News from KSU Animal Sciences

UPCOMING EVENTS…

- **KSU Beef Stocker Field Day to be hosted September 20** - The 2018 KSU Beef Stocker Field Day will be Thursday, September 20, at the KSU Beef Stocker Unit in Manhattan. The schedule is as follows:

9:30 am	Registration/Coffee
10:15 am	Introductions
10:30 am	The Role of Stocker Producer Expectations in Cattle Buying Decisions - *Dr. Glynn Tonsor, Kansas State University*
11:15 am	Producer Panel – Why Silage Fits in my Growing Diets Moderator: *Wes Ishmael, Contributing Editor, BEEF* magazine *Frank Harper, Sedgwick, KS* *Gary Burgess, Wamego, KS* *Gary Bacon, Minneapolis, KS* *Dr. Keith Bolsen, Emeritus Professor, Kansas State University*
12:15 pm	BBQ Brisket Lunch – View posters
1:00 pm	An Update on Pain Management in Cattle – *Hans Coetzee, DVM, Kansas State University*
2:00 pm	Quality Stocker Production Considerations – *Justin Sexten, Certified Angus Beef LLC*
2:45 pm	Break
3:00 pm	The Tech Revolution, Wall Street, Baseball and the Cattle Industry - *Dane Kuper, CEO, Performance Livestock Analytics*
3:45 pm	Rethinking BRD Diagnosis – *Jason Nickell, DVM, Merck Animal Health*
4:15 pm	Livestock Theft in Kansas – *Kendal Lothman, Special Agent, Office of KS Attorney General*
4:45 pm	Treatment Failures that are not BRD Related - *Dr. A.J. Tarpoff, Kansas State University*
5:30 pm	Cutting Bull's Lament 2018

The day will conclude with a good old-fashioned Prairie Oyster Fry and Call Hall ice cream. Pre-registration is $25 and due by September 13. For complete details and registration, visit www.KSUbeef.org. For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427).

- **Developing and Implementing Your Company's HACCP Plan** for meat, poultry, and juice processors will be hosted October 3-5, 2018, in Olathe, KS. Information and registration for the 2.5-day International HACCP Alliance accredited workshop is online at http:/haccp.unl.edu. The workshop fee is $450 per person, and participants will be presented with a certificate with an International HACCP Alliance seal upon completion of the course. For more information, contact Dr. Liz Boyle at lboyle@ksu.edu or 785-532-1247.

Department of Animal Sciences and Industry
Kansas State University
218 Weber Hall, 1424 Claflin Road
Manhattan, KS 66506
785-532-6533
www.asi.ksu.edu

September, 2018 issue

Kansas State University Animal Sciences and Industry
K-STATE Research and Extension

- Join us for the 4th annual **ASI Family and Friends Reunion on Friday, October 12, 2018**, from 5:30 – 9:30 p.m. at the Stanley Stout Center, 2200 Denison Avenue, Manhattan, Kansas. Last year's event was truly amazing with more than 1,000 family and friends reuniting at the event. The Don L. Good Impact Award will be presented to CattleFax. Other activities will include great food, live music, Junior Wildcat Barn Yard, no fundraising and more surprises!! A tentative schedule includes:

  5:30 pm **ASI Family & Friends Reunion is OPEN!**
  All event attractions remain open throughout the evening
  7:30 pm **"Pride of Wildcat Land" Band Performance**
  7:40 pm **WILDCAT WALK**
  Stroll through the aisle formed by the band into the Stout Center
  7:55 pm **Star Spangled Banner (Inside the Stout Center)**
  8:00 pm **Don L. Good Impact Award presented to CattleFax**
  9:10 pm **Jr Wildcat toy drawing *(must be present to win)***
  Justin Janssen & Kyle Bauer, *LMIC Board Members*
  9:30 pm **Event attractions close -** *Travel safe!*

  Registration is $25 for adults; $10 for students (13 and over); and free for those 12 and under. Early registration is due by September 28. For more information, visit www.asi.ksu.edu/familyandfriends. If you have questions, contact Lois Schreiner at lschrein@ksu.edu or 785-532-1267.

- KSU Animal Sciences and Industry Department will be hosting the **2018 Kansas Certified Wool Classing School** on October 19-21 at the KSU Sheep and Meat Goat Center, Manhattan, KS. Topics covered include wool fiber growth, development and production; objective measurement of wool; genetic selection programs and more. Lisa Surber, Level IV Wool Classing Instructor, will teach the class.

  The class is limited to 16 students. The fee is $150 per person and is due by September 30, 2018. Registration fee includes tuition and materials. For more information, contact Alison Crane (arcrane@ksu.edu; 785-532-1672).

- In conjunction with the 2018 Kansas Certified Wool Classing School, KSU Animal Sciences and Industry Department will be hosting the **2018 Kansas Sheep Shearing School** on October 19-21 at the KSU Sheep and Meat Goat Center, Manhattan, KS. Topics covered include professional shearing pattern; tagging and eyeing equipment maintenance and repair; wool handling and preparation and more. Instructors for the school include professional sheep shearers Wade Kopren, South Dakota; Alex Moser, Iowa; and Mike Hagens, North Dakota.

  Participation is for experienced and non-experienced shearers with one-on-one instruction. The school is limited to 20 students. The registration fee is $200 per person that includes tuition, handbook and DVD. For more information, contact Alison Crane (arcrane@ksu.edu; 785-532-1672).

- The Kansas Sheep Association in cooperation with Kansas State University Research and Extension is sponsoring the first ever **Kansas Sheep Symposium** on October 26-27 at the Atrium Hotel and Conference Center in Hutchinson, KS.

  This will be an event for all sheep producers and will cover a variety of topics, including management tips, online marketing, and industry update.

  The event will begin with a tour of local sheep operations on Friday. Also on Friday is a producer forum featuring a variety of operating methods, an industry related trade show, and time for one-on-one interaction.

  Saturday morning will begin with updates from our industry partners, as well as seminars from Brent Stroh, a North Dakota producer of a mixed specie diversified livestock and crop farm; and Marvin Ensor, retired extension specialist from Texas who will be discussing small ruminant production, finewool, hair, and goats in West Texas. Ohio sheep producer Susan Shultz, secretary of the American Sheep Industry (ASI), will be the main speaker at the noon luncheon and will discuss the role of ASI and more in the US sheep industry.

  The afternoon will be broken into several breakout sessions targeted at specific producer groups. Some of the topics included are: using flock records to your advantage, developing an online sale, and tapping into the handspinner market. Other topics will include management of the sheep flock including nutrition, parasites, and pasture management, and an overview of the club lamb industry, including thoughts of where it is heading and how to manage the donor and recip flocks.

  Speakers at the breakout sessions include, Dr. Alison Crane, KSU Sheep and Meat Goat Specialist; Dr. Bob Weaber, KSU Beef Specialist; Marvin Ensor; Brent Stroh; Darin Unruh from Kaufman Seeds; Sally Brandon from the Sheperds Mill; Justin Nathan and Torie Schwartz from Show Circuit online sales, as well as a representative from the Reproductive Specialty Group.

  For details on this event, follow Kansas Sheep Association on Facebook and like the event or contact kssheep@ruraltel.net . For more information, contact Alison Crane (arcrane@ksu.edu; 785-532-1672).

- **Make plans now to attend the 2018 KSU Swine Day**. The 2018 KSU Swine Day will be hosted Thursday, November 15, at the KSU Alumni Center. The schedule for the day includes:

  8:00 a.m. – 4:00 p.m. Trade Show
  9:15 a.m. Welcome - *Dr. Evan Titgemeyer, Interim Department Head, Animal Sciences and Industry*
  9:30 a.m. Latest update on K-State Applied Swine Nutrition Research: 15 minute rotation on topics on Swine Nutrition, Management and Feed Processing - *K-State Swine Faculty*
  11:30 a.m. Lunch with Trade Show
  1:30 p.m. Latest update on K-State Applied Swine Nutrition Research (continued)
  1:45 p.m. Implementing the Secure Pork Supply Plan for Kansas Producers *David Hogg and Dr. Sara McReynolds, Kansas Department of Agriculture*
  2:30 p.m. Emerging Diseases and How Diagnostic Labs are Adapting to help Producers *Dr. Rodger Main, Veterinary Diagnostic Laboratory Director, Iowa State University*
  3:30 p.m. Question and Answer Session
  4:00 p.m. Reception with Call Hall Ice Cream

  Pre-registration fee is $25 per participant by November 7; with registration at the door $35 per participant. There is no charge for any students if they are pre-registered. The complete schedule and online registration information can be found at www.KSUswine.org. For more information, contact Lois Schreiner at lschrein@ksu.edu or 785-532-1267.

- **Youth for the Quality Care of Animals (YQCA**) is a national, multi-species youth livestock quality assurance program that was launched in 2017. Youth may participate in the program online, or through a face-to-face class with a certified instructor. This is a fee based program, which is $12/child for the online course or $3 for a face-to-face session. Kansas signed a partnership agreement with the program in 2018, which allowed agents to have the opportunity to obtain their certification and teach youth the curriculum through face-to-face sessions. As the first year comes to a close, YQCA shut down the system on September 1. So, through the month of September, youth will not be able to access the system to complete the training or obtain a number. During this time, the YQCA staff will be uploading the new modules and curriculum for the 2018-2019 year, as well as performing system maintenance. Kansas did renew its agreement with YQCA, so agents who were certified last year can re-certify beginning on October 1. Details will be distributed directly from YQCA to currently certified instructors. Any additional agents who would like to become certified need to email Lexie Hayes at adhayes@ksu.edu to be added to the Kansas list of approved instructors by October 1. Once agents complete the certification process, their certification will be valid until September 1, 2019.

CALENDAR OF UPCOMING EVENTS

Date	Event	Location
September 20, 2018	KSU Beef Stocker Field Day	Manhattan
October 3-5, 2018	HACCP Workshop	Olathe
October 12, 2018	4th Annual ASI Family and Friends Reunion	Manhattan
October 19-21, 2018	Kansas Certified Wool Classing School	Manhattan
October 19-21, 2018	Kansas Sheep Shearing School	Manhattan
October 26-27, 2018	Kansas Sheep Symposium	Hutchinson
November 15, 2018	KSU Swine Day	Manhattan

WHAT'S NEW . . . .

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

"Coaching in the Workplace"

Being a manager and managing people isn't easy, especially when an employee or group of employees' performance needs improvement. The goal of coaching is to improve the quality of the work of the employee or group and is not necessarily part of a disciplinary action (although it is often associated with it). Coaching in the workplace can be an effective way to address issues that limit performance. Below are a few tips from www.thebalancecareers.com on coaching in the workplace.

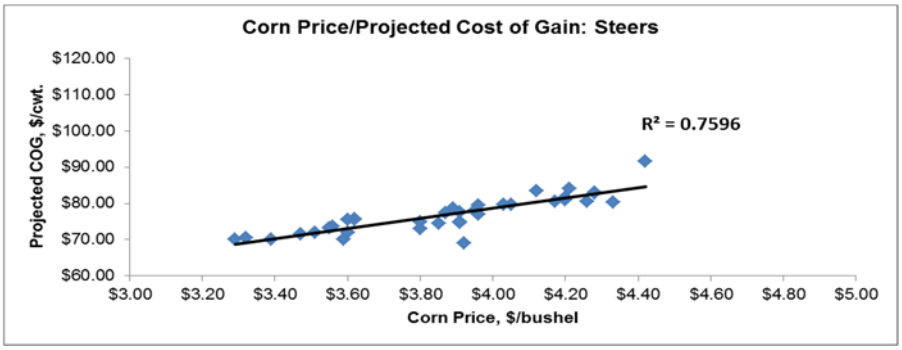
- State the issue or the problem directly. Keep the focus on the issue or problem and not the person.
- Involve the employee in the process. Asking the employee or group for help in creating a solution is a great way to show you have confidence in them.
- Identify what issues or road blocks exist that limit the employee or group's performance. The most common issues are time, additional training or resources.
- Come up with plan that identifies specific actions that need to be taken to address the issue by everyone involved (including the manager).
- Schedule time for a follow-up conversation. Feedback is essential, but should be positive.

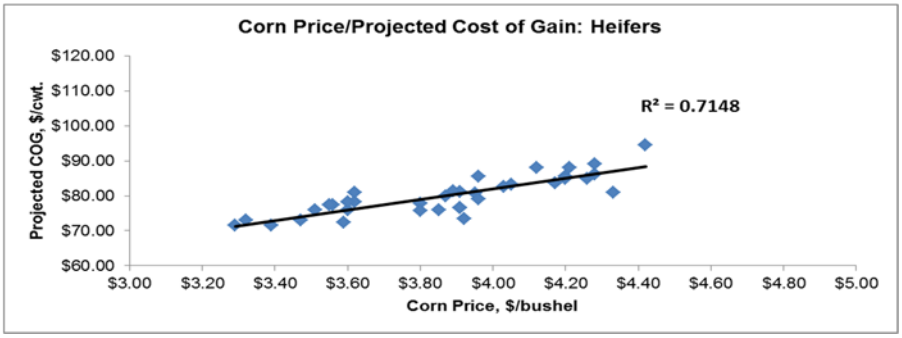
For more information, contact Justin Waggoner at jwaggon@ksu.edu

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

"Estimating Placed Cost of Gain Using the Focus on Feedlots"

The K-State Focus on Feedlots has many uses. Foremost, it provides many of us that are not directly connected with the cattle feeding industry a means of staying abreast of cattle performance and closeout data from commercial feeding operations. Additionally, the data generated may be used to build economic budgets for cattle producers considering retaining ownership or placing a group of cattle on feed. One of the common questions that come up in these discussions is "what the projected cost of gain will be?" One of the simplest ways to estimate placed cost of gain is to look at the relationship between reported corn price and reported projected cost of gain for steers and heifers. The data obtained from the Focus on Feedlots from 2015, 2016, and 2017 is shown in the graphs below.





The relationship between corn price and placed cost of gain is expressed in the following formulas:

Projected Steer Cost of Gain ($/cwt) = $22.32 + ($14.09 x Corn Price).
Projected Heifer Cost of Gain ($/cwt) = $21.16 + ($15.21 x Corn Price).

These formulas may be used to forecast the projected cost of gain if corn price is known. For example, when corn is $3.50/bushel, cost of gain for steers equals $71.64/cwt ($22.32 + $14.09 x $3.50). Based on this formula, cost of gain will increase $14.09/cwt for every $1.00 per bushel increase in the price of corn. The incremental cost of gain for heifers is slightly higher ($15.21 vs. $14.09) for every $1 per bushel increase in the price of corn. The table below lists the projected cost of gain at various corn prices from $2 to $7 per bushel. The intercept values ($22.32 and $21.16 for steers and heifers respectively) reflect other costs associated with feeding cattle (e.g., labor, equipment, and facilities).

Projected Cost of Gain for Steers and Heifers Based on Corn Price.

Corn Price ($/bu.)	Steer Cost of Gain ($/cwt)	Heifer Cost of Gain ($/cwt)
$2.50	$57.55	$59.19
$3.00	$64.59	$66.79
$3.50	$71.64	$74.40
$4.00	$78.68	$82.00
$4.50	$85.73	$89.61
$5.00	$92.77	$97.21

There are many factors that influence cost of gain, primarily cattle performance (ADG, feed conversion. etc.) which is not necessarily taken into account with this method. However, this does provide a simple method that can easily be adjusted up or down to fit specific groups/types of cattle and expected weather conditions during the feeding period.

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

- **Trends in Beef Calf Lots by Single Breed Sire Groups Marketed via Video Auction from 2010 through July 14, 2017** - The objective of this study was to characterize the potential change in the percentage of lots of beef calves sired by a single breed marketed via video auction from 2010 through July 14, 2017. Information describing factors about lots sold through a livestock video auction service (Superior Livestock Auction, Fort Worth, TX) was obtained in electronic format. Sire breed of a lot was determined based on the description provided by sellers. All calves in a lot were sired by a single breed and a minimum of 50 lots were required for the analysis. The Cochran-Armitage trend test was used to determine an increasing or decreasing trend over time with a $P \leq 0.05$ considered significant.

  Bottom Line… Producers marketing calves via video auction may be changing the genetics of their sires to use on a primarily black cow herd. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Karol Fike (785-532-1104; karol@ksu.edu) or Bob Weaber (785-532-1460; bweaber@ksu.edu).

- **Wet Distiller's Grains and Wet Corn Gluten with Dry-Rolled or Whole-Shelled Corn in High-Energy Limit-Fed Diets Do Not Affect Growing Cattle Performance -** The objective of this study was to compare wet distiller's grains plus solubles and wet corn gluten feed with dry-rolled or whole-shelled corn in a novel programmed-feeding strategy being developed at the Kansas State University Beef Stocker Unit. A total of 320 crossbred steers were used to determine the effects of two corn by-products and methods of corn processing, utilizing a high-energy limit-fed feeding strategy.

  Bottom Line… Kansas producers have the option of feeding corn by-product and whether or not to process corn in a high-energy limit-fed feeding strategy without the risk of negatively affecting performance. View the complete research report at www.asi.ksu.edu/cattlemensday. For more information, contact Dale Blasi (785-532-5427; dblasi@ksu.edu).

- **Effect of Zinc Oxide, Zinc Hydroxychloride, and Tribasic Copper Chloride on Nursery Pig Performance** - A total of 1,215 pigs were used in a 42-day growth trial to determine the effects of ZnO, Zn hydroxychloride (IntelliBond Z; IBZ), and tribasic copper chloride (IntelliBond C; IBC) on growth performance of nursery pigs. Pigs were allotted by pen weight and assigned to one of five dietary treatments. Treatments consisted of added Zn as ZnO (3,000 ppm in phase 1 and 2,000 ppm in phase 2); Zn hydroxychloride (IBZ; 1,000 ppm in phase 1 and phase 2); and Cu as tribasic copper chloride (200 ppm), alone or in combination, as follows: 1) Cu only; 2) ZnO only; 3) ZnO and Cu; 4) IBZ only; and 5) IBZ and Cu. Experimental diets were fed from day 0 to 21. From day 21 to 42, pigs were fed a common diet that contained 200 ppm Cu from tribasic copper chloride but no additional Zn other than that provided by the trace mineral premix.

  From day 0 to 21, there was a tendency for interaction between Zn source and Cu for ADG, where the addition of Cu to ZnO diets increased ADG; whereas, adding Cu to IBZ diets decreased ADG. Pigs fed added ZnO had greater ADFI, ADG, and BW on d 21 than those fed added IBZ.

  From day 21 to 42, pigs previously fed diets with ZnO had greater ADFI and a tendency for poorer F/G than those previously fed Cu only. Overall, feeding diets with ZnO resulted in greater ADFI compared to feeding the diet with Cu only. There was a tendency for decreased removal rate when IBZ was added to the diet compared to only adding Cu. Overall, pigs fed diets with ZnO had greater ADFI and a tendency for increased ADG compared to pigs fed diets with added IBZ.

  Feed cost marginally increased with the addition of ZnO compared to IBZ. Diets with ZnO resulted in greater feed cost and a tendency for higher revenue compared to the diet with Cu only. Similarly, diets with added IBZ resulted in tendencies for greater feed cost, revenue, and income over feed cost (IOFC) compared to the diet with Cu only.

  Bottom Line… The results suggest that there are no additive effects of Zn and Cu and no major differences in performance between pigs fed diets with added Zn or Cu. Pigs fed diets with higher levels of ZnO had improved performance compared to those fed added IBZ. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. *(This study conducted by* H.S. Cemin, J.C. Woodworth, M.D. Tokach, S.S. Dritz, J.M. DeRouchey, and R.D. Goodband)

- **Evaluation of Phase Feeding Strategies and Lysine Specifications for Grow-Finish Pigs on Growth Performance and Carcass Characteristics** - The objective of this study was to compare phase feeding strategies for grow-finish pigs using the estimated lysine requirements for optimal growth and feed efficiency compared to a standard strategy. A total of 1,188 pigs were used in a randomized complete block design with 27 pigs per pen and 11 pens per treatment. The treatments consisted of: MAX, a 4-phase feeding program with lysine levels for maximum growth (1.13, 0.96, 0.82, and 0.77% SID Lys in Phases 1 to 4, respectively); STD, a standard 4-phase feeding program for optimal income over feed cost (1.02, 0.87, 0.76, and 0.67% SID Lys in Phases 1 to 4, respectively); STD/ MAX, a 4-phase feeding program based on standard lysine levels in early finishing and lysine levels for maximum growth in late finishing (1.02, 0.87, 0.82, and 0.77% SID Lys in Phases 1 to 4, respectively); and 2-PHASE, a 2-phase feeding program based on the average estimated lysine requirements for maximum growth with 0.96% SID lysine for Phases 1 to 3 and 0.77% SID lysine during Phase 4. The four phases were from approximately 60 to 110, 110 to 160, 160 to 220, and 220 to 280 lb, respectively. The experimental diets were based on corn, distillers dried grains with solubles, and soybean meal. Lysine levels were achieved by manipulating the ratio of corn to soybean meal. Overall, from d 0 to 117, pigs fed the 2-PHASE regimen had increased ADG ($P < 0.05$) compared to pigs fed the STD regimen, and feeding either the MAX or STD/MAX regimen resulted in intermediate ADG. There was no evidence for differences in ADFI, F/G, or final BW among dietary regimens. Also, no evidence for differences was observed across the dietary treatments for the carcass traits HCW, yield, backfat, loin depth, or lean percentage.

  Bottom Line… For economics, the STD feeding program resulted in the lowest feed cost per pig and feed cost per lb of gain compared to the other three programs. Revenue and income over feed costs per pig were similar across the feeding programs. In conclusion, feeding lysine levels for maximum growth and efficiency in either a 2- or 4-phase feeding program results in the same growth performance and feed cost. A broad range of lysine specifications within the levels tested herein can be utilized in grow-finish diets without compromising income over feed cost. More information is available on this experiment and others in the KSU Swine Day Report at www.KSUswine.org. *(This study conducted by* M.B. Menegat, C.M. Vier, S.S. Dritz, M.D. Tokach, J.C. Woodworth, J.M. DeRouchey, and R.D. Goodband)

ASI Faculty Spotlight

Michael Chao (mdchao@k-state.edu; 785-532-1230)
Assistant Professor/Meat Science

Dr. Michael Chao is a meat scientist with research interests in meat lipidomic and developing niche meat processing techniques to serve the needs of domestic-ethnic and international markets.

Michael grew up in Taiwan until the age of 15, when his family moved to the Los Angeles suburb of San Marino. A desire to be a veterinarian led him to UC Davis to major in animal science. The introduction to animal science class his freshman year opened his eyes to the opportunities in livestock production. He earned both his bachelor's (2007) and master's (2011) degrees from UC Davis and then his PhD in animal science with a specialization in meat science and muscle biology from University of Nebraska-Lincoln in 2015.

"We are delighted that Dr. Chao is joining the Department of Animal Sciences and Industry," says Dr. Evan Titgemeyer, K-State ASI interim department head. "His training and experience will be an important addition to our team serving the meat industry. He's a great fit for our department because he has a passion for teaching, yet he also has research skills that complement our existing faculty extremely well."

At K-State, Michael's appointment will be 60% research and 40% teaching. In his role, he will teach advanced meat science and is in the process of developing a fresh meat-based class.

He has worked for the US Meat Export Federation, both as an intern based in the organization's Denver headquarters and Taiwan office, and later on a contract basis to lead Taiwanese and Chinese auditing and business teams through beef and lamb processing plants in the United States.

An avid outdoorsman, Michael says, "I look forward to the vast fishing and hunting opportunities in Kansas."

Michael and his wife, Ying, have two sons — Luke and Hans.

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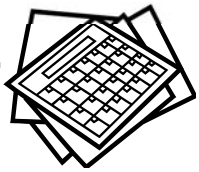
Karen Schmidt (kschmidt@k-state.edu; 785-532-1216)
Professor, Dairy Foods/Chair Food Science Undergraduate Program

Dr. Karen Schmidt earned a bachelor's degree in Food Science from the Pennsylvania State University. After graduating from Penn State, Karen joined Tony's Pizza Service in Salina, Kansas, as a quality assurance supervisor. After working in quality assurance and research and development with Schwan Sales Enterprises, Karen entered graduate school at the University of Minnesota and completed her master's and PhD degrees in Food Science.

In January of 1990, Karen joined the University of Georgia in the Departments of Food Science and Technology and Animal Science as an Assistant Professor with research and teaching responsibilities. In 1994, she joined the Department of Animal Sciences and Industry at Kansas State University as an Associate Professor with responsibilities in teaching and research, where she currently holds a 50% teaching and 50% research appointment. In addition, she is a member of Kansas State University's Food Science Institute. Her teaching responsibilities include Fundamentals of Milk Processing, Food Product Evaluation, Dairy Foods Processing and Technology, and Quality Assurance of Food Products and her research program focuses on the processing and quality of dairy and non-dairy foods. Since fall 2016, she is the coordinator of the undergraduate food science program.

What Producers Should Be Thinking About…..

WHAT PRODUCERS SHOULD BE THINKING ABOUT IN NOVEMBER……



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

Spring Calving Cows

Cowherd Management

- ☑ Pregnancy check (if not already completed)
- ☑ If candidates for culling were not selected in September or October, it should be completed now.
- ☑ Consider feeding cull cows to increase body weight, value, and utilize cheap feedstuffs. Value of gain is equal to the difference between the ending value and beginning values divided by the gain. Compare this to cost of gain figures. When cost of gain is less than value of gain, profit will be realized.
- ☑ Body Condition Score
  - o Provide thin cows (body condition score 3s and 4s) extra feed now. Take advantage of weather, stage of pregnancy, lower nutrient requirements and quality feedstuffs.
- ☑ In late fall and early winter, start feeding supplement to mature cows using these guidelines:
  - Dry grass 1½ - 2 lb supplement/day of a 40% CP supplement
  - Dry grass 3 - 4 lb supplement/day of a 20% supplement
  - Dry grass 10 lb good nonlegume hay, no supplement needed
  - o Compare supplements on a cost per pound of nutrient basis.
- ☑ Utilize crop residues.
  - o Average body condition cows can be grazed at 1 to 2 acres/cow for 30 days assuming normal weather. Available forage is directly related to the grain production levels.
  - o Limiting nutrients are usually protein, phosphorus, and vitamin A.
  - o Strip graze or rotate fields to improve grazing efficiency.
- ☑ Discontinue feeding tetracycline if used for anaplasmosis control.

Calf Management

- ☑ Participate in National Level Breed Association Performance Programs CHAPS and(or) other ranch record systems.
- ☑ Finalize plans to merchandise calves or to background through yearling or finishing programs.

Forage/Pasture Management

- ☑ Plan winter nutritional program through pasture and forage management.

General Management

- ☑ Document cost of production by participating in Standardized Performance Analysis (SPA) programs.
- ☑ Review management decisions, lower your costs on a per unit of production concept.
- ☑ Plan your marketing program, including private treaty, consignment sales, test stations, production sales, etc.

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.*