



WEBER HALL
ANIMAL SCIENCE & INDUSTRY



K News from KSU Animal Sciences

- ☞ Please help us to welcome **Katie Smith as the new Events Coordinator for the Department of Animal Sciences and Industry**. Katie comes to us from HCI Catering and we are excited to add her to the ASI family. To contact Katie, call 785-532-1267 or e-mail katiesmith@ksu.edu.

- ☞ The **2023 K-State Swine Profitability Conference** has been scheduled for Tuesday, February 7, 2023, at the Stanley Stout Center, Manhattan, KS. The schedule includes:
 - 9:15 a.m. Coffee and Donuts
 - 9:30 a.m. Welcome
 - 9:45 a.m. Recent PRRS Outbreaks and Lessons Learned
Dr. Paul Yeske, Swine Vet Center, St. Peter, MN
 - 10:30 a.m. Pork Economics: Assessing Industry Outlook in a Period of Elevated Uncertainty
Dr. Glynn Tonsor, K-State Agricultural Economics
 - 11:15 a.m. Genetically Engineered Swine for Agriculture and Medicine
Dr. Randy Prather, University of Missouri Curator's Distinguished Professor
 - 12:00 noon Lunch
 - 1:15 p.m. Our Family Story and Experiences with Batch Farrowing
Doug and Cole Claassen and Families, Whitewater, KS
 - 2:00 p.m. Improving Efficiency Through Collaborative Efforts in Health, Nutrition and Management Innovation
Dr. Christine Mainquist Whigham & Ethan Stephenson, Pillen Family Farms, Columbus, NE
 - 3:00 p.m. AdjournPre-registration fee is \$25 per participant by January 27; registration at the door is \$50 per participant. The complete schedule and online registration information can be found at www.KSUSwine.org. For more information, contact asi@ksu.edu or 785-532-1267.

- ☞ The **ASI Distinguished Alumnus Award for 2022 will be presented to Dr. Randy Prather**, Curators' Distinguished Professor in Division of Animal Science at the University of Missouri. The presentation of the award will be held on Wednesday, February 8. Dr. Prather will present a seminar at 1:30 pm in Room 123, Weber Hall (Zoom Link: <https://ksu.zoom.us/j/7855326533?pwd=WE96b21FRW9TSHYxM1F1NnhRQWJlUdz09>). He will also present in several classes. For a complete schedule of activities, visit <https://www.asi.k-state.edu/Prather.pdf>. For more information, contact Bob Goodband (goodband@ksu.edu; 785-532-1228).

- ☞ The **52nd Annual LMIC Stockmen's Dinner** will honor the Tom Perrier Family as Stockman of the Year. The dinner will be held on Thursday, March 2, at the Stanley Stout Center. Go to www.asi.ksu.edu/stockmensdinner for the latest schedule and registration.

Department of Animal Sciences and Industry

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- Facebook.com/KSUASI

January 2023



UPCOMING EVENTS...

- ☞ **Make plans to attend KSU Cattlemen's Day 2023** - The 110th annual Cattlemen's Day will be hosted Friday, March 3, 2023. The trade show and educational exhibits will open at 8 a.m. in Weber Arena.
Registration for KSU Cattlemen's Day will be \$20 per person in advance or \$30 per person at the door. Morning refreshments and lunch are included with registration. A complete schedule is available at www.asi.ksu.edu/cattlemensday or call 785-532-1267. If you are interested in exhibiting at Cattlemen's Day or have any questions, please contact Dale Blasi (dblasi@ksu.edu; 785-532-5427).
- ☞ The **46th Annual Legacy Bull and Heifer Sale** will be March 3, 2023, at 4:00 p.m. at the Stanley Stout Center. Visit www.asi.ksu.edu/bullsale for more information, as it becomes available, including the sale catalog.
- ☞ **K-State Junior Swine Producer Day** is scheduled for Saturday, March 11, 2023, in Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth swine projects. All ages and knowledge levels are invited! K-State faculty members, graduate students and guest speakers will cover topics including selection, meat science, ear notching, breeds, reproduction, equipment and daily care, herd health, nutrition, clipping and show day prep, and showmanship.
An optional instructor-led YQCA session will be offered at the conclusion of the program. Those who indicate during the registration process they are interested in staying for the YQCA training will receive further details as the event approaches. A session over the state livestock nomination process will also be provided at the end of the day, concurrently with the YQCA training.
The cost for junior swine producer day is \$20 per person, if registration is submitted by February 15, 2023, or \$25 per person after that date. All attendees, including youth and adults, must register. Only participants who register by February 15 will receive a t-shirt. Families may register online at <http://bit.ly/ksuasiregister>. No refunds. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264, or Joel DeRouchey at jderouch@ksu.edu or 785-532-2280.
- ☞ **K-State Junior Meat Goat Producer Day** will be hosted on Saturday, March 18, 2023, in Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth meat goat projects. All ages and knowledge levels are invited! K-State faculty members, graduate students, undergraduate students, and guest speakers will cover topics including selection, meat science, nutrition, reproduction, health and wellness, facilities, and equipment, clipping and grooming, and showmanship.
An optional instructor-led YQCA session will also be offered at the conclusion of the program. Those who indicate during the registration process that they plan to stay for the YQCA training will receive additional details as the event approaches. A session over the state livestock nomination process will also be provided at the end of the day, concurrently with the youth YQCA training.
The cost for junior meat goat producer day is \$20 per person, if registration is submitted by February 22, 2023, or \$25 per person after the early deadline. All attendees, including youth and adults, must register. Only those who register by February 22 will receive a t-shirt. Families may register online at <http://bit.ly/ksuasiregister>. No refunds. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.
- ☞ **SowBridge** - If you work in or with breeding and gestation units, gilt development systems, or farrowing barns, the SowBridge program is for you. This program helps improve your understanding of important topics and increase productivity in your breeding herds and farrowing systems..SowBridge 2023-2024 runs from February 2023 through January 2024. Registrations are accepted anytime during the year. SowBridge is provided via twelve monthly electronic presentation sessions by swine industry experts. Session recordings ensure subscribers don't miss a thing.
The SowBridge Series' \$200 fee includes all twelve sessions and supporting materials. Additional subscriptions from the same operation are half that cost. The registration deadline is Jan. 20, 2023, to ensure participants will receive materials for the first session on Feb. 1. For a complete schedule and registration form, visit www.KSUswine.org. For more information, contact Joel DeRouchey (785-532-2280; jderouch@ksu.edu).

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
February 7, 2023	K-State Swine Profitability Conference	Manhattan
February 8, 2023	Distinguished Alumnus Award to Randy Prather	Manhattan
March 2, 2023	Stockman's Dinner	Manhattan
March 3, 2023	KSU Cattlemen's Day	Manhattan
March 3, 2023	Legacy Bull and Heifer Sale	Manhattan
March 11, 2022	K-State Junior Swine Producer Day	Manhattan
March 18, 2022	K-State Junior Meat Goat Producer Day	Manhattan

WHAT'S NEW...

Management Minute – Justin Waggoner, Ph.D., Beef Systems Specialist

“What’s Your Why?”

The New Year is a great time for reflection. Have you ever given any thought to what your organization, farm, feedlot, or operation is really about? Do you have a mission statement, a set of core values that you believe your organization or operation embodies? Previously, I used to think that mission statements and core value statements were idealistic and a waste of thought. However, my attitude has changed. These statements provide the organization with a foundation, a clear objective that serves to guide the organization as it makes decisions that move the organization forward into the future. Regardless of the size of the enterprise, putting some thought into what an organization or business is really about has value. These statements do not have to be long or dramatic. I recently visited family livestock operation in which the sign on the front lawn (along a major highway) simply said “Our Family Feeding Yours.” This simple statement tells everyone that drives by that this is a family operation that is foremost engaged in the process of sustaining not only themselves but others. Why do we, do what we do?

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

Feedlot Facts – Justin Waggoner, Ph.D., Beef Systems Specialist

“Body Condition Scoring: A Herd Management Tool”

Body condition Scoring is one of the most valuable management tools at the disposal of the cattle manager. This one number gives us a direct indication of an individual cow’s previous plane of nutrition and future reproductive capability. Although the individual body condition scores are important, we don’t necessarily manage individual cows, we manage groups of cows. Thus, it is important for us to look beyond the individual scores and look at the distribution of body condition scores within the herd. If we have a herd (Herd 1) with an average body condition score of 5 that is essentially characterized by the classic bell curve, with a few thin cows (3’s), the bulk of cows in the middle (4’s and 5’s) and few over-conditioned cows (7’s) everything is good. Alternatively, we could have a herd (Herd 2) with an average body condition score of 5 that is essentially the result of a few thin cows (3’s) and some over conditioned cows (6’s and 7’s). Body conditioning scoring also has more value when it is done on the same group of cows at multiple times during the production year. If Herd 2 was scored at calving and had been previously scored at weaning and had an essentially normal distribution (similar to Herd 1). We need to ask ourselves what happened. Did we change anything? Although these examples are somewhat extreme, they illustrate that we have to look beyond the individual body condition scores of cows at one point during the production year to get the most of body condition scoring.

We have several resources on body condition scoring available on the web that may be accessed at <https://www.asi.k-state.edu/research-and-extension/beef/feedandwater.html> including the quick reference guide to body condition scoring shown below.

Body Condition Scorecard for Cattle

	Physical Attribute						
	BCS	Spine	Ribs	Hooks/ Pins	Tailhead	Brisket	Muscling
Thin	1	Visible	Visible	Visible	No fat	No fat	None/atrophy
	2	Visible	Visible	Visible	No fat	No fat	None/atrophy
Borderline	3	Visible	Visible	Visible	No fat	No fat	None
	4	Slightly visible	Foreribs visible	Visible	No fat	No fat	Full
Optimum Condition	5	Not visible	1 or 2 may be visible	Visible	No fat	No fat	Full
	6	Not visible	Not visible	Visible	Some fat	Some fat	Full
Over-Conditioned	7	Not visible	Not visible	Slightly visible	Some fat	Fat	Full
	8	Not visible	Not visible	Not visible	Abundant Fat	Abundant Fat	Full
	9	Not visible	Not visible	Not visible	Extremely Fat	Extremely Fat	Full

Adapted from Herd & Sprott, 1986; BCS = body condition score

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

WHAT'S NEW...

- ↪ **Effects of Increasing Soybean Meal and Valine:Lysine and Tryptophan:Lysine Ratios on Finishing Pig Performance** – A total of 621 pigs were used in a 65-d growth trial to determine the effect of increasing soybean meal (SBM) and Val:Lys and Trp:Lys ratios on finishing pig performance. Experimental diets were corn-soybean meal-DDGS-based and fed in three phases. The 6 dietary treatments were arranged in a 3 × 2 factorial with main effects of SBM level (low, medium, high) and Val:Lys and Trp:Lys ratios (standard and high). The additional amino acids (AA) provided by increasing levels of SBM in diets with standard AA ratios were expected to result in a higher ADG by balancing out the high leucine from corn. Conversely, ADG was expected to stay the same as SBM increased when the Val:Lys and Trp:Lys ratios in the feed were increased. Pens of pigs were assigned to treatments in a randomized complete block design with BW as a blocking factor. There were approximately eight or nine pigs per pen and twelve replicate pens per treatment. No evidence of SBM × AA ratio interactions or treatment differences were observed for any response criteria for phases 1 and 2 of the study. In phase 3, a marginally significant SBM × AA ratio interaction was observed for ADG. The medium level of SBM with standard Val:Lys and Trp:Lys ratios resulted in greater ADG compared to other SBM levels. No differences in ADG were observed with increasing SBM when Val:Lys and Trp:Lys ratios were increased. Additionally, F/G improved at the medium level of SBM in phase 3. In spite of the improvement observed in phase 3, there were no significant differences observed in overall ADG or ADFI. A marginally significant SBM × AA ratio interaction was observed for overall F/G. Increasing SBM in diets with greater Val:Lys and Trp:Lys ratios resulted in poorer F/G. There was no difference in F/G observed with increasing SBM in feeds with standard Val:Lys and Trp:Lys ratios. In conclusion, in early finishing there were no responses to increasing SBM; however, in the late finishing period when diets included 0, 4, or 8% SBM, pigs fed 4% SBM diets with standard BCAA ratios had improved ADG and F/G. Throughout the study, increasing Val:Lys and Trp:Lys ratios had little effect on pig performance. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Macie E. Reeb, Jamil E. G. Faccin, Robert D. Goodband, Jason C. Woodworth, Joel M. DeRouchey, Mike D. Tokach, and Jordan T. Gebhardt.)
- ↪ **A Survey of Added Vitamins and Trace Minerals in Diets Utilized in the U.S. Swine Industry** – From November 2021 to February 2022, 37 swine nutritionists representing twenty-nine production systems and eight nutrition supplier companies in the United States were surveyed about added vitamins and trace mineral concentrations in swine diets. Respondents were asked to provide vitamin and trace mineral inclusion rates, weight ranges associated with each dietary phase, and number of sows utilizing their nutritional recommendations. Survey participants represented 4.38 million sows, or 72% of the U.S. industry. Data were compiled into three nursery phases (weaning to 15 lb; 15 to 25 lb; and 25 to 50 lb), three finishing phases (50 to 120; 120 to 220; and 220 lb to market), gilt development, gestation, lactation, and boar diets. Within each dietary phase, the vitamins and trace minerals of interest included: vitamin A, vitamin D, vitamin E, vitamin K, thiamin, riboflavin, niacin, pantothenic acid, pyridoxine, biotin, folic acid, vitamin B12, choline, vitamin C, carnitine, copper, iodine, iron, manganese, selenium, zinc, cobalt, and chromium. Descriptive statistics used included: average, weighted average (determined by the total number of sows), median, minimum, maximum, 25th percentile (lowest quartile), and 75th percentile (highest quartile). In addition, all average vitamin and trace mineral concentrations within each phase of production were compared to the requirement estimates reported in the NRC. The results of this survey follow similar trends observed in a previous survey in 2016. Nutritionists generally supplemented vitamins and trace minerals well above the NRC (2012) requirements. However, greater variation among respondents was observed in all vitamins and trace minerals, particularly in the fat soluble vitamins. Also, the use of alternative sources of vitamin D (25-OH-D3), E (natural, d-alpha-tocopherol), and organic or chelated minerals like copper, manganese, selenium, and zinc is becoming more frequent. In addition, comparisons to the most recent NRC (2012) requirement estimates highlight the necessity of future research to better understand vitamin and trace mineral requirements in swine diets. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Jamil E. G. Faccin, Mike D. Tokach, Jason C. Woodworth, Joel M. DeRouchey, Jordan T. Gebhardt, and Robert D. Goodband.)

WHAT'S NEW...

↗ **Effects of Added Potassium to Diets with High and or Low Crystalline Lysine on Finishing Pig Growth Performance**

– This experiment was conducted to evaluate the effect of balancing dietary cation-anion difference (DCAD) levels, via added potassium bicarbonate (KHCO₃), to diets containing low or high levels of L-Lys HCL on growth performance of growing-finishing pigs. A total of 1,944 pigs were used in a 120-d study to determine the effect of added potassium bicarbonate to diets containing low or high levels of crystalline lysine on growth performance and carcass characteristics of finishing pigs. Pens of pigs were blocked by BW and randomly allotted to 1 of 4 dietary treatments in a randomized complete block design arranged in a 2 × 2 factorial with main effects of KHCO₃ (0 vs. 0.4%), and L-Lys HCL level (low vs. high). There were twenty-seven pigs per pen and eighteen replicates per treatment and a similar number of barrows and gilts placed in each pen. Treatment diets were corn-soybean meal-based and formulated in four dietary phases (approximately 80 to 130 lb, 130 to 185 lb, 185 to 230 lb, and 230 to 285 lb). Dietary treatments were formulated such that in each phase the diet containing a low level of L-Lys HCL without KHCO₃ and the diet containing a high level of L-Lys HCL with KHCO₃, had similar calculated DCAD values. Additionally, the diet with a low level of L-Lys HCL with KHCO₃ was formulated to have the highest DCAD in each phase, while the diet with a high level of L-Lys HCL without KHCO₃ was formulated to have the lowest DCAD. Overall, there was no evidence for a KHCO₃ × L-Lys HCL interaction or main effect for final BW or any observed growth response or carcass characteristics. The results of this study suggest that supplementing KHCO₃ to finishing pig diets with either high or low levels of L-Lys HCL and the corresponding changes in DCAD values did not impact growth performance or carcass characteristics. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Rafe Q. Royall, Robert D. Goodband, Mike D. Tokach, Joel M. DeRouchey, Jason C. Woodworth, and Jordan T. Gebhardt.)

↗ **Comparing Increasing Tryptophan:Lysine Ratios in DDGS-Based Diets with or without a DDGS Withdrawal Strategy on Growth Performance and Iodine Value of Growing-Finishing Pigs**

– A total of 6,240 pigs, divided into 2 groups, were used in a 119- or 120-d study to compare increasing the Trp:Lys ratio in diets with DDGS or a DDGS withdrawal strategy on growth performance and carcass fat iodine value of grow-finish pigs. Pigs were randomly allotted to one of seven dietary treatments with 30 to 36 pigs per pen and twenty-six replications per treatment. Diets were fed in four phases (approximately 50 to 96, 96 to 157, 157 to 220, and 220 lb to market). Diets included a control corn-soybean meal-based diet formulated to a 19% SID Trp:Lys ratio; 4 diets with 30% DDGS fed in all four phases and formulated to achieve a 16%, 19%, 22%, or 25% SID Trp:Lys ratio, respectively; and 2 DDGS withdrawal strategy diets: 19% SID Trp:Lys with 30% DDGS in phases one through three and then 0% DDGS in phase 4 with either a 19 or 25% Trp:Lys ratio. Overall, BW, ADG, ADFI, and F/G improved as the SID Trp:Lys ratio increased in diets with 30% DDGS fed in all four phases. Hot carcass weight and carcass yield increased as the Trp:Lys ratio increased along with backfat depth. Pigs fed diets containing a SID Trp:Lys ratio of 19% and 30% DDGS from phases 1 through 3 and 0% DDGS in phase 4 had the greatest numeric ADG and ADFI for the overall study, but were not different than pigs fed the control, the 25% Trp:Lys withdrawal treatment, or the 30% DDGS diets with 25% Trp:Lys ratio throughout the study. Pigs fed the control diet had decreased carcass fat iodine value compared to pigs fed DDGS throughout the study, with pigs fed the two DDGS withdrawal strategies having lower iodine values compared to pigs fed 30% DDGS in all four phases. No significant differences in revenue per pen or IOFC per pen were observed, however, feed cost per lb of gain and feed cost per pig placed increased and revenue per pig placed tended to increase as the Trp:Lys ratio increased. In summary, increasing the SID Trp:Lys ratio in diets with 30% DDGS resulted in a linear improvement in ADG, ADFI, F/G, and BW but did not influence iodine values. Removing DDGS from the diet in the last period reduced carcass fat iodine value and increased growth rate during the withdrawal period compared to pigs fed 30% DDGS throughout, indicating value in a withdrawal strategy. More information is available on this experiment and others in the KSU Swine Day report at www.KSUSwine.org. (This study conducted by Mikayla S. Spinler, Andres F. Tolosa, Jason C. Woodworth, Mike D. Tokach, Robert D. Goodband, Joel M. DeRouchey, Kyle F. Coble, Brittany A. Carrender, Amanda J. Gerhart, and Jordan T. Gebhardt.)

ASI FACULTY SPOTLIGHT...



Scott Smith (jsschem@k-state.edu; 785-532-1219)
Professor/Chair, Food Science Graduate Program

J. Scott Smith is a professor of food chemistry on the faculty of the Animal Sciences Department and Food Science Institute at Kansas State University with a 70% research and 30% teaching appointment. He is a native of Owensboro in western Kentucky with degrees from Brescia College (BS, Biology), Kansas State University (MS, Biochemistry) and the Penn State University (PhD, Food Science). He has been a faculty member at K-State since 1989. Before he was a faculty member at Penn State in the Food Science Department.

He is a member of the Institute of Food Technologists (IFT) including past chair of the Food Chemistry and Toxicology and Safety Evaluation divisions, and past chair of graduate student poster competition for the Food Chemistry divisions. He is a member of the American Chemical Society (Agricultural and Food Chemistry division), AOAC International,

American Association for the Advancement of Science, and Phi Tau Sigma Honorary Society

His research programs are in the areas of food analysis and toxicology. Major research areas are the formation and inhibition of heterocyclic amines (HCA) in cooked muscle foods products, and factors involved in the formation of advanced glycation endproducts (AGEs) in muscle and carbohydrate-rich foods. He is studying methods to evaluate irradiation dose exposure treatments in irradiated meat products and pet foods, toxicity of unique radiolytic products (the 2-ACBs), and ammonia contamination of foods from refrigeration leaks. Recent research on spice inhibition of HCA formation in muscle food products has received worldwide coverage in numerous news reports.

He currently teaches courses in Food Chemistry, and Food Analysis, and has several offered by Distance Learning.



Casy Winn (ccwinn@k-state.edu; 785-532-5044)
Instructor/Rodeo Coach

Casy was raised in Nephi, Utah. He grew up working on the family horse and cattle ranch. He also worked on a local dairy farm. Upon graduation from Utah State University in 1993, he began a teaching and coaching career in Lake Los Angeles, California, then to Duchesne County Utah, and eventually to his hometown at Juab High School.

In high school Casy was actively involved in 4-H, FFA, wrestling, and rodeo. He was the 1981 Juab County Beef Carcass Contest winner, 1982 Utah state 4-H champion horseman, 1984 state champion FFA individual soil judge, on the 1985 region champion wrestling team, and a 1985 NHSRA national finals qualifier in the bullriding. He also served on the 4-H youth council, FFA officer team, and in leadership positions with his church youth group.

At Utah State University, Casy was a member of the rodeo team, twice earning a year-end 3rd place position in the bullriding and finishing among the top ten team ropers. Casy also competed in open and professional events, earning reserve champion in the RMRA bullriding in 1988.

Casy coached wrestling for 20 years. He led Duchesne High School to a 5th place in the 2A classification in 1999. Then at Juab Jr. High they won five region team titles, finished 2nd twice in the 2A classification, and were 3rd at state in 3A. Also, on those teams were numerous individual region and state champions.

Casy along with his wife Wendy and their children Dixon, Shad, and Kyleigh spend their time training horses, practicing for, and competing in rodeos. They own Winn Rodeo Livestock raising rodeo cattle and training horses. Along with this they have produced, managed, and contracted stock for several junior rodeo associations. Casy served as the director for the Utah State 5th and under Rodeo Association and on the UHSRA livestock committee. He has also judged Jr. High, high school, and open rodeos.

Casy joined Kansas State University in the summer of 2015 as the Head Rodeo Coach and Equine Instructor.

KSU Cow-Calf Checklist – January 2023

Management Considerations for March 2023

By Jason M. Warner, Ph.D., Extension Cow-Calf Specialist

Cow herd management

- Start post-calving nutrition programs for spring-calving females.
 - Begin lactation rations once first calving cycle is complete.
 - Make sure thin (BCS \leq 4.0) females are on an increasing plane of nutrition going into breeding.
- Pregnancy check and wean fall-calving cows if not already done.
- Evaluate your mineral program for the coming spring and summer seasons.
 - What was your average consumption last year?
 - Do you need to make changes this year to achieve targeted consumption?
- Consider magnesium supplementation levels, particularly for lactating cows grazing wheat, rye, or triticale in the spring.
- If synchronizing females for breeding, schedule your protocols now well in advance of the breeding season and mark your calendars.
 - Use the estrus synchronization planner available to you.
 - Inventory your A.I. supplies and check your semen tanks.
- Evaluate herd bulls for BCS and adjust as needed prior to breeding.
 - Bulls need to be in a BCS \geq 5.0 prior to the next season of use.
 - Schedule breeding soundness examinations with your veterinarian.

Calf management

- Market your fall-born calves if not already done.
- Schedule your spring calf working activities and visit with your veterinarian to discuss your calf health protocols.
- Monitor growth and pubertal development of replacement heifers.
 - Heifers should be having active estrous cycles prior to breeding.

General Management

- Make sure you complete your spring calving records!
 - Don't forget late-calving females as you focus on other spring projects.
- Rethink your turn-out dates if pastures were stressed from drought last year.
 - Plan/adjust your feeding dates accordingly.
- Take inventory of any feed/forage that will be left over from winter.
- Cover piles or close bags if silage is left over and won't be fed until fall.
- Clean up any soiled bedding or unused/wasted feed to reduce the breeding and development of stable flies as the weather warms up.
- Finish pasture management projects started last year:
 - Repair or replace fences as needed.
 - Burn if conditions allow, cut and pile trees, particularly Cedar trees!
 - Clean and repair tanks and equipment as needed so watering sources are working properly when cattle are turned out to pasture.
- If making bull selection decisions:
 - Review your herd performance relative to your marketing and genetic goals.
 - Study EPDs impacting your marketing and genetic goals and do your homework well before sale day.

*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 katiesmith@ksu.edu*