

# News from KSU Animal Sciences

## March, 2009



**Newsletter from the Department of Animal Sciences and Industry**  
**213 Weber Hall, Kansas State University, Manhattan, KS 66506**  
**785-532-6131 - [www.asi.ksu.edu](http://www.asi.ksu.edu)**

## WHAT'S NEW...

- ↪ The **2009 KSU Cattlemen's Day** was a huge success with over 1,000 beef producers, allied industry representatives, K-State staff and students registered this year. We appreciate your attendance and support of this educational event and would also appreciate any comments or suggestions you might have for next year. Agri-Talk again did their broadcast from Weber Arena. We will be posting their broadcast soon to the website. In the next few months, we will be including some of the 2009 Beef Research Highlights. For more information on these trials, as well as a video of the presentations, visit [www.KSUbeef.org](http://www.KSUbeef.org).
- ↪ The Kansas Sheep Association and Auxiliary will again sponsor a **Kansas Sheep Ambassador** to be selected Saturday, March 21 at the Hutchinson Community Junior College in conjunction with the Kansas Sheep Association's Sheep Day. There are \$200 and \$100 scholarships for the winner and runner-up who will represent the sheep industry in 2009. Contact Sheila Corn for details at 620-585-2461 or 620-960-1416.
- ↪ **Hot Topics in Equine Nutrition** – *"If my horse has PSSM (polysaccharide storage myopathy), metabolic syndrome, or some other condition and my vet tells me to feed a "low starch" diet, what sorts of things can I feed?"*
  - Most forages are low in starch and have low "glycemic indexes" which means they do not cause a spike in blood glucose levels.
    - Even grasses with high fructan content (cool season grasses) do not cause a spike in blood glucose levels. Glucose is absorbed through the small intestine, whereas fructan is fermented in the cecum and energy is absorbed in the form of volatile fatty acids (not as glucose).
      - ❖ Too much carbohydrate (fructan or starch) entering the cecum can lead to laminitis, so you still must be careful about allowing a horse to consume high-fructan grasses.
    - Warm season grasses store energy in the form of starch. This can cause blood glucose to rise, so avoid grazing when conditions are favorable for starch storage. (see conditions in laminitis question)
  - Most grains are high in starch and have a high glycemic index.
    - If the horse can consume enough calories through forage, do not feed any grain or concentrate.
    - Pelleted and extruded feeds elicit a lower glycemic response in horses than sweet feeds.
    - Adding 10% corn oil to grains will significantly depress the glycemic index of grains. If the horse needs additional energy, fat supplementation alone or fat supplementation with grain is better than grain alone.
  - Clinically "normal" horses are less likely to develop insulin resistance or bone abnormalities if they are fed a diet with a low glycemic index.

**Bottom line** – Feed the horse an all-forage diet. *Only* if extra energy is required should the horse receive grain/concentrate, and then the grain should be mixed with a fat source. For more information, contact Teresa Slough, KSU Equine Nutritionist (785-532-1268; [tslough@ksu.edu](mailto:tslough@ksu.edu)).

↳ **Results from the NAHMS BEEF 2007-08 Survey of Cow-Calf Management Practices** indicates that 54.5% of operations accounting for 34.1% of cows have no defined breeding season. Use of a single breeding season was indicated by 34% of operations or 48.4% of cows. Of those that used one breeding season, 60.8% of operations and 61.8% of cows had a breeding season of 105 days or less. Roughly a quarter (26.2% of operations and 22.8% of cows) used a breeding season of 64 days or less. An analysis of Texas, Oklahoma and New Mexico SPA data showed that for each day the breeding season was extended, the annual cost to produce a hundred pounds of weaned calf was increased by 5 cents and the pounds of calf weaned per cow per year decreased by about .2 pounds. A shorter breeding season of 45 to 50 days can be used with an estrous synchronization program and maintain the pregnancy rate of a longer season. The advantage of synchronization alone on calf weaning weight is often confounded with genetic differences in AI verses natural service sires. A recent summary of data from the University of Nebraska compared data from 60 day non-synchronized (6 years, 2075 records) and 45 day synchronized (2 years, 521 records) breeding seasons both using natural service sires. Compared to the 60 day season, 12% more calves were born in the first 21 days of the calving season and the average weaning weight was 20 lbs greater for the 45 day synchronized breeding season. The synchronization system used was a single injection of prostaglandin F<sub>2α</sub> (less than \$2 per dose) given on day 5 after bull turn out. Recommendations for this synchronization system include a cow to bull ratio of 25 to 1 or less and use of mature bulls that have passed a breeding soundness exam. For more information, contact Sandy Johnson, [sandyj@ksu.edu](mailto:sandyj@ksu.edu).

↳ **Backgrounding Health Associated with Area of the Truck Where Cattle Were Housed During Transport** - Data were collected in conjunction with normal operations of the Kansas State University Beef Stocker Unit. Southeastern origin cattle were commingled in Tennessee and shipped to Manhattan, KS. Upon arrival, cattle from each load were unloaded by section of the transport carrier and placed in holding pens, maintaining segregation of animals by original truck compartment. Cattle were weighed and individually identified by holding pen, and the section of the transport vehicle was recorded for each animal. Cattle were backgrounded for 45 to 60 days, and all illness was recorded. An analysis was performed to determine the association between animal location on the truck and subsequent health outcomes.

No significant associations were identified between compartment of the transport vehicle or placement on the top or bottom deck and the probability of initial treatment or dying. However, cattle in the middle section had a higher probability of being treated at least once compared with cattle in the most forward sections. Calves in the rear compartments had lower ADG from arrival to reweigh compared with cattle in the middle or forward areas.

***The Bottom Line...*** This research illustrates some associations between backgrounding health and cattle location within a commercial transport vehicle. Our current project reveals that the environment within a commercial transport carrier varies by compartment, and further research should be done to determine causes for the health variation. View the complete research report at [www.asi.ksu.edu/cattlemensday](http://www.asi.ksu.edu/cattlemensday). For more information, contact Brad White (785-532-4243; [bwhite@vet.ksu.edu](mailto:bwhite@vet.ksu.edu)) or Dale Blasi (785-532-5427; [dblasi@ksu.edu](mailto:dblasi@ksu.edu)).

↳ **Combinations of Flaked Corn, Dry-Rolled Corn, and Distillers Grains Yield Beef with Similar Quality yet Subtle Changes in Sensory Traits** - Crossbred yearling heifers (n = 689; 664 ± 143 lb) were fed flaked-corn finishing diets with 0 or 25% dried distillers grain and with 0 or 25% dry-rolled corn. Heifers were fed free choice once daily in 28 dirt-surfaced pens with 23 to 25 head per pen. Cattle were blocked by weight into light and heavy weight groups and fed for 157 or 137 days, respectively. Meat samples were collected, and meat quality was measured by evaluating meat color, lipid oxidation, sensory attributes, and vitamin E content.

***The Bottom Line...*** Replacing a portion of steam-flaked corn with either dry-rolled corn or dried distillers grains would be expected to yield beef with similar meat quality and composition yet subtle changes in sensory traits compared with beef from animals fed traditional flaked-corn diets. View the complete research report at [www.asi.ksu.edu/cattlemensday](http://www.asi.ksu.edu/cattlemensday). For more information, contact Jim Drouillard (785-532-1204; [jdrouill@ksu.edu](mailto:jdrouill@ksu.edu)) or Chris Reinhardt (785-532-1672; [cdr3@ksu.edu](mailto:cdr3@ksu.edu)).

↳ **Variation in Chemical Composition of Soybean Hulls** - The objective of this study was to examine the variation in chemical composition of soybean hulls. Our goal was to develop regression equations characterizing the nutritive value of soybean hulls for use in swine diets. Samples ( $n = 39$ ) were collected from different processing plants across the United States and analyzed for CP, GE, crude fiber (CF), ADF, NDF, fat, ash, Ca, P, and essential amino acids. One sample was excluded from these results because it contained approximately 10 times the amount of Ca (5.2% vs. a mean of 0.57%) as other samples. The results of chemical analysis of the samples were used to determine maximum, minimum, and mean values on a DM basis. Estimated DE values were calculated according to an equation described by Noblet and Perez (1993). Regression equations among the nutrients also were established. A high correlation was observed between CF and CP ( $R^2 = 0.92$ ), ADF ( $R^2 = 0.96$ ), NDF ( $R^2 = 0.97$ ), and estimated DE ( $R^2 = 0.94$ ), indicating that the analyzed fiber content of soybean hulls could be used to predict the other components. A high correlation also was observed between CP and estimated DE ( $R^2 = 0.90$ ). Lower correlations were observed between ash concentration and Ca and P. High correlations were observed between CP and lysine ( $R^2 = 0.89$ ), methionine ( $R^2 = 0.88$ ), threonine ( $R^2 = 0.93$ ), and tryptophan ( $R^2 = 0.93$ ). In summary, the chemical composition of soybean hulls can be highly variable; however, CF content can help explain much of the variation in CP, ADF, NDF, and estimated DE, and CP content can be used to predict individual amino acid levels. More information is available on this experiment and others in the KSU Swine Day Report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by F.F. Barbosa, M.D. Tokach, J.M. DeRouche, R.D. Goodband, J.L. Nelssen, and S.S. Dritz.)

↳ **Effects of Adding Saturated Fat to Diets with Sorghum-Based Dried Distillers Grains with Solubles on Growth Performance and Carcass Characteristics in Finishing Pigs** - Two experiments were conducted to determine the effects of adding sources of saturated fat to diets with sorghum-based dried distillers grains with solubles (DDGS). For Exp. 1, 112 barrows (initially 140 lb) were used in a 69-d growth assay with 7 pigs per pen and 4 pens per treatment. Treatments were a corn-soybean meal-based control and diets having 40% sorghum-based DDGS (U.S. Energy Partners, Russell, KS) without and with 5% added tallow or palm oil. Feed and water were consumed on an ad libitum basis until pigs were slaughtered (average BW 283 lb) to allow collection of carcass data and jowl samples. Fatty acid composition of jowl samples was used to calculate iodine value (IV) as an indicator of carcass fat firmness. Overall (d 0 to 69), the corn-soybean control supported greater ADG and ADFI ( $P < 0.001$ ) with no difference in F/G ( $P > 0.9$ ) compared with the DDGS treatments. Adding 5% beef tallow and palm oil to diets with DDGS improved overall F/G ( $P < 0.02$ ). Pigs fed the control diet had greater ( $P < 0.04$ ) HCW and dressing percentage than pigs fed the DDGS treatments. Adding fat to DDGS diets tended to improve dressing percentage ( $P < 0.07$ ), but there were no effects of fat source on carcass measurements ( $P > 0.14$ ). Changes in IV indicated softer fat in pigs fed DDGS ( $P < 0.001$ ) than in pigs fed the control diet even when sources of saturated fatty acids were added to the diets. For Exp. 2, 112 barrows (initially 150 lb) were used in a 67-d growth assay with 7 pigs per pen and 4 pens per treatment. Treatments were the same as in Exp. 1, but fat sources were stearic acid and coconut oil. At slaughter (average BW 270 lb), in addition to collection of carcass data and jowl samples, belly firmness was determined by using a subjective scoring system and by measuring the distance from tip to tip of the belly after it was drooped over a 1-in.<sup>2</sup> bar for 5 min. The corn-soybean control tended to support greater overall ADG ( $P < 0.09$ ) with no difference in ADFI and F/G ( $P > 0.14$ ) compared with DDGS treatments. Adding fat sources to diets with DDGS tended to improve ( $P < 0.06$ ) overall F/G, and coconut oil improved F/G compared with stearic acid ( $P < 0.001$ ). Pigs fed the control diet had greater ( $P < 0.05$ ) HCW than pigs fed the DDGS treatments. Pigs fed the control diet had lower IV and greater firmness score than pigs fed diets with added DDGS ( $P < 0.02$ ). Adding fat sources to diets with DDGS improved these estimates of carcass firmness and tip to tip distance for suspended bellies ( $P < 0.001$ ); coconut oil had a much greater effect than stearic acid ( $P < 0.001$ ). In conclusion, adding beef tallow, palm oil, and coconut oil to diets with 40% DDGS improved efficiency of gain in finishing pigs. However, only coconut oil restored carcass firmness to levels at or above a corn-soybean diet without DDGS. More information is available on this experiment and others in the KSU Swine Day Report at [www.KSUswine.org](http://www.KSUswine.org). (This study conducted by C. Feoli, J.D. Hancock, D.H. Kropf, S. Issa, T.L. Gugle, and S.D. Carter.)

# UPCOMING EVENTS...

- ↳ It is not too late to join us for the **Kansas Junior Swine Producer Day** to be held on Saturday, March 21, 2009, in Weber Hall. Activities will begin in Weber arena at 8:45 a.m. Registration materials are available at [www.youthlivestock.ksu.edu](http://www.youthlivestock.ksu.edu). For more details, contact Sharon Breiner ([sbreiner@ksu.edu](mailto:sbreiner@ksu.edu); 785-532-1264) or Joel DeRouchey ([jderouch@ksu.edu](mailto:jderouch@ksu.edu); 785-532-2280).
- ↳ The **South Central Goat Conference** will be held on Saturday, March 21, 2009 at the Celebration Center in Lyons, Kansas. Featured speakers for the conference include Dr. Deb Mangelsdorf on "Artificial Insemination and Embryo Transfer" and Dr. Brian Faris on "The FAMACHA System." For registration or more information, contact Jonie James, Harvey County Extension ([jjames@ksu.edu](mailto:jjames@ksu.edu); 316-284-6930) or Kent McKinnis, Reno County Extension ([mckinnis@ksu.edu](mailto:mckinnis@ksu.edu); 620-662-2371).
- ↳ The **Kansas Sheep Association Sheep Day** will be held on Saturday, March 21, 2009 at the Hutchinson Community Junior College. This year's Sheep Day will feature a new location as well as a new adult and youth program. Registration will begin at 8:00 a.m.  
Call 785-754-3654 by March 17<sup>th</sup> and leave your name for pre-registration. Youth registration is \$5.00 and adult registration is \$10.00 which includes lunch. Add \$5.00 for registration at the door. Contact your local extension office for youth and adult detailed sheep day schedules. For more information or any questions, contact Larry and Nadine Abeldt at 785-336-7791.
- ↳ **K-State Horse Show Judges Seminar & Youth Workshop** will be held on Saturday, April 4, 2009. All ages are invited to come learn more about equine evaluation! You can become certified to judge state shows or just sharpen your judging eye. The event will feature Mr. Aaron Callahan of Cambridge, IL as our guest speaker. Video classes will include halter, showmanship, western pleasure, western horsemanship, hunter under saddle and equitation. This seminar will also serve as the Kansas State Horse Show Judges Certification workshop. **Important change!** This clinic will not be offered in 2010 if you need to renew your certification in 2010 you will need to attend in 2009. In the future, we plan to alternate this clinic every other year. With this change renewal of certification will now be required every four years. Registration materials are available at [www.youthlivestock.ksu.edu](http://www.youthlivestock.ksu.edu). For more information, contact Sharon Breiner ([sbreiner@ksu.edu](mailto:sbreiner@ksu.edu); 785-532-1264).
- ↳ **Youth Livestock Listening Session** - Join us for the Youth Livestock Listening Session on Wednesday, April 15, 2009, at 1:00 p.m. The Kansas State Fairgrounds will host the event at the Hansen Auditorium in the Encampment Building. We are looking into the possibility of taping the event for those who cannot be in attendance. You are also welcome to submit written comments in your absence. The discussion will be focused on four key areas: 1) Changes to Nomination Process, 2) Programming Considerations, 3) Education Opportunities, and 4) Awards, Premiums, and Sales. All comments should relate specifically to the Kansas State Fair and/or Kansas Junior Livestock Shows. Please submit comments to Sharon Breiner, Youth Livestock Coordinator at [sbreiner@ksu.edu](mailto:sbreiner@ksu.edu).
- ↳ **2009 Roundup at the Agricultural Research Center in Hays** will be held on April 16, 2009. Registration will begin at 10:00 a.m. and the program will begin at 10:30 a.m. at the ARCH arena at the feedlot. A hosted lunch will be served at the ARCH auditorium at noon. Following lunch there will be presentations from 1:00 p.m. - 3:30 p.m. concluding with our featured presentation "*Raising beef for a first world country: science, politics, and the media*", presented by Daniel Thomson, KSU College of Veterinary Medicine, Clinical Sciences. Beef cattle research conducted during the previous year will be highlighted. Topics for the Roundup include:
- Effect of marbling and backfat on cow productivity
  - New phase of stocker cattle research at ARCH
  - Update on the performance of preconditioned calves at ARCH
  - Low-cost storage of wet DG and initial animal performance

- Using sequential feeding of Optaflexx and Zilmax to enhance value in cull cows
- Beef production and vegetation trends from modified intensive-early stocking
- Beef cow performance following rumen-protected choline supplementation for 40 days before calving
- Comparison of a modified 5-day Co-Synch plus CIDR protocol with Co-Synch plus CIDR in mature beef cows
- Should preconditioning programs be the same for all types of cattle

For more information, call John Jaeger at 785-625-3425. Details for the event will be coming soon at <http://www.wkarc.org>

- ↪ The **Wildlife Habitat Evaluation Contest** will be held on Friday, April 17, at the Wolf Creek Operating Center at Burlington, KS. For more details on the contest, contact Charlie Lee ([cleec@ksu.edu](mailto:cleec@ksu.edu); 785-532-5734).
- ↪ For a fun, educational day all about horses, don't miss the **High Plains Horseman's Day**, April 18, at the Logan County Fairgrounds in Oakley. Learn about the hoof, nutrition, first aid, trail riding safety, and care of older horses. Doug Babcock, clinician and trainer, will present Common Sense Horse Training. Horse-crazy kid ages 7 to 12 can participate in the special "Cowpokes" session from 1-3 p.m. led by the Colby Community College Intercollegiate Horse Show Team. "Cowpokes" need not bring a horse but pre-registration is required. There is no charge to attend and lunch will be provided. For more information or to register your "Cowpoke" contact Logan, Sheridan, or Thomas County extension offices or see [www.thomas.ksu.edu](http://www.thomas.ksu.edu).
- ↪ **K-State Animal Science Leadership Academy** - Kansas high school youth are invited to apply for participation in a dynamic new program designed to educate students about the livestock industry, through an engaging summer experience hosted by K-State Animal Sciences and Industry. The goal of this academy will be to further develop young leaders within the livestock industry and prepare them for a successful future in this field.  
The four-day event, June 10-13, will focus on increasing knowledge of Kansas' diverse livestock industry, as well as building participant's leadership skills. Twenty-five high school students will be selected to participate based upon educational, community, and agricultural involvement, as reflected through an application process. For application and information visit [www.asi.ksu.edu/YouthAcademy](http://www.asi.ksu.edu/YouthAcademy) or contact Sharon Breiner, Youth Livestock Coordinator at [sbreiner@ksu.edu](mailto:sbreiner@ksu.edu).
- ↪ Dates have been changed for the **2009 Dr. Bob Hines Swine Classic**. The Classic will be held July 10-11, 2009 at CiCo Park in Manhattan. Watch for more information.

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
March 21, 2009	Kansas Junior Swine Producer Day	Manhattan
March 21, 2009	South Central Goat Conference	Lyons, Kansas
March 21, 2009	Kansas Sheep Association Sheep Day	Hutchinson, Kansas
April 4, 2009	K-State Horse Show Judges Seminar & Youth Workshop	Manhattan
April 6-8, 2009	Spring Action Conference	Salina, Kansas
April 15, 2009	Youth Livestock Listening Session	Hutchinson, Kansas
April 16, 2009	Hays Roundup	Hays, Kansas
April 17, 2009	Wildlife Habitat Evaluation Contest	Burlington, Kansas
April 18, 2009	High Plains Horseman's Day	Oakley, Kansas
June 10-13, 2009	K-State Animal Science Leadership Academy	Manhattan
July 10-11, 2009	Dr. Bob Hines Swine Classic	Manhattan

# AS&I FACULTY SPOTLIGHT



**Jim Nelssen ([jnelssen@ksu.edu](mailto:jnelssen@ksu.edu); 785-532-1251)**  
**Professor/Extension Swine Specialist**

Dr. Jim Nelssen is an extension specialist and swine nutritionist at Kansas State University. Jim currently serves as team leader of the Swine Extension Program. He is the swine nutrition faculty coordinator and is responsible for coordination of Kansas State off-site nurseries. His current position is 41% Extension and 41% Research.

Dr. Nelssen grew up in Smith Center, Kansas, where he was active in 4-H and FFA. Jim received his B.S. in Animal Science (1978) and his M.S. in swine reproductive physiology (1980) from Kansas State University. He received his Ph.D. in Swine Nutrition from the University of Nebraska in 1983. Later that year Jim started his career at Kansas State University as an Assistant Professor and Extension Swine Specialist. He was promoted to associate professor in 1989 and a full professor in 1995.

Jim's focus is transferring information to swine producers and conducting practical nutrition research. Jim has presented invited seminars at over 190 animal and veterinary science meetings around the world in addition to numerous presentations to local producer groups. Jim has authored or co-authored 123 refereed journal papers, 320 abstracts, 492 extension publications, and 4 book chapters. In 2005, Jim was named one of the 50 people that have made the greatest impact on the swine industry in the last 50 years by the National Hog Farmer Magazine.

Jim has three children.



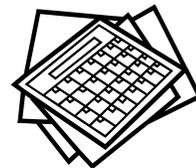
**John Smith ([jfsmith@k-state.edu](mailto:jfsmith@k-state.edu); 785-532-1203)**  
**Professor/Extension Dairy Specialist**

Dr. John F. Smith completed a B.S. in 1984 and a M.S. in 1986 at Northwest Missouri State University in Animal Science. In 1990 he completed a Ph.D. at the University of Missouri in Dairy Science. Dr. Smith served as the Extension Dairy Specialist at New Mexico State University from 1989-1995.

Currently, he serves as Extension Specialist, Dairy Science in the Department of Animal Sciences and Industry at Kansas State University. Dr. Smith's responsibilities at K-State include management of the Dairy and serving as Dairy Commodity Group leader in the department of Animal Sciences and Industries. In 2000 he received the Midwest Outstanding Young Extension Specialist Award, in 2002 the DeLaval Dairy Extension Award and in 2008 he received Western DairyBusiness magazine's Outstanding Dairy Industry Educator/Researcher at the World Ag Expo in Tulare, CA. Dr. Smith's interests include cow comfort, heat stress, milking parlor performance, special needs facilities, and management of expanding dairies. Dr. Smith is one of the Co-Founders of the Western Dairy Management Conference and High Plains dairy Management Conference. He works throughout the United States and internationally helping producers to develop efficient dairy operations.

# 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 anestrous (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](mailto:lschrein@ksu.edu), or phone 785-532-1267.