



BEEF CATTLE INSTITUTE
KANSAS STATE UNIVERSITY

THE GRAZIER

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HEALTHY PEOPLE. HEALTHY CATTLE. HEALTHY PLANET.

February 2016

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CALENDAR *of* EVENTS

Feb. 24 - BQA Regional Meeting, Fredonia, KS

Mar. 4 - KSU Cattlemen's Day, Manhattan, KS

Mar. 6 - Western Veterinary Conference, Las Vegas

June 8-10 - International Symposium on Beef Cattle Welfare, Manhattan, KS

We've moved! Contact us:

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Calving Management Schools a Success for Second Year

by Audrey Hambright

For the second year in a row, the Beef Cattle Institute teamed up with K-State Research and Extension to host 11 calving management schools in the state of Kansas throughout December and January.

Dr. Dave Rethorst, outreach director for the BCI, gave the keynote address at each location.

Dr. Rethorst addressed several topics about calving management to prepare producers for a successful calving season. The impact of nutrition during pregnancy on calf health and performance was discussed in addition to different fetal presentations that might be encountered and how to correct them.

A big draw for producers, according to Rethorst, was the dystocia simulator cow and calf pair, which has been utilized successfully at the Kansas State Fair Birthing Center.

"The cow was a huge selling point," he said. "Being able to demonstrate and not just use PowerPoint slides worked really well."

Video cameras were also used during the demonstration to help show the position of the hands while manipulating the calf.

Sandy Johnson, northwest area extension livestock specialist, worked with other extension agents to plan locations and dates to meet speaker availability as well as promotions and presentations. Her presentation focused on the impact of gestation nutrition on both cow reproductive performance and offspring performance, which was given at the events held in Oakley, Blue Rapids, Smith Center and Ransom.

Based on the post meeting evaluations tabulated so far, a majority of those who



Dr. Rethorst presents to a group of producers in Oakley, Kansas.

attended expect to change both when and how they provided calving assistance. There were also comments from instruction received on how to manipulate the calf to make the pull easier in addition to increased understanding in the role of nutrition and specific nutrients on animal performance.

But the learning aspect wasn't limited to producers. Johnson had some takeaways from the management schools as well.

"I always learn something from the producers that attend as they share some of the ways they deal with various management challenges," she said.



Dr. Rethorst demonstrates a pulling method using the dystocia cow/calf simulator.

International Symposium on Beef Cattle Welfare

JUNE 8, 9 & 10, 2016

Kansas State University Alumni Center
Manhattan, Kansas

Watch for registration information at www.beefcattleinstitute.org.

Join the Conversation **ONLINE!**



The_BCI



Beef Cattle Institute at Kansas State University

NEWS BRIEFS

BQA partnership with Boehringer Ingelheim Vetmedica, Inc. provides free certification through April 15

by Melissa Jackson, Beef Board

During the 2016 Annual Cattle Industry Convention, Boehringer Ingelheim Vetmedica, Inc. (BIVI), announced a Beef Quality Assurance (BQA) free-certification period — from now through April 15. Beef and dairy producers can take advantage of free BQA certification online courtesy of BIVI and the BQA program, which is funded by the beef checkoff. Register today and complete your certification at your own convenience.

And, as an added bonus, anyone who becomes certified during this period is eligible to win a pair of Roper boots, courtesy of BIVI.

BIVI will pick up the \$25-\$50 online training fee for every person completing BQA training through April 15. That includes anyone who works with cattle — whether it is beef or dairy. Visit www.bqa.org to take advantage of the open certification period.

The BQA program is important to the cattle industry because it is a producers' consumer-friendly story to tell, helping them talk about using BQA Best Management Practices for producing a safe and high quality beef product. And for dairy producers, this offering also is beneficial as a tool to promote safe animal-handling practices and because a large percentage of dairy calves, as well as market cows, make their way into the food chain.

The BQA training modules are customized to fit the specific needs of each segment of the cattle industry — cow-calf, stocker, feedyard and dairy operations. The program covers best management practices such as proper handling and administration of animal health products, reducing injection site blemishes, and low stress cattle-handling principles.

Beyond reinforcing industry best practices for cattle production, obtaining certification can be a useful tool in an ever-changing landscape where consumers want to be assured they are receiving a product raised in ways that align with BQA.

For more information about your beef checkoff investment, visit MyBeefCheckoff.com.

Note: For questions about the online certification process, including technical issues, please contact Kelly Oliver at the Beef Cattle Institute.



Over 300 Kansas producers became BQA Certified at regional meetings this year!

Thank you to the Kansas Beef Council and everyone who hosted and facilitated meetings in January and February.

Student Spotlight Savannah Isley

Hometown: Bird City, Kansas

What year are you? 3rd year

What is your degree program and anticipated graduation date? Doctorate of Veterinary Medicine, May 2017

Leadership activities: Vice President, Student Chapter of the American Association of Bovine Practitioners

What's the best learning experience you've had so far at KSU CVM? I love the experiences where students such as myself get to incorporate the class work with hands-on application of concepts. Specifically the large animal experiences have been the best ones for me, such as the equine castration in our junior surgery laboratory, and the wetlabs that the Bovine Club hosts like the bovine necropsy wetlab and the bovine OB/dystocia wetlab.

What would you tell your undergrad or first-year self if you could share one piece of advice? The best advice I could give would be to take all the hands-on and practical experience possible, especially in the summers between school years. That experience will make what you learn in classes more relevant and applicable, and therefore you will get more out of the time spent in the classroom. I spent my entire summer between second and third year working at a ranch with on-site veterinarians, and it helped me know that I was headed in the correct direction with my career and renewed my enthusiasm for this profession.



PRODUCER spotlight

Brian Hagedorn KANSAS BULL DEVELOPMENT

Wamego, Kansas



Brian Hagedorn, owner/manager of Kansas Bull Development stands near a pen of bulls being fed for the Kansas Bull Test sale.

By Audrey Hambright

Awareness of industry issues and open communications has allowed Brian Hagedorn, owner/manager of Kansas Bull Development near Wamego, Kansas, to succeed with a unique operation.

Hagedorn's growing interest in agriculture started in his youth, with initial focus on a path in agronomy. Yet, the more he dove into the field, the more he was drawn to animal science and thus he began to lay the groundwork for a career in the beef industry.

While attending Kansas State University in 2004, Hagedorn began working for what is now Kansas Bull Development and took the opportunity to become involved in several projects on the operation, eventually becoming a partner and then sole owner of the business. The LLC portion was formed in 2012, the same year they took over the Kansas Bull Test.

Now Hagedorn's responsibilities vary from season to season, but currently they are in the midst of preparing for the 75th annual bull test sale, which will be held Wednesday, April 6. This includes anything from ultrasounds, breeding soundness exams, clipping cattle in addition to preparing sale videos and catalogs. Bulls that qualify for the program are brought to the feedlot in October. Criteria are based on guidelines from a management standpoint as well as being current on weaning vaccinations. Hagedorn also evaluates the market and demand

when taking entries. The 112-day test starts in November and ends in the last week of February. After the final report, the top half that sell in the Kansas Bull Test are determined by half average daily gain (ADG) ratio and half weight per day of age (WDA) ratio.

But their sale season isn't

limited to the Kansas Bull Test. Kansas Bull Development aids in preparation for many other seedstock producers for their upcoming sales, two of which are quickly approaching. Hagedorn and his crew provide custom services for the The Gold Bullion Sale, which offers a selection of Simmental bulls brought together by area breeders, will be held on March 6 as well as the Dikeman's Simmental Bull Sale on March 11 in addition to many more production sales held offsite.

"We're a diverse operation, however our focus and attention is on bull development," he said. "It's a simple concept, but on the other hand it takes a much different management approach than just feeding beef cattle."

The activities of the operation may be diverse, but the focus is clear.

"The core of this business is really trying to assist or benefit the seedstock producers," he added.

His passion towards the focus of the operation is undeniable, but Hagedorn is easily reminded to step back and keep perspective of what makes the operation both unique and successful.

"We are interested in building relationships and adding value to other operations," he said. We firmly believe that this is a large chunk of what strengthens the beef industry as a whole and has the most positive effect. The idea of looking out for others is not only biblical, but by God's design, leaves a trail of positive results to all parties involved."

Keeping the big picture in mind, he believes attitude and communication helps maintain overall awareness in the industry.

"We have the privilege of being able to talk to a lot of different people in the seedstock business and I think it's really important to be aware of different situations and what's yet to come," he said.

Hagedorn referenced Beef Quality Assurance (BQA) as a program that received mixed feelings at first, but all that was needed was an understanding that these types of programs are for the good.

"To educate people buying beef to understand how it's raised for them and to gain a little bit more knowledge on the industry as a whole is huge," he said.

The crew at Kansas Bull Development is BQA certified either by online courses or face-to-face meetings. Their pride in BQA certification is evident by the "BQA certified" sign posted on their office deck.

Hagedorn has graciously welcomed livestock judging teams and beef research students to his operation in the past and continues to welcome those groups to help further their education in the industry. He encourages those just getting started in the industry to focus on integrity, hard work and being detail oriented.

"Whatever avenue you're trying to get started in, just go for it!" he said. "Obviously the most important thing is to have a plan, think it out and then stick to the plan."



A couple of Charolais bulls being prepped for the Kansas Bull Test sale. The 112-day test ends the last week of February.



RURAL practitioner

Dr. Brendan Kraus
SPUR RIDGE VETERINARY HOSPITAL

Marion, Kansas



Dr. Brendan Kraus ultrasounds a large orbital mass which turned out to be an aggressive cancer.

by Audrey Hambright

Finding a great mentor for guidance in a career path can prove to be tremendously beneficial.

Dr. Brendan Kraus, Spur Ridge Veterinary Hospital in Marion, Kansas, was lucky enough to find just that. After graduating from the Kansas State University College of Veterinary Medicine, Kraus took a job as solo veterinarian at an exclusively large animal practice. He realized he still had a lot to learn, especially since he had never worked under another veterinarian. Over those first few years, Drs. Matt Miesner, Ken Harkin and Brent Hague made themselves available for questions or help with cases. Kraus says he was made to feel comfortable calling these referral veterinarians for help when needed.

“These doctors allowed me to improve faster than I should have been able to do on my own, and I am grateful to have good relationships with these specialists,” he said.

Growing up on a farm east of Marion, Kraus developed his passion for animals at a young age. His interest in science and being outdoors simply fueled the flame.

“I always enjoyed working with animals growing up and veterinary medicine seemed like a fit for me,” Kraus said.

His first full-time job after school was a startup practice near Louisburg, made up of 70 percent equine and the rest beef cattle. Two years later, he decided to move back home to Marion where he purchased a mixed animal practice in Florence that was being vacated. 5 years later, he expanded the practice to a new facility in Marion.

Spur Ridge Veterinary Hospital is a two-doctor mixed practice made up of 45 percent beef cows and background/ feedlot, 40 percent small animal and 15 percent equine. Dr. Chris Cox joined the practice in 2015.

“Our practice model is focused on customer service while attempting to deliver a high level of care across a wide range of

species,” Kraus said. “We really want to be able to offer whatever services our clients need, but we want to do it well.”

One change he has noticed in the industry is the specialization of veterinarians, particularly among new graduates. He doesn’t feel that this is a necessity for every new veterinarian, but encourages students who want to be a mixed animal practitioner to “just go for it.”

“While it can be difficult and challenging at times, doctors who are able to practice good medicine on whatever walks through the door will always have a place in the hearts and lives of people in rural communities,” Kraus said. “They will trust and expect that you can get it done, whatever that “it” may be.”

Overall, his career in veterinary medicine has been fun and rewarding. And added that practice ownership, while even more challenging, can be rewarding as well.

“The only advice I could offer young veterinarians is to work harder than most, stay as humble as possible, don’t neglect your family, and find your worth and satisfaction in Jesus Christ and not solely in your occupation.”



Dr. Kraus enjoys a vacation with his family.



Bovine Respiratory Disease and Antimicrobial Resistance

By Keith D. DeDonder, DVM, PhD

Bovine respiratory disease (BRD) remains a major disease both from an economic and an animal welfare standpoint in beef production systems. Antimicrobial administration is a mainstay in both the control of and in the therapeutic treatment of acute BRD. However, the pipeline of novel antimicrobial classes has remained dry for well over a decade and according to most published accounts, antimicrobial resistance among BRD pathogens is increasing. Therefore, judicious antimicrobial usage is vital for continued efficacy. The biggest challenge is targeting the ideal scenario of maximizing clinical efficacy and minimizing antimicrobial resistance. The host-pathogen-drug interaction is very complex and despite current sophisticated technology, this interaction is still not well understood for many infectious diseases.

Within the last several years, the presence of integrative conjugative elements (ICE) have been recognized in bacteria associated with BRD. These ICE contain the genetic code necessary for bacteria to express resistance to nearly all of the major drug classes used in the treatment of BRD. Additionally, the ICE are mobile genetic elements that mediate their own excision from the host chromosome, form a circular intermediate and encode their own machinery to transfer themselves by conjugation, and are then able to integrate and replicate as a part of the host chromosome.

In 2013, a research trial was conducted to investigate the effect of treatment for control of BRD and treatment of acute BRD with a macrolide (gamithromycin) on the development of macrolide resistance. One objective of this study was to describe gamithromycin susceptibility of Mannheimia haemolytica, Pasteurella multocida, and Histophilus somni isolates, post-treatment for control and/or for treatment of acute BRD with this antimicrobial. Another objective was to characterize the macrolide resistance genes present in genetically subtyped M. haemolytica isolated from cattle that had either been treated on arrival for control of BRD or sham saline injection (CON).

One hundred and eighty cattle perceived to be at high risk for BRD were brought into a research feedyard in Manhattan, KS. Sixty head were purchased each at a single salebarn in Missouri, Tennessee, and Kentucky. Cattle were purposefully bought from as many different sources as possible at each salebarn. Upon receiving, cattle were subject to practices typical in the industry (vaccinations, anthelmintic and growth hormone administration). However, cattle were randomly allocated within state of origin to receive either gamithromycin (MM) or a sham saline injection (CON), serving as a negative control. Cattle were divided within state of origin into two pens such that there were 30 head of MM cattle in one pen and 30 head of CON in the other pen resulting in a total of six pens in the study.

Following administration of the MM and CON, cattle were monitored for signs of BRD for 28 days. Cattle receiving MM had a post treatment interval of 7 days while cattle in the CON group were immediately eligible for diagnosis and treatment of BRD. Diagnosis of BRD was performed in the pen by a veterinarian masked to treatment allocation using a clinical scoring system based on clinical symptoms attributable to BRD. Cattle meeting the clinical score necessary for inclusion

were pulled from the home pen and a rectal temperature determined in a chute. Cattle with a rectal temperature ≥ 104.0 °F were included in the study and if the rectal temperature was < 104.0 °F were sent back to their home pen for further observation. Cattle enrolled in the study were subjected to a sampling scheme consisting of bacterial culture of deep nasopharyngeal swabs (NPS) and/or bronchoalveolar lavage (BAL) fluid prior to drug administration and again at either 12 or 24 hours after administration. All cattle had both NPS and BAL samples submitted five days after treatment for bacterial culture and subsequent gamithromycin minimum inhibitory concentration (MIC) determination.

As many as 12 isolates of M. haemolytica from each culture sample were subjected to MIC determination and genomic analysis for the determination of the macrolide resistance genes erm(42), msr(E), and mph(E). Further, up to 6 isolates of Pasteurella multocida and Histophilus somni were isolated and subjected to MIC determination. Determination of MIC was by broth microdilution. Whole genome sequencing of M. haemolytica isolates was utilized for the construction of phylogenetic trees to determine the relatedness of each isolate and to identify the presence of macrolide resistance genes within ICE when they were found to be present. Generalized linear mixed models were built for data analysis.

In total there were 276 M. haemolytica, 253 P. multocida, and 78 H. somni that were isolated from the 26 head of feedlot cattle that were included in this study. Of the 26 head of cattle that were included in the study (diagnosed with acute BRD) only four calves were determined to be failures (two from each treatment group).

Resistance was overrepresented by a single genetic subtype of M. haemolytica. There was not a significant difference between MM and CON groups in regards to the likelihood of culturing a resistant or intermediate isolate of M. haemolytica or P. multocida. The likelihood of culturing a resistant or intermediate isolate of M. haemolytica differed significantly by state of origin and further investigation in this area is warranted. A single M. haemolytica genetic subtype correlated with nearly all of the observed resistance.

Clear associations between the use of gamithromycin for control and treatment of BRD and a statistically significantly increased likelihood of macrolide resistance were not found. However, there were just four treatment failures and two harbored resistant bacteria at the end of the sampling period and two did not. Therefore, the fact that there was not a statistical difference might have been due to an insufficiently powered study.

Interestingly, as another part of this study not discussed here, a poor correlation was found between MIC (susceptible or resistant) and case outcome (success or failure). However, the number of failures was quite low and this finding deserves further research.

Additional studies to elucidate the relationship between resistance and clinical response to antimicrobials are necessary to inform judicious use of antimicrobials in the context of relieving animal disease and suffering.