

# News from KSU Animal Sciences

## November, 2008



**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...

↳ **Corn vs Milo** - Over the past several years corn plantings have increased at the expense of milo. As a result, many swine producers have been transitioning to corn-based diets. However, with the recent harvest and demand for corn for ethanol production, its price has risen dramatically compared with milo's. As a result, milo is now below the 96% value of corn that we use to determine its economical value relative to corn. In fact, in some locations milo is selling for 70% the value of corn.

Milo can totally replace the corn in all swine diets. An important diet formulation consideration when using grain milo-based diets is its slightly lower in energy and lysine content relative to corn. While milo is frequently substituted on an equal weight basis with corn, slight adjustment of the soybean meal or synthetic amino acids can be made to take full advantage of milo's nutrient composition. As a result, when purchasing milo a general recommendation for swine diets is that milo should be 96 percent or less the value of corn to be an economical substitute. Milo has a small kernel and is very hard relative to corn. Thus, proper processing is essential to obtain optimum particle size. Roller mills are preferred to achieve the particle size target of 600 to 700 microns for meal diets. There appears to be no differences in nutritional value to the pig for milo varieties of various colors (ex. red, yellow or white). Pigs fed milo-based diets will have similar average daily gains to those fed corn diets. However, because the energy content of milo is slightly less than corn, feed efficiency will be slightly poorer than pigs fed corn.

Bottom line: In many areas of the state milo is becoming an economical alternative relative to corn and producers should consider switching from corn-based to milo-based diets if economical to reduce feed input costs. (Bob Goodband – [goodband@ksu.edu](mailto:goodband@ksu.edu); 785-532-1228)

↳ **Reduced Roughage Does Not Decrease Performance** - Crossbred yearling heifers (n = 384) were fed flaked corn finishing diets for 85 days. Treatments consisted of the following diets (dry matter basis): 0% dried distiller's grains with 15% corn silage; 25% dried distiller's grains with 15% corn silage; or 25% dried distiller's grains and 5% corn silage. Feedlot performance and carcass characteristics were measured.

**The Bottom Line....** Dried distiller's grains can replace a portion of the grain in a diet without decreasing animal performance. 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)).

↳ **Costs of Adopting Radio Frequency Identification Reader Systems and Tagging Services in Livestock Auction Markets** – A national survey of livestock markets asked livestock market operators 1) if they would offer a RFID tagging service if the National Animal Identification System were fully implemented and 2) if they have adopted a RFID reading system. Operators were asked to provide information about the investments and annual expenses required to offer these services. This information was used to estimate annualized costs of the systems to livestock markets. Economies of size exist in adoption of RFID tagging services and RFID reader systems among livestock auction markets. Costs per head decrease as livestock usage increases when adding either service, and costs per head decrease as facilities increase in cattle volume when a RFID reader system is adopted.

**The Bottom Line....** Large-volume livestock markets and those that will send a higher percentage of cattle through such a system are more likely adopters of RFID technology than small-volume markets and/or those that would not heavily utilize RFID technology. View the complete research report online at [www.asi.ksu.edu/cattlemensday](http://www.asi.ksu.edu/cattlemensday). For more information, contact Kevin Dhuyvetter ([kcd@ksu.edu](mailto:kcd@ksu.edu); 785-532-3527).

↳ **IRM Redbooks for Sale** –It is not too late to get your 2009 IRM Redbooks! To order your supply of redbooks, please contact Lois (lschrein@ksu.edu; 785-532-1267).

- ↳ The Department of Animal Sciences and Industry seeks applications for a **Research Assistant for the Beef Cattle Research Center**. This position will direct, supervise, and coordinate daily activities at the Beef Cattle Research Center. Duties include employee supervision, posting research data, maintaining herd health programs and coordinating daily work and research activities of part-time employees. Review of the applications begins November 21, and continues until the position is filled. For information contact Jim Drouillard (785-532-1204; [jdrouill@ksu.edu](mailto:jdrouill@ksu.edu)).
- ↳ **Effect of Glycerol on Pellet Mill Production Efficiency** – Crude glycerol is a by-product of the biofuels industry, which has the potential to be used as a feed ingredient in animal diets. However, little is known about glycerol's nutritional value or how it impacts feed quality and feed processing efficiency. Three experiments were conducted to evaluate the effects of glycerol on production efficiency of a pellet mill. In all three experiments, diets were manufactured, pelleted, and data collected at the KSU Grain Science Feed Mill. All diets were steam conditioned to 85°F and pelleted at 150°F using a CPM pellet mill equipped with a 4 mm × 32 mm pellet die. In Exp. 1, the six treatments were a corn-soybean meal-based swine grower diet formulated to contain 0, 3, 6, 9, 12, and 15% crude glycerol. Experiment 2 included seven treatments: the control with no added soy oil or glycerol, the control diet with 3 or 6% added soy oil, the control diet with 3 or 6% added glycerol, and the control with 6 or 12% of a 50:50 soy oil to glycerol blend. Experiment 3 included five treatments: a control with no added lactose or glycerol, the control diet with 3.6 or 7.2% lactose, or the control with 3.6 or 7.2% glycerol. Each experimental diet was replicated by manufacturing a new batch of feed three times. Glycerol lowered delta temperature, amperage, and motor load in Exp. 1, 2, and 3. The addition of glycerol consistently improved pellet quality. Production rate was not affected by the addition of glycerol; however, glycerol decreased total energy usage (KWh/t). Furthermore, glycerol can be added to a diet in combination with soy oil in a blend to improve production efficiency and pellet quality compared to a diet containing only soy oil. The addition of glycerol will improve the production efficiency of pelleting, pellet quality, and decrease energy cost when included in diets prior to pelleting. 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. N. Groesbeck, L. J. McKinney, J. M. DeRouchev, M. D. Tokach, R. D. Goodband, J. M. Nelssen, S. S. Dritz, and K. C. Behnke.*)
- ↳ **Detection of Noncycling Cows by Heatmount Detectors and Ultrasound Before Treatment with Progesterone** – Our objective was to determine accuracy of identifying anovulatory lactating dairy cows before the application of a timed AI protocol [with or without progesterone supplementation via a controlled internal drug release (CIDR) insert and 2 different timings of AI] by using heatmount detectors and a single ovarian ultrasound examination. At 6 Midwest locations, 1,072 cows were enrolled in a Presynch protocol (2 injections of prostaglandin F<sub>2α</sub> (PGF<sub>2α</sub>) 14 days apart) with the second injection administered 14 days before initiating the Ovsynch protocol (injection of gonadotropin releasing hormone (GnRH) 7 days before and 48 hours after PGF<sub>2α</sub> injection, with timed AI at 0 or 24 hours after the second GnRH injection). Heatmount detectors were applied to cows at the time of the first Presynch injection, assessed 14 days later at the second Presynch injection and again at initiation of the Ovsynch protocol, and ovaries were examined for presence of a visible corpus luteum (CL) by ultrasound before initiation of treatment. Treatments were assigned to cows based on presence or absence of a visible CL: 1) anovulatory (no CL + CIDR insert for 7 d); 2) anovulatory (no CL + no CIDR); and 3) cycling (CL present). Further, every other cow in the 3 treatments was assigned to be inseminated concurrent with the second GnRH injection of Ovsynch (0 hour) or 24 hours later. Pregnancy was diagnosed at 33 and 61 days after the second GnRH injection. Heatmount detectors and a single ultrasound examination both underestimated proportions of cows classified as anovulatory or having no prior luteal activity compared with those classifications determined by concentrations of progesterone in blood serum. Overall accuracy of heatmount detectors and ultrasound was 71 and 84%, respectively. Application of progesterone to cows without a CL at the time of the first injection of GnRH reduced incidence of ovulation but improved pregnancy rates at day 33 or 61 compared with non-treated cows without a CL at the onset of the Ovsynch protocol. Pregnancy rates and pregnancy survival did not differ for cows having a CL before treatment compared with those not having a CL, but treated with progesterone. Pregnancy rates were 1.5-fold greater for cows ovulating in response to the first GnRH injection. Timing of AI at 0 or 24 hours after the second GnRH injection did not alter pregnancy rates, but cows having prior luteal activity before treatment had improved pregnancy rates compared with anovulatory cows. We conclude that identifying anovulatory cows by ultrasound was more accurate than by heatmount detectors. Subsequent treatment of potential anovulatory cows with progesterone failed to improve fertility but had benefit for cows with prior estrous cycles at the onset of the timed AI (TAI) protocol, regardless of luteal status before the final luteolytic injection of PGF<sub>2α</sub>. More information is available on this experiment in the Dairy Day 2007 publication. For more information, contact Jeff Stevenson (785-532-1243; [jstevens@ksu.edu](mailto:jstevens@ksu.edu)).

# UPCOMING EVENTS...

- ↪ The **Livestock Manure Management Conference** will be held on Tuesday, November 18, 2008 at the SW Research and Extension Center in Garden City. Some of the issues that will be covered include: Economics/Value of Feedlot Manure; Managing Manure Nutrient Content; Legal Issues Involved in Manure Marketing; and Agronomic Considerations of Manure Use as Fertilizer. For complete details, visit [www.KSUbeef.org](http://www.KSUbeef.org). For more information, contact Chris Reinhardt (785-532-1672; [cdr3@ksu.edu](mailto:cdr3@ksu.edu))
- ↪ The **2008 KSU Swine Day** will be held Thursday, November 20 at the KSU Alumni Center. Our featured speaker will be Dr. Ron Plain, noted Agricultural Economist from the University of Missouri. A special addition to this year's Swine Day will be an open house to view the new **K-State Research facility** at the K-State Swine Farm. This state of the art facility will have several new swine equipment ideas that will be worthy of your inspection. The K-State Tailgate Party will be held in the new facility. For more information, contact Jim Nelssen (785-532-1251; [jnelssen@ksu.edu](mailto:jnelssen@ksu.edu)).
- ↪ The **Applied Reproductive Strategies in Beef Cattle Symposium** will be held December 2-3, 2008 in Fort Collins. For complete details on the symposium, go to <http://www.appliedreprostrategies.com/>
- ↪ An **Adult PQA Plus Training**, will be held on December 16, 2008, from 9:00 a.m. – 5:00 p.m. in Room 146 of Weber Hall at Kansas State University. Plans are to hold the one-day training for agents and veterinarians that wish to become PQA Plus Advisors. Only trained advisors are allowed to certify pork producers in the PQA Plus program. For more information, contact Mike Tokach (785-532-2032; [mtokach@ksu.edu](mailto:mtokach@ksu.edu)) or Joel DeRouchey (785-532-2280; [jderouch@ksu.edu](mailto:jderouch@ksu.edu)).
- ↪ **2009 KOMA Beef Conference** will be held January 8 at Oswego, Kansas. Topics for the conference include Cow/Calf Economic Considerations for the Upcoming Year; Inter-seeding Legumes; PI-BVD Testing the Herd; Cut the Bull; Economic Impact of Cow Biological Type; Cow/Calf Mineral Nutrition and much more. Watch for more details on [www.KSUbeef.org](http://www.KSUbeef.org). For more information, contact Karl Harborth ([harborth@ksu.edu](mailto:harborth@ksu.edu); 620-431-1530).
- ↪ The **2009 Four-State Beef Conference** will be held January 14<sup>th</sup> in Washington, Kansas. Mark the date on your calendar and watch for more details. For information, contact Ross Mosteller, River Valley District/Washington County (785-325-2121; [rmostell@ksu.edu](mailto:rmostell@ksu.edu))
- ↪ The **2009 KSU Swine Profitability Conference** will be held Tuesday, February 3 in Forum Hall of the K-State Student Union. A great program has been lined up including presentations from Dr. Darrell Mark from the University of Nebraska-Lincoln; Dr. Bob Taubert from New Horizon Farms; Dr. Joe Connor from the Carthage Vet Clinic; as well as a keynote address from KSU President Jon Wefald. Registration fee of \$25 per participant is due by January 25, 2009. Watch for more details on the conference. For more information, contact Jim Nelssen (785-532-1251; [jnelssen@ksu.edu](mailto:jnelssen@ksu.edu)).
- ↪ Dates for the **2009 KSU Dairy Days** have been scheduled as follows: February 12 in Seneca, Kansas and February 26 in Whiteside, Kansas. Watch for more details. For more information, contact John Smith (785-532-1203; [jfsmith@ksu.edu](mailto:jfsmith@ksu.edu)).

## CALENDAR OF UPCOMING EVENTS

Date	Event	Location
November 18, 2008	Livestock Manure Management Conference	Garden City, Kansas
November 20, 2008	KSU Swine Day	Manhattan
December 2-3, 2008	Applied Reproductive Strategies in Beef Cattle	Fort Collins, Colorado
December 16, 2008	Adult PQA+ Training	Manhattan
January 8, 2009	KOMA Beef Conference	Oswego, Kansas
January 14, 2009	4-State Beef Conference	Washington, Kansas
February 3, 2009	KSU Swine Profitability Conference	Manhattan
February 12, 2009	KSU Dairy Day	Seneca, Kansas
February 26, 2009	KSU Dairy Day	Whiteside, Kansas

# AS&I FACULTY SPOTLIGHT



**Duane Davis ([davis@k-state.edu](mailto:davis@k-state.edu); 785-532-1224)**  
**Professor/Swine Reproductive Physiology**

Dr. Duane Davis received his B.S. and M.S. from Kansas State University and his Ph.D. from the University of Missouri. He teaches courses in the reproductive physiology of farm animals and stem cell biotechnology to undergraduate and graduate students. His research program addresses embryonic and fetal survival, fetal programming, and stem cell biology.

Recent research has shown that of omega-3 fatty acids, when fed to the sow, change the composition of the conceptus. The potential for reprogramming fetal and post natal development may be important for animal agriculture.

Dr. Davis' laboratory is also studying the properties of stem cells they discovered in the umbilical cord of pigs in 2000. These cells are found in a matrix (Wharton's jelly) and are readily harvested and grown in vitro. The umbilical cord matrix stem (UCMS) cells are distinct from those found in umbilical cord blood. UCMS cells are potentially useful for human medicine as replacements for cells damaged or lost due to developmental or degenerative diseases, accidents or aging. In agriculture UCMS cells from pigs and other farm animals have great potential. They provide a cheap, plentiful, and easily harvested source of multipotential cells and may find uses to enhance food safety, food production efficiency, and to stimulate resistance to infectious diseases. In particular, their ability to home to specific lesions may offer routes of delivery of therapeutic agents to achieve health and production benefits.



**Joann Kouba ([jkouba@ksu.edu](mailto:jkouba@ksu.edu); 785-532-1240)**  
**Associate Professor/Equine Physiology**

Dr. Kouba was born and raised in Bellevue, Nebraska (south of Omaha). She entered Northeast Missouri State University (now formally named Truman State University) in 1989, majoring in Animal Science with an Equine emphasis. Following graduation, she began her graduate career in animal physiology at Clemson University in Clemson, South Carolina in the fall of 1993. While at Clemson, she was actively involved in their undergraduate teaching program, and had responsibility for teaching two popular equine courses. Her thesis focused on the use of Domperidone to treat pregnant mares grazing endophyte-infected tall fescue. After completing her M.S. in 1995, she moved to Texas and started on her Ph.D. in equine reproductive physiology at Texas A&M University in the spring of 1996. While at A&M, Dr. Kouba was also heavily involved in their undergraduate program, teaching courses in horse training, horsemanship, reproduction and management, as well as the introductory animal science labs. Her dissertation dealt with the control of prolactin secretion in the pregnant mare, and the interaction between various reproductive hormones and endogenous opioids.

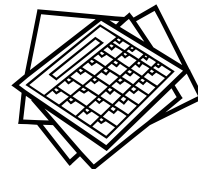
In the fall of 2001, Dr. Kouba joined the KSU faculty with an 80% teaching and 20% research appointment. She has taught 8 on-campus equine courses and 3 distance courses, currently advises ~60 students, serves as the faculty coordinator for the KSU Horse Teaching and Research Unit, is the advisor for the KSU Horseman's Association, and mentors a number of graduate students pursuing advanced degrees with an equine emphasis.

Dr. Kouba's research program currently focuses on the role of omega-3 fatty acids in equine reproduction and foal growth and immunity. The overall goal of this research is to make better recommendations to consumers about incorporating omega-3 fatty acids into their horse's diets.

Her personal horse interests are currently focused on the cutting and reining horse industry. And if you are driving around town, watch out for Dr. Kouba - she can be seen walking her two dogs, Ripley and Tobi.

# WHAT PRODUCERS SHOULD BE THINKING ABOUT...

## WHAT PRODUCERS SHOULD BE THINKING ABOUT IN JANUARY.....



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

#### Cow herd management

- ☑ Historically, cull cow prices have increased during the next 2 or 3 months. Contrary to tradition, feeding cull cows this year may not be a profitable venture due to higher input costs. Check your breakevens.
- ☑ Continue feeding or grazing programs started in early winter. Weather conditions may require wrapping up grain sorghum and cornstalk field grazing. Severe winter weather may begin to limit crop residue utilization, so be prepared to move to other grazing and feeding systems
- ☑ Supplement to achieve ideal BCS at calving.
  - ↳ Use this formula to compare the basis of cost per lb. of crude protein (CP):  
Cost of supplement, \$ per hundredweight (cwt.) ÷ (100 X % CP) = cost per lb. of CP.
  - ↳ Use this formula to compare energy sources on basis of cost per lb. of TDN:  
Cost, \$ per ton ÷ [2,000 X % dry matter (DM) X % TDN in DM] = cost per lb. of TDN.
- ☑ Control lice; external parasites could increase feed costs.
- ☑ Provide an adequate water supply. Depending on body size and stage of production, cattle need 5-11 gallons (gal.) of water per head per day, even in the coldest weather.
- ☑ Sort cows into management groups. BCS 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 conditioned 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 post-partum 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%-65% of their mature weight by the start of the breeding season. Thin, lightweight heifers may need extra feed for 60-80 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 your breed association.
- ☑ Provide some protection, such as a windbreak, during severe winter weather to reduce energy requirements. The 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. 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](mailto:lschrein@ksu.edu), or phone 785-532-1267.