News from KSU Animal Sciences

- **It is not too late to join us for the 2020 KSU Swine Day – Virtual Conference**. The 2020 KSU Swine Day will be hosted virtually on Wednesday and Thursday, November 18-19, via Zoom webinar platform from 10 am – 12 noon each day. The program will include updates on KSU research on nutrition, feed safety and feed processing. To register, go to http://bit.ly/2020SwineDay. The virtual conference will be complimentary, thanks to the generous support of our sponsors. For updates, visit www.KSUswine.org and follow the 2020 KSU Swine Day link. For more information, contact Joel DeRouchey (jderouch@ksu.edu; 785-532-2280) or Lois Schreiner (lschrein@ksu.edu; 785-532-1267).

- The **2021 K-State Swine Profitability Conference** has been postponed to 2022. The event will be hosted on February 1, 2022, at the Stanley Stout Center, Manhattan, KS. Due to concerns around the COVID-19 situation, event size limitations, and standing by the department's commitment to keeping the safety of participants as its top priority, the decision has been made to cancel the 2021 event. For questions, contact Joel DeRouchey (jderouch@ksu.edu; 785-532-2280) or Lois Schreiner (lschrein@ksu.edu; 785-532-1267).

- A series of **KSU Calving Schools** has been planned for January 2021 in anticipation of calving season. The program will outline overall calving management that includes stages of the normal calving process as well as tips to handle difficult calving situations. The goals of the event are to increase knowledge, practical skills and the number of live calves born if they need assistance. Dates and locations for the 2021 calving schools include:
  January 6 – Emporia, KS
  January 11 – Winfield, KS
  January 13 – Blue Rapids, KS
  January 21 – Dodge City, KS
  Watch www.KSUBeef.org for more details and registration information. For questions, contact A.J. Tarpoff (tarpoff@ksu.edu; 785-532-1255).

- **Kansas Junior Producer Days** - The Kansas Junior Producer Days will be hosted in February and March 2021 as a virtual series during the course of a week. The Junior Swine Producer Week will be February 15-20. Presentations will be provided a couple of days during the week, with the final sessions and discussions being on Saturday morning. All of the sessions will be recorded and shared with those who register. Junior Meat Goat Producer Week will follow a similar format March 15-20. All youth, parents, leaders and extension agents are invited to participate in these educational experiences. K-State faculty members, graduate students, veterinarians, extension agents, guest speakers, and specialists will speak about various topics related to project management specific to each species. Tentative topics include selection, nutrition, meat science, health, and showmanship. More details and registration information will be released in the coming weeks. Please watch the youth livestock program website (www.YouthLivestock.KSU.edu) and Facebook page for updated information and a link to register. For more information, contact Lexie Hayes (adhayes@ksu.edu; 785-532-1264).

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K-STATE Research and Extension

CALENDAR OF UPCOMING EVENTS		
Date	**Event**	**Location**
November 18-19, 2020	KSU Swine Day Virtual Conference	
January 6, 2021	KSU Calving School	Emporia, KS
January 11, 2021	KSU Calving School	Winfield, KS
January 13, 2021	KSU Calving School	Blue Rapids, KS
January 21, 2021	KSU Calving School	Dodge City, KS
February 15-20, 2021	Junior Swine Producer Week – Virtual event	
March 15-20, 2021	Junior Meat Goat Producer Week – Virtual event	

What's New…..

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

"Organizational Culture"

Organizational or corporate culture is one of "buzzwords" in today's business world. Although not a new term by any means (originating in the 1960s), the term has undoubtedly received more attention as many companies have created unconventional employee centered environments. What does corporate or organizational culture mean? What is the role of a leader or manager in an organization's culture? Many different sources define corporate culture as the shared beliefs, values, standards, systems, policies and perceptions held by employees. Informally, the culture of company may be characterized by asking the company's employees a few questions. What words best describe the organization? What behaviors or efforts are rewarded? What is the company's number one priority? In some cases two very different cultures may exist within an organization: a formal corporate culture (i.e. mission statements and core value statements) and an informal corporate culture (views of the employees). Corporate culture is generally regarded as progressing from the top down, where leadership initiates and stewards the corporate culture by hiring and promoting individuals who represent/embrace the corporate culture. More importantly, managers and leaders must model the corporate culture in their interactions with both customers and employees. Corporate culture may be healthy or unhealthy. Is the culture of your organization positively contributing to the business? As a manager, does the corporate culture align with your values and beliefs? Are you incentivizing and rewarding employees for doing the right thing?

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

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

"How Much Water Do Those Cows Need?"

Most cattle producers fully understand the importance of water. After all, providing an adequate supply of clean, fresh water is the cornerstone of animal husbandry and there are very few things that compare to the feeling of finding thirsty cows grouped around a dry tank. Water is important and, in situations where the water supply is limited or water is being hauled (i.e. grazing crop residues), one of the first questions we find ourselves asking is "how much water do those cows need"? The old rule of thumb is that cattle should consume 1-2 gallons of water per 100 lbs of bodyweight. Water consumption increases linearly as ambient temperature increases above 40° Fahrenheit such that cows require an additional gallon of water for every 10 degree increase in temperature. Additionally, lactation also directly increases the amount of water required by beef cows. The table below summarizes the daily water requirements of beef cows of several different body weights, milk production levels and ambient temperatures (Adapted from Spencer, 2016).

		Average Daily Temperature, °F		
		40	65	90
Cow weight, lb	Milk Production, lb/d	Gallons of Water/day		
1100	0	8.2	10.8	13.4
	10	10.5	13.1	15.7
	25	12.8	15.4	17.9
1300	0	9.2	11.8	14.3
	10	12.2	14.8	17.4
	25	14.5	17.1	19.7
1500	0	10.2	12.7	15.3
	10	14.0	16.5	19.1
	25	16.3	18.8	21.4

Spencer, C., Lalman D. Rolf, M., Richards, C. 2016, Estimating water requirements for beef cows. Kansas State University MF3303. https://www.bookstore.ksre.ksu.edu/pubs/MF3303.pdf

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

- The Department of Animal Sciences and Industry at Kansas State University is seeking applicants for the position of **Animal Technician II - Dairy Unit (999 Temp)**. This is a part-time, University Support Staff (USS) position and exists to milk, feed and provide care of Dairy Teaching and Research Center dairy herd, which is used for teaching and research purposes. This is a relief milking position in which the candidate must be available 24 hours a day, 7 days a week to be called in to work. Application deadline: Screening begins immediately and will continue until a suitable candidate is identified. For more information, contact Mike Scheffel, search committee chair, at 785-537-0941 or scheffel@k-state.edu. To apply, go to https://careers.k-state.edu/cw/en-us/job/509658/animal-technician-ii.

- **The Effects of Filter Type and Warm-Up Time on Pellet Durability Index Using the Holmen NHP100 Portable Pellet Tester -** The Holmen NHP100 is a portable forced air pellet tester commonly used by the feed industry to determine the pellet durability index (PDI). The objective of this study was to determine the effect of filter type and machine warmup time on PDI. A corn-soybean meal-based grower diet was conditioned at 185°F for 30 sec and subsequently pelleted using a laboratory pellet mill equipped with a 0.16- × 0.5-in die. Production rate was 120 lb/h. Once cool, pellets were analyzed for PDI using the NHP100 with a 60-sec run time. Air temperature and pressure within the NHP100 were recorded throughout the experiment. Treatments were arranged in a 3 × 8 factorial with varying filters (none, factory tissue filter, or commercial paper towel filter) and machine warmup time (0, 3, 6, 9, 12, 15, 18, or 21 min). There were three replicates per treatment. Pellets were sifted before and after analysis for separation of fines and pellets using a U.S. #6 standard sieve. There was a filter × warm-up time interaction for air temperature. The air temperature without warm-up time (0 min) was greater with the factory filter and paper towel compared to no filter. Air temperature remained similar regardless of filter type as the warm-up time increased from 6 to 21 min. There was a filter × warm-up time interaction for air pressure. At 0 min warm-up time, there were no differences in air pressure between none, factory and paper towel filters. At 3 to 21 min warm-up time, air pressure remained similar between factory and paper towel filters, while no filter was greater than the paper towel filter. There was a filter × warm-up time interaction for PDI. For no filter, increasing warm-up time from 0 to 6 min increased PDI with no further increase from 6 to 21 min. However, there were no differences in PDI with increasing warm-up time when using the factory filter or paper towel. Using the factory filter or paper towel had similar PDI, but resulted in greater PDI compared to no filter.

  Bottom Line… In conclusion, warm-up time did not influence air temperature, pressure, or PDI when using a filter. Therefore, it is suggested to use a filter when conducting PDI analysis using the Holmen NHP100. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. *(This study conducted by C.E. Evans, R.N. Kort, M. Saensukjaroenphon, H.K. Wecker, C.B. Paulk, and C.R. Stark)*

- **Effects of Grinding Corn with Different Moisture Concentrations on Subsequent Particle Size and Flowability Characteristics -** The objective of this study was to determine the effects of whole corn moisture and hammermill screen size on subsequent ground corn moisture, particle size, and flowability. Whole yellow dent #2 corn was used for this experiment. Treatments were arranged as a 2 × 2 factorial design with two moisture concentrations (as-received and high) each ground using 2 hammermill screen sizes (1/8 and 1/4 in). Corn was ground using a laboratory scale 1.5 HP Bliss Hammermill at 3 separate time points to create 3 replications per treatment. Increasing initial whole corn moisture was accomplished by adding 5% water and heating at 55°C for 3 hours in sealed glass jars using a Fisherbrand Isotemp Oven. Ground corn flowability was calculated using angle of repose, percent compressibility, and critical orifice diameter measurements to determine the composite flow index. There was no evidence for a screen size × corn moisture interaction for moisture content, particle size, standard deviation, or flowability metrics. Grinding corn using a 1/8 in screen resulted in decreased moisture content compared to corn ground using the 1/4 in screen. There was a decrease in particle size from the 1/4 in screen to the 1/8 in, but no evidence of difference was observed for the standard deviation. There was a decrease in percent compressibility as screen size increased from 1/8 to 1/4 in. Angle of repose tended to decrease when corn was ground using a 1/4 in screen compared to a 1/8 in screen. For the main effects of moisture content, high moisture corn had increased ground corn moisture content compared to as-received corn. As-received corn resulted in decreased particle size and an increased standard deviation compared to the high moisture corn. Increased moisture content of corn increased CFI and tended to decrease AOR and COD.

  Bottom Line… In conclusion, decreasing hammermill screen size increased moisture loss by 0.55%, corn particle size by 126 µm, and resulted in poorer flowability as measured by percent compressibility and AOR. High moisture corn increased subsequent particle size by 89 µm, therefore improving flowability as measured by CFI. More information is available at www.KSUswine.org. (This study conducted by M.B. Braun, K.M. Dunmire, C.E. Evans, C.R. Stark, and C.B. Paulk)

ASI Faculty Spotlight

J. 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. Prior to K-State, 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.

A.J. Tarpoff (tarpoff@k-state.edu; 785-532-1255)
Assistant Professor/Extension Veterinarian

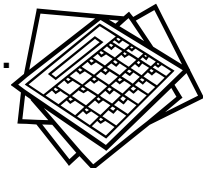
Anthony John (A.J.) Tarpoff was born and raised in Edwardsville, Illinois. A.J.'s family owned and operated a beef processing plant and a steakhouse. He received his B.S. in Animal Science at Kansas State University in 2010. In 2012, he received his D.V.M, and M.S. in Biomedical Science at Kansas State University.

After earning his D.V.M., he accepted an associate feedlot veterinarian position at Alberta Beef Health Solutions in Southern Alberta, Canada. His focus in practice was herd-based cattle production medicine, research field trials, hands-on feedlot employee training, disease surveillance and mitigation, and Federal Import/Export duties.

A.J. returned to KSU in 2016 as the Beef Extension Veterinarian with a 70% Extension, 20 % Research, and 10% Teaching appointment.

What Producers Should Be Thinking About…..

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN JANUARY……



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

Cow herd management

- ☑ Historically, cull cow prices have increased during the next two or three months. Check your breakevens.
- ☑ Continue feeding or grazing programs started in early winter. Weather conditions may require wrapping up grain sorghum and cornstalk field grazing. Severe winter weather may begin to limit crop residue utilization, so be prepared to move to other grazing and feeding systems
- ☑ Supplement to achieve ideal BCS at calving.
  - Use this formula to compare the basis of cost per lb. of crude protein (CP):
    Cost of supplement, $ per hundredweight (cwt.) ÷ (100 X % CP) = cost per lb. of CP.
  - Use this formula to compare energy sources on basis of cost per lb. of TDN:
    Cost, $ per ton ÷ [2,000 X % dry matter (DM) X % TDN in DM] = cost per lb. of TDN.
- ☑ Control lice; external parasites could increase feed costs.
- ☑ Provide an adequate water supply. Depending on body size and stage of production, cattle need 5-11 gallons (gal.) of water per head per day, even in the coldest weather.
- ☑ Sort cows into management groups. BCS and age can be used as sorting criteria. If you must mix age groups, put thin and young cows together, and feed separately from the mature, properly conditioned cows.
- ☑ Use information from forage testing to divide forage supplies into quality lots. Higher-quality feedstuffs should be utilized for replacement females, younger cows, and thin cows that may lack condition and that may be more nutritionally stressed.
- ☑ Consult your veterinarian regarding pre- and post-partum vaccination schedules.
- ☑ Continue mineral supplementation. Vitamin A should be supplemented if cows are not grazing green forage.
- ☑ Plan to attend local, state, and regional educational and industry meetings.
- ☑ Develop replacement heifers properly. Weigh them now to calculate necessary average daily gain (ADG) to achieve target breeding weights. Target the heifers to weigh about 60%-65% of their mature weight by the start of the breeding season. Thin, lightweight heifers may need extra feed for 60-80 days to “flush” before breeding.
- ☑ Bull calves to be fed out and sold in the spring as yearlings should be well onto feed. Ultrasound measurements should be taken around one year of age and provided to your breed association.
- ☑ Provide some protection, such as a windbreak, during severe winter weather to reduce energy requirements. The LCT is the temperature at which a cow requires additional energy to simply maintain her current body weight and condition. The LCT for cattle varies with hair coat and body condition. Increase the amount of dietary energy provided 1% for each degree (including wind chill) below the LCT.

*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.*