News from KSU Animal Sciences

October, 2016

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In This Issue

Department of Animal Sciences and Industry
Kansas State University
218 Weber Hall
1424 Claflin Road
Manhattan, KS 66506
785-532-6533
www.asi.ksu.edu

K-STATE Research and Extension

UPCOMING EVENTS…

- **Make plans now to attend the 2016 KSU Swine Day**. The 2016 KSU Swine Day will be held Thursday, November 17, at the KSU Alumni Center. The schedule for the day includes:

  8:00 a.m. – 4:00 p.m. Trade Show
  9:15 a.m. Welcome - *Dr. Ken Odde, Department Head, AS&I*
  9:30 a.m. Latest update on K-State Applied Swine Nutrition Research
  Dr. Duane Davis, Dr. Joel DeRouchey, Dr. Steve Dritz, Dr. John Gonzalez, Dr. Bob Goodband, Dr. Cassie Jones, Dr. Jim Nelssen, Dr. Mike Tokach and Dr. Jason Woodworth, Kansas State University
  11:45 a.m. Lunch with Trade Show
  1:30 p.m. Kansas State University Disease Research Update – PRRS/PCV, deep sequencing, influenza
  Dr. Bob Rowland, Dr. Jurgen Richt, and Dr. Megan Niederwerder, Kansas State University
  2:15 p.m. VFD's – Ready, Set, GO
  Dr. Mike Apley, Kansas State University
  3:30 p.m. Question and Answer Session
  4:00 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 Lois Schreiner at lschrein@ksu.edu or 785-532-1267.

- The 2017 **K-State Swine Profitability Conference** has been scheduled for Tuesday, February 7, 2017, at the Stanley Stout Center, Manhattan, KS. Watch for more details coming soon at www.KSUswine.org.

- **Important Youth Livestock Program Dates** - **Save the Date**! There are a few youth livestock programs that have been scheduled for 2017. The Kansas Junior Swine Producer Day will be Saturday, March 11th, in Weber Hall on the K-State campus in Manhattan. Youth, parents, project leaders, and extension agents of all skill levels and knowledge bases are invited to attend. Topics related to swine production and the youth swine project will be covered. Junior Meat Goat Producer Day will also be held next spring. More details and registration information for both junior producer days will be released later this fall, so check the youth livestock program website and Facebook page for updated information. Also, the 2017 Kansas 4-H Livestock Sweepstakes will be August 19-20. So, mark your calendars for these events!

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
November 17, 2016	KSU Swine Day	Manhattan
February 7, 2017	KSU Swine Profitability Conference	Manhattan

WHAT'S NEW . . . . .

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

"Define Quality"

What makes a quality employee and team mate? Work ethic, intelligence, and integrity would likely all come to mind for most of us. But what about how a person contributes to the workplace environment? Mentoring of newer or younger team mates? How about creative problem solving skills? Any others?

I was recently asked to serve as a work reference for a colleague and was forced to consider all the many ways this person contributes to our organization. This provided me with an opportunity to define, or re-define, what it means to be a "quality employee".

This person in question has all the "tangibles", but also all of the "intangibles" as well. This person is what my baseball-loving friend would call "a five-tool player: can run, can field, has a good arm, and can hit for both average and for power."

Billionaire business tycoon Warren Buffet is quoted as saying something to the effect of, "When hiring we look for integrity, intelligence, and work ethic. But if they don't have integrity, we hope they're also stupid and lazy or else they'll rob us blind!" I guess the point is, as much as we all want to have 5-tool players, integrity may be the single greatest asset for an employee to possess. If there's integrity, a person who lacks experience can be taught, and even a person who may not be intelligent can be taught some useful skills.

People with a high level of integrity do their best to get their job done to the best of their ability, but they also look for additional ways to contribute. They go outside their job duties to look for ways to make the organization better. They intentionally strive to make those around them better at their job and happier in the workplace and in their personal life.

In short, the high-integrity person is worth more to the organization than we can probably afford to pay them. If we have one, we need to hold on tight; they just don't come along every day.

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

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

"Add Value Through Backgrounding"

The strong dollar is good for a lot of things, or so I'm told. However, the strong dollar also hurts our export markets because our product is automatically more expensive to buyers around the world simply because their currency loses its purchasing power vs. U.S. products. The U.S. beef industry saw beef exports climb out of the doldrums post-2001 and a dip after the recession in 2009 to record levels in 2011, 2012, 2013, and 2014. This led to record prices for boxed beef, fed cattle, and subsequently, feeder calves. Heady times indeed... Conversely, the U.S. dollar began a steady climb in value vs. other global currencies in mid-2014 and has increased in value by 20-25% over the past 18 months, resulting in a significant drop in beef exports; this has placed and will continue to place downward pressure on boxed beef value, fed cattle prices, and feeder calf prices. As expected, we are experiencing low calf prices this fall compared to recent years; we've already seen feeder cattle futures decline by 40% since the mid-2014 highs.

In the face of this challenge, producers can capture more value through backgrounding calves to heavier weights. During times of high calf prices, the price slide moving up from 500 lb calves to 700 or 800 lb feeders has been steep. However, with the suppressed calf prices, the slide is not nearly as unfavorable. For example, if 575 lb steer calves are valued at $139/cwt (total value = $799), and 875 lb steers are valued at $128/cwt (total value = $1,120), then the price slide is $107/lb ($1,120 – $799 ÷ 300 lbs). This $107/lb is the value of weight put on each calf above their initial weight of 575 lbs; this is a number worth remembering.

Feedlot Facts – **"Add Value Through Preconditioning"** (cont.)

Producers can only increase profit if they can feed calves for less than $107/lb gain. And with the current low cost of grain and abundance of forage, feed-only cost of gain for developing calves is likely well below 50¢/lb. The August 2016 K-State Focus on Feedlots projects total finishing cost of gain at 70¢/lb, so backgrounding calves, should be lower than this number, given the greater lean gain efficiency of young animals vs. fattening cattle. If we add the costs for vaccines, implants, anti-parasiticides, morbidity treatment costs, and a risk of mortality, total cost of gain could be in the range of 60-65¢/lb of added gain. If the sale price is expected at $128/cwt, profit per head of the backgrounding operation could be over $100/animal. This is the equivalent of adding over 17¢/lb to the original sale value of the calf at weaning time, or "selling" the weaned calves for $156 / cwt instead of $139 / cwt.

Obviously, none of these numbers can be guaranteed. You will need to work closely with your local extension professional and feed supplier to formulate diets and provide cost estimates and breakeven calculations. Also, work closely with your veterinarian when building your processing and treatment protocols. But if you have access to feed, processing facilities, feeding facilities, and feeding equipment, there is an opportunity to add value to your calves this winter.

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

- **IRM Redbooks for Sale** – The 2017 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 = $6.00/book; Orders of 10 or more = $5.75/book which includes postage. To order your supply of redbooks, please contact Lois (lschrein@ksu.edu; 785-532-1267).

- **Premium Choice Steaks Purchased from Grocery Outlets are Generally more Tender Throughout the Year than Lower Quality Grade Steaks** – The purpose of this study was to determine tenderness and cooking characteristics of strip steaks purchased from self-serve display cases in grocery store outlets throughout the year.

  Six strip steaks types (n = 311 steaks) were purchased weekly for a year from four local grocery stores. Steaks included two different types of branded Premium Choice, Premium Choice, Choice, Non-grade Specified, and branded Natural. The day following the purchase, physical measurements were taken on steaks. Steaks were then cooked to an internal temperature of 158°F using a convection oven and refrigerated. The following day steaks were cored and sheared (Warner-Bratzler shear force).

  Bottom Line…. Higher quality strip steaks generally have greater amounts of marbling, are more tender (smaller shear force), and are more consistent in tenderness throughout the year than lower quality grade steaks. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact Liz Boyle (785-532-1247; lboyle@ksu.edu).

- **Finely Grinding Cereal Grains in Pelleted Diets Offers Little Improvement in Nursery Pig Growth Performance** Five experiments were conducted to determine the effects of corn particle size and diet form on nursery pig performance and feed preference. In Exp. 1, 192 nursery pigs (PIC 327 × 1050; initially 14.7 lb and 26 d of age) were used in a 35-d experiment. Pens of pigs were balanced by BW and allotted to 1 of 4 treatments with 6 pigs per pen and 8 pens per treatment. The same corn and soybean meal-based diet formulation was used for all treatments. The 2 × 2 factorial consisted of the main effects of corn particle size (400 vs. 700 µm) and diet form (mash vs. pelleted). Pigs fed mash diets had improved overall ADG and greater ADFI during all periods and particle size did not impact performance. In Exp. 2, a study utilized 96 pigs to evaluate feed preference of pigs consuming mash diets with either 400 or 700 µm corn. Pigs overwhelmingly preferred to consume 700 µm corn compared to 400 µm corn (79.3 vs. 20.7%). In Exp. 3, 224 nursery pigs (PIC 327 × 1050; initially 24.1 lb and 40 d of age) were used in a 10-d experiment to determine the effects of corn particle size in pelleted diets on nursery pig performance. Experimental treatments were formed by grinding corn to 1 of 4 different particle sizes (250, 400, 550, or 700 µm). Particle size tended to affect ADG in a quadratic manner, but did not impact ADFI or F/G. Pigs fed pelleted diets from either 250 or 700 µm corn had poorer ADG than the intermediate treatments. Exp. 4 utilized 91 pigs to evaluate the preference of pigs consuming pelleted diets with either 250 or 700 µm corn from Exp. 3. Even in pelleted form, pigs preferred to consume diets manufactured with the coarser particle size corn (58.2 vs. 41.8%). In Exp. 5, 180 nursery pigs (PIC 327 × 1050; initially 15.8 lb and 36 d of age) were used in a 35-d experiment to determine the effects of corn particle size and pelleting on nursery pig growth performance. The 2 × 2 factorial consisted of 2 corn particle sizes (500 µm vs. 750 µm) and two diet forms (mash vs. pelleted).

  Bottom Line…Overall, reducing particle size from 750 to 500 µm did not affect growth performance. Pelleting reduced feed intake, but did not affect ADG or F/G. These studies suggest that there is little value to be gained by grinding corn to less than 700 microns if fed in pelleted form. Furthermore, our data suggest

that, regardless if fed as mash or pellets, pigs prefer to consume diets manufactured with coarser ground corn if given the choice. . More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. *(This study conducted by G. E. Bokelman, J. A. De Jong, J. R. Kalivoda, A. Yoder, C. R. Stark, J. C. Woodworth, and C. K. Jones)*

- **Evaluating the Efficacy of a Novel Phytase Source** A total of 350 nursery pigs (PIC 1050 barrows, initially 33.2 lb and 49 d of age) were used in a 21-d study to determine the aP release curve for a novel phytase product (Microtech 5,000, VTR Bio-tech Co., Guangdong, China). Pigs were randomly allotted to pens at arrival to the facility, and on d 0 of the trial pens were allotted to 1 of 7 treatments in a randomized complete block design. There were 5 pigs per pen and 10 pens per treatment. Pigs were fed corn-soybean meal-based diets formulated to 1.25% SID lysine. A single batch of the basal diet (0.12% aP) was manufactured and subsequently divided and used as the major ingredient in experimental diet manufacturing. Experimental diets were formulated to contain increasing available P supplied by either an inorganic source (0.12%, 0.18%, and 0.24% aP from monocalcium P) or from increased phytase (250, 500, 750, 1000 FTU/kg). Diets were analyzed for phytase using the AOAC method, and analyzed concentrations were lower than formulated. Diets formulated to contain 250, 500, 750 and 1000 FTU/kg had analyzed concentrations of 155, 335, 465, and 780 FTU/kg, respectively. On d 21, one pig per pen was euthanized and fibulas were collected to determine bone ash weight and percentage bone ash.

  Bottom Line…From d 0 to 21, increasing P from inorganic P or increasing phytase resulted in increased ADG, improved F/G, and heavier ending BW. Bone ash weight and percentage bone ash were increased with increasing inorganic P and increasing phytase. Response criteria, which remained in the linear portion of the quadratic phytase curve (ADG, bone ash weight, and percentage bone ash), were used to calculate aP release curves. When analyzed phytase values and percentage bone ash are used as the response variable, aP release percentage for up to 780 FTU/kg of Microtech 5,000 phytase can be predicted by the equation (y = 0.000002766761x - 0.000000002225x2 - 0.000201841391), where x is the phytase concentration in the diet (FTU/kg). 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, S. S. Dritz, J. C. Woodworth, and R. D. Goodband)*

- **Effects of Grinding Corn through a 2-, 3-, or 4-High Roller Mill on Milling Characteristics, and Commercial Finishing Pig Growth Performance and Carcass Characteristics** A total of 922 pigs [PIC TR4 × (FAST Large white × PIC Landrace), initially 88.3 lb] were used in a 97-d experiment to determine the effects of grinding corn through various roller mill configurations on milling characteristics as well as growth performance and carcass characteristics of finishing pigs in a commercial setting. Pens were randomly allotted to 1 of 4 experimental treatments by initial BW with 11 pens per treatment and 21 pigs per pen. All diets were fed in 5 phases with the same corn-soybean meal-based diets containing 20% dried distiller's grains with solubles. Experimental treatments included: (1) corn ground to 685 µm using 2 sets of rolls (2-high); (2) corn ground to 577 µm using 3 sets of rolls (3-high); (3) corn ground to 360 µm using 4 sets of rolls in a fine grind configuration (4-high fine); and (4) corn ground to 466 µm using 4 sets of rolls in a coarse grind configuration (4-high coarse). The same roller mill was used for all configurations with the appropriate lower rolls completely open when using 2 or 3 sets of rolls. Grinding rate (tons per hour) was greatest for the 2-high and 4-high coarse configurations, followed by the 3-high configuration and lowest for the 4-high fine configuration. Electricity cost was lowest per ton of ground corn for the 2-high configuration, and was greatest for the 4-high fine configuration. Pigs fed diets containing corn ground with the 2-high configuration had the greatest ADFI and ADG, and pigs fed diets with corn ground using the 4-high fine configuration had the poorest ADFI and ADG. Pigs fed diets with corn ground using the 3-high or 4-high coarse configuration were intermediate. There were no differences in F/G, caloric efficiency, or carcass characteristics among pigs fed diets ground with different roller mill configurations. Feed cost/lb of gain was lowest for the 4-high coarse configuration and revenue/pig was greatest for the 2-high and 4-high coarse configurations. Income over feed cost (IOFC) was lowest for pigs fed diets with corn ground using the 4-high fine configuration; however, there were no differences in IOFC among the other milling configurations.

  Bottom Line…In our study, roller mill configuration had a significant impact on grinding electricity cost as well as grinding rate. However, when particle size was reduced from 685 µm to 360 µm, ADFI and ADG decreased, and there was no improvement in feed efficiency. Therefore, our study did not indicate a benefit in feed efficiency or economic return of finishing pigs when corn particle size was reduced below 685 µm by grinding through a roller mill in the commercial setting in this experiment. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. *(This study conducted by J. T. Gebhardt, K. F. Coble, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, J. C. Woodworth, C. R. Stark, C. K. Jones, and S. S. Dritz)*

AS&I Faculty Spotlight

David Grieger (dgrieger@k-state.edu; 785-532-1229)
Professor/Beef Cattle Reproduction

Dr. Grieger grew up rurally in northeast Indiana. His major teaching and research interests are applied and basic reproductive physiology with an emphasis in cattle. He teaches courses on estrous synchronization, ultrasonography, and pregnancy diagnosis. He also teaches two courses on application of biotechnology to animal agriculture. He has led three international study tours, one each to Costa Rica, South Africa and Argentina. DrG also advises 50 undergraduate students. He has a 80% Teaching and 20% Research appointment in the department.

Dr. Grieger's applied research emphasis is the development of estrous synchronization and artificial insemination systems for beef heifers. The objective is to fine-tune different systems that result in acceptable AI conception rates and are practical for producers to use. In his spare time, DrG likes to answer email (not), fly fish (yes) and force his more talented colleagues to play in his band.

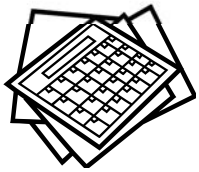
Chris Reinhardt (cdr3@k-state.edu; 785-532-1672)
Professor/Feedlot Extension Specialist

A native of Wisconsin, Dr. Reinhardt received a B.S. in Meat and Animal Science from the University of Wisconsin, an M.S. in Nutrition from Texas A&M University, and a Ph.D. in Nutrition from good ol' Kansas State. Chris' focus has been on nutritional and hormonal manipulation of body composition and beef quality. After 11 years in the feed and animal health industries working throughout the High Plains and Northern Plains, he came back to K-State in 2005 as the Extension Feedlot Specialist with a 80% extension; 20% research appointment. In his spare time Chris enjoys hunting, church activities, playing guitar with friends, and his family.

Notable extension programs include: Feedlot Nutritionist Boot Camp; Cattle Feeders' College; Feedlot Facts monthly newsletter; and Management Minute monthly newsletter.

What Producers Should Be Thinking About…..

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN DECEMBER…….



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

Cow herd management for spring-calving cows

☑ In late fall and early winter, start feeding supplement to mature cows using these guidelines:
- Dry grass — 1-2 pounds (lb.) per day of a 40% crude protein (CP) supplement
- Dry grass — 3-4 lb. per day of a 20% CP supplement
- Dry grass — 10 lb. good nonlegume hay, no supplement needed

☑ Compare supplements based on cost per pound of nutrient.

☑ Utilize crop residues.

☑ Strip-graze or rotate cattle to improve grazing efficiency.

☑ Cows in average body condition can be grazed at 1-2 acres per cow for 30 days, assuming normal weather. Available forage is directly related to grain production levels.

☑ Limiting nutrients are usually rumen degradable protein, trace minerals and vitamin A.

☑ Control lice.

General management

☑ Document your cost of production by participating in Standardized Performance Analysis (SPA) programs.

☑ Review management decisions; lower your costs per unit of production.

☑ Check your financial management plan and make appropriate adjustments before the end of the year.

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.*