply considers it part of their salary, and takes little note or makes little effort to earn it, because it's just part of what has already been earned. But then to change the existing bonus system midstream, so to speak, after precedence has already been set, invites the risk that it becomes a 'dis-incentive', creating discord and discontent---the opposite of the desired effect.

But is there room for a compromise? Some sort of safe---but effective---middle ground?

Is there a way to reward the entire team but also give special recognition to someone or some portion of the team who have made an especially valuable contribution to the effort over the previous year? On any healthy, productive team, team members all want to believe that their contribution is needed and important, but they would also readily recognize when another teammate has made a special sacrifice or been an especially valuable asset.

You need to first identify the deserving candidate. Depending on the size of your operation you could survey the entire team, survey only the line managers, or simply select someone you feel would be held up by the team as someone deserving of recognition. How you choose to recognize that person should reflect who you are as a manager, who you are as a company, and best respects the individual identified.

Finally and most importantly, take every advantage of the “bonus”, regardless of what it looks like in your program, as an opportunity to intentionally express true gratitude and appreciation to individuals, to project groups, and to your entire team for their sacrifices and successes over the past 12 months.

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

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

“Moisture Management”

Mud kills. It kills performance, it kills profitability, and it can kill cattle. That seems like an ironic way to begin an article when most of the High Plains are thirsting for moisture. But even in the dry west, we sometimes have more moisture than pen conditions can handle.

Numbers that all cattle feeders should commit to memory is that 4-8” mud reduces gain by about 14%, and 12-24” mud reduces gain by about 25%. So for every 4 days cattle have to slog through

hock-deep mud, add another day and 20 lbs of dry matter feed to reach finish. And add 1 additional day for every 7 days of slogging through mud over their pasterns. Conceivably, after a typical Kansas winter storm, if pens get and stay muddy, we could extend the feeding period dramatically.

Wait---it get's worse. In severely muddy conditions, cattle simply choose not to fight the mud and make fewer trips to the feedbunk, reducing their feed consumption. Consider that roughly half of a 900-lb steer's daily intake goes to maintenance---simply keeping the lights on and the internal furnace burning. It's the level of intake **ABOVE** maintenance that leads to gain. We expect to increase the cost of maintenance by about 10% due to cold, wet, conditions and increase maintenance an additional 10% due to increased energy expended just to get to the bunk. That increase eats into the amount of energy left over for gain. Then, if poor pen conditions discourage consumption, the available energy pool for gain decreases further.

Many of us have horror stories about zero gaining cattle after a winter storm. Divide 20 lbs of feed consumption by zero---you get a *really* big number.

We cannot prevent winter from coming to the plains, but we can prepare for it. Make sure all pens have good drainage to prevent water from standing and creating permanently muddy pens. Also, have a plan for snow removal. A wet snow has about 1" of moisture in each 8-10" of snow. If that snow is removed from the pen immediately after the storm and before it can melt, that can prevent a great deal of moisture from sucking the bottom out of the pen.

Finally, if muddy conditions do occur, have a plan in place to remove at least a portion of the mud. After several days of fighting severely muddy pens, you can actually watch cattle follow the box scraper and lay down in the firm, dry area the scraper leaves behind. That should say a lot.

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



Marination Technique Influences Whole Muscle Beef Jerky Salt Content and Flavor Intensity -

Beef jerky was produced using beef inside round and a marinade formulation. The round was sliced and soaked in a tub for 24 hours or vacuum tumbled for 20 minutes. After thermal processing, a liquid smoke-based anti-mold spray was applied to half of the product from each marination technique. Final production treatments were: (1) soaked, not sprayed (S); (2) soaked, sprayed (SS); (3) tumbled, not sprayed (T); and (4) tumbled, sprayed (TS). Three replications were prepared. Product marinated by soaking was found to have a 2% higher salt content. The sensory panel also assigned higher saltiness and flavor intensity scores to the jerky that was made with the 24-hour soaking marination method compared with tumbled jerky.

Bottom Line... Vacuum tumbling as a form of marination for jerky saves time compared with soaking beef slices for 24 hours and may slightly alter jerky attributes. More marinade is needed during tumbling if an equal level of marinade pickup is expected compared with soaking. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Elizabeth Boyle (785-532-1247; lboyle@ksu.edu).



Effect of Replacing Commonly Used Specialty Protein Sources with Crystalline Amino Acids on Growth Performance of Nursery Pigs from 15 to 25 lb -

A total of 282 nursery pigs (PIC TR4 × 1050, initially 14.5 ± 0.13 lb BW and 3 d postweaning) were used in a 28-d growth trial to determine the effects of replacing high amounts of specialty protein sources with crystalline amino acids (AA) on growth performance of nursery pigs from 15 to 25 lb. Pigs were allotted to 1 of 6 dietary treatments arranged as a 2 × 3 factorial treatment structure. Each treatment had 5 replications with 7 pigs per pen and 2 replications with 6 pigs per pen. Pigs and feeders were weighed on d 0, 7, 14, 21, and 28 to calculate ADG, ADFI, and F/G. A 2-phase diet series was used, with treatment diets fed from d 0 to 14 and a common diet fed from d 14 to 28. All diets were in meal form. Pens were assigned 1 of 3 specialty protein sources with either a low or high crystalline AA level. Thus, diets included either select menhaden fish meal (4.50 vs. 1.00%), porcine meat and bone meal (6.00 vs. 1.20%), or pet food-grade poultry meal (6.00 vs. 1.05%). From d 0 to 14, pigs fed high crystalline AA had improved ADG compared with pigs fed the low crystalline AA diets.

There was no difference in ADG among pigs fed fish meal, meat and bone meal, or poultry meal. Average daily feed intake and F/G were similar between pigs fed different crystalline AA concentrations or different protein sources. From d 14 to 28, there were no differences in ADG and ADFI between pigs previously fed different crystalline AA levels. There was a tendency for improved F/G for pigs previously fed fish meal during Phase 1 compared with pigs fed diets containing meat and bone meal or poultry meal. There was no difference between pigs previously fed different crystalline AA concentrations during Phase 2. Overall (d 0 to 28), dietary crystalline AA had no impact on ADG,

ADFI, or F/G. Pigs fed diets containing fish meal from d 0 to 14 tended to have improved ADG for the overall trial compared with pigs fed diets containing meat and bone meal or poultry meal. There were no differences in ADFI or F/G among pigs fed different protein sources.

Bottom Line... These data suggest that crystalline AA can be used to replace specialty protein sources in nursery pig diets without negatively influencing growth. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by J. E. Nemechek, M. D. Tokach, S. S. Dritz, R. D. Goodband, J. M. DeRouchey, J. L. Nelssen, and J. Usry.)

↳ **The Effects of Orally Supplemented Vitamin D₃ on Serum 25(OH)D₃ Concentrations and Growth of Pre-Weaning and Nursery Pigs** - A total of 270 pigs from 29 litters (PIC 327 × 1050, initially 2 d of age) were used in a 52-d study to determine the effects of oral vitamin D₃ supplementation on growth performance, serum 25(OH)D₃ concentrations, and bone mineralization of pre- and postweaning pigs. Vitamin D plays an essential role in maintaining proper Ca and P homeostasis within the body of mammals. Because most swine production occurs in environmentally controlled facilities, direct sunlight is no longer a source of vitamin D for the neonatal pig, which could impact bone growth and muscle function.

Experimental treatments consisted of 3 oral dosage treatments: (1) control (1 mL peanut oil), (2) 40,000 IU vitamin D₃ delivered in 1 mL peanut oil, or (3) 80,000 IU vitamin D₃ delivered in 1 mL peanut oil. Pigs were initially weighed over 2 different days (d 0 or 2), allowing pigs to be placed on test 1 or 2 d after birth. Within a litter, pigs were assigned to similar-weight matched sets of 3 and were allotted to 1 of the 3 oral dosage treatments. Blood samples were collected from pigs of 29 matched sets (87 pigs total) prior to dosing, then the same matched set pigs were bled periodically throughout the trial to measure 25(OH)D₃ serum concentrations. All pigs were weighed again on d 10 and 20. On d 20, pigs were weaned and allotted to the nursery portion of the trial and all pigs were fed common diets from d 20 to 52 of age. Pigs were also randomly selected for necropsy on d 19 and d 35. Eighteen pigs were necropsied on d 19 (6 matched sets for a total of 6 pigs per treatment) and 12 pigs were necropsied on d 35 (6 control pigs and 6 pigs previously dosed with 80,000 IU vitamin D₃). Bone and tissue samples were collected. All bone samples were analyzed for ash content and histopathology.

Bottom Line... Increasing oral vitamin D₃ increased serum 25(OH)D₃ concentrations on d 10, 20, and 30. During lactation, no differences were observed in ADG across treatments, but at weaning, pigs previously dosed with vitamin D₃ were 0.3 lb heavier than control pigs. Throughout the nursery study (d 20 to 52), no significant differences were observed in ADG, ADFI, or F/G; however, on d 52, pigs previously dosed with vitamin D₃ were 0.5 lb heavier than control pigs. Vitamin D₃ supplementation had no effect on bone ash concentration of either the femur or 2nd rib. Pathologic lesions were not identified by microscopic evaluation of bone, regardless of vitamin D₃ treatment. Oral vitamin D₃ did not influence growth performance or bone measurements in this study, but more research may be needed to test the response under field conditions with more health challenges. 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, M.D. Tokach, S.S. Dritz, S.C. Henry, M.L. Potter, L.M. Tokach, J.P. Goff, R.L. Horst, J.C. Nietfeld, D.M. Madson, S.M. Ensley, R.D. Goodband, J.L. Nelssen, J.R. Bergstrom, and J.M. DeRouchey.)

↳ **Effects of Increasing Dietary Wheat Middlings on Nursery Pig Growth Performance** - A total of 180 nursery pigs (PIC 327 × 1050, initially 25.2 lb BW) were used in a 21-d trial to evaluate the effects of increasing dietary wheat middlings on growth performance. Pens of pigs were balanced by initial BW and were randomly allotted to 1 of 5 dietary treatments with 6 replications per treatment. The 5 corn-soybean meal-based diets contained 0, 5, 10, 15 or 20% wheat middlings. Overall (d 0 to 21), pigs fed increasing wheat middlings had decreased ADG and ADFI, but F/G was not affected by dietary wheat middlings. Despite the linear decrease in ADG and ADFI, the biggest reduction in performance was not observed until wheat middlings increased beyond 15% of the diet.

Bottom Line... This suggests that in some cases, the slight decrease in ADG with a low inclusion of wheat middlings (< 15%) to the diet might be economically justified, so its inclusion needs to be evaluated on an income over feed costs basis. 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, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. L. Nelssen.)

AS&I FACULTY SPOTLIGHT



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.



Kelly Getty (kgetty@k-state.edu; 785-532-2203)
Associate Professor/Meat Safety and Quality

Kelly J.K. Getty, Ph.D., originally from Allen, KS, received her B.S. (1988) and Ph.D. (1999) in Food Science from Kansas State University and M.S. (1994) from Pennsylvania State University in Food Science.

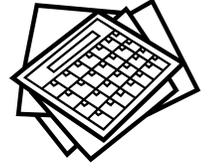
Dr. Getty started at Kansas State University with the Food Science Institute in 2001 and started a joint-appointment in Spring 2005 in the Department of Animal Sciences & Industry (50%). Dr. Getty's appointment within Animal Sciences and Industry is split between 30% teaching and 20% research.

Dr. Getty teaches Fundamentals of Food Processing and team-teaches Meat Animal Processing and Meat Technology (distance course). She coordinates distance education efforts for the Food Science program and advises six distance M.S. students. Her research efforts involve control of pathogens in fermented and direct-acidified sausages and jerky. Collaborators include: Drs. Elizabeth Boyle, Daniel Y.C. Fung, Deanna Retzlaff, and Curtis L. Kastner. Prior to Kansas State University, Getty was an assistant professor at Clemson University where she taught meat science courses and conducted meat and food safety research. Getty also worked at Pizza Hut, Inc. and the American Meat Institute.

Dr. Getty and her husband Chris reside in Manhattan with their two children.

WHAT PRODUCERS SHOULD BE THINKING ABOUT...

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



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

- ☑ Historically, cull cow prices are beginning to rise. Finish culling cows in order of priority:
 1. Those that fall within the “Four-O Rule” (Open, Old, Onry, Oddball).
 2. Those with physical/structure problems (feet and legs, eyes, teeth, etc.)
 3. Poor producers.
- ☑ Continue feeding or grazing programs started in early winter. Fully utilize grain sorghum and cornstalk fields, severe winter weather may begin to limit crop residue utilization, be prepared to move to other grazing and feeding systems.
- ☑ Supplement to achieve ideal body condition scores (BCS) at calving.
- ☑ Control lice, external parasites will increase feed costs.
- ☑ Provide an adequate water supply. Depending on body size and stage of production, cattle need 5-11 gallons of water per head per day, even in the coldest weather.
- ☑ Sort cows into management groups. Body condition score 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 conditions 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 postpartum 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 to 65% of their mature weight by the start of the breeding season. Thin, light weight heifers may need extra feed for 60 to 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 the association.
- ☑ Provide some protection, such as a windbreak, during severe winter weather to reduce energy requirements. The lower critical temperature (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 (Dry, heavy winter coat = 18 degrees, wet coat = 59 degrees). 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.*