



Newsletter from the Department of Animal Sciences and Industry
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WHAT'S NEW...

↪ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist *“Who Are You? – Part II”*

So now that you've sat down, contemplated your views of life, your workplace, and your co-workers, and you've asked for and received 360-degree feedback from those who know you and who you trust for candid, realistic input, you're ready to respond.

First, are you defensive? Remember, the only way this process works and is worthwhile is if the one receiving feedback is willing to accept the input as the truth. Others' views of you will most likely differ from your own in some way, to some degree. Your willingness to embrace this “new reality” is the first limitation on your ability to improve as a manager.

Second, can you change? This depends on 2 factors: your willingness and what changes are needed. Example: the predominant feedback is that you are too quick to criticize. Do you defend this trait as “essential to my management style” or is there room for compromise? Another example: the predominant feedback is that you have a quick and volatile temper. I'm not sure people can change this trait, but you definitely can change how you choose---that's right, CHOOSE---to respond when stressful situations arise. A quick temper often goes along with the ambitious, energetic, goal-oriented, leader. The difference between the effective and marginal leader is how they channel their response during times of crisis.

Finally, can you take something away from this process that you can implement with those who report to you? Some of them may embrace this process, others may not. But if you see traits in others that could be addressed to the betterment of the employee, as well as the workplace, it is conceivable that the person may respond favorably to input from peers, in addition to that of the manager.

If you have not already alienated all those around you, people will most likely be supportive of you as they sense your efforts to improve yourself with the ultimate goal of improving the productivity and the environment of the workplace.

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

↪ **New Youth Livestock Coordinator** - We are pleased to announce that Chelsea Tomascik has accepted the Youth Livestock Coordinator position. Chelsea has a B.S. degree in Animal Science and is completing her Master of Science degree in Agricultural Communications at Texas A&M University. Besides her teaching experience and social media education as a graduate assistant, Chelsea brings a strong youth livestock background to the position. She also worked in the President's office at Texas A&M and interned with the USDA, assisting with oversight of the check-off programs. We are excited about the enthusiasm and excitement for youth programs that Chelsea brings to K-State. Chelsea will begin her position at K-State on November 28, 2010.

↪ **IRM Redbooks for Sale** –The 2011 IRM Redbooks have arrived and will be sold on a first come first serve basis. The price of the redbooks will be: For orders of less than 10 = \$5.25/book; Orders of 10 or more = \$5.00/book which includes postage. To order your supply of redbooks, please contact Lois (Ischrein@ksu.edu; 785-532-1267).

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

“Weaning Decisions”

If you’ve decided to sell your calves, you need to determine how to maximize your return on what you’ve already invested. You may have already determined that selling immediately following weaning through conventional market channels is best for you. However, there are alternatives to selling your calves as a “commodity”.

K-State research has demonstrated the potential values of weaning for at least 2 weeks prior to shipment to the auction market or to the feedyard. Other data have shown benefits of weaning at least 45 days prior to shipment and commingling. But most importantly, you need to ensure that you will get paid for any added investment you make in adding value to your calves.

The term “adding value” only applies if the buyer perceives the same value that the seller does. If the buyers at the sale you use don’t pay more for preconditioned calves, then preconditioning has no value, at that sale. However, other buyers, at other sales, certainly DO value preconditioning, and it’s your prerogative to seek out these buyers to get paid for adding true value.

This may also apply to other aspects of your calf crop. Perhaps your calves have excellent genetics for growth or muscling or marbling. Make sure to seek out the market which will give you the best value for your unique product.

There are certain grocery stores where upon entry, the shopper makes a tacit agreement with the management: “I will pay you more for groceries but you must provide me with quality.” Shoppers don’t go to these stores looking to pinch pennies, but instead to buy high quality products with an assurance of sustained value. The same can be said for value-added sales. Buyers don’t come to a dedicated preconditioned calf sale looking for the lowest price, but for sustaining value, i.e. calves that will perform.

So before you make extensive investment in preconditioning, or after you’ve made a substantial investment in high-value genetics, make sure you find the market that will pay most for your added value.

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

↳ **Botanical Composition of Diets Grazed by Beef Cows in the Kansas Flint Hills During Winter** -

Mature beef cows were allowed to graze on a single, dormant, native tallgrass pasture at the Kansas State University Cow-Calf unit. Approximately 95% of above-ground biomass on these pastures was composed of the following forage species: big bluestem, little bluestem, sideoats grama, blue grama, switchgrass, Indiangrass, lead plant, heath aster, dotted gayfeather, and purple prairie clover. Fresh fecal samples were collected after 30 days of grazing. Slides were prepared from decolorized, cleaned samples and digitally photographed on a microscope for quantification of botanical composition.

Bottom Line.... Identifiable plant fragments were composed of 65% grasses and 35% forbs. Forbs are relatively important in the diets of mature beef cattle grazing Flint Hills pasture during the winter. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact KC Olson (785-532-1220; kcolson@ksu.edu) or Dale Blasi (785-532-5427; dblasi@ksu.edu).

↳ **Initial Heifer Body Composition Has Little Impact on Response to Zilmax** - Crossbred heifers (n

= 353, 941 lb average body weight) were used to determine effects of initial body composition on response to Zilmax. We hypothesized that fat heifers would respond more favorably to Zilmax than lean heifers. Before Zilmax was fed, cattle were weighed; an ultrasound machine was used to measure ribeye area, rump fat thickness, and 12th rib fat thickness; and hot carcass weights were estimated with a previously published mathematical formula. Zilmax was fed for 23 days followed by a 3-day withdrawal. Heifers were weighed and carcass data were collected at slaughter. Mathematical formulas were developed to describe relationships between initial carcass measurements and post-Zilmax changes in muscling, fatness, carcass weight, and efficiency of carcass weight gain.

Bottom Line... Initial body composition had little impact on efficiency of carcass weight gain for heifers fed Zilmax. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Jim Drouillard (785-532-1204; jdrouill@ksu.edu) or Chris Reinhardt (785-532-1672; cdr3@ksu.edu).

↵ **Needle Free Injection Enhancement of Beef Strip Loins with Phosphate and Salt Has Potential to Improve Yield, Tenderness, and Juiciness but Harm Texture and Flavor** - In experiment 1, beef strip loins (n = 15) were halved and assigned to needle or needle-free injection enhancement with a phosphate plus salt solution to determine effects on color, water-binding capacity, and palatability. In experiment 2, strip loins (n = 28) were halved and assigned to one of four treatments—needle or needle-free injection with a phosphate solution or needle or needle-free injection with a calcium lactate solution—to determine effects on water-binding capacity and palatability.

In experiment 1, pump yields tended (P=0.08) to be higher for needle-free injection enhancement. Needle-injected steaks were darker (P<0.05) on day 1 only. Needle-free steaks had greater instrumental tenderness and intensity of off-flavors but less cooking loss and beef flavor (both P<0.05). Needle-free injection resulted in a greater incidence (P<0.05) of off-flavors and abnormal texture. The phosphate solution resulted in greater (P<0.05) instrumental, myofibrillar, and overall tenderness; greater juiciness; greater incidence of off-flavors and abnormal texture; and less (P<0.05) connective tissue and cooking losses compared with the calcium lactate solution. The phosphate and needle-free combination had the highest pump yields and lowest cooking losses (both P<0.05).

Bottom Line.... Enhancing beef strip loins with phosphate and needle-free injection has potential to improve yield, tenderness, and juiciness but harm texture and flavor. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Michael Dikeman (785-532-1225; mdikeman@ksu.edu) or Liz Boyle (785-532-1247; lboyle@ksu.edu).

↵ **Temperature Changes in a Low-Profile, Cross-Ventilated Building in the High Plains** -

Performance of an evaporative cooling system was evaluated in the High Plains in a low-profile, cross-ventilated dairy facility housing 4,200 lactating cows. The temperature decrease across the 6-inch cellulose evaporative pad during the afternoon hours from July 15 to August 14, 2008, was 12.6°F. The temperature-humidity index was below 72 for 14 and 19 hours/day in pens near the outlet (exhaust fans) and inlet (near evaporative cooling pad), respectively, compared with 12 hours under ambient conditions.

Bottom Line.... Throughout the study period, the evaporative cooling system decreased the number of hours that cows were housed in a heat stress environment irrespective of pen location in the building. View the complete research report at www.asi.ksu.edu/dairy under the *Dairy Publications and Presentations* link. (This study conducted by J.P. Harner and J.F. Smith.)

↵ **Effect of Dried Distillers Grains with Solubles Withdrawal Regimens on Finishing Pig Performance and Carcass Characteristics** -

A total of 962 pigs (PIC L337 × 1050, initial BW = 86.1 lb) were used to determine the effect of dried distillers grains with solubles (DDGS) withdrawal regimens on growth performance and carcass traits. Pigs were randomly assigned to 1 of 6 treatments (6 pens per treatment) balanced by average BW within gender. Treatments were: (1) a corn-soybean meal-based diet without DDGS fed for 89 d (control), (2) 30% DDGS fed from d 0 to 48 and 0% DDGS fed from d 48 to 89, (3) 30% DDGS fed from d 0 to 69 and 0% DDGS fed from d 69 to 89, (4) 30% DDGS fed from d 0 to 48 and 15% DDGS fed from d 48 to 89, (5) 30% DDGS fed from d 0 to 69 and 15% DDGS fed from d 69 to 89, and (6) 30% DDGS diet fed from d 0 to 89. All diets contained 3% added fat. Pig BW, ADG, ADFI, and F/G were determined every 14 d. At the end of the trial, carcass fat quality was evaluated. There were no treatment × gender interactions for any criteria evaluated. Although there were some differences in F/G within phases, there were no overall differences in growth performance among treatments. Final weight numerically decreased as total DDGS level increased. Feeding continuously or withdrawing DDGS from the diet, regardless of the amount or duration, had no significant effect on any of the carcass criteria measured. Pigs fed DDGS had increased iodine value of fat depots compared with control pigs. When the DDGS withdrawal duration increased (Treatments 6, 3, 2, and 1), iodine values for all fat depots decreased. Feed cost per pig was highest when 0% DDGS was fed or withdrawn 6 wk before marketing (Treatments 1 and 2) and lowest when DDGS was added in the diets until at least 3 wk before marketing (Treatments 3, 4, 5, and 6). However, the reduction in feed cost did not significantly improve revenue or income over feed cost.

Bottom Line.... In summary, DDGS reduction or withdrawal 3 or 6 wk before market did not affect growth performance or totally alleviate its negative effect on carcass fat iodine value. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by J.Y. Jacela, J.M. Benz, S.S. Dritz, M.D. Tokach, J.M. DeRouchey, R.D. Goodband, J.L. Nelssen, and K.J. Prusa.)

↪ **Effects of Copper Sulfate, Zinc Oxide, and NeoTerramycin on Weanling Pig Growth and Antibiotic Resistance Rate for Fecal *Escherichia coli*** – A total total of 180 weanling pigs (PIC TR4 ×1050, initially 11.1 lb and 21 d of age) were used in a 42-d growth trial to compare the effects of supplemental zinc, copper, and in-feed antimicrobial on weanling pig growth and antibiotic resistance of fecal *Escherichia coli*. There were 5 dietary treatments with 6 pens per treatment and 5 pigs per pen. Pens were assigned to dietary treatments in a randomized complete block design. Treatments were arranged in a 2 × 2 factorial design with main effects of copper sulfate (0 or 125 ppm) and zinc oxide (0 or 3,000 ppm for 14 d and 0 or 2,000 for 28 d). The fifth treatment was in-feed antimicrobial (50 g/ton neomycin sulfate and 50 g/ton oxytetracycline HCl). All diets were supplemented with 165 ppm zinc and 16.5 ppm copper from the trace mineral premix. Fecal samples were collected from 3 pigs per pen on d 14 and 42 to determine total coliform and *E. coli* counts as well as *E. coli* antibiotic resistance rates.

Pigs fed added zinc oxide had increased ADG and tended to have improved ADFI and F/G from d 0 to 14. From d 14 to 42, pigs fed added zinc oxide had poorer F/G than those with no added zinc oxide, and pigs fed added copper sulfate had improved F/G compared with those fed no added copper sulfate. Over the entire 42-d trial, a trend for a copper × zinc interaction was detected for ADG as pigs fed the addition of copper sulfate or zinc oxide had increased ADG over the control; however, when zinc and copper were combined, growth rate was similar to that when each was added singularly. Therefore, no additive effects were observed in this experiment from feeding a combination of high levels of dietary copper and zinc. Dietary addition of copper sulfate, zinc oxide, or in-feed antibiotic had no effect on total coliform or *E. coli* concentrations on d 14 or 42. For d-14 isolates, zinc supplementation had no effect on *E. coli* resistance rate to chlortetracycline, neomycin, oxytetracycline, or tiamulin; however, copper supplementation tended to increase resistance to chlortetracycline and oxytetracycline. A copper × zinc interaction was detected for *E. coli* resistance to chlortetracycline and neomycin from isolates on d 42. These interactions were related to a significant decrease in resistance when copper sulfate was fed alone.

Bottom Line....High levels of zinc oxide improved performance in the early postweaning period, whereas high levels of copper sulfate offered numeric advantages in the later phase. Although the resistance rate varied with dietary treatment, no clear pattern was detected. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by N.W. Shelton, M.E. Jacob, M.D. Tokach, J.L. Nelssen, R.D. Goodband, S.S. Dritz, J.M. DeRouchey, R.G. Amachawadi, X. Shi, and T.G. Nagaraja.)

↪ **Effects of Porcine Circovirus Type 2 and *Mycoplasma hyopneumoniae* Vaccines on Nursery Pig Performance** – A total of 360 weanling barrows (PIC 1050, 21 d of age and 13.0 lb) were used in a 35-d study to evaluate the effects of porcine circovirus type 2 (PCV2) and *Mycoplasma hyopneumoniae* (*M. hyo*) vaccines on nursery pig growth performance. Two commercial PCV2 vaccines were evaluated in this study: (1) a 2-dose product, Circumvent PCV (Circumvent; Intervet/Schering-Plough Animal Health, Millsboro, DE) and (2) a 1-dose product, Ingelvac CircoFLEX (CircoFLEX; Boehringer Ingelheim Vetmedica, Inc, St. Joseph, MO). For the *M. hyo* vaccine, RespiSure (Pfizer Animal Health, New York, NY), a single 2-dose product, was used. At weaning (d 0), pens of pigs were blocked by average pig weight and randomly allotted to 1 of 6 treatments in a 3 × 2 factorial arrangement composed of a combination of PCV2 vaccine (Circumvent, CircoFLEX, or non-PCV2-vaccinated control) and *M. hyo* vaccine (RespiSure or non-*M. hyo*-vaccinated control). There were 5 pigs per pen and 12 pens per PCV2 × *M. hyo* vaccine treatment. All vaccines were administered according to label directions—CircoFLEX at weaning and Circumvent and RespiSure at weaning and 21 d later. Common diets were fed by phase to all pigs.

There were no PCV2 × *M. hyo* vaccine interactions for any response criteria. Overall, pigs vaccinated with Circumvent had decreased ADG and ADFI compared with CircoFLEX-vaccinated and control pigs, respectively. On d 35, Circumvent-vaccinated pigs weighed less (42.9 lb) than pigs vaccinated with CircoFLEX (44.4 lb) or control pigs (44.4 lb). Pigs vaccinated with RespiSure had decreased ADG compared with control pigs from d 14 to 21 and d 21 to 25. On d 35, RespiSure-vaccinated pigs tended to weigh less (43.5 lb) and have lower ADFI than controls (wt = 44.3 lb).

Bottom Line....These data indicate that PCV2 and *M. hyo* vaccination can independently reduce feed intake and performance of nursery pigs and that the PCV2 vaccine effect is product dependent. Although PCV2 and *M. hyo* vaccines are known to improve finishing performance, their negative impact on nursery performance must be considered when implementing vaccine strategies. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by M.L. Potter, A.W. Duttlinger, J.R. Bergstrom, S.S. Dritz, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, and J.L. Nelssen.)

UPCOMING EVENTS...

- ↳ **Lambing and Kidding School** - Are ewe prepared for the season? I'm talking about the upcoming lambing and kidding season. To get you better prepared, a Lambing and Kidding School will be held Saturday, November 6th at the Phillips County Fairgrounds in Phillipsburg, KS at 9:30 a.m. Topics to be presented include: Feeding the Pregnant and Lactating Ewe/Doe, Preparation for the Lambing/Kidding Season, Raising Lambs/Kids on Artificial Milk and Using CIDR's for Breeding Synchronization. The day will be complete with demonstrations and a producer panel. For more details and registration information please contact Rachael Boyle at 785-425-6851 or rboyle@ksu.edu.

- ↳ The **2010 KSU Swine Day** will be held Thursday, November 18, at the KSU Alumni Center. The schedule for the day includes:

 - 8:00 a.m. – 5:00 p.m. Trade Show
 - 9:45 a.m. *Welcome*
Dr. Ken Odde, Department Head, Animal Sciences and Industry
 - 10:00 a.m. *Current K-State Swine Research to Help Improve Net Return of a Swine Business*
KSU Swine Team
 - 11:00 a.m. *Failure to Thrive: Is an Emerging Viral Disease the Cause?*
Dr. Steve Henry, Abilene Animal Hospital
 - 12:00 noon Lunch with Trade Show
 - 1:30 p.m. Current K-State Swine Research Information - KSU Swine Team
 - 2:00 p.m. *Managing Risk in Today's Swine Industry*
Mr. Joe Kerns, International Agribusiness Group, Ames, Iowa
 - 3:30 p.m. Reception with K-State Ice Cream

Pre-registration fee is \$20 per participant by November 10; with registration at the door \$30 per participant. There is no charge for any students if they are pre-registered. Visit www.KSUswine.org for complete schedule and registration information. For more information, contact Jim Nelssen (jnelssen@ksu.edu; 785-532-1251).

- ↳ The **2011 Four-State Beef Conference** will be held January 12th in the Jackson County Fair Building in Holton, Kansas. Presentations planned for the conference include:

 - Show-Me Select Multi-year Selection Impact – *Dr. Dave Patterson, University of Missouri*
 - Benefiting from Feeding on Pasture - *Dr. Dale Blasi, Kansas State University*
 - Understanding and Addressing Threats to the Industry – *Daren Williams, NCBA*
 - Low Input Heifer Development – *Dr. Rick Funston, University of Nebraska*

Mark the date on your calendar and watch for more information at www.KSUbeef.org or www.extension.iastate.edu/feci/4StBeef/. For registration information, contact Jody Holthaus (jholthau@ksu.edu; 785-364-4125).

- ↳ Mark your calendars for the upcoming **KSU Swine Profitability Conference** to be held Tuesday, February 1, 2011 at Forum Hall of the K-State Student Union. Watch for more details. For more information, contact Jim Nelssen (785-532-1251; jnelssen@ksu.edu).

- ↳ The **Annual Midwest Meat Processing Workshop** will be held on February 5, 2011 in Manhattan. Mark your calendars and watch for more details. For information, contact Liz Boyle (785-532-1247; lboyle@k-state.edu).

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
November 6, 2010	Lambing and Kidding School	Phillipsburg, KS
November 18, 2010	KSU Swine Day	Manhattan
January 11 & 12, 2011	Four State Beef Conference	Holton, KS
February 1, 2011	KSU Swine Profitability Conference	Manhattan
February 5, 2011	Annual Midwest Meat Processing Workshop	Manhattan

AS&I FACULTY SPOTLIGHT



Terry Houser (houser@k-state.edu; 785-532-1253)
Assistant Professor/Meats

Dr. Terry A. Houser was born in Cambridge, Nebraska in 1975. He is the youngest of seven children born to Clifford Houser Sr. of Cambridge, Nebraska and Verna Raye Horton of McCook, Nebraska. He attended the University of Nebraska-Lincoln from 1994-1998 for his B.S. degree and competed on both the Meats Judging Team and Meat Animal Evaluation Team while being very active in Alpha Gamma Rho Fraternity. In addition to campus activities, Terry completed two internships including one at Usinger's Famous Sausage in Milwaukee, Wisconsin and the other at Wimmer's Meat Products in West Point, Nebraska.

In 1999 Terry started his graduate program at Iowa State University in the area of Meat Science under the guidance of Dr. Joseph G. Sebranek and graduated with a M.S. in 2001 and a Ph.D. in 2004. His graduate research focused on irradiation, non-meat ingredient functionality, and needleless injection technologies for delivering vaccines to livestock. Upon completion of his Ph.D. he started his career as an Assistant Professor and Extension Meat Specialist at the University of Florida in Gainesville. In January 2007 he joined the Animal Science Faculty at Kansas State University with a 50% Research and 50% Teaching appointment in the area of Meat Science.

Terry's hobbies include hunting (deer, pheasant, turkey, and elk), competing in BBQ contests, fishing, and raising livestock.



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

Dr. Davis teaches courses in the reproductive physiology of farm animals to undergraduates and stem cell biology to graduate students. His research program addresses stem cell biology and pregnancy in farm animals.

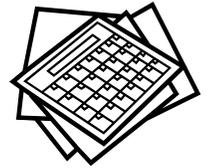
Duane is a member of a stem cell group at K-State that established The Midwest Institute for Comparative Stem Cell Biology, the Director of the Stem Cell Biotechnology Graduate Certificate, and the Faculty Coordinator of the KSU Swine Teaching and Research Center. His laboratory studies the properties of stem cells, the group discovered in the umbilical cord of pigs. These cells are found in a matrix (Wharton's jelly) and are easily harvested and grown in vitro. Current projects include characterizing pig WJ stem cells and the Wharton's jelly matrix, and evaluation of transcription factors in stem cells and pig embryos.

The Wharton's jelly (WJ) cells are distinct from those found in umbilical cord blood. WJ cells are potentially useful for human medicine as replacements for cells damaged or lost due to degenerative diseases, accidents or aging and as biological models.

In agriculture, WJ cells from pigs and other farm animals provide a cheap, plentiful, and easily harvested source of multipotent cells and may find uses to enhance food safety, food production efficiency, and to stimulate resistance to infectious diseases.

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.*