



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 I”*

I've heard the phrase, “Who people see when they look at you is not the same person you see in the mirror.” We are all bogged down by a self-image which is not true---at least it's not the same image as others see. The healthier the self-image, the closer it will be to what others see. Some see themselves as less than they are, others see themselves as more.

Sometimes, it helps to take some time to try to figure out what others see. As a manager, this is the only way to get better. Maybe you don't see any need to get better; that's a problem. And it tells others who you see in the mirror.

If you've got a superior you report to, that is possibly the most available and honest source of feedback you can get on how you're developing as a person and as a manager. But there is also a concept called “360-degree Feedback” which can be a further aid to your self-improvement. This means people all around you in the organization provide feedback on your development issues. That includes your superior/s, your peers, and those who report to you.

Obviously, the only way this works is if those providing feedback believe their input is valued, will be incorporated, and won't be held against them in the future. This is where humility comes in. The manager who doesn't think there is any need for improvement need not apply. But the truth is we can all get better.

During this very busy time of year, take time to get feedback from your entire team. Make this a development goal. Consider this: if you are a better manager, you will have a better team, a more productive team, and a more sustainable team. Employees who feel their input is valued are more content and more productive; they give more when the times require it. Employees who feel their manager is truly trying to get better want to help---why wouldn't they?

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

↪ **Research Assistant – Beef Metabolism Facilities** - The Department of Animal Sciences and Industry is looking for a Research Assistant. This position is a 12 month, non-tenure track, term position. A Bachelor of Science degree in Animal Science or related field is required with a Master of Science preferred. Experience with laboratory procedures relating to chemical and physical analysis of feeds as well as demonstrated capabilities for project management are required. View complete position announcement at: <http://www.asi.ksu.edu/positions> Review of applications begins September 20, 2010, and continues until position is filled.

↪ **Cow-Calf Extension Specialist** - The Department of Animal Sciences and Industry is looking for an Assistant Professor of Beef Cow-Calf Extension and Research. This position is a 12 month, tenure track, 70% extension and 30% research appointment. Earned doctorate in Animal Sciences or related discipline at time of employment is required. View complete position announcement at: <http://www.asi.ksu.edu/positions> Review of applications begins September 27, 2010, and continues until position is filled.

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

“Preconditioning: Prevention is Still the Best Cure”

Vaccine and antimicrobial technology continues to improve at a breakneck pace. Yet we continue to see that calves which are unprepared for life in the feedlot and which undergo significant stress during and after weaning en route to the feedlot will have morbidity upwards of 30% and first treatment success is often 30-50%. Calves which get mild respiratory disease will gain 0.2-0.4 lbs less ADG than healthy calves and those calves requiring multiple treatments will gain 0.6 lbs ADG less for the entire feeding period than healthy calves. This translates to about 15 lb less carcass weight and 10-15% fewer choice carcasses. It pays to keep calves healthy.

Preconditioning can mean everything from giving calves a vaccination prior to weaning, all the way to 2 rounds of vaccination, pre- and post-weaning, weaning from their dams for 45 to 60 days, and transitioned onto a total mixed ration, feedbunks, and waterers.

As far as animal performance is concerned, the extent of preconditioning needed to minimize post-arrival problems and maximize feedlot performance depends on the extent of stress imposed on the calf during transition. Recent studies here at K-State suggest that single-source calves shipped four hours to a feedlot will benefit from pre-weaning vaccination and weaning and feeding for at least 2 weeks pre-shipment. If calves are going to be shipped a great deal farther, will be extensively commingled either in transit or upon arrival, and may experience adverse weather conditions post-arrival, vaccination and weaning for 6-8 weeks pre-shipment would be preferred.

Respiratory disease is the most costly disease in the cattle industry, and the greatest factor affecting calf performance in the feedlot. If you can prevent or control disease, you can, to a certain extent, control performance of calves. Feedlots are paying premiums for calves which are prepared for life at the feedlot. Why? Because they perform. As a rancher, you can and should get paid for your investments of time, money, and management.

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

↳ **IRM Redbooks for Sale** – For more than twenty years, cattlemen have used the IRM Redbook to keep better records and track the profitability of their cow-calf operations. Some of the 2011 book highlights are calving records, Quality Assurance summary sheet, calf health records and more. 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 (lschrein@ksu.edu; 785-532-1267).

↳ **Cornstalk Round Bale Processing Method Does Not Influence Feeding Characteristics or Feed Refusals** - In mid-October 2009, a portion of a cornstalk field in northeast Kansas was cut with a flail shredder and raked on a single day. Cornstalks were either conventionally baled or precut and baled. Precut bales were harvested using a round baler equipped with serrated knives that cut the forage into 3- to 8-in. sections as packer fingers moved the forage from the header to the baling chamber. The treatments were: (1) 5 × 4 ft conventionally baled cornstalks, (2) 5 × 4 ft precut cornstalks, and (3) 5 × 4 ft conventionally baled cornstalks that were later tub ground. Rations were prepared with a horizontal mixer and fed at an average of 2.45% of body weight (dry matter basis) over the 15-day evaluation period. Plastic containers (12 in. × 9 in. × 6 in.) were placed at the first, middle, and last third of the bunk line for collection of discharge location samples. Particle length was determined, and bale cores, discharge location samples, and feed refusals were analyzed for concentrations of dry matter, crude protein, acid detergent fiber, and neutral detergent fiber.

Chemical analysis revealed no ($P>0.32$) mixer discharge site × bale type interactions. Different discharge locations from each of the different cornstalk treatments had similar ($P>0.11$) dry matter, crude protein, acid detergent fiber, and neutral detergent fiber. Feed refusals were similar ($P>0.25$) among all three treatments. Chemical analysis of the refusals revealed similar ($P>0.12$) levels of dry matter, crude protein, acid detergent fiber, and neutral detergent fiber among mixed rations made from forages processed by different methods.

Bottom Line... Precutting cornstalks while baling results in responses similar to those for conventionally baled cornstalks at the dietary inclusion levels and conditions of this experiment. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Joel DeRouche (785-532-2280; jderouch@ksu.edu) or Justin Waggoner (620-275-9164; jwaggon@ksu.edu).

↳ **Urea Recycling in Beef Cattle Fed Prairie Hay-Based Diets** - Six cannulated steers (470 lb) were used to measure the effects of supplemental energy and protein on intake, digestion, and urea kinetics. Energy treatments were no energy, 600 g of glucose dosed once daily, and 480 g of volatile fatty acids infused over 8 hours daily. Casein (120 or 240 g) was dosed daily as a source of degradable intake protein. Steers had ad libitum access to low-quality prairie hay (5.8% crude protein). Labeled urea was infused intravenously to measure urea kinetics. In all cases, cattle fed protein-limiting diets recycled a large portion of urea to the gut (>76%). Glucose increased the percentage of urea recycled, whereas casein reduced it.

Bottom Line... Improved ability to predict the amount of urea recycled to the gut enables more precise formulation of cattle diets. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Evan Titgemeyer (785-532-1220; etitgeme@ksu.edu) or Dale Blasi (785-532-5427; dblasi@ksu.edu).

↳ **Effects of Crude Glycerin on Ruminal Metabolism and Diet Digestibility in Flaked-Corn Finishing Diets** - Crossbred steers (n = 9; 1,373 ± 176 lb) fitted with ruminal cannulae were used in a replicated, complete block experiment with three treatments: steam-flaked corn diets containing 0%, 2%, and 4% crude glycerin (dry matter basis). Steers had ad libitum access to finishing diets fed once daily. Periods consisted of a 10-day acclimation phase followed by a 3-day collection phase. Chromic oxide was used as an indigestible marker to estimate total fecal output.

Bottom Line.. Feeding glycerin at up to 4% of the diet has no effect on feed intake or total tract diet digestibility. 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).

↳ **A Meta-Analysis of Supplemental Enzyme Studies in Growing-Finishing Pigs Fed Diets Containing Dried Distillers Grains with Solubles: Effects on Growth Performance** - A meta-analysis of 4 experiments involving 4,506 pigs was conducted to determine the effects of several commercial enzymes on the growth performance of growing-finishing pigs fed various amounts of dried distillers grains with solubles (DDGS). Experiments 1 and 2 used corn-soybean meal-based diets with 15% DDGS. A β-mannanase enzyme (Hemicell; ChemGen Corp., Gaithersburg, MD) was used in enzyme treatments in Exp. 1, and a blend of enzymes that had β-glucanase, cellulase, and protease activities (Agri-king REAP; Agri-King, Inc., Fulton, IL) was used in Exp. 2. In Exp. 3, diets containing 45% and 60% DDGS were fed with or without 2 commercial enzyme products designed for use in diets containing DDGS. In Exp. 4, an enzyme product with bacterial endo-1,4-β-xylanase was evaluated in diets containing 30% DDGS. All enzyme treatments in each experiment were pooled in a meta-analysis to compare the responses to diets with or without enzyme addition regardless of the other factors tested in each trial. All experiments were conducted in the same commercial swine research facility. There were no differences in ADG, ADFI, F/G, and final weight among pigs fed diets with added enzyme and pigs fed diets without enzyme in any of the 4 experiments or in the pooled data.

Bottom Line.... In conclusion, on the basis of the combined results from the 4 experiments evaluated in this meta-analysis, adding these enzymes in diets containing various amounts of DDGS does not appear to be beneficial in pigs. 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, S.S. Dritz, J.M. DeRouchey, M.D. Tokach, R.D. Goodband, and J.L. Nelssen.)

↳ **Effects of Dietary Astaxanthin on the Growth Performance and Carcass Characteristics of Finishing Pigs** - A total of 48 barrows (initially 215 lb) were used to evaluate the effects of increasing dietary astaxanthin (0, 5, 10, and 20 ppm) on late-finishing pig performance and carcass characteristics. Pigs were blocked by weight and randomly allotted to 1 of 4 dietary treatments in a 26-d experiment. Pigs were fed simple corn-soybean meal-based diets. Treatments consisted of a control diet and the control diet with 5, 10, or 20 ppm added astaxanthin. For overall growth performance (d 0 to 26), ADG and F/G of pigs fed astaxanthin was not different from that of the control pigs. However, ADFI tended to decrease with increasing astaxanthin. For the comparison of carcass characteristics, pigs fed increasing astaxanthin had decreased average and 10th rib backfat depth compared with control pigs. Pigs fed 5 or 10 ppm astaxanthin tended to have the lowest 10th rib fat depth. Pigs fed increasing astaxanthin tended to have increased standardized fat-free lean and percentage of fat-free lean, and pigs fed 5 or 10 ppm were the leanest. The loin muscle of pigs fed astaxanthin tended to have lower L* and b*, indicating a darker color. The improved carcass characteristics of pigs fed astaxanthin resulted in a numeric increase in the net profit per pig for those fed 5 and 10 ppm astaxanthin.

Bottom Line.... In conclusion, growth performance of pigs fed 5, 10, or 20 ppm astaxanthin was not different from that of pigs fed the control diet. However, the improved carcass characteristics could be economically beneficial to pork producers. Additionally, the improvements observed in loin color could result in improved consumer acceptance of fresh pork. These results warrant further research. More information is available at www.KSUswine.org. (This study conducted by J.R. Bergstrom, J.L. Nelssen, T. Houser, J.A. Gunderson, A.N. Gipe, J. Jacela, J.M. Benz, R.C. Sulabo, and M.D. Tokach.)

↳ **Efficacy of Different Commercial Phytase Sources and Development of a Phosphorus Release Curve** – Two experiments used 184 pigs (PIC, 22.7 and 21.3 lb BW, respectively) to develop an available P (aP) release curve for commercial phytase products. In Exp. 1 and 2, pigs were fed a basal diet (0.06% aP) and 2 levels of added aP from inorganic P (monocalcium P) to develop a standard curve. In Exp. 1, 100, 175, 250, or 500 phytase units (FTU)/kg OptiPhos (Enzyvia LLC, Sheridan, IN) or 200, 350, 500 or 1,000 FTU/kg Phyzyme XP (Danisco Animal Nutrition, Marlborough, UK) was added to the basal diet. In Exp. 2, 250, 500, 750, or 1,000 FTU/kg OptiPhos; 500, 1,000, or 1,500 FTU/kg Phyzyme XP; or 1,850 or 3,700 phytase units (FYT)/kg Ronozyme P (DSM Nutritional Products, Basel, Switzerland), was added to the basal diet. Manufacturer-guaranteed phytase levels were used in diet formulation. Diets were analyzed for phytase using both the Phytex and AOAC methods. Pigs were blocked by sex and weight and allotted to individual pens with 8 pens per treatment. Pigs were euthanized on d 21, and fibulas were analyzed for bone ash. In Exp. 1, pigs fed increasing monocalcium P had improved ADG, G/F, and percentage bone ash. Similarly, pigs fed increasing monocalcium P in Exp. 2 tended to have improved ADG in addition to significantly improved G/F and percentage bone ash. In Exp. 1, pigs fed increasing OptiPhos had increased ADG, G/F, and percentage bone ash. Likewise, pigs fed increasing OptiPhos in Exp. 2 had improved ADG and G/F, as well as increased percentage bone ash. In Exp. 1, pigs fed increasing Phyzyme XP had increased ADG and G/F and tended to have improved percentage bone ash. Pigs fed increasing Phyzyme XP in Exp. 2 had increased G/F and percentage bone ash. In Exp. 2, pigs fed increasing Ronozyme P had improved ADG in addition to increased G/F and percentage bone ash.

Bottom Line....When AOAC analyzed values and bone ash are used as the response variable, aP release for up to 1,000 FTU/kg of *Escherichia coli*-derived phytases (OptiPhos and Phyzyme XP) can be predicted by the equation ($y = -0.000000125x^2 + 0.000236245x + 0.015482000$), where x is the phytase level in the diet. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by C.K. Jones, M.D. Tokach, B.W. Ratliff, N.L. Horn, S.S. Dritz, R.D. Goodband, J.M. DeRouche, and J.L. Nelssen.)

↳ **Incidence and Severity of *Arcanobacterium pyogenes* Injection Site Abscesses with Needle or Needle-Free Injection Methods** - A total of 198 nursery age pigs were used to evaluate the difference in the occurrence of injection site abscesses between needle-free jet injection and conventional needle-and-syringe injection systems. Pigs were fed for 21 d prior to treatment administration to acclimate the pigs to the environment of the Kansas State University Segregated Early Weaning Unit. On d 21, each pig received 4 injections of aluminum hydroxide adjuvant, 1 in the neck and 1 in the ham by needle-free jet injection (Pulse Needle-Free Systems, Lenexa, KS) on 1 side and 1 in the neck and 1 in the ham on the opposite side by conventional needle-and-syringe injection. Immediately prior to injection, the external surface of the injection sites was contaminated with an inoculum of *Arcanobacterium pyogenes*. The pigs were then fed for a period of 27 and 28 d. On d 27 and 28, the pigs were humanely euthanized and sent to the Kansas State University Veterinary Diagnostics Laboratory, where necropsies were performed and the injection sites underwent histopathological evaluation. The needle-free jet injection system was associated with more injection site abscesses than the conventional needle-and-syringe injection method for both the neck and ham injection sites. Twelve abscesses were found at needle-free injection sites, whereas only 1 abscess was found where a conventional needle injection method was used. Five abscesses were found at the neck injection sites, and 8 abscesses were observed at the ham injection sites. Of the 13 abscesses found, 10 developed on the left side of the animal, and only 3 were on the right side.

Bottom Line...In summary, the implementation of needle-free jet injection systems in market hog production will be beneficial by eliminating the potential for needles and needle fragments in meat products, but it may increase the occurrence of injection site abscesses in pork carcasses that will need to be trimmed in pork processing plants. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by B.M. Gerlach, T.A. Houser, L.C. Hollis, M.D. Tokach, J.C. Nietfeld, J.J. Higgins, G.A. Anderson, and B.L. Goehring.)

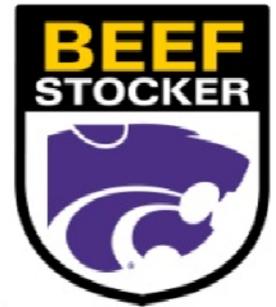
↳ **Effects of Acidified Fermentation By-Products and Prepartum DCAD on Feed Intake, Performance, and Health of Transition Dairy Cows** - Two commercially available acidified fermentation by-products were evaluated in the close-up period (21 days before expected calving) for their effects on feed intake, postpartum performance, and cow health. Diets were formulated to contain similar protein and energy values but differed in dietary cation anion difference and anion source. Treatments were Bio-Chlor, SoyChlor, and a control. Prepartum feed intake tended to be lower for SoyChlor than for the control, but postpartum intake did not differ among dietary treatment groups. Likewise, no significant differences were detected for milk yield between treatments. Protein percentage, milk urea nitrogen, and lactose percentage were greatest for SoyChlor-treated cows.

Bottom Line....Therefore, despite a trend for a negative effect on prepartum feed intake, SoyChlor supported similar productivity in early lactation. View the complete research report at www.asi.ksu.edu/dairy under the *Dairy Publications and Presentations* link. (This study conducted by D.J. Rezac and B.J. Bradford.)

UPCOMING EVENTS...

↪ It is not too late to register for the **2010 KSU Beef Stocker Field Day** which will be held on Thursday, September 30 at the KSU Beef Stocker Unit in Manhattan. The program includes:

- 9:30 a.m. Registration/coffee
- 10:15 a.m. Introductions
- 10:30 a.m. What is in Store for the Stockers? – *Dr. Glynn Tonsor*
- 11:15 a.m. Panel: Receiving Protocols: What We Do –
Moderator: *Wes Ishmael, BEEF*;
Panel: *Frank Brazle, Rich Porter, Hal Mayer*
- 12:00 noon Lunch – View posters and demonstrations on innovations and applications for the stocker segment
- 1:30 p.m. Managing BRD Risk by Controlling Variation of Incoming Cattle with Micotil –
Dr. Jared Gould, Elanco
- 2:15 p.m. Cutting Bull Management – *Dr. Hans Coetze*
- 2:30 – 5:00 p.m. *Breakout Sessions*
 - Rethinking Growth Implants: Where Do They Fit – *Dr. Gerry Kuhl*
 - Tips for the Mixer Wagon – *Dr. Scott Laudert*
 - Current Thinking on Mycoplasma – *Dr. Bob Larson*



The day will conclude with a good old-fashioned pit barbecue with dutch oven cobbler. For complete details and registration, visit www.KSUbeef.org. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427).

↪ **Developing and Implementing Your Company's HACCP Plan for Meat, Poultry, and Food Processors** will be held October 13-15, 2010, in Regnier Hall, University of Kansas Edwards Campus, 127th & Quivira Road, Overland Park. Registration for the 2.5 day International HACCP Alliance accredited workshop is online at <http://HACCP.unl.edu>. The workshop fee is \$295, and meets USDA training requirements to become a HACCP trained individual. For more information, contact Liz Boyle (lboyle@ksu.edu; 785-532-1247).

↪ The **2010 KSU Swine Day** will be held Thursday, November 18, at the KSU Alumni Center. The Swine Day will include a presentation by Dr. Steve Henry, Abilene Animal Hospital on "*Failure to Thrive: Is an Emerging Viral Disease the Cause?*" The program will also feature "*Managing Risk in Today's Swine Industry*" presented by Joe Kerns, Risk Assessment and Management, Iowa City, Iowa. *An Update of Current K-State Swine Research to Help Improve the Net Return of a Swine Business* will be presented by the K-State Swine Team.

The day will conclude with an Ice Cream Reception. A complete schedule along with registration information is available at www.KSUswine.org. For more information, contact Jim Nelssen (jnelssen@ksu.edu; 785-532-1251).

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
September 30, 2010	KSU Beef Stocker Field Day	Manhattan
October 13-15, 2010	HACCP Plan for Meat, Poultry and Food Processors	Overland Park, KS
November 18, 2010	KSU Swine Day	Manhattan

AS&I FACULTY SPOTLIGHT



Mike Brouk (mbrouk@k-state.edu; 785-532-1207)
Associate Professor/Extension Specialist, Dairy

Micheal J. Brouk was born November 15, 1962, in Franklin County, Missouri. He attended Linn R-2 Schools graduating in May 1981. Following high school graduation, he attended the University of Missouri-Columbia majoring in agronomy and dairy science and received the Bachelor of Science degree in Agriculture in May 1985. From 1976 to 1984, he was also an active partner in the family grain farm located in Osage County, Missouri. The University of Missouri-Columbia employed Mike as a Research Specialist for two years after he completed his undergraduate program. The research projects involved the utilization of dairy processing plant waste as a fertilizer for forage crops and as a protein and mineral supplement for livestock. He then began a Master of Science degree program under Dr. Ron Belyea at the University of Missouri-Columbia. The title of his thesis was "Chewing Behavior and Digestion of Alfalfa Forage." Following completion of his M.S. degree, Mike accepted a position with Cenex/Land O'Lakes in southwestern Minnesota. He worked as a Livestock Production Specialist developing nutrition and management programs for dairy and beef producers. After two years with LOL, he entered a doctoral program under the direction of Dr. David Schingoethe at South Dakota State University. His dissertation topic was "Net Energy of Lactation and Ruminant Degradability of Wet Corn Distillers Grains." Following completion of the Ph.D. in Animal Sciences he joined the teaching and research staff of South Dakota State University in January 1994. Mike was responsible for teaching undergraduate dairy management, nutrition, breeding and cattle evaluation courses as well as developing a dairy cattle nutrition research project.

Mike returned to the University of Missouri-Columbia in August of 1996 as an Extension Specialist with Commercial Agriculture Program. He was responsible for developing state wide extension programs in the areas of dairy cattle nutrition, forage systems, replacement heifer development and dairy cattle management. He joined the faculty of Kansas State University in December of 1998 as a State Dairy Extension Specialist where he holds a 30% teaching and 70% extension appointment. His current responsibilities include development of programs in dairy cattle nutrition, management, cow comfort, replacement heifer development, dairy expansion and heat stress abatement. He is currently involved in several research projects evaluating various heat stress abatement methods in commercial dairy herds.

Mike and his wife Michelle together with their five children, Megan, Morgan, Miranda, Matthias, and Marissa reside near Manhattan, KS.



Jennifer Bormann (jbormann@k-state.edu; 785-532-1222)
Assistant Professor, Beef Cattle Genetics / Pre-Vet Club Advisor

Originally from Muscatine, Iowa, Dr. Jennifer Minick Bormann grew up showing Shorthorn cattle and riding horses in her spare time. She earned a B.S. in Animal Science from Iowa State University in 1997. From there she went to Oklahoma State University to earn her M.S. and then back to Iowa State University to complete a Ph.D. in 2004.

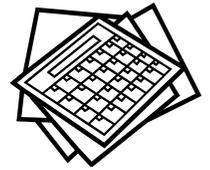
Dr. Bormann specializes in Beef Cattle Breeding and Genetics and has worked on a number of projects including collaborations with the NCBA and the American Angus Association. Currently she teaches Genetics, Animal Breeding Principles, Advanced Animal Breeding, Equine Genetics and Introductory Horse Lab, as well as advises undergraduate students. She also is the head advisor for the KSU Pre-Vet Club. She has a 75% Teaching and 25% Research appointment in the department.

Dr. Bormann's personal interest and love for showing horses has also allowed her to branch out into teaching some equine courses, including the introductory horse labs and an equine genetics course.

Dr. Bormann, along with her husband Dale and daughter Kate, resides south of Manhattan with their horses and dogs.

WHAT PRODUCERS SHOULD BE THINKING ABOUT...

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



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

Spring Calving Cows

Cowherd Management

- Pregnancy Check (if not already completed)
- If candidates for culling were not selected in September or October, it should be completed now.
- Consider feeding cull cows to increase body weight, value, and utilize cheap feedstuffs. Value of gain is equal to the difference between the ending value and beginning values divided by the gain. Compare this to cost of gain figures. When cost of gain is less than value of gain, profit will be realized.
- Body Condition Score
 - Provide thin cows (body condition score 3's and 4's) extra feed now. Take advantage of weather, stage of pregnancy, lower nutrient requirements, and quality feedstuffs.
- In late fall and early winter, start feeding supplement to mature cows using these guidelines:

Dry grass	1½ - 2 lb supplement/day of a 40% CP supplement
Dry grass	3 - 4 lb supplement/day of a 20% supplement
Dry grass	10 lb good nonlegume hay, no supplement needed

 - Compare supplements on a cost per pound of nutrient basis.
- Utilize crop residues.
 - Average body condition cows can be grazed at 1 to 2 acres/cow for 30 days assuming normal weather. Available forage is directly related to the grain production levels.
 - Limiting nutrients are usually protein, phosphorus, and vitamin A.
 - Strip graze or rotate fields to improve grazing efficiency.
- Discontinue feeding tetracycline if used for anaplasmosis control

Calf Management

- Participate in National Level Breed Association Performance Programs CHAPS, and(or) other ranch record systems.
- Finalize plans to merchandise calves or to background through yearling or finishing programs

Forage/Pasture Management

- Plan winter nutritional program through pasture and forage management

General Management

- Document cost of production by participating in Standardized Performance Analysis (SPA) programs.
- Review management decisions, lower your costs on a per unit of production concept.
- Plan your marketing program, including private treaty, consignment sales, test stations, production sales, etc

*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.*