



BEEF CATTLE INSTITUTE
KANSAS STATE UNIVERSITY

THE GRAZIER

Brought to you by the Beef Cattle Institute at Kansas State University.

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CALENDAR *of* EVENTS

Aug. 4-6 - AVC Summer Conference, Kansas City, Missouri

Aug. 5-9 - AVMA Annual Convention, San Antonio, Texas

Aug. 22 - Fall Term Begins

Sept. 9-18 - Kansas State Fair, Hutchinson, Kansas

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International Beef Cattle Welfare Symposium Showcases Research and Initiates Conversation for Industry Topics

The 5th International Symposium on Beef Cattle Welfare welcomed an innovative group of beef industry enthusiasts who gathered to discuss and learn about the current and emerging welfare issues that face the industry.

Hosted by the Beef Cattle Institute at Kansas State University, experts from across the globe presented their most recent applied research findings to 135 on-site and online attendees. Transportation, animal handling, antimicrobial use, stockmanship and training were just a few of the topics brought to the forefront of the event.

With a large audience all ears, Dr. Joe Stookey from the University of Saskatchewan kicked off the event with a history of the symposium and its successful impact on the industry thus far. Additionally, he reviewed research on identifying factors to decrease stress during weaning.

"I think the discussion that happens at these events have great spillover later on in policy or research programs and to extension people who are helping producers adopt some of the latest technologies," he said.

A strong line-up of speakers followed his opening over the next couple of days. Dr. Temple Grandin, professor of animal science at Colorado State University, spoke on both the improvement of handling and stunning practices at meat packing plants and the different components of good stockmanship. According to Grandin, meat packing plants and cattle handling at feedyards have really become a bright spot for the industry, but we [the industry] has to show the good things that have been done to improve. She also emphasized the patience required to attain truly good stockmanship skills.

"Stockmanship takes time, stockmanship takes effort and management needs to buy into that," she said. "I'm a big proponent of measuring handling. Measurements prevent you from slipping back into bad becoming normal and not realizing it."

Dr. Ron Gill, associate department head of animal science at Texas A&M University and extension livestock specialist commented on the opportunities available for all entities in attendance.



Attendees at the 5th International Symposium on Beef Cattle Welfare receive a warm welcome to K-State.

"From a research standpoint, it really allows everyone to showcase what they are doing and how they're doing it," he said. "Industry representatives can see what we're doing and how it fits in with what they see for future needs for their company."

Gill also addressed loading and unloading cattle, the facility designs that support it and what training is available for drivers who haul livestock. Plus, he analyzed training from a structural standpoint and setting it into a standard similar to the efforts made by Beef Quality Assurance.

With the upcoming changes in regulations to the Veterinary Feed Directive, antibiotics use was a much anticipated topic. Dr. Mike Apley, clinical pharmacologist at the Kansas State University College of Veterinary Medicine addressed the relationship between antimicrobial use and animal welfare. He said the challenge for the industry is to come together and define exactly why we use antibiotics and how to be responsible.

"I'm proposing that as we move forward in order to protect our ability to use antibiotics responsibly and to



Dr. Temple Grandin addressed animal handling and stockmanship skills.

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Join the Conversation **ONLINE!**

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 [Beef Cattle Institute at Kansas State University](#)

Beef Sustainability Knowledge Summit Encourages People to Empower and Engage

By Audrey Hambricht

A diverse group of beef producers, veterinarians and agricultural economists gathered to discuss opportunities in the beef industry at the Beef Sustainability Knowledge Summit hosted by the Beef Cattle Institute at K-State and K•Coe Isom at the K-State Alumni Center in Manhattan, Kansas.

Sara Harper, K•Coe Isom and Dr. Brad White, of the Beef Cattle Institute at Kansas State University, who served as moderators, welcomed the group of 91 industry enthusiasts for a day of discussion and debate on beef sustainability issues. The collaboration of K•Coe Isom and the BCI for the event was created with the intention of bringing perspectives together.

“Most questions for the industry are not from one discipline, we need a holistic answer,” White said.

Animal Health & Care Challenges & Solutions

The summit kicked off the day with a panel on Animal Health & Care Challenges & Solutions. Panelists Dr. Bob Larson, Kansas State University, Dr. Trent Fox, Veterinary Research & Consulting Services, Tim Hardman, World Wildlife Fund and Christy Goldhawk, Elanco, fielded questions from the audience and moderators.

Goldhawk helped address animal health in terms of transportation. She said the beef system is not one single person’s ownership.

“We forget to look at factors that can make it go well,” she said. “It’s like preparing for game day and it comes down to management.”

Fox took an active approach on the topic of antimicrobial use. After providing some background on the upcoming Veterinary Feed Directive changes, he emphasized that veterinarians need to do their part in reducing use of antimicrobials.

“[Veterinarians] need to be treating the right disease at the right time,” he said. “And we should be empowering people to help identify proper diseases.”

Grazing & Grain Feedstock Challenges & Solutions

A panel on Grazing & Grain Feedstock Challenges & Solutions followed consisting of Dr. Chuck Rice, Kansas State University, Shawn Tiffany of Tiffany Cattle Company, and Rob Manes of The Nature Conservancy. Each identified successful systems as well as the need for diversity and flexibility. The panel overall reiterated the options we have with different types of food systems.

“You don’t have to be big, you just need to be a part of something big,” Tiffany said. “Sustainability is about relationships.”

Economic Management

Dr. Ted Schroeder, Kansas State University, Dennis Roddy, K•Coe Isom and Paul Smith also of K•Coe Isom made up a strong panel to discuss Economic Management Challenges & Solutions. Dr. Schroeder pointed out the importance of not focusing on one single driver, but collectively recognizing all pieces of the system and what the future holds.

“We need to empower the new generation, they will find the solution,” Schroeder said.

Emerging Technologies

The Emerging Technologies panel consisting of Dr. Dan Goehl, Precision Animal Solutions, Tim Evans, CattleFax and Kelly Kim, K•Coe Isom, each with a slightly different approach to embracing technology in the industry. Evans reinforced the

need to empower the next generation for the future.

“Engaging young people, is engaging technology,” he said.

Dr. Goehl outlined his experience using technology to successfully decrease the amount of antibiotics given to cattle using a 24/7 monitoring system. The active RFID tag on each calf provides a series of metrics including distance and speed traveled as well as location and social interactions. This allowed feedlot management to more accurately diagnose cattle in a shorter amount of time.

Kim debuted the online sustainability training modules created in partnership with the BCI. The modules provide information for beef producers using a holistic approach and cover the four areas of sustainability – animal, environmental, economic and social.

“The training is intended to be very practical,” she said. “They can take the information and implement change right away on their operation.”

Each module is 6-8 minutes long with a short quiz at the end. Producers can then take the certificate of completion to show stakeholders what they are doing to improve sustainability on their own operations.

Spotlight on Emerging Sustainability Beef Programs

Whether personal interest or livelihood of business, panel members are motivated to promote their respective beef programs. Todd Allen, Cargill Cattle Feeders, LLC, Nicole Johnson-Hoffman, managing director of Cargill’s North American McDonald’s business, represented the U.S. Roundtable for Sustainable Beef, Tim Hardman, Wildlife World Fund and Emily Johannes, K•Coe Isom comprised the final panel for the event.

To meet the consumer emotionally, Hardman emphasized the need to create a story for food with beef due to the millennial generation placing importance on food and culture. Hoffman noted an additional shift in the food industry, where producers need to renegotiate with their communities due to changes driven in consumer perception.

At the end of the day, a common theme in empowering and engaging people is based on three main pillars – environmental, social and economic, which all play a vital role in the success to lead the conversation forward on sustainability.

Panel introductions and discussions from the Beef Sustainability Knowledge Summit can be viewed online at beefcattleinstitute.org.

WATCH ONLINE

Beef Sustainability
Knowledge Summit
Panels

www.beefcattleinstitute.org

PRODUCER spotlight

Shawn Tiffany

TIFFANY CATTLE COMPANY

Herington, Kansas



Tiffany Cattle Co. is very much a family owned and operated business. Shawn and family (right) work alongside Shane and family in all operations.

By Audrey Hambright

For Shawn Tiffany of Tiffany Cattle Company, success on the operation is defined by their customer's success.

"A complete cattle feeding and marketing service" as noted on their website, was established in 2007 after the opportunity was presented to Tiffany and his brother, Shane, to purchase what was previously Black Diamond Feeders near Herington, Kansas. A native of nearby Council Grove, Tiffany grew up working at the facility through middle school and high school. He attended Butler Community College where he competed on the livestock judging team and continued to compete at K-State where he judged livestock and horses while completing his degree in animal science.

The custom finishing business will feed for 150 customers during a given year and is permitted for 15,500 head, which Tiffany stated is full for eight months out of the year.

"We are a service provider," he said. "We are working with a lot of innovative and progressive producers who have a lot of investment in those cattle when they hit our property. Our job is to help them be successful and that is how we are successful."

According to Tiffany, the feedlot industry is a very fast paced, active industry for which he is up for the task. He named the weather and volatile markets as just a couple of obstacles they overcome. For instance, the brothers had been in business just two weeks before the ice storm in 2007 knocked out power completely causing them to use generators to keep it all running.

"Those of us in feedyard management thrive in those situations and really enjoy the challenge," he said.

Their management practices and ability to overcome difficult obstacles has gained them recognition in elite circles. In 2015, the operation won the Certified Angus Beef (CAB) Feedlot

Commitment to Excellence Award.

Tiffany also stays active outside the operation holding a position on the policy and bylaws committee for the Kansas Livestock Association and serving as vice president for TCT, a local company that provides reliable communications services to rural areas of Kansas.

A 4th generation K-Stater, Tiffany is sure to stay engaged with beef industry activities at K-State. Each year, the operation hosts the production management class from the animal science department at K-State. The business also has been represented at cattleman's day at KSU since 1985. Additionally, Tiffany served as a panelist at the recent Beef Sustainability Knowledge Summit held at the K-State Alumni Center.

With his experience and promising future in agriculture, Tiffany emphasized the importance of an extremely good risk management plan and accuracy for a successful program. And even with unpredictable factors, he couldn't imagine doing anything else.

"It's what I know, what I love," he said. "I couldn't imagine doing anything different than production agriculture."



Shawn (right) and his brother Shane have owned Tiffany Cattle Co. since 2007.

RURAL practitioner

Dr. Charles Luke
SOLOMON VALLEY VETERINARY
HOSPITAL

Beloit, Kansas



Dr. Charles Luke (right) is pictured with one of his sons, Dr. Brady Luke, who is also a veterinarian at Solomon Valley Veterinary Hospital.

by Audrey Hambricht

Practitioners at Solomon Valley Veterinary Hospital near Beloit, Kansas have brought new meaning to family business.

Veterinarian Dr. Charles Luke and his wife Jeanette, a registered veterinary technician, established Solomon Valley Veterinary Hospital in 1979. Since then, they have continued to build upon a successful practice involving family and friends, including the addition of Dr. Ken Moeller who joined as an associate veterinarian in 1991. Dr. Luke's two youngest sons plus his daughter-in-law have been practicing alongside him for the past two to six years.

A 1977 graduate of the Kansas State University College of Veterinary Medicine, Luke gained his interest in veterinary medicine through his father who was a practicing rural veterinarian in Lebanon, Kansas.

"It was through helping him and working with the cattlemen in that area that my love for animals, production agriculture and the outdoors was cultivated," he said.

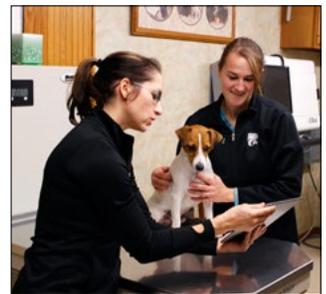
The practice now houses five veterinarians, two technicians, one receptionist and five assistants. According to Luke, the practice has always been 50 percent companion animal and 50 percent food animal, even with the growth over the years

and the change in the number of and demographics of local farms. Admittedly, he also feels that this could provide more challenges for graduates finding rewarding employment in the future.

Even with the continual changes and new challenges, Luke is grateful for the life he has built around his family and business in rural Kansas.

"While every day provides some unique challenges and enjoyment, it was the family growing up through the years and the experiences with them, that I have enjoyed the most laughs," he said. "Seeing the improvement livestock producers make year in and year out is a rewarding experience."

Finally, his advice to all: "Follow your passion!"



Dr. Melissa Luke (left) reviews diagnostic results on a tablet with veterinary technician Darien Bellows.

Symposium (continued from front page)

protect human health and suppress resistance selection is to promote responsible use rather than just elimination," he said.

Dr. Brad White, interim director for the BCI, presented on preconditioning beef calves in preparation for the feedlot was excited for the variety of industry experts the event brought together.

"Bringing those people together in the same room has allowed us to have conversations that will help progress and move things forward for beef cattle welfare," he said.

The next International Symposium on Beef Cattle Welfare will be held in 2018.

WHAT YOU NEED TO KNOW

Animal health experts Dr. Mike Apley and Dr. Brian Lubbers address your questions about upcoming changes to the Veterinary Feed Directive:

Watch the VFD modules at
www.beefcattleinstitute.org

In Research ◀◀◀◀◀

Infrared Thermography as a Diagnostic Test to Predict Heat Stress Events in Feedlot Cattle

By Ellen M Unruh, BS; Miles E. Theurer, DVM, PhD; Brad J. White, DVM, MS; Robert L. Larson, DVM, PhD; James S. Drouillard, PhD; Nora Schrag, DVM

Feedlot cattle frequently endure high environmental temperature-humidity index conditions in the summer months of many cattle feeding areas in North America. It has been shown that adequate heat abatement overnight is necessary to reduce heat stress events the following day. A noninvasive, remotely applied, practical method to identify animals that did not adequately cool overnight is needed to improve animal welfare and performance. Predicting which animals in a feedlot are predisposed to heat stress would allow precautionary measures to be set in place for calves at high risk for hyperthermal events, thereby improving animal welfare. The objective of this study was to determine if infrared thermography camera images taken in the morning hours after overnight heat abatement could be used to obtain data for use as a diagnostic test to predict afternoon heat stress events in feedlot cattle during times of elevated ambient temperatures.

Sixty crossbred beef heifers (mean body weight, 385.8 kg) were used for the study. No shade or shelter were available to the calves. A remote weather station at a nearby location

recorded ambient temperatures and humidity readings every hour on study days. Using recorded ambient temperature and humidity, temperature humidity index (THI) was calculated. Profile digital thermal images of individual animals were captured during the 0600 hour and 1500 hour for ten days, over a 14-day period, when ambient temperature was forecasted to be above 29.4°C. Pant scores were assigned to individual animals during the 0600 hour and 1500 hour by an observer blinded to thermal images.

Relationship between infrared thermography data and pant scores were evaluated with artificial learning models. Afternoon infrared thermography data were related to afternoon pant scores. Morning infrared thermography images were not related to afternoon pant scores. Artificial learning model evaluation of morning infrared images were not highly accurate indicators for predicting afternoon heat stress events. The artificial learning models used resulted in different diagnostic sensitivity, specificity, overall accuracy, and kappa values, but all models resulted in overall low accuracy for predicting afternoon heat stress events. Morning weather conditions provided better information for predicting heat stress events compared to thermography images.

Infrared technology was identified as a potential means to objectively measure calves experiencing a heat stress event in a research setting. Using infrared technology as a diagnostic test was not an accurate assessment for predicting heat stress events in this study. More data needs to be collected and analyzed to determine if infrared technology could be used as a diagnostic tool.

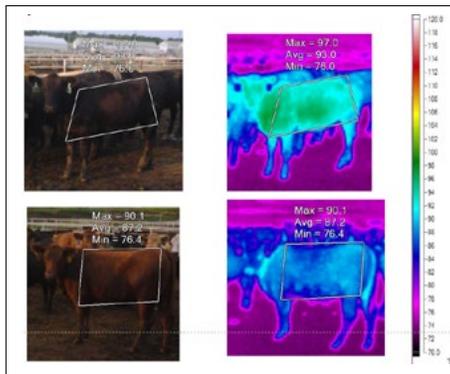


Figure 1: Profile thermal images were taken during the 0600 and 1500 hour. The area defined was used for pixel analysis.

Student Spotlight Tara Fountain

Hometown: Thompson, Missouri

What is your degree program and anticipated graduation date? Dual-Degree Program—CVM Class of 2020 and Veterinary Biomedical Sciences Master's Degree Program

Leadership activities: Co-Chair for the Leadership segment of the AIJCA Junior National Planning Committee

Project focus for BCI? My primary responsibility is to conduct research that is relevant and useful to cattle producers, both locally and nationwide.

What would you tell your undergrad or first-year self if you could share one piece of advice? Make connections—interact with your professors, and get to know your classmates as they'll become your future colleagues.



RESEARCH Update

The BCI Research Updates are designed to bring you relevant information impacting the beef industry. We review current cattle health, production and economic research and BCI will send a periodic summary of information that may be relevant to your operation.

Get updates!

BCI's Beef Scholars program provides opportunities for students, resources for beef industry

Eight Kansas State University students from majors across campus are serving as the inaugural participants in the Beef Cattle Institute's Beef Scholars program this summer.

With new initiatives in decision tools and big data analytics, the Beef Cattle Institute, or BCI, developed this program to collaborate with different departments across the university to provide new resources for beef producers and veterinarians. The overall theme for the program this year is antimicrobial use in beef cattle. Specific focus areas for each student range from alternative antibiotic use to mobile app development.

Scholars were selected based on their research project that must provide useful information directly related to the beef industry. Each scholar receives \$3,500 to support their summer stipend and/or project-related expenses.

The institute will host several events with the Beef Scholars, including seminars and scheduled tours of different segments of the beef industry. At the end of the summer, the scholars will have the opportunity to share their research.

"The BCI Summer Scholars program brings together students and faculty from a variety of disciplines to generate solutions for the beef industry," said Brad White, interim director of the institute. "This is the first year for this program and we plan to continue this event on an annual basis."

The following Kansas State University students are serving as summer 2016 Beef Scholars:

Amanda Kathrens, senior in animal sciences and industry, Manhattan, is working on the project "Bacterial aspects in probiotics" with T.G. Nagaraja, university distinguished professor of diagnostic medicine and pathobiology in the College of Veterinary Medicine.

Allison McKiernan, doctoral student in pathobiology, Manhattan, is working on the project "Foodborne pathogens in cattle" with Natalia Cernicchiaro, assistant professor of diagnostic medicine and pathobiology in the College of Veterinary Medicine.

Sarah Jones, senior in food science and industry, Riverton, is working on the project "Regulatory and historical uses: Antimicrobial resistance" with Justin Kastner, associate professor of food safety and security in the College of Veterinary Medicine.

Carlee Wollard, third-year veterinary medicine student, Winfield, is working on the project "Colostrum transfer of antibody titers" with Manuel Chamorro, clinical assistant



BCI Beef Scholars are pictured left to right: A.J. Cabanatuan, Sarah Jones, Paula Mendez, Carlee Wollard, Amanda Kathrens, Jose Soto, Allison McKiernan and Kevin Manase.

professor of clinical sciences in the College of Veterinary Medicine.

Jose Soto, doctoral student in animal science, San Antonio, Texas, is working on the project "Alternatives to antibiotics used in livestock" with Mike Tokach, university distinguished professor of animal sciences and industry in the College of Agriculture.

Allan Jay Cabanatuan, senior in computer science, Williamsburg, Virginia, is working on the project "iOS and Android/Java mobile apps" with Venkatesh-Prasad Ranganath, assistant professor of computer science in the College of Engineering.

Kevin Manase, senior in computer engineering Madagascar, is working on the project "iOS and Android/Java mobile apps" with Venkatesh-Prasad Ranganath, assistant professor of computer science in the College of Engineering.

Paula Mendez, junior in computer science, Paraguay, is working on the project "Bovine infectious disease analytics" with Bill Hsu, associate professor of computer science in the College of Engineering.

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ideas to bci@ksu.edu.

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