News From KSU Animal Sciences

DECEMBER 2023

Merry Christmas and Happy New Year

On behalf of the Department of Animal Sciences and Industry, I'd like to wish you a Merry Christmas and Happy New Year! For our livestock producers, we have been able to find positives in cattle, sheep and goat market prices, an ease of feed prices starting in fall 2023, and finally a little moisture in some locations. However, we know that many parts of the state are still in a long drought that continues to take its toll on the land, livestock and the mental wellbeing of our farmers. Also, lack of profitability of swine and dairy producers has created challenges for those sectors. I am very proud of all of Extension personnel, state and local, who proactively provided information to producers in Kansas and beyond to assist in decision making. Please continue to use Extension as a source of unbiased information to help you in your livestock operations.

We are excited about the K-State Agriculture Innovation Initiative that is focused on building the capacity of K-State with new infrastructure to support students, faculty and the agriculture industry. The interdisciplinary approach will help continue to elevate K-State to help solve agriculture challenges facing our citizens. This will include a new Animal Science Event Center with its groundbreaking December 15, Weber and Call Hall renovations, a new Global Center for Grain and Food Innovation and a new Agronomy Research and Innovation Center. This is the largest single investment in agriculture at K-State and we are proud to be part of this exciting effort.

Thank you and have a Merry Christmas and Prosperous New Year,

Joel DeRouchey, Extension State Leader, Animal Sciences and Industry

KSU Calving Schools Planned

In anticipation of calving season, Kansas State University Animal Sciences and Industry and K-State Research and Extension are planning a series of calving schools in January. The program will outline overall calving management that includes stages of the normal calving process as well as tips to handle difficult calving situations. A.J. Tarpoff, K-State extension beef veterinarian, explains the goals of the event are to increase knowledge, practical skills, and to increase the number of live calves born if they need assistance. The schools will also share tips on when and how to intervene to assist the cow or heifer. Presenters will also demonstrate proper use of calving equipment on a life-size cow and calf model. "Our goal is for producers to leave better prepared for calving season," Tarpoff adds. "We will demonstrate building a proper calving kit, then discuss timelines on when to examine cows for calving problems, and when to call your vet for help if things are not going well, and how to care for the newborn calf. It's an excellent program regardless of experience level." The meetings will have other timely educational topics determined by each location.

Meetings scheduled include:

- Thursday, January 4, evening, Stafford County Annex, St. John, Kansas; RSVP to 21 Central District Extension Offices at Stafford County Office: 620-549-3502 or the Kinsley Office: 620-659-2149, or email baley@ksu.edu.
- Tuesday, January 9, evening, Haskell County Fairgrounds, Sublette, Kansas; RSVP to Wild West Extension Office at Stevens County Office: 620-544-4359, or email jsgreene@ksu.edu.
- Thursday, January 11, evening, Northeast Kansas Heritage Complex, Holton, Kansas; RSVP to Meadowlark Extension Holton Office at 785-364-4125, cmcmanigal@ksu.edu, or https://tinyurl.com/ksucalvingschoolholton.
- Thursday, January 18, evening, West Elk School, Howard, Kansas; RSVP to Rolling Prairie Extension Office at 620-374-2174, or email rfechter@ksu.edu.

Updated details about the Calving Schools is available at *KSUBeef.org*.

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Upcoming Events

January 4, 2024
Calving School
St. John, KS

January 9, 2024
Calving School
Sublette, KS

January 11, 2024
Calving School
Holton, KS

January 18, 2024
Calving School
Howard KS

February 6, 2024
Swine Profitability Conference
Manhattan, KS

February 29, 2024
Stockmen's Dinner
Manhattan, KS

March 1, 2024
Cattlemen's Day
Manhattan, KS

March 1, 2024
Legacy Sale
Manhattan, KS

March 2, 2024
K-State Junior Beef Producer Day
Manhattan, KS

March 16, 2024
K-State Junior Sheep Producer Day
Manhattan, KS

Upcoming Events

Swine Profitability Conference Registration Now Open

Registration is now open for Swine Profitability Conference happening on Tuesday, February 6 at the Stanley Stout Center in Manhattan, KS. The schedule includes:

9:15 a.m. Coffee and Donuts
9:30 a.m. Welcome
9:45 a.m. U.S. Pork/Meat Outlook
Dr. Steve Meyer, Partners in Production Agriculture
10:30 a.m. The National Bio & Agro-Defense Facility Capabilities
Dr. Chad Mire, National Bio and Agro-Defense Facility
11:15 a.m. Recent Trends in Swine Health Diagnostic Cases
Dr. Marcelo Almeida, Iowa State University
Noon Lunch
1:15 p.m. U.S. Pork Industry Update
Bryan Humphreys, National Pork Producers Council
2:00 p.m. J-Six Farms: Our Story and Continuing a Legacy
Dan Gerety, J-Six Farms
3:00 p.m. Adjourn

Pre-Registration Fee is $25 per participant by January 26; registration at the door is $50 per participant. The complete schedule and online registration information can be found at *KSUSwine.org*. For more information contact Katie Smith (katiesmith@ksu.edu or 785-532-1267).

Kansas 4-H EID Livestock Tag Orders

Kansas 4-H EID tag orders are now open and can be submitted to the KSU Youth Livestock Program. All market animals or commercial females that will be nominated for the 2024 Kansas State Fair Grand Drive and/or Kansas Junior Livestock Show (KJLS) must be tagged with an official Kansas 4-H EID tag. Market beef tag orders are due by December 15, 2023, with small livestock tag orders being due January 15, 2024. This year we are transitioning to an online order submission process, through Qualtrics. The links were distributed to extension units in November. After submitting the order online, offices will need to print a copy of the confirmation email received after submitting the order in the system, have the appropriate agent sign the bottom, and mail it, along with payment, to the youth livestock program. Those who wish to continue using the paper form may do so in lieu of submitting orders online. The forms are posted on the website. Tagging resources and details about the order process may be found on the KSU Youth Livestock Program, under the EID Tags tab. We have cycled back around to the beef and swine tag numbering sequences used in 2018. So, beef visual tag numbers 32000-34000 and swine tag numbers 34000-37000 from 2018 will not be eligible for nomination. They may, however, be used locally for animals only being shown at the county fair. All of the new meat goat tags ordered this year will be the round version that were piloted in 2021. If you still have some ribbon tags left, you may still use them, as either type will be accepted for state livestock nomination. The sheep tags used previous to 2023 have also been discontinued. So, the sheep tags will most likely be round, similar to the new meat goat tags, or a new square tag potentially being released by Allflex in 2024. Payment is required to accept any tag orders. Extension Units must designate an agent to be responsible for their tags, as well as keep records of the families and animals in which each tag is applied. For those units who would like to order all of their tags at once, one check reflecting the total amount can be issued. However, orders must be submitted through both the Beef and Small Livestock order links, then a copy of each receipt sent with the check for the total amount. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.

IRM Redbooks For Sale

The 2024 IRM Redbooks are here and a limited supply remains. These are sold on a first-come, first-serve basis. The price is $7.50 per book for orders of 10 or more and $7.75 per book for orders of less than 10, which includes postage. To order your supply of Redbooks, please contact Katie Smith (katiesmith@ksu.edu or 785-532-1267).

53rd Annual Stockmen's Dinner Planned for Feb. 29

The 53rd Annual Stockmen's Dinner is scheduled for February 29, 2024, at the Stanley Stout Center. Galen and Lori Fink, Randolf, Kansas, will be recognized as the 2024 Stockman of the Year.
Watch for registration to open in early January at *asi.ksu.edu/stockmensdinner*.

Upcoming Events

K-State Junior Beef Producer Day

K-State Junior Beef Producer Day is scheduled for Saturday, March 2, 2024, in Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth beef projects. All ages and knowledge levels are invited! K-State faculty members, the K-State Livestock Judging Team, graduate students, former exhibitors, and guest speakers will cover topics including selection, meat science, reproduction, health, nutrition, hair care, grooming, fitting, and showmanship. An optional instructor led YQCA session will be offered at the conclusion of the program. 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 beef producer day is $20 per person, if registration is submitted by February 12, 2024, or $25 per person after that date. All attendees, including youth and adults, must register. Only participants who register by February 12 will receive a t-shirt. Families may register online at *http://bit.ly/ksuasiregister*. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.

K-State Junior Sheep Producer Day

K-State Junior Sheep Producer Day will be hosted on Saturday, March 16, 2024, in Weber Arena on the K-State campus in Manhattan. This one-day educational event is devoted to the selection and management of youth sheep projects. All ages and knowledge levels are invited! K-State faculty members, graduate students, undergraduate students, former exhibitors, and guest speakers will cover topics including selection, meat science, nutrition, reproduction, the starter flock program, wool, 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. 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 sheep producer day is $20 per person, if registration is submitted by February 26, 2024, or $25 per person after the early deadline. All attendees, including youth and adults, must register. Only those who register by February 26 will receive a t-shirt. Families may register online at *http://bit.ly/ksuasiregister*. For more information, contact Lexie Hayes at adhayes@ksu.edu or 785-532-1264.

Registration Now Open for 2024 Cattlemen's Day

The 111th Cattlemen's Day will be hosted on Friday, March 1 in Weber Hall and Arena in Manhattan, KS. Registration will be $25 in advance or $35 per person at the door. Morning refreshments and lunch are included with registration. A complete schedule will be coming soon to *www.asi.ksu.edu/cattlemesday* 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 or 785-532-5427) or Katie Smith (katiesmith@ksu.edu or 785-532-1267).

The 47th Legacy Sale will be Friday, March 1, 2024, at the Stanley Stout Center.

This year's offering will include Angus, Simmental and Hereford bulls, a group of bred cows and commercial heifers.

For more information and to find the catalog after Feb. 10 visit *asi.ksu.edu/legacysale*

Jobs Available - Now Hiring

Professor-(Assistant/Associate/Full)- Job #Job #515982)- We are seeking applicants for a 12-month, tenure-track position (40% Teaching, 60% Research) at the rank of Assistant or Associate Professor (commensurate with experience) that will contribute primarily to our teaching and research missions in dairy foods processing within the Animal Sciences and Industry Department (ASI). The ASI Department is a national leader in teaching, research and outreach focused on animal and food sciences. ASI is home to the undergraduate Food Science & Industry degree program, which is accredited through the Institute of Food Technologists. The successful individual will be expected to develop a nationally recognized, externally funded research program in dairy food processing that is linked with a dynamic graduate research program. Teaching responsibilities will include Dairy Foods Processing & Technology (ASI 608) and other coursework consistent with the program's needs and the selected individual's interests. K-State is also home to the cross-disciplinary Food Science Institute (FSI) which provides many opportunities to participate in world-class interdisciplinary research, graduate training and teaching activities. Some of these opportunities involve agricultural security and sustainability, functional and healthy food systems, and the K-State Global Food Systems Initiative (https://www.k-state.edu/research/global-food/). Major facility construction and renovations are underway in the food/animal/grain science areas at K-State, including renovation of the K-State dairy processing plant, Call Hall Dairy Bar and research laboratories. Experience in creamery operations, fluid milk processing, and/or manufacture of dairy ingredients is desirable as the successful applicant will supervise the managers of these dairy foods facilities and use them in support of their program. To apply, go to *https://careers.k-state.edu/cw/en-us/job/515982/assistant-or-associate-professor*.

KSU Beef Cattle Research Center- Research Assistant (Job # 516431)- This is a full-time unclassified professional staff, term contract position. This position will function as part of the KSU Beef Cattle Research Center by conducting research and basic maintenance operations with undergraduate and graduate students related to growing and finishing cattle health and nutrition management. This position must be able to independently conduct and direct subordinates on specific tasks and ensure that all cattle are fed and water is available. All cattle are evaluated for potential illness, removed if necessary, appropriately treated as per protocol and returned to the correct pen. This position will ensure that all research data are correctly collected, entered collected, entered into a spreadsheet and summitted for analysis. This position will ensure that the unit is in compliance with Institutional Care and Use Requirements and oversee the daily care of esophageal, ruminally and/or intestinally fistulated cattle located at the facility. This position will be able to communicate with cattle owners as needed and generate invoices in a timely manner. This position will order feed supplies and process hay in a timely manner, The incumbent may be expected to recruit and interview undergraduate students for labor and mentor their development in skills. To read more details and to apply, go to https://careers.k-state.edu/cw/en-us/job/516431/research-assistant

Dairy Teaching and Research Center Manager (Job #515771) – This is a full-time, unclassified professional staff, Term Contract. The DTRC Manager is responsible for the day-to-day management of personnel, animals, and unit facilities at the DTRC. The incumbent will also work closely with faculty and students to facilitate research trials at the DTRC. Animal care – The DTRC Manager oversees the routine care (feeding, milking, reproductive management, herd health, waste management, etc.) of the mature cows and young stock. The incumbent will work with herd veterinarians and faculty supervisors to establish, execute, and evaluate standard operating protocols for maintaining optimum animal care, herd production, and research study outcomes. Operational management – The DTRC Manager will oversee and conduct routine daily operational management of the facility. Supervision – The DTRC Manager will lead a talented team of employees to ensure adequate care of livestock and daily operations of the DTRC. To read more details and to apply, go to *https://careers.k-state.edu/cw/en-us/job/515771/dairy-teaching-and-research-center-manager*.

Animal Technician Supervisor—Dairy Teaching and Research Center (Job # 515576) -This is a full-time, unclassified professional staff, term contract position. This position is critical to the overall operation of the KSU Dairy Teaching and Research Center. It involves supervision of other employees and the care and comfort of the animals housed at the DTRC at Kansas State University. Incumbent functions as the assistant manager of the Dairy Teaching and Research Center and is responsible for ensuring the safety of the cows and other dairy unit employees. Assumes responsibility for operation of the dairy unit in the manager's absence. Incumbent is responsible for milking cows at least two days each week and for making vital animal observations during the milking process. Incumbent is responsible for collecting sterile samples of milk to be tested for antibiotics or bacteria. To apply, go to *https://careers.k-state.edu/cw/en-us/job/515576/animal-technician-supervisor*.

Check out the monthly ASI headlines at *https://bit.ly/KSUASIHeadlines*

What's New for Beef Cattle Producers

Management Minute

"Organizational Reflection"

The current year will soon be ending. This is a great time for individuals and organizations to reflect back on the events of the past 12 months. The value of reflection within an organization dramatically increases if it used as a tool to evaluate not only where the organization has been but also where it is headed. A few basic questions may be used to guide the process.
What did you or the business succeed at?
What were your failures?
What was learned from those successes and failures?
What would you like to do more of or what generated positive outcomes for the organization?
What should you stop doing?

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

Feedlot Facts

"Cold Stress in Cattle"

Winter is here and most cattle producers appreciate that cold weather increases nutrient requirements. However, what increases and by how much?
Cattle are most comfortable within the thermonuetral zone when temperatures are neither too warm nor cold. The upper and lower boundaries of the thermonuetral zone are referred to as the upper and lower critical temperature. During the winter months cattle experience cold stress anytime the effective ambient temperature, which takes into account wind chill, humidity, etc., drops below the lower critical temperature. The lower critical temperature is influenced by both environmental and animal factors including hair coat and tissue insulation (body condition). The table below lists the estimated lower critical temperatures of cattle in good body condition with different hair coats. In wet conditions cattle can begin experiencing cold stress at 59°F, which would be a relatively mild winter day. However, if cattle have time to develop a sufficient winter coat the estimated lower critical temperature under dry conditions is 18°F.

Estimated lower critical temperatures for beef cattle	
Coat Condition	Critical Temperature
Wet or summer coat	59°F
Dry fall coat	45°F
Dry winter coat	32°F
Dry heavy winter coat	18°F

Cold stress increases maintenance energy requirements but does not impact protein, mineral or vitamin requirements. The general rule of thumb (for a cow in good body condition, BCS = 5 or greater) is to increase the energy density of the ration by 1% for each degree (Fahrenheit) below the lower critical temperature. The classic response to cold stress in confinement situations is an increase in voluntary intake. However, it has been documented that cattle maintained in extensive environments (native range, wheat pasture, corn stalks) may spend less time grazing as temperatures decline below freezing, which reduces forage intake (Adams et al., 1986) and makes the challenge of meeting the cow's nutrient requirements even greater. In many cases feeding a greater amount of low-quality hay will replace grazed forages but may not provide sufficient energy. Therefore providing additional energy by feeding a higher-quality hay or fiber-based supplement (DDGS, Corn gluten feed, or Soybean Hulls) may be required.

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

KSU Cow-Calf Checklist - December 2023

Management Considerations for February 2024

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

Cow Herd Management

- Target BCS at calving for spring-calving cows:
  - 5 for mature cows
  - 6 for young females
- Be ready to start your post-calving nutrition program for spring-calving cows.
- Evaluate fall-calving cows for BCS:
  - Adjust nutrition program as needed relative to weaning date
- If conditions allow, keep grazing crop residues and dormant pastures but be prepared to move cattle or provide supplemental feed.
- Increase energy content 1% for every degree F below the lower critical temperature (LCT) when dry, 2% if they have a wet hair coat.
- Put down bedding, remove snow, ensure cattle have access to wind protection.
- Supply adequate water volume and space in freezing conditions.
- Don't forget about your herd bulls!
  - Bulls need to be in a BCS ≥ 5.0 prior to the next season of use
  - Keep young and mature bulls separate if possible and provide plenty of space to prevent injury
  - Spread sufficient fresh bedding to help avoid testicular frostbite

Calf Management

- Do you have a plan for weaning and marketing fall-born calves?
  - Evaluate your feed resources and cost of gain relative to the value of gain
  - Talk to prospective buyers in advance of selling
- Evaluate calf health protocols, both spring- and fall-born calves.
- Monitor growth and pubertal development of replacement heifers.

General Management

- For spring-calving herds this calving season:
  - How are you going to record your calving data?
  - What information are you going to record?
- Take inventory of supplies and clean equipment prior to spring calving.
- 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.

K STATE BEEF
KSUBeef.org

What's New for Swine Producers

The Effect of Live Yeast Probiotics in Lactation Diets with and without a Yeast Prebiotic in Nursery Diets on Lifetime Growth Performance, Antibody Titers, and Carcass Characteristics-A total of 28 mixed parity sows (Line 241 DNA) and their offspring were used in a farrow-to-finish study to evaluate the effect of live yeast supplementation during lactation with or without yeast extract supplementation during the nursery period on sow and litter performance and lifetime growth performance, serum antibody titers, and carcass characteristics. Sows were blocked by parity and BW on d 110 of gestation and allotted to 1 of 2 dietary treatments which consisted of a standard corn-soybean meal lactation diet with or without yeast-based probiotics (0.10% Actisaf Sc 47 HR+; Phileo by Lesaffre, Milwaukee, WI). Following weaning, a total of 350 pigs (241 × 600 DNA; initially 13.5 ± 0.05 lb) were randomly assigned within sow treatment to 1 of 2 nursery diets which consisted of a control diet or a diet that contained yeast prebiotics (0.10% MS309; Phileo by Lesaffre, Milwaukee, WI) for 42 d after weaning (d 59 of age). After this time, two nursery pens of the same treatment were combined into one finishing pen and pigs were fed common diets until market. There were no significant effects of live yeast supplementation on lactation performance ($P > 0.079$). A sow × nursery diet interaction ($P = 0.024$) was observed during the nursery period where pigs from sows fed Actisaf had improved ADG when fed the control nursery diet compared to pigs from control sows that were fed the control nursery diet. Pigs fed MS309 in the nursery from either sow treatment were intermediate. Pigs from Actisaf sows tended to be heavier at marketing ($P = 0.067$) with heavier HCW ($P = 0.101$) but there were no differences in overall finishing growth performance with the inclusion of live yeast in lactation diets or yeast prebiotics in nursery diets ($P > 0.100$). Subsets of pigs were bled on d 22, 38, 50, 66, 78, 101, and 162 of age to determine porcine circovirus type 2 (PCV2) and Mycoplasma hyopneumoniae antibody sample-to-positive (S/P) ratios and on d 50, 66, 78, 101, and 162 of age to determine the percent inhibition of Lawsonia intracellularis. An S/P ratio is representative of antibodies present in the blood for that specific pathogen. There was a tendency for a sow diet × day interaction for the PCV2 S/P ratio ($P = 0.097$) where offspring from sows fed live yeast had higher PCV2 S/P ratios at 101 d of age compared to offspring from control sows ($P = 0.046$). There was a nursery diet × day interaction for the PCV2 S/P ratio ($P = 0.036$) where pigs fed MS309 during the nursery period had reduced PCV2 S/P ratios at 66, 78, and 162 d of age ($P < 0.022$). In conclusion, feeding a yeast prebiotic in the nursery did not affect performance or immune parameters. Conversely, feeding a live yeast probiotic during lactation resulted in a tendency to improve ADG during the nursery period, final BW, and numerically improve HCW. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. *(This study conducted by Abigail K. Jenkins, Joel M. DeRouchey, Jordan T. Gebhardt, Jason C. Woodworth, Mike D. Tokach, Robert D. Goodband, Joseph A. Loughmiller, and Brian T. Kremer.)*

Evaluation of Precision Feeding SID Lysine to Lactating Sows on Sow and Litter Performance, Nitrogen Level, and Feed Cost-A total of 95 mixed parity sows (DNA 241) and litters (DNA 241 × 600) were used across four batch farrowing groups to evaluate the effects of precision feeding Lys during lactation. Sows were blocked by parity and allotted to 1 of 3 treatments on day 2 (the day after farrowing) of lactation. Dietary treatments were formed by using 2 diets: a low Lys diet (0.25% SID Lys) and a high Lys diet (1.10% SID Lys). Treatments included a control, NRC (2012), or INRA (2009) treatment curve. Sows on the NRC or INRA treatment curves received a blend of the low and high diet using the Gestal Quattro Opti Feeder (Jyga Technologies, St-Lambert-de-Lauzon, Quebec, Canada) to target a specific SID g/d of Lys intake for each day of lactation based on the NRC and INRA models for each sow parity and litter size combination. Sows on the control treatment received only the high Lys diet with no diet blending or specific g/d of Lys target. Sows were allowed ad libitum access to feed throughout lactation. Lysine intake was 102% of targeted average g/d of Lys intake during lactation for sows fed the NRC treatment curve and 98% of targeted average g/d for sows fed the INRA treatment curves. Sows fed only the high Lys diet (control) had greater ($P < 0.05$) average g/d of Lys intake compared to sows fed either the NRC or INRA treatment curves. No differences ($P > 0.05$) in sow weight, backfat, caliper score, or loin depth change were observed among treatments. However, litters from sows fed the control treatment had greater ($P < 0.05$) litter weight on d 9 and weaning compared to litters from sows fed either the NRC or INRA treatment curves. Pigs from sows fed the control treatment had greater ($P < 0.05$) BW at weaning and preweaning ADG compared to pigs from sows fed the INRA treatment curve, with pigs from sows fed the NRC treatment curve intermediate. Sows fed the NRC treatment curve had a greater ($P < 0.05$) feed cost per lb of litter gain compared to sows fed the control treatment, with sows fed the INRA treatment curve intermediate. This was unexpected because sows fed the NRC treatment curves had a blend of the low and high Lys diets which had a decreased feed cost per lb compared to the control diet. However, this was the result of higher feed intake of sows fed the NRC treatment curve. Sows fed the control treatment had the highest ($P < 0.05$) N excretion and sows fed the INRA treatment curve the lowest, with sows fed the NRC treatment curve intermediate. Sows fed the control treatment had greater ($P < 0.05$) serum urea nitrogen concentration on d 9 and at weaning compared to sows fed the NRC and INRA treatment curves. In summary, pigs from sows fed a single diet (control) that did not utilize feed blending had increased pig growth performance during lactation compared to pigs from sows fed the NRC or INRA treatment curves. This is likely because the NRC and INRA estimated Lys requirements are too low to maximize litter growth performance and not because they were on a feed blending curve. Future research should be aimed at examining the effects of blending high and low Lys diets, while providing daily Lys intakes with greater dietary SID Lys concentrations, to achieve similar litter growth performance compared to conventional feeding of a high Lys diet. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. *(This study conducted by Mikayla S. Spinler, Jordan T. Gebhardt, Joel M. DeRouchey, Mike D. Tokach, Robert D. Goodband, Hyatt L. Frobose, and Jason C. Woodworth.)*

What's New for Swine Producers

Evaluation of Precision Feeding Standardized Ileal Digestible Lysine to Meet the Lactating Sow's Requirement and Maximize Piglet Growth Performance- A total of 56 mixed parity sows (DNA 241, Columbus, NE) and litters (DNA 241 × 600) were used across two batch farrowing groups to evaluate the effects of precision feeding SID Lys during lactation. Sows were blocked by parity and allotted to 1 of 3 treatments on day 2 of lactation (the day after the start of farrowing). The first treatment was a control treatment where sows were provided a 1.10% SID Lys diet throughout lactation. The second and third treatments included sows fed either a static blend curve or a dynamic blend curve. Both blend curve treatments utilized the Gestal Quattro Opti Feeder (Jyga Technologies, St-Lambert-de-Lauzon, Quebec, Canada) to blend a low and high Lys diet to target a specific SID g/d of Lys intake for each day of lactation. The only difference between the static blend curve and dynamic blend curve was that the dynamic blend curve of the low and high Lys diet was adjusted every 2 days based on a rolling average of Lys intake to more closely reach target g/d of Lys intake while the static blend curve was not adjusted throughout lactation. Lysine intake curves were based on the NRC (2012) model estimates, but targets were increased by 20% to reach an average Lys intake of approximately 60 g/d across parities. Dietary treatments for sows on the blend curve treatments were formed by blending a low Lys diet (0.40% SID Lys) and the control high Lys diet (1.10% SID Lys). Actual SID Lys intake was 97% of the targeted g/d for sows fed the static blend curve and 96% of targeted g/d for sows fed the dynamic blend curve. Sows fed the control treatment had greater Lys intake (g/day; $P < 0.05$) compared to sows fed either of the blend curve treatments, with no differences between the two blend curve treatments ($P > 0.05$). No differences in sow ADFI or sow body weight, backfat, or loin depth at entry or weaning were observed among treatments ($P > 0.05$). There were no differences among treatments observed in litter size, piglet weight at birth or weaning, ADG, and litter weight or ADG ($P > 0.05$). Because sows fed either blend curve had a numerically greater ADFI, no differences in sow feed cost were observed ($P > 0.05$). Sows fed the control treatment excreted more N and had a higher serum urea N concentration compared to sows fed either blend curve treatment ($P > 0.05$). Based on the results of the study, blending a low and high Lys diet can be used during lactation to decrease N excretion and achieve similar piglet growth performance compared to results for piglets from sows fed only a high Lys diet throughout lactation. Furthermore, these data would suggest that 60 g/d of SID Lys is sufficient to maximize litter weight gain for litter sizes of 13.5 weaned piglets. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. *(This study conducted by Mikayla S. Spinler, Jordan T. Gebhardt, Joel M. DeRouchey, Mike D. Tokach, Robert D. Goodband, Hyatt L. Frobose, and Jason C. Woodworth.)*

Influence of Herbal Active D on Nursery Pig Growth Performance- A total of 2,268 pigs (L337 × 1050 PIC; initially 12.1 ± 0.39 lb) were used in a 42-d growth study to evaluate the effects of herbal active D on growth performance, bone characteristics, and serum parameters of nursery pigs. Pigs were weaned at approximately 21 d of age and randomly allotted to 1 of 3 dietary treatments in a randomized complete block design. A total of 84 pens were used with 27 pigs per pen and 28 replications per treatment across 2 rooms. Pens were blocked by BW and weaning date. Dietary treatments were corn-soybean meal-based and fed in 3 phases. Treatment diets consisted of a control (contained 1,650 IU/kg of vitamin D3), or control with the addition of 120 or 200 mg/kg of herbal active D (Phytobiotics, St. Louis, MO). At the end of the study, 10 pigs per treatment were euthanized and the right fibula, metacarpal, 2nd rib, and 10th rib were collected to determine bone density, bone breaking strength, and percentage bone ash by utilizing the de-fatted processing method. Overall (d 0 to 42), there was a marginally significant ($P = 0.067$) worsening of feed efficiency as inclusion of herbal active D increased but no effect ($P > 0.10$) on final BW, overall ADG, ADFI, or mortality. There was a bone × treatment interaction for bone density, where increasing herbal active D increased bone density for the 2nd rib ($P = 0.012$), but there was no difference between treatments for other bones ($P > 0.10$). For bone breaking strength and bone ash, there was no evidence ($P > 0.10$) of an interaction. For bone breaking strength, the metacarpal had greater breaking strength ($P < 0.001$) compared to all other bones, followed by the fibula and 10th rib, with the 2nd rib having the lowest bone breaking strength. For percentage bone ash, there was significant linear increase ($P = 0.026$) across all bones as herbal active D increased. For bone ash weight, the metacarpals and 10th ribs had the highest bone ash weight followed by the fibula, with 2nd rib having the lowest ($P < 0.05$) bone ash weight. Additionally, there was no difference ($P > 0.10$) across treatments for porcine circovirus type 2 S/P ratio, porcine reproductive and respiratory syndrome, Mycoplasma hyopneumoniae, 25(OH)D3 status or circulating cytokine concentrations except for IL-8 concentrations which increased linearly ($P = 0.027$) as herbal active D increased. However, a day effect was observed ($P < 0.001$) with higher values for antibodies and cytokine concentrations on d 21 compared to d 42, except for IL-1ra and IL-8 having no significant ($P > 0.10$) day effect. In summary, herbal active D inclusion had minimal impact on growth or serum parameters; however, herbal active D increased percentage bone ash. More information is available on this experiment and others in the KSU Swine Day report at KSUSwine.org. *(This study conducted by Larissa L. Becker, Mike D. Tokach, Jason C. Woodworth, Robert D. Goodband, Joel M. DeRouchey, and Jordan T. Gebhardt.)*

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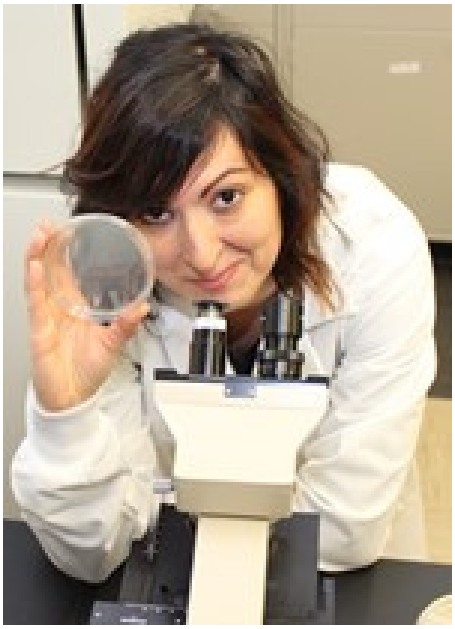
ASI Faculty Highlight



Valentina Trinetta (vtrinetta@ksu.edu or 785-532-1667)
Associate Professor- Food Science

With an emphasis in Food Safety and Microbiology, Dr. Trinetta's research focuses on understanding foodborne pathogens ecology and identifying microbial entry routes into the food supply chain (from farm to fork). Dr. Trinetta also works on the development and implementation of antimicrobial intervention strategies to reduce and control foodborne pathogens on different commodities. Recently, Dr. Trinetta has expanded her research to the international scale with a project focused on evaluating microbial contamination in produce distribution centers for informal markets in Cambodia.

The main microorganisms studied in Dr. Trinetta's lab include Salmonella monovariant, Listeria and STEC E. coli.

Born and raised in Lake of Como area (Italy), Dr. Valentina Trinetta always enjoyed the idea to make an impact for the community, keeping food safe. She obtained her degrees in Food Science and Technology with an emphasis on active packaging and food safety. During her study, she moved to the USA as a visiting scholar (Penn State University). After her post-doctoral training (Purdue University), she worked 4 years at the Research and Development Center of ECOLAB. Dr. Trinetta started her position as an Assistant Professor at KSU in 2016 and she is enjoying Manhattan community with her husband, daughter, Eleanor, and son, Michael.

Timothy Rozell (trozell@ksu.edu or 785-532-2239)
Professor- Physiology

Dr. Rozell began the process of growing up in Garrison, Missouri, back in the late 20th century. He completed his B.S. and M.S. degrees at the University of Missouri and then earned his Ph.D. at Washington State University. After a three-year postdoctoral fellowship at the University of Iowa, Dr. Rozell was hired in 1997 at Kansas State University with a 70% Teaching and 30% Research appointment. His primary teaching role is ASI 533, Anatomy and Physiology, a 4-credit hour course that is taught every semester to an average of about 120 students per semester. Dr. Rozell has also taught a course on the physiology of lactation, which has now been converted to “Endocrinology and Lactation.” In addition, he co-teaches a lambing class with Dr. Payton Dahmer in the spring that offers students hands-on experience with livestock. Dr. Rozell has led study tours to Switzerland, Germany and France. Dr. Rozell’s current research program focuses on heat stress in dairy cattle, and the role of exercise and physical activity on heat tolerance in cows.

During the 2004-2005 school year, Dr. Rozell went on Sabbatical in Scotland to help develop new research techniques to examine expression of variant forms of the follicle stimulating hormone receptor in cows and sheep. There he collaborated with the University of Glasgow's College of Veterinary Medicine.

Dr. Rozell resides in Manhattan with his wife, Marcia, and their Border Collie, MacKenzie. The Rozells have two children (neither of whom is smarter than the dog): Sam, who is working on his Master’s in Biomedical Engineering at the University of California – San Diego, and Josie, who is a professional writer and English teacher in Aukland, New Zealand. Dr. Rozell continues to grow up, and has no plans to finish the process anytime soon.

*We need your input! If you have any suggestions or comments on **News from KSU Animal Sciences**, please let us know by email to katiesmith@ksu.edu*