



Newsletter from the Department of Animal Sciences and Industry
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UPCOMING EVENTS...

October, 2014

News from KSU Animal Sciences

In This Issue

- Upcoming Events
- Management Minute
- Feedlot Facts
- 2014 KSU Cattlemen's Day Article Featured
- 2013 KSU Swine Day Articles Featured
- Faculty Spotlight
- What Producers Should Be Thinking About...

We Need Your Help!

Please send questions, comments or ideas for future newsletter topics to lschrein@ksu.edu or call (785) 532-1267.

- ✉ **Developing and Implementing Your Company's HACCP Plan for Meat, Poultry, and Food Processors** will be held October 15-17, 2014, at the Kansas State University Olathe Campus, 22201 West Innovation Drive, Olathe. Registration for the 2.5 day International HACCP Alliance accredited workshop is online at <http://HACCP.unl.edu>. The workshop fee is \$375, and meets USDA training requirements to become a HACCP trained individual. For more information, contact Fadi Aramouni (faramoun@ksu.edu; 785-532-1668)
- ✉ **Make plans now to attend the 2014 KSU Swine Day.** The 2014 KSU Swine Day will be held Thursday, November 20, at the KSU Alumni Center. The schedule for the day includes:
 - 8:00 a.m. – 5:00 p.m. Trade Show
 - 9:30 a.m. Welcome - *Dr. Ken Odde, Department Head, Animal Sciences and Industry*
 - 9:45 a.m. Delta Corona Virus and PEDv: What Have We Learned in the Last Year?
Dr. Dick Hesse, Dr. Steve Dritz, and Dr. Jason Woodworth, KSU
 - 11:00 a.m. What's Next after a Highly Profitable Period in the Swine Industry: Has the Landscape of Expansion Changed?
Dr. Dennis DiPietre, Economist, KnowledgeVentures, LLC
 - 11:45 a.m. Lunch with Trade Show
 - 1:30 p.m. Potential to Improve the Survivability of Low Birth Weight Pigs and Realize a Full Value Market Hog
Dr. Jim Nelssen, Dr. Duane Davis, and Dr. John Gonzalez, KSU
 - 2:00 p.m. Keeping Up with Diet Formulation with Rapidly Changing Ingredient Prices
Dr. Mike Tokach, Dr. Joel DeRouchey, and Dr. Bob Goodband, KSU
 - 3:00 p.m. The Australian Swine Industry – How Retailers are Changing our Swine Industry
Dr. John Pluske, Fulbright Distinguished Chair in Agriculture and Life Sciences, Director of the Animal Research Institute, Murdoch University, Australia
 - 3:30 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 Jim Nelssen (jnelssen@ksu.edu; 785-532-1251).



✚ The **2014 Dairy Cattle Reproduction Council Annual Meeting** will be held November 13-14, 2014, at the Hilton Salt Lake City Center in Salt Lake City, Utah. The two-day event will continue to expand the DCRC's reach to producers, veterinarians, academia and industry professionals, presenting usable information that can be implemented on the dairy. To register for the convention and more information, go to www.dcrcouncil.org.

The Dairy Cattle Reproduction Council (DCRC) is focused on bringing together all sectors of the dairy industry-producers, consultants, academia and allied industry professionals-for improved reproductive performance. DCRC provides an unprecedented opportunity for all groups to work together to take dairy cattle reproduction to the next level.

For more information, contact Dr. Jeff Stevenson (jss@k-state.edu; 785-532-1243).

✚ The **National Junior Swine Association Regional Leadership Conference** will be held December 6, 2014, in Weber Hall on the K-State campus. Don't miss this opportunity to learn about the swine industry, gain leadership skills, have fun and meet new friends interested in pigs from across the country. Registration fee is \$40 which includes lunch, t-shirt and materials. Youth ages 12-18 years old are eligible to attend. Parents, adults and youth over 18 may attend the adult conference. Updated information coming soon to nationalswine.com. Registration deadline is November 16, 2014. For more information, contact the NJSA at 765-463-3594, ext. 109; kaley@nationalswine.com or Joel DeRouchey (785-532-2280; jderouch@ksu.edu)

✚ The 2015 **KSU Swine Profitability Conference** will be held on February 3, 2015, in Forum Hall of the K-State Student Union. With the cancellation of the 2014 conference due to inclement weather, all those pre-registered for 2014 are already registered for the 2015 event. Featured speakers include Larry Coleman, Vet Care, Broken Cow, NE; Craig Christensen, Ogden, IA; Craig Good, Olsburg, KS; and Grady Bishop, Elanco Swine Operations. Watch for more details at www.KSUswine.org. For more information, contact Jim Nelssen (785-532-1251; jnelssen@ksu.edu).

✚ **Youth learn about raising and showing pigs at the Kansas Junior Swine Producer Day** which will be held Saturday, February 28, 2015, in Weber Arena. This highly interactive, hands-on educational event will be a fun filled day of activities in which youth, parents, swine project leaders and adults can increase their knowledge and experience of swine production and management practices. Presentations and demonstrations will be given by K-State graduate students and faculty, as well as featured speakers. Watch for more details coming soon. For more information, contact Joel DeRouchey (785-532-2280; jderouch@ksu.edu)

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
October 15-17, 2014	Developing and Implementing Your Company's HACCP Plan for Meat, Poultry, and Food Processors Workshop	Olathe, KS
November 13-14, 2014 November 20, 2014	Dairy Cattle Reproduction Council Annual Meeting KSU Swine Day	Salt Lake City, UT Manhattan
December 6, 2014	National Junior Swine Association Regional Leadership Conference	Manhattan
February 3, 2015 February 28, 2015	KSU Swine Profitability Conference Kansas Junior Swine Producer Day	Manhattan Manhattan

WHAT'S NEW.....

Management Minute "10,000 Hours"

↪ **Management Minute** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "10,000 Hours"

In his best-selling book *Outliers*, author and brilliant chronicler of cultural and economic trends Malcolm Gladwell observes that excellence in any field of endeavor, requires three critical elements: ability, opportunity, and 10,000 hours.

Examples from the book include The Beatles and Bill Gates who each had obvious natural ability, but they also had special opportunity. The Beatles were honing and perfecting their craft of writing and performing music at a critical time in history when the world was craving that exact form of music. Gates' mother bought him a personal computer for his 13th birthday so that he could practice writing code in 1968 at the very dawn of the modern digital age. Had either come 5 years earlier or later, they would have most certainly been successful to some extent, but we likely would not have heard of them.

In addition to their native abilities and special opportunity, both achieved excellence through the principal of "10,000 hours". The Beatles played something over 1,200 shows in Hamburg, Germany before they returned to England and then took America by storm. Between countless hours of practice in private and performing for audiences, sometimes three times daily, The Beatles honed their songs and their abilities to a fine polish before the greater world ever saw them perform. Because of his mother's gift, Gates harnessed his intellect and passion for computing to develop his ability and understanding of the potential of personal computing.

Think of someone you know personally within the agricultural industry who is truly excellent at what they do. The person most certainly was born with exceptional native ability, intellect, and passion; circumstance likely placed that person in a position to perform; and through perseverance, the person put in the 10,000 hours of focused practice to achieve excellence.

The reason the 10,000 hour rule is important is that as we initially learn a skill, we build the foundation using "big stones" and make great strides daily; after a while the major concepts become second nature and we enhance these philosophies with more subtle nuances of the trade; finally, after 10,000 hours, we are essentially sanding away the rough edges of our craft with very fine grit emory paper, to the point where the person and the job form a seamless union.

People who work within our teams and organizations, if they have the appropriate native skills, can become brilliant and lead our organization to excellence, if we (a) place them in the best possible situation to succeed, and (b) give them the opportunity to specialize so that they can rapidly accumulate the 10,000 hours of practice and experience required to achieve excellence.

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

Feedlot Facts "Mud Mitigation"

↪ **Feedlot Facts** – Chris Reinhardt, Ph.D., Extension Feedlot Specialist "Mud Mitigation"

As cattle people we grudgingly accept the various natural elements as part of the cost of doing business. Rain, snow, ice, and extreme temperatures are part of life in Kansas for ranchers and cattle feeders. And each of these factors that move animals outside of their comfort zone, called the "thermo neutral zone", steals a measure of performance. With respect to mud, however, we know that the cost of fighting mud on lost performance is high, and we can prepare for the inevitability of it.

Researchers have estimated that although pastern-level mud has little effect on performance, hock-deep mud is costly. Gain will be reduced by 1/3 to 1/2 when cattle are fighting foot-deep mud. The energy required to reach the bunk or water trough increases dramatically so part of their intake energy is lost to this energy expenditure; the stress of fighting the mud will actually discourage cattle from making the trek to the bunk causing reduced intake; cattle have a hard time finding a comfortable resting area causing an increase in energy use just standing around instead of lying down; wet hide from laying in the mud will cause cold stress and shivering to increase.

↪ **Feedlot Facts – “Mud Mitigation” (cont.)**

When we consider that only about half of animals' normal daily energy intake is going toward gain on “stress-free” days, all of these increases in energy expenditure dramatically cut into what is left over for gain. Preparing for mud won't eliminate these costs entirely, but we can reduce them.

1. Mounds within the pen. Cattle should have about 25 ft² of mound space per animal. Mounds should have a slope of about 1:5 on the sides to facilitate moisture to flow away from the cattle and the ‘valleys’ between mounds should slope about 3-4% away from the bunk. The mound end that is nearest the bunk should connect directly to the concrete bunk pad so that cattle don't have to slog through deep mud to get to the bunk.
2. Increase pen space per animal. Whereas 125 ft² of pen space might be adequate during dry conditions in the summer, 350 ft² may be barely sufficient during wet conditions. Adjust animal density as conditions dictate.
3. Smooth pen surfaces using a scraper or box blade whenever the weather allows. The longer that muddy conditions persist, the worse the pen conditions will become and cattle will have an even greater difficulty moving throughout the pen.

Living and raising cattle in Kansas has many rewards. By preparing pens this fall ahead of the wet and cold times sure to come, we can get through fall, spring, and winter with minimal loss of performance, and reap the financial rewards next year.

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

↪ **Research Assistant, Analytical Lab** - The Department of Animal Sciences and Industry is seeking a Research Assistant to manage the departmental Analytical Lab. This is a full-time, 12-month, term position. B.S. in chemistry or closely related field is required, MS preferred. Review of applications will begin October 22, 2014, and continue until the position is filled. View complete position announcement and application procedures at: <http://www.asi.ksu.edu/about/job-announcements.html>.

↪ **Free BQA Certification Offer from Sept. 1 through Oct. 31** - Nearly 11,000 beef and dairy producers, educators, veterinarians, students and allied industry representatives became BQA-certified this past winter, and we're happy to share the same offer this fall. As an agricultural leader in your state and community, you should know the details about an important opportunity for beef and dairy producers – FREE Beef Quality Assurance (BQA) certification from September 1 through October 31. Normally, the cost of certification is \$25 to \$50, but thanks to a partnership of the checkoff-funded Beef Quality Assurance (BQA) program, Boehringer Ingelheim Vetmedica, Inc. (BIVI) and the Beef Cattle Institute (BCI) housed at Kansas State University, online BQA certification is FREE. Visit www.bqa.org/team or www.BIVI-BQA.com to get started.

The beef industry has embraced BQA because it is the right thing to do. As you know and understand, BQA provides practical management tools that cattlemen need to produce safe, high-quality beef, and can also help improve efficiency and profitability for beef producers.

The BQA online programs are customized for cow/calf, stocker, feedlot and dairy operations. Developed and managed by the Beef Cattle Institute, these easy-to-use modules teach sound management techniques that can be applied to cattle operations and used as employee training tools, too.

↪ **Heifer Calving Rate is Lowly Heritable in Hereford Cattle** - Calving records on females born from 2000 through 2009 were obtained from the American Hereford Association. Calving records on 98,844 females and a six-generation pedigree with 289,141 animals were analyzed with a multiple-trait logistic animal model with a random effect for additive genetics and fixed effects for contemporary group and age at calving. There were 4,745 contemporary groups, defined as the combination of herd, yearling weigh date, and yearling group. The objective was to estimate the heritability of heifer calving rate, an economically relevant trait.

The heritability estimate for heifer calving rate was 0.15 ± 0.01 . Like most reproductive traits, this trait was lowly heritable. Yet, the reproductive success of heifers is relatively easy to measure through the American Hereford Association's whole-herd reporting system, making heifer calving rate a practical trait for selection. Genetic selection for heifer calving rate can increase the likelihood that a sire's daughters will calve as heifers.

The Bottom Line: Heifer calving rate was lowly heritable, but producers can use selection to improve genetic merit for reproductive performance. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Dan Moser (785-532-2459; dmoser@ksu.edu) or Bob Weaver (785-532-1460; bweaver@ksu.edu).

↪ **Administration of Prostaglandin to Beef Heifers at Time of Artificial Insemination** – This experiment was designed to determine if administration of prostaglandin F2 α (PG) at the time of insemination would improve the pregnancy rate of artificial insemination (AI) when insemination occurred after observed estrus or at a single fixed time. Estrus was synchronized in yearling heifers (n = 268) with a standard melengesterol acetate-PG (MGA-PG) protocol, and insemination occurred after an observed estrus or a fixed-time AI. At the time of insemination, every other heifer received PG. The pregnancy rate was determined via ultrasonography 42 days after AI.

Pregnancy rate to artificial insemination tended to be higher in heifers inseminated after observed estrus (57%) than timed-AI (46%). The interaction of insemination type with PG treatment at AI tended to be significant. Pregnancy rate to AI was lowest in fixed-timed AI heifers that did not receive PG at insemination. Further research is needed to clarify whether administration of PG at the time of insemination may improve conception to fixed-time AI.

The Bottom Line... This study provides evidence that insemination after observed estrus tends to produce more AI pregnancies than fixed-timed AI. Furthermore, MGA-PG protocol and administration of prostaglandin F2 α at the time of insemination may improve conception rates of heifers exposed to fixed-time AI. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Sandy Johnson (785-462-6281; sandyj@ksu.edu).

↪ **Comparison of Conventional and Alltech Beef PN Finishing Programs: Meat Color Characteristics** – This study compared the effects of the Alltech PN Feed Program to a conventional diet on fresh meat retail shelf life color when both diets were fed with or without growth promotants. Five hundred twelve crossbred steers were fed for 175 days to test two effects. Steers were assigned to either a conventional finishing diet or a diet using the Alltech PN Receiver and Finisher supplements (Alltech, Inc., Nicholasville, KY). Both diets were fed with or without the use of implants and Optaflexx (Elanco Animal Health, Greenfield, IN). Animals were harvested after 175 days, strip loins were collected 24 hours later, and analyses were conducted after 14 days of aging.

The Bottom Line... Replacing conventional feed supplements with Alltech PN supplements minimally impacts meat color characteristics. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact John Gonzalez (785-532-3448; johngonz@ksu.edu) or Elizabeth Boyle (785-532-1247; lboyle@ksu.edu).

↪ **Effects of Low-, Medium-, and High-Oil Dried Distillers Grains with Solubles on Growth Performance, Nutrient Digestibility, and Fat Quality in Finishing Pigs** - A total of 1,480 pigs were used in 3 experiments to determine the effects of dried distillers grains with solubles (DDGS) varying in oil content on growth performance, carcass characteristics, carcass fat quality, and nutrient digestibility in growing-finishing pigs. In Exp. 1, 1,198 pigs (PIC 337 \times 1050, initially 101.6 lb) were used to evaluate the effects of corn DDGS with 5.4 or 9.6% oil (as-fed). Pigs were allotted to a corn-soybean meal-based control diet or diets with 20 or 40% of the two DDGS sources. From d 0 to 82, ADG was unaffected by DDGS source or level. Increasing 5.4% oil DDGS made F/G poorer, whereas F/G did not change for pigs fed 9.6% oil DDGS. Regardless of DDGS source, carcass yield and HCW decreased with increasing DDGS. Increasing DDGS increased jowl iodine value (IV), but the magnitude was greater in pigs fed the 9.6% oil DDGS compared with those fed 5.4% oil DDGS. In Exp. 2, a total of 270 pigs (PIC 327 \times 1050, initially 102.5 lb) were allotted a corn-soybean meal-based control diet with 20 or 40% of a 9.4% oil or 12.1% oil DDGS. From d 0 to 75, ADG increased for pigs fed increasing 9.4% oil DDGS but not for pigs fed 12.1% oil DDGS. Increasing DDGS increased jowl IV and tended to improve F/G. Regardless of source, HCW and carcass yield decreased as DDGS increased. In Exp. 3, nutrient digestibility of the 4 DDGS sources was determined using pigs fed either a corn-based basal diet or a DDGS diet with 50% basal diet and 50% DDGS. On an as-fed basis, corn contained 1,756 and 1,594 kcal/lb GE and DE, respectively. The 5.4, 9.6, 9.4, and 12.1% oil DDGS contained 1,972, 2,108, 2,142, and 2,224 kcal/lb (as-fed) GE and 1,550, 1,674, 1,741, and 1,694 kcal/lb DE, respectively (as-fed).

The Bottom Line... Stepwise regression indicated that the oil (ether extract) content was the only significant variable in explaining differences in energy content, and that a 1% change in oil content will change the DE by 28 kcal/lb (Adjusted R² = 0.41) and NE by 52 kcal/lb (Adjusted R² = 0.86; as-fed). More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by A.B. Graham, R.D. Goodband, M.D. Tokach, S.S. Dritz, J.M. DeRouchey, S. Nitikanchana, and J.J. Updike)



Effects of Non-Starch Polysaccharide Enzymes (Roxazyme G2G and/or Ronozyme VP) on Growth Performance of Nursery Pigs Fed Normal or Drought- Stressed Corn

A total of 360 barrows (PIC 1050 × 337, initially 12.9 lb BW) were used to determine the effects of non-starch polysaccharide enzymes (Roxazyme G2G and/or Ronozyme VP; DSM Nutritional Products, Inc., Parsippany, NJ) on growth performance and nutrient digestibility of nursery pigs fed normal or drought-stressed corn. Initially, corn samples were collected from 34 separate lots and analyzed to find representatives of normal and drought-stressed corn. These same lots were also used in a separate experiment measuring the impact of drought stress on diet manufacturing characteristics. The lot selected to represent the normal corn had a test weight of 55.9 lb/bu, <5 ppb aflatoxin, 15.0% moisture, and contained 0.77% β-glucan. The lot selected to represent drought-stressed corn had a test weight of 54.3 lb/bu, 6 ppb aflatoxin, 14.3% moisture, and 0.83% β-glucan. Pigs were allotted to pens at weaning (d 0) and were acclimated to a common diet for 10 d prior to the start of this experiment. On d 10 post-placement, pigs were weighed and pens of pigs randomly allotted to 1 of 8 dietary treatments in a completely randomized design. Treatments were arranged in a 2 × 4 factorial with main effects of corn (normal vs. drought-stressed) and enzyme inclusion (none vs. 100 ppm Roxazyme G2G vs. 250 ppm Ronozyme VP vs. 100 ppm Roxazyme G2G + 250 ppm Ronozyme VP). Pigs were fed experimental treatments from d 10 to 35 postweaning in two phases. Feed and fecal samples were collected on d 30 postweaning and analyzed to determine apparent total tract digestibility of nutrients.

The nutrient concentrations of normal and drought-stressed corn were similar, which resulted in few treatment or main effects differences of corn type or enzyme inclusion. No interactions were observed between corn source and enzyme inclusion. Overall (d 10 to 35), there was no effect on ADG or ADFI, but enzyme inclusion tended to improve F/G, which was primarily driven by the improved feed efficiency of pigs fed Roxazyme G2G in Phase 1 (d 10 to 25 postweaning).

Bottom Line...Drought stress did not alter the non-starch polysaccharide concentration of corn. Because non-starch polysaccharide substrates were similar across treatments, it was not surprising that enzyme inclusion showed little benefit to nursery pig growth performance; however, improved feed efficiency of pigs fed diets containing Roxazyme G2G from d 10 to 25 postweaning warrants further investigation. 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, E.L. Franz, H.L. Frobose, J.M DeRouchey, R.D. Goodband, M.D. Tokach, and J.R. Bergstrom)



Effects of Super-Dosing Phytase in Diets with Adequate Phosphorus on Finishing Pig Growth Performance and Carcass Characteristics

A total of 274 finishing pigs (PIC 1050 × 327, initially 129 lb) were used in a 78-d study to compare the effects of adding high levels of three different sources of phytase (super-dosing) on growth performance and carcass characteristics of finishing pigs. Pigs were randomly allotted to pens with 7 or 8 pigs per pen and 9 replications per treatment. Dietary treatments included a corn-soybean meal-based control diet that was formulated to meet the available P requirements of the pigs without any added phytase, or three diets that were formed by adding 2,000 FTU/kg of phytase from 1 of 3 different phytase sources to the basal diet. The three phytase sources were Quantum Blue 5 G (AB Vista, Chesterfield, MO), Ronozyme HiPhos (GT) 2500 (DSM Nutritional Products, Parsippany, NJ), or Optiphos 1000 (Enzyvia, Sheraton, IN). Overall, regardless of source, super-dosing phytase had no effect on ADG, ADFI, or F/G; furthermore, there were no effects on any of the carcass criteria measured.

Bottom Line...In this environment with nutritionally adequate diets, this study suggests that super-dosing phytase had no beneficial effects on finishing pig growth or carcass performance. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by K.B. Langbein, J.C. Woodworth, R.D. Goodband, M.D. Tokach, J.L. Nelssen, S.S. Dritz, and J.M. DeRouchey)

AS&I Faculty Spotlight



Dave Nichols (dnichols@k-state.edu; 785-532-1239)
Professor/Teaching Coordinator

Dr. Dave Nichols was born in 1955, and raised on a commercial beef cattle, swine, and crops farm near Brookston, Indiana. He entered Purdue University in the Fall of 1973, majoring in Animal Science. Upon completion of his B.S. degree in December of 1976, he entered graduate school at Kansas State University, where he completed his M.S. in 1979, and his Ph.D. in 1981.

In October of 1981 Dave joined the KSU faculty as an extension livestock specialist. In 1983 he accepted a 80% teaching and 20% research appointment. In 1999 he became coordinator of teaching for the Department of Animal Sciences and Industry and currently holds that position with a 100% teaching appointment. In addition to being Teaching Coordinator he also serves as a Faculty Senator.

Dr. Nichols advises approximately 100 students, teaches courses in live animal and carcass evaluation, introductory animal science, and livestock sales management. He serves as advisor for the Little American Royal Showmanship Contest, and has been highly involved in 4-H and youth activities. Dr. Nichols coached the KSU Livestock Judging Team from 1986 to 1988, winning, among others, the American Royal Contest. Dr. Nichols has judged numerous cattle shows in recent years.

He has judged cattle at Houston, Ft. Worth, San Antonio, Louisville, the American Royal and numerous state fairs. He recently was a guest speaker at the 33rd World Charolais Congress in Porto Alegre, Brazil.

In addition to his university and judging responsibilities, Dr. Nichols owns and operates A and D Ranch near Manhattan. He and his wife, Anita, have two children, Drew and Amy.



Mike Tokach (mtokach@k-state.edu; 785-532-2032)
University Distinguished Professor/Extension State Leader

Named among the 50 people who has made the greatest impact in the hog industry in the last 50 years, Mike Tokach, professor of animal sciences and industry, is a swine extension specialist and researcher for K-State Research and Extension. Tokach's research focuses on practical swine nutrition, and he works with industry producers to promote the rapid adoption of new technology.

Tokach grew up on a diversified livestock and grain farm in North Dakota, which was his first education in many of the day-to-day problems that livestock producers can encounter. He received his bachelor's in animal science from North Dakota State University in 1986, a master's in swine nutrition from K-State in 1988 and completed his doctorate in swine nutrition at the University of Minnesota in 1991.

He joined the K-State faculty as an assistant professor in 1991, was promoted to associate professor in 1995 and to full professor in 2001. He earned the title of university distinguished professor in 2013.

Tokach is the author of more than 235 articles in scientific journals, seven book chapters and more than 700 extension and non-refereed articles. He has received more than \$6 million in research grants from various organizations, including the National Pork Board and U.S. Department of Agriculture's National Institute of Food and Agriculture, as well as various swine industry partners. Tokach also has been awarded seven patents for his research, and has given more than 100 invited lectures at national and international conferences. He has developed multiple in-depth nutritional education programs for veterinarians and veterinary students, extension specialists and feed industry personnel.

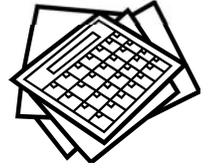
The swine group that Tokach is a member of also includes fellow faculty members Steve Dritz, Joel DeRouchey, Robert Goodband, and Jason Woodworth, along with graduate students advised by the researchers. This group has generated more than \$3.5 million in gifts to K-State for construction of facilities such as the gestation barn and growing pig facilities to support extension research projects.

Tokach has also advised and mentored 43 advanced-degree students and visiting professors since joining the university. He is a member of the American Society of Animals Science and the American Association of Swine Veterinarians.

Mike's wife, Lisa, also specializes in swine as a veterinarian in the Abilene Animal Hospital. Mike and Lisa have three children, Sage, Rogan, and Fiona.

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.*