



K News from KSU Animal Sciences

- ↪ **State Livestock Nomination Season Approaching** - The state livestock nomination season is rapidly approaching! The 2021 materials will be distributed to counties by the end of the month and will be available on the KSU Youth Livestock website, under the "Nomination Information" tab (<http://bit.ly/ksunominations>). Market Beef nominations will be due on May 1, 2021. All other species, which includes commercial heifers, market swine, commercial gilts, market lambs, commercial ewes, and ALL meat goats, will be due June 15, 2021. Please remember there is not a registered breeding doe show at either state show, so all meat goats must be nominated to be eligible. The nomination deadlines are firm postmark deadlines. Any nomination envelope or package received must have a visible postmark prior to the deadline, or it will not be accepted. Certified mail is highly encouraged. Families are also encouraged to use the checklist provided for each specie to make sure their nominations are complete. Incomplete or incorrect nominations will be returned to the family and cost \$20 to correct. For more information, please contact Lexie Hayes (adhayes@ksu.edu or 785-532-1264).

- ↪ **Implementing Your Company's HACCP Plan** will be hosted June 9-11, 2021, in Manhattan, KS. This workshop uses curriculum recognized by the International HACCP Alliance for meat and poultry processors. The registration fee is \$450 per person and is available online at <http://bit.ly/HACCPCourse>. For more information, contact Dr. Liz Boyle (lboyle@ksu.edu; 785-532-1247).

- ↪ **K-State Animal Science Leadership Academy (KASLA) 2021 Hybrid Program** - Applications are now available for the 2021 K-State Animal Science Leadership Academy, June 15-18. This year's program will offer a hybrid format of virtual instruction, followed by a closing, one-day, in-person experience on the Kansas State University campus. As we navigate the uncertainty of the Coronavirus Pandemic, we are excited to continue our mission of engaging high school students in animal science learning and leadership development.

Students will participate in tours and workshops virtually beginning on Tuesday, June 15, through Thursday, June 17. Conditions permitting, students will gather on the K-State campus Friday, June 18, to connect with their cohort, faculty, and industry leaders. Participation is limited to 20 students to ensure individualized attention from counselors, professors, and industry leaders. No housing will be provided in 2021, and transportation to and from the event will be the responsibility of the participant. All other costs have been generously provided by LMIC. We are excited to get back in the classroom with a new group of future industry leaders!

For questions about the academy, visit www.asi.ksu.edu/KASLA or contact Sharon Breiner, Director, at sbreiner@ksu.edu or 785-532-1267.

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March 2021 issue



UPCOMING EVENTS...

- ↙ **Educational Resources** - There are several livestock project resources available on the KSU Youth Livestock program website (www.YouthLivestock.ksu.edu), including digital versions of the show guides, videos, and graphics. They may be found under the “Educational Resources” tab. The 2020 junior sheep day videos, as well as the content from the 2021 junior swine and meat goat producer weeks, are available to those who may find them useful. Families, project leaders, or agents may request direct links to these resources by contacting Lexie Hayes (adhayes@ksu.edu or 785-532-1264). Additionally, shows and activities that are open to participation from outside the local unit are being updated under the “Spring Shows” tab. If you have an opportunity to share, please email it to Lexie to be added.
- ↙ **Cattlemen’s Day Videos** have been posted to the Cattlemen’s Day website at www.asi.ksu.edu/cattlemensday. Also posted at this location are the 2021 Cattlemen’s Day Report of Progress and the Student Poster session.
- ↙ Watch the **KSU ASI Headlines** for February 2021 and find out the latest happenings in the department. Follow the link at <https://youtu.be/gBArqTZONgA>. For questions about the department, contact Dr. Mike Day, ASI Department Head at 785-532-1259; mlday@k-state.edu.

CALENDAR OF UPCOMING EVENTS		
Date	Event	Location
March 15-20, 2021	Junior Meat Goat Producer Week – Virtual event	
May 1, 2021	Market Beef Nominations Due	
June 9-11, 2021	Implementing Your Company’s HACCP Plan	Manhattan
June 15-18, 2021	K-State Animal Science Leadership Academy-Hybrid	
June 15, 2021	Small Livestock & Commercial Heifer Nominations Due	

WHAT'S NEW...

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

“Failure”

Leadership and management are evaluated by an organization or operation's successes. However, the path to success often involves failure. Everyone hates to fail. However, failure is an excellent teacher and the simple truth is that we learn more from our failures than we do our successes. One of the traits many successful people possess is that they did not let fear of failure exceed their desire to succeed. History is full of leaders who were quite familiar with failure. However, when they made a mistake, they learned from it, moved on and didn't let it happen again. Additionally, great leaders in the business world recognize that department or unit managers don't always succeed and that failure is an unfortunate, but necessary component of empowering and cultivating good managers within the organization.

“Winners are not afraid of losing. But losers are. Failure is part of the process of success. People who avoid failure also avoid success.” - Robert Kiyosaki, author of “Rich Dad, Poor Dad”

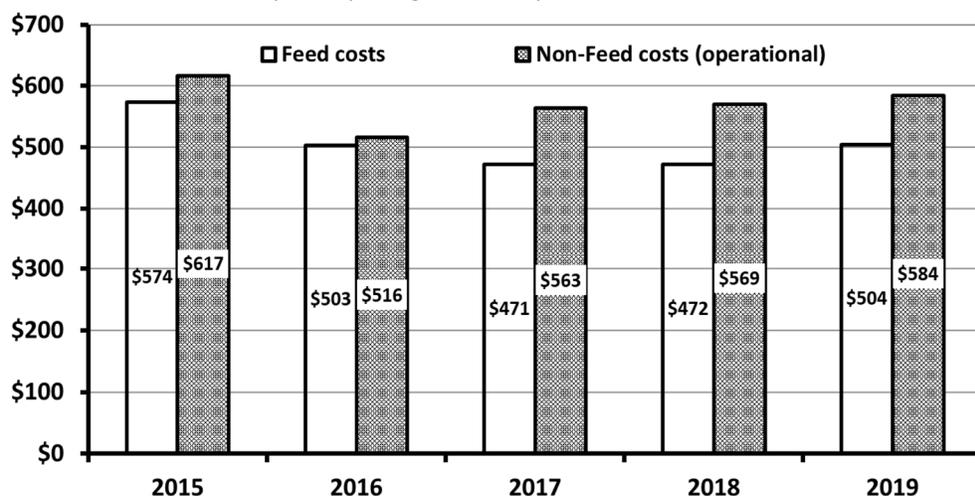
“I have not failed. I've just found 10,000 ways that won't work” - Thomas Edison, inventor of the light bulb

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

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

“What's Your Cost of Production?”

I can assure you that Henry Ford knew exactly how long and how much it cost to produce the Model T. Although it may seem difficult to make comparisons between the automotive industry and modern day beef production, many cow-calf operations are business enterprises...large business enterprises. Yet financial benchmarking and accurately documenting production costs are not necessarily high on the “to do” list of most cattle producers. One of the best reasons to know what it costs to produce a calf or what your total feed and non-feed costs are is that it allows you to quickly evaluate emerging opportunities such as grazing a neighbor's cover crop or an additional circle of corn stalks. Thus, if you don't know your production costs, I would encourage you to think about them. Tax time is a great time to take a good look at your business and calculate your production costs. If you would like to get a better idea of what it costs to produce a calf in Kansas, the Kansas Farm Management Association (KFMA) Enterprise Reports provide that information in a one page summary that can be accessed on the Ag Manager website (<https://www.agmanager.info/kfma>). The chart below shows the total feed and non-feed (operational) costs of KFMA participating cow-calf producers from 2015 to 2019.



The data from these operations suggests that in 2019, feed costs were approximately \$504 per cow and the non-feed or operational costs were approximately \$584 per cow. Thus, the average total cost to produce a calf was \$1088 (\$504 + \$584) on these operations in 2019. The total feed costs (pasture and purchased feed) of \$504 amounts to \$1.38 per day to feed a cow in Kansas. The question is “What does it cost you to feed a cow and produce a calf?”

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

WHAT'S NEW...

- ☞ **Animal Technician II – Dairy Unit position** - This position exists to provide complex care for dairy cattle, perform medical procedures, obstetrical and postnatal care of animals, some artificial insemination and milking. Also, maintenance and operation of farm equipment. This is a full-time, University Support Staff position (Job #510302). To apply, go to <https://careers.k-state.edu/cw/en-us/job/510302/animal-technician-ii>. For more information, contact Mike Scheffel, Search Committee Chair, at 785-537-0941 or scheffel@k-state.edu.
- ☞ **Limit-Fed, High-Energy Diets Can Achieve Improved Feed Conversion Rates Without Compromising Rate of Gain When Compared to Conventional High Roughage Diets** - The objective of this study was to compare and determine the effects on animal performance between a conventional high roughage diet and a limit-fed, high energy diet during the receiving and growing phase.
- Crossbred heifer calves originating from Texas and New Mexico were used to determine performance when limit-fed a high energy diet initially offered at 85% of feed intakes from cattle fed a conventional high roughage diet ad libitum at the Kansas State University Beef Stocker Unit.
- The Bottom Line...** Limit-feeding a high energy diet consisting primarily of dry-rolled corn and Sweet Bran (Cargill Animal Nutrition, Blair, NE) can improve rate of gain while significantly decreasing dry matter consumption over conventional high roughage diets fed ad libitum, and cattle exhibit greater muscling and fat deposition. More information is available on this experiment and others in the KSU Cattlemen's Day report at www.asi.ksu.edu/cattlemensday. (This study conducted by M.A. Scilacci, M.A. Johnson, C.E. Hissong, S.P. Montgomery, A.J. Tarpoff, E.C. Titgemeyer, L. Allen, T.G. O'Quinn, G.T. Tonsor, C.I. Vahl, D.U. Thomson, W.R. Hollenbeck, and D.A. Blasi.)
- ☞ **Subsequent Carcass Merit of Feedlot Cattle May Be Improved by Limit Feeding a High-Energy Diet During the Backgrounding Phase** - The objective of this study was to determine and analyze the impact of limit feeding a high-energy diet in the backgrounding phase, primarily based on dry-rolled corn and sweet bran on animal performance in the finishing phase and carcass merit.
- This project was a continuation of the performance backgrounding study previously conducted at the KSU Beef Stocker Unit. All cattle were shipped to Pratt Feeders on August 26–27, 2019, and were fed in four separate feed groups according to standard operating practices at the feed yard. Original backgrounding treatment integrity was maintained. Cattle were processed at National Beef on January 14 and February 4, 2020, and carcass data were obtained.
- The Bottom Line...** Limit feeding a high-energy diet to cattle in the backgrounding phase appears to improve muscle deposition, especially in the light-sort cattle during the finishing phase. More information is available on this experiment and others in the KSU Cattlemen's Day report at www.asi.ksu.edu/cattlemensday. (This study conducted by M.A. Scilacci, M.A. Johnson, C.E. Hissong, S.P. Montgomery, T.G. O'Quinn, A.J. Tarpoff, E.C. Titgemeyer, K. Montgomery, G.T. Tonsor, C.I. Vahl, D.U. Thomson, W.R. Hollenbeck, and D.A. Blasi.)
- ☞ **Determining the Effects of Manganese Source and Level in Diets Containing High Levels of Copper on Growth Performance of Growing-finishing Pigs** - A total of 1,994 pigs (PIC; 337 × 1050; initially 88.2 lb) were used to determine the effect of manganese (Mn) source and level on finishing pig growth performance. This experiment was a follow-up to a previous Mn source by level study conducted last year. However, unlike last year's study, in the present study all diets contained 150 ppm added Cu from Cu hydroxychloride. Dietary treatments were arranged in a 2 × 3 factorial with main effects of Mn source (MnSO₄; Eurochem, Veracruz, Mexico, or Mn hydroxychloride (IBM); Micronutrients, Indianapolis, IN), and increasing added Mn concentration (8, 16, and 32 ppm). The trace mineral premix was formulated without added Mn. There were 27 pigs per pen and 12 pens per treatment. Diets were corn-soybean meal-distillers dried grains with solubles-based and were fed in 4 phases. Overall, there was no Mn source × level interaction observed for ADG, ADFI, and F/G. Pigs fed IBM had increased final BW, ADG, and ADFI compared to pigs fed MnSO₄. Pigs fed 16 ppm of Mn tended to have reduced ADFI when compared to pigs fed 8 and 32 ppm of Mn.
- In conclusion...** There appears to be little benefit in growth performance by feeding more than 8 ppm of added Mn. However, pigs fed IBM had improved growth performance compared with those fed MnSO₄. This response is different than our previous study with identical Mn sources but without high levels of added Cu. Further research is needed to understand why we observed a Mn source difference to Mn hydroxychloride when fed in conjunction with pharmacological levels of Cu on pig 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 H.R. Kerkaert, J.C. Woodworth, J.M. DeRouchey, S.S. Dritz, M.D. Tokach, R.D. Goodband, and N.E. Manzke.)

WHAT'S NEW...

↪ **Effect of the Pelleting Process on Diet Formulations with Varying Levels of Crystalline Amino Acids and Reducing Sugars on Digestibility in Growing Pigs**

The objective of this study was to determine the effect of thermal processing on the digestibility of amino acids (AA) in diets with or without increased concentrations of free amino acids and reducing sugars. To measure AA digestibility, a total of eight individually housed barrows that had a T-cannula installed in the distal ileum were allotted to a replicated 8 × 8 Latin square design with eight diets and eight 7-d periods. Thus, each pig was fed each diet in one period and no pig received the same diet more than once. Each period lasted 7 days with the initial 5 days being the adaptation period, and ileal digesta was collected for 9 hours on d 6 and 7. Treatments were arranged in a 2 × 2 × 2 factorial with main effects of crystalline AA concentration (low vs. high), reducing sugars (low vs. high), and diet form (mash vs. pellet). There was no feed form × crystalline AA inclusion × RS inclusion interaction standardized ileal digestible (SID) AA. There was a feed form × RS interaction for SID tryptophan. Pigs fed pelleted high RS diets resulted in decreased SID of tryptophan compared to mash high and low RS diets, and pelleted low RS diets. For the main effects of feed form, the SID of total AA, CP, indispensable AA increased in pigs fed pelleted diets compared to those fed mash diets. For the main effects of crystalline AA inclusion, pigs fed low or high crystalline AA inclusion had similar SID of total AA and CP. Pigs fed high crystalline AA had increased SID of tryptophan compared to those fed low crystalline AA diets. The SID of lysine tended to increase in pigs fed high crystalline AA diets compared to those fed low crystalline AA inclusion diets. Pigs fed high crystalline AA had decreased SID histidine compared to those fed low crystalline AA diets. The SID of arginine and isoleucine tended to decrease in pigs fed high crystalline AA. In pigs fed high crystalline AA, the SID of serine and glycine decreased compared to those fed low crystalline AA. For the main effects of RS diets, pigs fed high RS diets had decreased SID of total AA, CP, indispensable AA, alanine, aspartic acid, cysteine, glutamic acid, and serine.

In conclusion... Diets in this experiment were pelleted to achieve a hot pellet temperature of approximately 190°F. There was no evidence of interactions between diet types. Therefore, pelleting diets with increased concentration of crystalline AA or RS at the conditions reported herein did not reduce the AA digestibility. However, pelleting diets resulted in improved AA digestibility. Diets formulated with increased concentrations of crystalline AA had increased SID of tryptophan. Diets formulated with 20% DDGS and 15% bakery meal (high RS) resulted in decreased AA digestibility compared to the corn-soybean meal-based diets. More information is available on this experiment and others in the KSU Swine Day report at www.KSUswine.org. (This study conducted by K.M. Dunmire, D.A. Lopez, C.J. Fiehler, C.K. Jones, Y. Li, J.C. Woodworth, R.D. Goodband, M.D. Tokach, C.R. Stark, H.H. Stein, and C.B. Paulk.)

↪ **Influence of Particle Size of Enogen® Feed High Amylase and Conventional Yellow Dent Corn on Nursery Pig Performance**

A total of 360 pigs were used in a 35-d growth trial to evaluate the influence of particle size of Enogen Feed high amylase and conventional yellow dent corn on nursery pig performance. Pigs were randomly assigned to pens (5 pigs per pen) and pens were allotted by weight to one of six dietary treatments in a randomized complete block design with 12 pens per treatment. Treatments were arranged in a 2 × 3 factorial with main effects of corn source (high amylase or conventional yellow dent) and 3 ground corn particle sizes (300, 600, or 900 microns). All pigs were fed a common pelleted diet for 7 days after weaning, then switched to experimental diets. Overall, from d 0 to 35, there were no differences among corn sources observed for ADG. As particle size of the diet increased, there was a tendency for ADG to be similar for pigs fed 300- and 600-micron ground corn, but decreased for pigs fed corn ground to 900 microns. There was a tendency for a corn source × particle size interaction for ADFI, with no change in ADFI for pigs fed conventional yellow dent corn, but a quadratic increase then decrease in ADFI for pigs fed high amylase corn. For F/G, there was also a corn source × particle size interaction observed with improved F/G as particle size was reduced for high amylase corn, but not for conventional yellow dent corn.

In conclusion... Reducing particle size of high amylase corn improves feed efficiency with no major differences between corn sources for overall daily gain. More information is available on this experiment and others in the KSU Swine Day report at www.KSUswine.org. (This study conducted by H.R. Williams, H.R. Kerkaert, M.D. Tokach, J.C. Woodworth, R.D. Goodband, J.M. DeRouchey, S.S. Dritz, C.B. Paulk, and H.I. Calderón.)

ASI FACULTY SPOTLIGHT...



Achilles Vieira-Neto (vieiraneto@k-state.edu; 785-532-7974)
Assistant Professor, Dairy Cattle Nutrition

Achilles Vieira-Neto was born in Itajaí, state of Santa Catarina, located in the south of Brazil. From a young age, during his time spent on the family farm, he knew he liked animals and wanted to be involved in veterinary medicine and animal agriculture.

In 2008, he began his studies in the School of Veterinary Medicine at Santa Catarina State University, in Lages, Santa Catarina, Brazil. Throughout his undergraduate work, he was involved with research and in his senior year he was awarded a scholarship by the Brazilian National Council for Scientific and Technological Development to study abroad. He moved to the University of Florida, where he worked with Dr. Klibs Galvão in the College of Veterinary Medicine and studied the development and treatment of uterine diseases in dairy cows. Upon finishing his externship, he returned to Brazil to complete his final year in veterinary medicine and then graduated in 2014.

He returned to the University of Florida in 2014 to begin his Master of Science program in Animal Sciences under the supervision of Dr. José Eduardo P. Santos. His research focused on dairy cattle mineral metabolism, health and reproduction completing the program and graduating in July of 2016. He continued his studies at the University of Florida and started his PhD program in the fall of 2016 in the Animal Molecular and Cellular Biology program under the supervision of Dr. José Eduardo P. Santos. His research focused on the role of acid base status and vitamin D metabolites on mineral metabolism during the transition period and their impacts on health.

Achilles Vieira-Neto was hired as a faculty member at Kansas State University in 2021, and he is currently an assistant professor with specialization in dairy cattle nutrition, endocrinology, and physiology. His current appointment is 60% research and 40% teaching.



Jayendra Amamcharla (jayendra@k-state.edu; 785-532-1221)
Associate Professor, Dairy Foods

Dr. Jayendra (Jay) Amamcharla obtained his B.S. (Dairying) in 1998 from Acharya N. G. Ranga Agricultural University, India and M.S. (Dairy Engineering) in 2001 from National Dairy Research Institute (NDRI), India. Dr. Amamcharla received his Ph.D. (Agricultural and Biosystems Engineering) in 2008 from North Dakota State University. Subsequently, he worked as a Postdoctoral Research Associate (2008-2012) at the Dairy Science Department, South Dakota State University. In July 2012, Dr. Amamcharla joined the Department of Animal Sciences and Industry at Kansas State University as an Assistant Professor with teaching and research responsibilities. His teaching responsibilities include Physical Methods of Food Analysis (FDSCI 728) and Research and Development of Food Products (FDSCI 740). His research focuses on the development and validation of rapid and nondestructive sensing technologies for quality and safety of dairy and food products.

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.*