



News from KSU Animal Sciences

March, 2017

News from KSU Animal Sciences

In This Issue

- Upcoming Events
- Management Minute
- Feedlot Facts
- 2017 KSU Cattlemen's Day Article Featured
- 2016 KSU Swine Day Articles Featured
- Faculty Spotlight
- What Producers Should Be Thinking About...

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

UPCOMING EVENTS...

➤ **Kansas Junior Meat Goat Producer Day – March 25, 2017** - The 2017 Kansas Junior Meat Goat Producer Day is scheduled for Saturday, March 25, 2017, in Weber Hall on the Kansas State University campus. This event will be an interactive, educational day in which youth, parents, meat goat project leaders, and adults can increase their knowledge about youth meat goat production and management. K-State faculty, staff, and guest speakers will cover topics such as market and breeding project selection, nutrition, health and wellness, the state nomination processes and updates, showmanship, and grooming. All ages and skill levels are invited to attend. A complimentary lunch and t-shirt will be provided for all participants. More information, a promotional flyer, and registration information may be found on the K-State Youth Livestock Program website: www.youthlivestock.ksu.edu under Kansas Junior Producer Days. Participants may register online at <https://commerce.cashnet.com/KSUASIND>. This event has been added to the university Pulse calendar. For more information, contact Lexie Hayes (785-532-1264; adhayes@ksu.edu).

The K-State Sheep & Meat Goat Center will be having their annual sale on the same date, following the Junior Meat Goat Producer Day. The program schedule will allow participants who would like to participate in both events to do so.

➤ **Deadline for K-State Animal Sciences Leadership Academy applications is April 1:** Students from across the country with an interest in the livestock industry and related careers can apply now for the Kansas State University Animal Sciences Leadership Academy. The academy is an intensive four-day educational experience designed to enhance the leadership skills and animal science knowledge of students in ninth through 12th grades. Kansas State University will host one session of the K-State Animal Sciences Leadership Academy in 2017 for young livestock industry leaders on June 14-17. Selection is limited to 20 students. Applications are available on the website <http://bit.ly/KSUASILeadershipAcademy> and are due April 1, 2017. For questions about the academy, please contact Sharon Breiner, Director, at sharonjbreiner@gmail.com. You can also follow the K-State Animal Sciences Leadership Academy on Facebook at <https://www.facebook.com/KSUASILeadershipAcademy>.

- ↪ **Plan to attend the 40th Annual Midwest Meat Processing Workshop on April 7 at K-State.** Join us at the workshop and see, hear, taste and ask questions as state award winners share their expertise and demonstrate the manufacture and techniques used to make award winning products. Mark Tittel from Mark's Meats in Halstead will demonstrate making his award winning fresh German sausage, and Gary Manning and Pat Campbell from Bauman's Butcher Block in Ottawa will demonstrate production of their award winning ring salami with cheese. Ron Jenkins, Technical Service Manager for Meat and Poultry with Corbion will discuss antimicrobial applications for fresh meats. Ron was formerly with Innophos and will also discuss the use of phosphates in processed meat products. Dr. David Carter will share the results of the Kansas meat plant energy audits that were conducted in 2016 and how this helped plants reduce energy costs. Because there are so many secondary recalls resulting from companies using an ingredient in their product and then the ingredient is subject to a recall, Dr. Jason Ellis will provide guidance on crisis communication. Mike Pierce with the Kansas Department of Agriculture will discuss how you can be prepared for a Food Safety Audit (FSA), and Janelle Dobbins, also with the Kansas Department of Agriculture, will update you on how the *From the Land of Kansas*[™] program can help you promote your products. Mark your calendar and come to this workshop to learn techniques to improve business strategies, product quality, and safety that could result in tastier product, longer shelf life, and greater sales and business opportunities. For more information, contact Liz Boyle (lboyle@ksu.edu; 785-532-1247).
- ↪ **Make plans to attend Roundup 2017** – The 103rd annual Roundup will be held Thursday, April 20, 2017. The Roundup will be held in the Auditorium at the KSU Agricultural Research Center – Hays. Registration for KSU-ARCH Roundup is free at the door beginning at 9:00 a.m. The Trade Show and educational exhibits will open at 9:00 a.m., with the program beginning at 10:00 a.m. A complete schedule is available on KSUBeef.org. Morning refreshments and lunch are included with registration. If you are interested in exhibiting at Roundup or have any questions, please contact John Jaeger (jrjaeger@ksu.edu; 785-625-3425 x211).
- ↪ **Developing and Implementing a HACCP Plan for Meat and Poultry Workshop will be held June 6-8, 2017**, in Weber Hall, Kansas State University, Manhattan, KS. This 3 day workshop uses curriculum recognized by the International HACCP Alliance for meat and poultry processors and is led by an International HACCP Alliance Lead Instructor. The workshop fee is \$450 per person, and participants will be presented with a certificate with an International HACCP Alliance seal upon completion of the course. Registration is limited to 25 participants.
For more information, contact Dr. Liz Boyle (lboyle@ksu.edu; 785-532-1247). Registration is online at <http://haccp.unl.edu>.
- ↪ The **KSU Youth Horse Judging Camp – Beginners Section** will be held June 6, 2017 and the **KSU Youth Horse Judging Camp – Advanced Section** will be held June 7-8, 2017. Both camps will be held in Weber Arena on the KSU Campus. Registration for both camps must be paid by May 12, 2017. Camp will be limited to the first 30 participants. For more information, camp agenda and registration forms, visit the website <http://www.asi.k-state.edu/research-and-extension/youth-programs/judging-camps.html>. You can also contact James Lattimer, (785-532-2840; jlattimer@ksu.edu) or Katie Jordan at (katiejordan@ksu.edu).

↪ **K-State Livestock Judging Camps scheduled** – The camp is a three-day, intense judging camp designed for 4-H and FFA members ages 14-18 who are seriously interested in enhancing their livestock judging and oral communication skills. Prior livestock judging experience is necessary for this camp. Workouts will be conducted similar to those at a collegiate level. [Chris Mullinix](#), coach of more than 30 national contest winning teams and KSU Livestock Judging Team Coach, will conduct the training for each camp. The camp will focus primarily on the proper format, terminology and presentation of oral reasons. Camp participants will also be exposed to livestock evaluation skills and incorporating performance records in the decision making process. The 2017 camps will be held: June 7-9 (Wednesday-Friday); June 12-14 (Monday-Wednesday); or June 16-18 (Friday-Sunday) For a complete schedule and registration information, visit <http://www.asi.k-state.edu/research-and-extension/youth-programs/judging-camps.html>. The registration deadline is May 22. For more information, contact Chris Mullinix (785-532-1917; cmullinix@k-state.edu).

↪ **Save the Date – Kansas 4-H Livestock Sweepstakes August 19-20!** - The 2017 Kansas 4-H Livestock Sweepstakes will be held August 19-20, 2017, in Weber Hall on the K-State campus. Livestock Sweepstakes is an event that includes the state 4-H livestock judging contest, meat judging contest, livestock skillathon, and livestock quiz bowl over the course of a weekend. This is a great opportunity for 4-H member to display their knowledge of the livestock industry in a variety of ways. The young people who will be representing Kansas 4-H at each of the four national 4-H livestock contests will also be selected during this weekend, through the state contests. Rules and registration information will be distributed to agents and posted to the K-State Youth Livestock Program website (<http://www.asi.k-state.edu/research-and-extension/youth-programs/4-h-livestock-sweepstakes.html>) by early summer. Please make sure to share this information with any 4-H members, coaches, or project leaders who may be interested. Members are highly encouraged to ask any questions about eligibility prior to the registration deadline. The deadline to register will be August 1, 2017. All 4-H'ers must go through their local Extension Office to register.

↪ The 2017 **Applied Reproductive Strategies in Beef Cattle Conference** will be held August 29-30, 2017 at the Hilton Garden Inn and Conference Center, Manhattan. The workshop is designed to improve your knowledge of physiological processes; management decisions that impact reproductive success; and the application of reproductive technologies. Program details will be available soon at www.AppliedReproStrategies.com or contact Sandy Johnson (sandy@ksu.edu; 785-462-6281).

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
March 25, 2017	KS Junior Meat Goat Producer Day	Manhattan
April 1, 2017	Deadline for applications for AS&I Leadership Academy	
April 7, 2017	Midwest Meat Processing Workshop	Manhattan
April 20, 2017	Hays Roundup	Hays, KS
June 6-8, 2017	HACCP Workshop	Manhattan
June 6, 2017	KSU Youth Horse Judging Camp – Beginners Section	Manhattan
June 7-8, 2017	KSU Youth Horse Judging Camp – Advanced Section	Manhattan
June 7-9, 2017	K-State Livestock Judging Camp	Manhattan
June 12-14, 21017	K-State Livestock Judging Camp	Manhattan
June 14-17, 2017	AS&I Leadership Academy	Manhattan
June 16-18, 2017	K-State Livestock Judging Camp	Manhattan
August 19-20, 2017	Kansas Livestock Sweepstakes	Manhattan
August 29-30, 2017	Applied Reproductive Strategies in Beef Cattle Conference	Manhattan

WHAT'S NEW.....

Management Minute "Let's Talk About Safety"

↙ **Management Minute** – Justin Waggoner, Ph.D., Beef Systems Specialist *"Let's Talk About Safety"*

Most of you reading this are likely involved in agriculture in some capacity. Would you consider agriculture to be a high risk industry?

The reality is that agriculture is a dangerous business. A recently released report from the U. S. Department of Labor contains some staggering statistics and emphasizes the need for safety. In 2015, farmers, ranchers and agriculture managers were the second greatest civilian occupation with regard to fatal work-related injuries; with 252 reported fatalities in 2015. Fatal injuries among agriculture workers increased 22 percent in 2015, with 180 deaths. In addition, the most frequent vehicle involved in the 253 non-roadway fatalities reported was a farm tractor. These statistics are sobering. The need for safety in our industry is real and present.

When was your last discussion about safety with your family or employees? Spring is a great time to have those conversations. A quote from Dr. Keith Bolsen, K-State Emeritus Professor, comes to mind, "Our number one goal is to send everyone home safe at night; if an operation isn't safe nothing else really matters."

The full report from the U.S. Department of Labor may be accessed at <https://www.bls.gov/news.release/pdf/cfoi.pdf>

For more information, contact Justin Waggoner at jwaggon@ksu.edu

Feedlot Facts "What Does the Typical Feedlot Diet Look Like?"

↙ **Feedlot Facts** – Justin Waggoner, Ph.D., Beef Systems Specialist *"What Does the Typical Feedlot Diet Look Like?"*

The commercial cattle feeding industry is incredibly diverse in many ways. A recent survey of consulting nutritionists conducted by Samuelson et al., (2016) gives us some insight into the feeding and management practices of the cattle feeding industry. This survey summarized responses from 24 consulting nutritionists that service in excess of 14 million cattle annually. As expected the primary grain used in both receiving and finishing diets was corn. However, the most commonly reported secondary grain used was wheat. The most common processing methods were steam-flaking and dry-rolling. The typical grain inclusion was 60% or less for receiving diets and 34.8% of the respondents reported an inclusion of 60-70% grain in finishing diets with a range of 50-90%. The reported range in grain inclusion of finishing rations is likely attributed to the use of byproduct feedstuffs. The most commonly used by-product in both receiving and finishing rations was wet distiller's grain. Alfalfa was the most common roughage source used in receiving diets (58.5% of responses). In finishing diets corn silage was the primary roughage source used (37.5% of responses), followed by corn stalks (29.2% of responses) and alfalfa (20.8% of respondents). The majority of nutritionists in the survey recommend an energy content 0.68-0.70 Mcal/lb of Net Energy for gain and 13.4% crude protein in the finishing ration.

For more information, contact Justin Waggoner at jwaggon@ksu.edu

↪ The Department of Animal Sciences and Industry at Kansas State University seeks applicants for the position of **Professor and Department Head**. This is a full-time, 12-month position (job #500717). Review of applications begins April 1, 2017, and continues until position is filled. For position announcement, go to <http://www.asi.k-state.edu/about/jobs/job-announcements.html>. To apply, go to <http://careers.k-state.edu/cw/en-us/job/500717/professor-department-head>. For more information, contact Dr. Mike Tokach, Search Committee Chair, at mtokach@ksu.edu or 785-532-2032

↪ **Horn Fly Control and Growth Implants are Effective Strategies for Heifers Grazing Flint Hills Pasture** - The objective of this study was to compare LongRange to an insecticidal ear tag for horn fly control and determine the impact of weight performance on stockers when fly control technologies were used in combination with implants versus no implants. Crossbred stockers ($n = 301$; 587.82 ± 35.36 lb) were completely randomized by initial weight across 15 pastures. Pastures were randomly assigned to three different treatment groups: 1) one insecticide ear tag (Corathon; Bayer Healthcare, Animal Health Division, Shawnee Mission, KS); 2) LongRange injectable (Merial Limited, Duluth, GA); and 3) untreated control group. Within each treatment group, equal number of animals were randomly given either: Ralgro (Merck Animal Health, Madison, NJ), Revalor-G (Merck Animal Health, Madison, NJ), or no implant. Body weights and fecal samples were taken on days 0 and 90. Fly counts began 2 weeks after initial treatment and continued on a weekly basis until the end of the study.

Bottom Line... The use of LongRange as a fly control technique adequately controls horn flies up to 10 weeks and exhibited the greatest weight performance in stockers (average daily gain: 1.60 lb) when used in combination with Revalor-G.. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact, Dale Blasi (785-532-5427; dblasi@ksu.edu).

↪ **Intermittent Feeding of Tylan Reduces Use of In-Feed Antibiotics While Still Controlling Incidence of Liver Abscesses in Finishing Steers** – The objective was to determine if it is feasible to control liver abscesses in feedlot cattle with intermittent feeding of Tylan, thereby decreasing overall antibiotic use. Treatments included a negative control group (no Tylan throughout finishing period), positive control group (Tylan fed continuously throughout finishing period), and a group that received Tylan on an intermittent basis (1 week on, 2 weeks off). Steers ($n = 312$, 908 ± 15 lb) were blocked by body weight, randomly assigned to treatment groups, and placed into 24 dirt-surfaced pens with 13 steers per pen. After 119 days on feed cattle were shipped to a commercial abattoir for carcass data collection. Pens were weighed every 28 days and at the end of 119 days the steers were harvested.

Bottom Line... Incidence of liver abscesses was similar for groups fed Tylan continuously and intermittently, but intermittent feeding resulted in a 60% decrease in overall use of in-feed antibiotics. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information contact, Jim Drouillard (785-532-1204; jdrouill@ksu.edu) or Bob Weaver (785-532-1460; bweaver@ksu.edu).

↪ **Tenderness, Juiciness, and Flavor Contribute to the Overall Consumer Beef Eating Experience** – The objective of this report was to evaluate the relative contribution of tenderness, juiciness, and flavor to overall consumer eating satisfaction. Data from 11 consumer studies conducted within the past five years were selected to evaluate the effect of tenderness, juiciness, and flavor to overall eating experience. A multivariate regression model was constructed using the sample means to determine the contribution of tenderness, juiciness, and flavor to consumer overall liking scores. The odds and relative risk of an unacceptable overall eating experience were determined based on the acceptability of the three individual sensory traits.

Bottom Line... These results indicate the importance and impact of tenderness, juiciness, and flavor on overall eating experience, as well as the significant impact of even a single palatability trait failure on eating experience. For more information contact, Travis O'Quinn (785-532-3469; travisquinn@ksu.edu).

↪ **Effects of Dietary Standardized Ileal Digestible Isoleucine:Lysine Ratio on Nursery Pig**

Performance - A total of 560 nursery pigs were used in 2 experiments to evaluate the effects of increasing dietary standardized ileal digestible (SID) Isoleucine:Lysine (Ile:Lys) ratio on growth performance. In Exp. 1, 280 pigs (PIC 327 × 1050, initially 14.9 lb BW) were fed experimental diets for 12 d with 8 replications and 5 pigs per pen. In Exp. 2, 280 pigs (DNA Genetics Line 600 × Line 241, initially 13.3 lb BW) were fed experimental diets for 18 d with 8 replications and 5 pigs per pen. In both experiments, pens were allotted to 1 of 7 dietary treatments in a randomized complete block design. The 7 dietary treatments were 40, 44, 48, 52, 54, 58, and 63% SID Ile:Lys ratio. After the experimental diet feeding period, a common diet was fed for 14 d. Diets in both phases were fed in meal form.

For Exp. 1, from d 0 to 12 when experimental diets were fed, ADG and ADFI improved and F/G became poorer as SID Ile:Lys ratio increased. For ADG, the quadratic (QP), broken-line linear (BLL), and broken-line quadratic (BLQ) models reported maximum ADG at 64.7, 52.0, and 52.0% SID Ile:Lys ratio, respectively. For ADFI, the BLL breakpoint occurred at 50.6% and the QP predicted maximum ADFI at 56.2% SID Ile:Lys ratio. In Exp. 2, from d 0 to 18 when experimental diets were fed, ADG and ADFI improved) with no significant differences for F/G as SID Ile:Lys ratio increased. For ADG, the BLL and QP had similar fit with breakpoints/maximums occurring at 51.8% SID Ile:Lys ratio and 58.3% SID Ile:Lys ratio, respectively. For ADFI, the QP reported maximum ADFI at 57.2% SID Ile:Lys ratio and the BLQ breakpoint occurred at 52.0% SID Ile:Lys.

Bottom Line... In summary, these experiments demonstrate that the SID Ile requirement for 15 to 25 lb nursery pigs is approximately 52% of Lys for ADG and ADFI using broken line models and can be as high as 64% of Lys using quadratic models. A slight quadratic effect was observed in feed efficiency for Exp. 1, however in Exp. 2, there were no appreciable differences detected in F/G. The Ile requirement for 15 to 25 lb pigs was found to be similar to NRC (2012) requirement estimates. 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. Clark, M.D. Tokach, J.M. DeRouche, S.S. Dritz, K.J. Touchette, R.D. Goodband, and J.C. Woodworth.)

↪ **Effect of Diet Complexity and Specialty Protein Source on Nursery Pig Performance** - A total of 720 nursery pigs (PIC C-29 × 359, initially 12.5 lb BW) were used in a 42-d growth trial to determine the effects of diet complexity and specialty soy protein source on nursery pig performance. Pigs were allotted by BW and sex, and randomly assigned to 1 of 6 dietary treatments in a 2 × 3 factorial arrangement with main effects of diet complexity (complex vs. simple) and specialty protein source (fish meal, HP 300, or HP 800). The HP 300 and HP 800 are two different enzymatically treated soy products manufactured and sold by Hamlet Protein (Findlay, OH). Experimental diets were fed in two phases (Phase 1 was budgeted at 5 lb per pig and Phase 2 was fed thereafter until d 21) with a common diet fed for 3 wk following the experimental diets. No interactions were observed between diet complexity and protein source for growth performance for any phase or overall. From d 0 to 7, pigs fed the complex diet had a tendency for improved ADG and d 7 BW compared to pigs fed the simple diet. There was no difference in performance observed from d 7 to 21; however, for the overall treatment feeding period (d 0-21), pigs fed the complex diets had improved F/G compared to pigs fed the simple diets. During the Phase 3 common diet feeding period (d 21 to 42), no differences were observed between pigs previously fed different diet complexity or protein sources. Overall (d 0 to 42), no differences in growth performance were found between treatments. For economics, pigs fed a simple diet tended to have greater IOFC. Feed cost per pound of gain was lower for pigs fed diets with HP 300 and HP 800 compared to those fed diets with fish meal.

Bottom Line... In summary, this study suggests that the differences in diet complexity used in this study had minor impacts on growth performance during the phases in which they were fed but not overall. Furthermore, the three specialty protein sources used in this study resulted in similar growth performance. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. (This study conducted by A.M. Jones, J.C. Woodworth, J.M. DeRouche, M.D. Tokach, S.S. Dritz, and R.D. Goodband.)

AS&I Faculty Spotlight



James Lattimer (jlattimer@k-state.edu; 785-532-2840)

Assistant Professor/Equine Nutrition

Dr. James Lattimer is a native of Newton, KS. He graduated with his B.S. in Animal Science from Kansas State University in 2002. He began his graduate career in equine nutrition at Oklahoma State University in the fall of 2002. While at OSU, he was the assistant horse judging team coach and directly involved in the undergraduate teaching program. After completing his M.S. in the summer of 2004, he moved to Ocala, FL, and taught equine science courses at the College of Central Florida and in the fall of 2005 accepted a horse science instructor position at Black Hawk College in Kewanee, IL. In the fall of 2009, Dr. Lattimer came back to Kansas State University to work on his Ph.D. in comparative nutrition. Following graduation in May 2012, he joined Nestle Purina in St. Louis, MO, as a Technical Nutritionist. He returned home to Kansas State University in the spring of 2015 as an Assistant Professor with an 80% teaching and 20% research appointment. His current responsibilities include teaching undergraduate

equine science and nutrition courses, coaching the Intercollegiate Horse Judging Team, advising the KSU Horseman's Association, conducting equine nutrition research and mentoring graduate students who are pursuing advanced degrees with an equine emphasis.

Dr. Lattimer's research program focuses on carbohydrate digestion and metabolism, the gut microbiome and comparative digestive physiology of domestic livestock. Specific areas of interest are post prandial glycemia, prececal digestibility of feedstuffs, preventing hindgut overload of starch, the equine microbiome and its immunological effects, and substrate utilization in the performance horse.

Dr. Lattimer and his wife, Nichole, have three children, Paige, Payton and Owen. The Lattimer family owns a small livestock operation where they raise and show Boer goats and club lambs.



Sara Gragg (saragragg@k-state.edu; 913-307-7371)

Assistant Professor/Food Safety and Food Microbiology

Dr. Gragg earned her masters, doctorate and was a post-doctoral research scientist at Texas Tech. Closer once again to her Nebraska roots, Sara's interest in food science and animal science began during her service in FFA and through Ag education. She earned her undergraduate degree from UNL before moving to Texas.

Dr. Gragg leads the food safety research program at the Olathe campus of Kansas State University. She has over 15 years of experience in food safety research and has served as an assistant professor at Kansas State University for 3 years. Dr. Gragg's research program investigates pre-harvest and postharvest issues affecting the meat and produce industries, with specific interests addressing the manner by which pathogens contaminate food products and the application of interventions to prevent and/or reduce pathogen presence. She is particularly interested in identifying and validating novel interventions as potential solutions to reduce foodborne illness in our food supply. As an affiliated faculty member with the Center of Excellence for Food Safety Research in Child Nutrition Programs at Kansas State University, she also contributes to food safety research for school foodservice. Dr. Gragg teaches courses in food microbiology, produce safety, and food policy at Kansas State University.

Dr. Gragg's husband, J.D., is the Director of Admissions for the University of Central Missouri in Warrensburg, MO. Together they have two children, Barrett (age 6) and Brendan (age 3).

What Producers Should Be Thinking About.....

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



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

Breeding season is beginning or continuing for many operations; therefore, both females and males must be reproductively fit.

- 1) Several estrus synchronization procedures have been developed. To determine the correct synchronization program to use, consider the following: age group of females (yearling replacement heifers vs. cows), commitment of time and efforts for heat detection, potential number of females that are anestrus (days postpartum, body condition, calving difficulty), labor availability, and the return on investment for total commitment to the breeding program.
- 2) Handle semen properly and use correct AI techniques to maximize fertility.
- 3) Natural service bull should have body condition, eyes, feet, legs and reproductive parts closely monitored during the breeding season. Resolve any problems immediately.
- 4) All bulls should have passed a breeding soundness examination prior to turnout.
 - Begin your calf preconditioning program. Vaccination, castration and parasite control at a young age will decrease stress at weaning time. This is a time to add value to the calf crop.
 - Implanting calves older than 60 days of age will increase weaning weight.
 - Properly identify all cows and calves. Establish premises numbers for compliance with state and national programs.
 - Use best management practices (BMPs) to establish sustainable grazing systems.
 - Use good management practices when planting annual forage sources and harvesting perennial forages.
 - Maintain records that will verify calving season, health programs, and management practices.

*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.*