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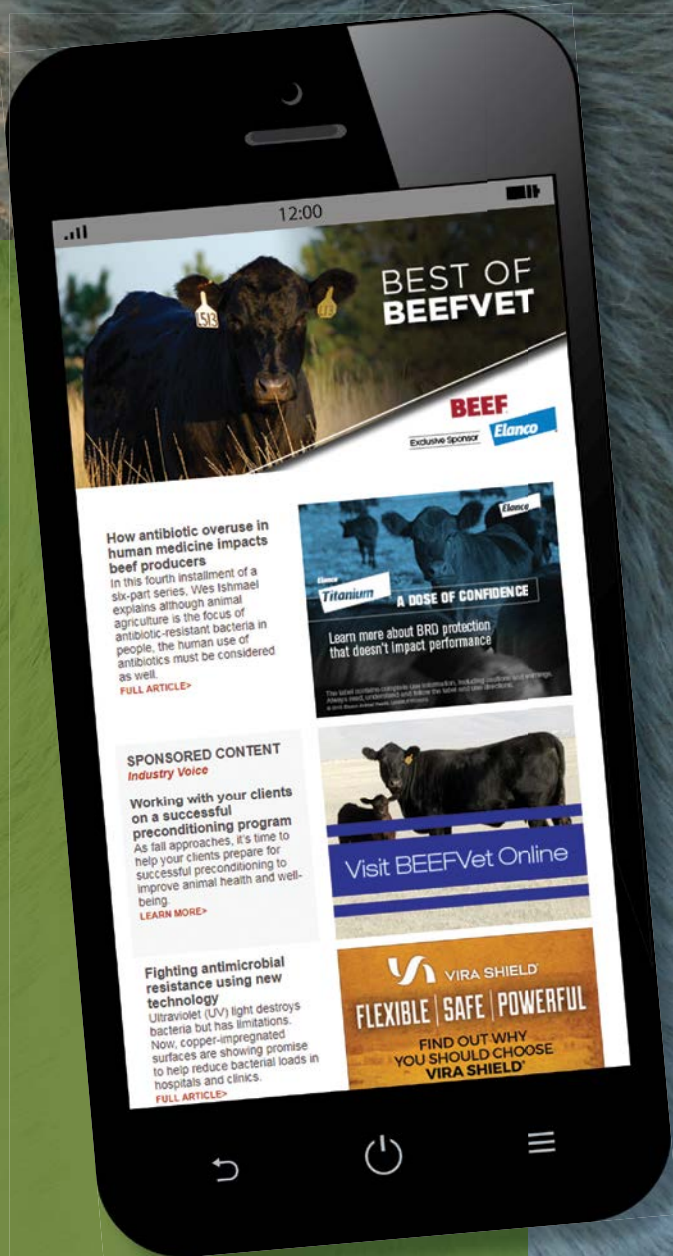
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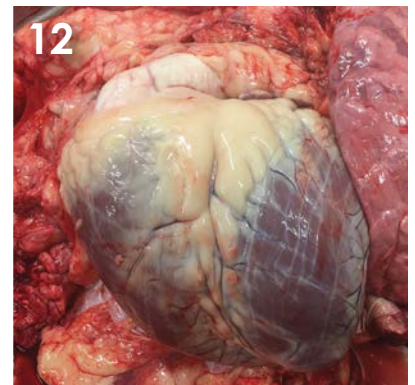
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GRETA KRAFSUR



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Keep virtual technology in perspective

Editor's Message by Alan Newport



Newport is editor of BEEF Vet and Beef Producer, and also writes for BEEF magazine. He lives in north-central Oklahoma and travels the U.S. to meet producers and to learn the latest and best information for the beef industry.

In this issue you'll see Dr. Jake Geis' column about doing better virtual meetings. It's good information, and I must admit I like the ability to use virtual meetings and internet-based research.

On the other hand, there is nothing like meeting new people, seeing friends, talking face to face, pressing the flesh and eating a meal together. In other words, I'm saying we need to be very careful with how much we use this technology.

Since the beginning of the COVID-19 pandemic earlier this year, there have been at least suggestive reports that the rates of suicide, domestic violence, alcoholism and drug abuse have gone up a lot.

A July report by the Well Being Trust said that 75,000 additional people in the U.S. could die in 2020 from what

they called "deaths of despair." See it at wellbeingtrust.org.

An article in Psychology Today said, "Friendship is a lot like food. We need it to survive." See that article at bit.ly/ptloneliness.

Another article, this one online from the National Institute on Aging, noted that behavioral and social factors actually interact with genetic, molecular and cellular mechanisms to influence health at older ages. See it at bit.ly/nihfactors.

Those of us who live in rural settings know how easy it is to get lonely. I've lived in the country and worked from a home office for 25 years now.

When the company office first closed and I started working at home, I was pretty lonely. I missed my co-workers and the ability to share ideas or ask opinions.

I eventually grew accustomed to it, and the telephone became one of my lifelines. Email is another. But they're not even close to eating a meal with family or friends, going to church, or visiting with friends or even strangers in person.

I am attending the American Association of Bovine Practitioners meeting by internet and not traveling to Louisville, Ky., simply because it saves me a long and expensive trip.

I refuse to go through the airports right now with all the hassles. But I'm trying to get out more.

So all I'm pleading is for those who can make these decisions to truly meet instead of doing a virtual meeting. As things return to normal in the coming weeks and months, please go back to real meetings with real people.

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AVMA identifies resistant bacteria by species

By Alan Newport

The American Veterinary Medical Association (AVMA) has released a new report on the antibiotic-resistant pathogens affecting animal health in the U.S.

The information is intended to help veterinarians evaluate the potential for resistance in clinical cases, and inform antibiotic therapy and other

treatment approaches.

The AVMA report also provides guidance for veterinarians on how they can combat antibiotic resistance, encourage appropriate antibiotic prescribing, use diagnostic testing to inform treatment, prevent and control infections, and collaborate with producers to develop comprehensive

herd health programs.

It highlights the bacterial pathogens that cause disease in food-producing and companion animals, with a focus on pathogens identified as a concern for elevated antibiotic resistance.

You can view and download the report at bit.ly/avma_resistance.

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Mortality (all causes)	24.0%	13.6%	p=0.002
BRD Morbidity	59.7%	45.2%	p=0.002
BRD 2nd pull	30.7%	22.1%	p=0.020
BRD Mortality	23.5%	13.6%	p=0.003

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Maximize the value of bull breeding soundness exams

By Glen Jensen, DVM

Bull fertility can vary throughout the year and is affected by the environment, injury, stresses, disease and genetics.

During the shorter days of winter, testosterone levels decrease. This can decrease sperm production and cause some sperm abnormalities. Extreme cold and stressful weather patterns can also negatively impact sperm quality. The heat of the summer causes hypoxia within the testicles, negatively affecting bull fertility.

These external influences are seen in the structure of the sperm cell, which we refer to as sperm morphology.

Value of BBSE

Bull breeding soundness examinations (BBSE) should be performed as close to the breeding season as possible for the most valid results, and to know the status of the bull at the time it is being used.

The value of BBSE is well-known. Approximately 1 in 5 bulls does not meet the min-

imum BBSE standards established by the Society for Theriogenology. Bulls not meeting these minimum standards are seldom infertile; they are usually subfertile, with lower conception rates than those that meet these standards.

Subfertility reduces reproductive efficiency and will cost in fewer cows getting pregnant early in the breeding season. Reproductive efficiency is the most important economic trait for cattle producers and therefore should be a priority when selecting bulls and replacement heifers.

Higher-fertility bulls will help cattle producers improve and/or maintain high reproductive efficiency in the herd.

In an article to veterinarians published in the *Theriogenology Handbook* and titled "Guidelines for Using the Bull Breeding Soundness Evaluation Form," by P.J. Chenoweth et al., the authors wrote: "Veterinarians are encouraged to work with their clients to accept higher standards for bulls

than the 'minimum acceptable' standards employed in this BSE [BBSE] system."

The minimal acceptable standards established by the Society for Theriogenology uses a minimum of 70% normal morphology and 30% forward progressive motility sperm in the ejaculate to be classified as satisfactory.

Improvements on this system can help veterinarians better understand possible causes of poor semen quality, create a prognosis and estimated time frame for possible recovery, and help bull producers select bulls for better semen quality.

CDS improves on BBSE

Improving on this system and creating higher standards requires a complete differential spermiogram (CDS). A CDS breaks down and lists each of about 24 morphological abnormalities and records the percentage of each.

A CDS is a must to really understand the potential fertility of many bulls. A more



Aim higher: Urging clients to accept higher semen quality standards can create better bulls and help veterinarians treat bulls that can recover from problems.

complete picture of the bull's sperm production is created through a CDS.

A significant benefit comes when we use the potential influences each type of morphological abnormality can have on fertility. Examples of this are: Detached heads and distal midpiece reflexes have very little negative effect on fertility until they reach levels of 30% to 40% in the ejaculate.

On the other hand, proximal cytoplasmic droplets, nuclear vacuoles and pyriform heads will begin to negatively impact fertility around 15% to 20% of the ejaculate.

Without a CDS, this information is missing — and some subfertile bulls will be used, while other bulls will receive an unsatisfactory classification yet would perform well.

Using a CDS, veterinarians can better help producers make informed breeding management decisions through selecting the correct bulls for optimal herd reproductive performance.

Genetic influences

The genetic influences on bull fertility is another area of increased value that should be considered when evaluating BBSE, and especially the CDS. Several studies have shown that breed plays a significant role in the percent of bulls passing a BBSE evaluation.

The variation among breeds and family lines indicates that we can influence bull fertility through genetic selection. Multiple studies have shown the phylotypic qualities of sperm are influenced by genetics.

We can improve the reproductive qualities of a bull through selection the same way we are currently improving growth, feed efficiency, carcass and material traits. Some sperm morphological abnormalities, when seen in significant numbers, have a direct genetic cause.

Many morphological abnormalities appear to be epigenetic; this is when the combination of stress or environment and a genetic trait allows abnormalities to form more easily. Diadem defects and distal midpiece reflex are two examples.

In some bulls, sperm with distal midpiece reflex is more likely to be seen during late winter due to lower testosterone, or from the mild stressors and diadem defects that are



Best bulls: Identify all morphological abnormalities and set a goal to cull the poorest bulls.

more common during the heat of the summer.

Genetic selection is difficult when trying to compare different bulls. There is a lack of consistency between evaluators and the equipment used to assess semen quality.

Several questions arise to create a system for comparison of sperm phenotypic traits: At what age should we test bulls? What time of year? How do we account for the environmental factors?

While these are legitimate concerns, it is easy to start with any single herd where the bulls being evaluated are under the same management and environmental conditions. When testing bulls, it is vital to place an emphasis on the quality of equipment and methodologies of evaluation.

We need to identify every

morphological abnormality and have a goal to cull the bottom-performing bulls. This will add real value for potential buyers.

Type of microscope counts

When evaluating semen and creating a CDS, it becomes vital to use a high-quality phase contrast or differential interference contrast (DIC) microscope with very good optics and resolution. The evaluator needs training and experience to do a good job.

A CDS takes a lot more effort and time to compile than the simple separation of sperm into normal, head, midpiece and tail morphologies. While most cattle producers and veterinarians are not using a CDS during routine BBSE, there are more and more veterinarians doing them.

Using a CDS will help bull producers add value and improve bull genetics, and will help cattlemen everywhere improve the reproductive performance of their cattle herds. The feasibility of a high-quality phase contrast microscope, due to the expense, may be difficult for many veterinarians.

However, bull semen can be easily collected and preserved in a small quantity of 10% neutral buffered formalin, and shipped to be evaluated by an experienced veterinarian who has a high-quality microscope, or to an andrology lab.

This may also have the advantage of minimizing the normal human variabilities commonly occurring with today's systems.

Jensen owns Emery Animal Health and Integris Beef at Castle Dale, Utah.

Veterinary college program hopes to boost beef practices

By Alan Newport

Oklahoma's veterinary college has launched a program it says will offer rural veterinarians additional skill sets and resources to provide services to Oklahoma beef producers.

Oklahoma State University's College of Veterinary Medicine recently launched the first phase of its Integrative Beef Cattle Program for Veterinarians. It is funded by a USDA National Institute of Food and Agriculture Veterinary Services grant.

The veterinary college says to launch the first phase of the program, it is conducting research by distributing surveys about demographics and needs to veterinarians, veterinary students and producers.

The program administrators said once they identify specific needs of veterinary practices in rural communities, the team will move into Phase 2 of the program.

That phase is intended to help veterinarians add skill sets that may allow them to

expand their practices and provide additional services to beef producers.

Bringing together beef cattle practitioners who may have other skills at the same time they are exposed to expertise at the veterinary college and elsewhere at OSU could benefit the participants and help achieve these goals of broader skill sets.

The third goal of the project is to connect veterinary students who are interested

in rural practice with practitioners currently engaged in rural practice.

The hope is to provide mentoring and direction for veterinary students while connecting them with practicing veterinarians, who may be looking to hire associates or potentially sell a practice.

The college also suggests a final goal would be to create a template that could be used in other programs across the U.S.

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Nonrespiratory particles able to spread airborne viruses

By Alan Newport

New research says influenza viruses can spread through the air on dust, fibers and other microscopic particles.

The work was done by the University of California, Davis, and the Icahn School of Medicine at Mount Sinai in New York. The findings were published Aug. 18 in *Nature Communications*.

The authors wrote that their study provides evidence of a mode of transmission seldom considered for influenza: The airborne virus is transmitted on microscopic particles called “aerosolized fomites.”

The researchers worked with guinea pigs in studying influenza virus transmission, and showed that the airborne particulates produced by infected animals are mainly nonrespiratory in origin.

They also found that an uninfected, virus-immune guinea pig whose body is contaminated with influenza virus can transmit the virus through the air to a susceptible partner in a separate cage.

The authors wrote that they further demonstrated aerosolized fomites can be generated from inanimate objects, such as by manually rubbing a paper tissue contaminated with influenza virus.

The authors wrote that aside from the generally accepted means of direct and indirect contact for spread of influenza virus among humans, questions remain about other possible means of viral spread.

Vaccines tested on animals

Animal models of influenza virus transmission are often used to try to elucidate these uncertainties and test the efficacy of vaccines under controlled laboratory conditions, they added.

Influenza virus is thought to spread by several different routes, including in droplets exhaled from the respiratory tract, and on secondary objects such as door handles or used tissues.

These secondary objects are called fomites. Yet little is

known about which routes are the most important.

The answer may be different for different strains of influenza virus or for other respiratory viruses, including coronaviruses such as SARS-CoV-2 (which causes COVID-19), the researchers said.

In the new study, researchers used an automated particle sizer to count airborne particles, they found that uninfected guinea pigs give off spikes of up to 1,000 particles per second as they move around the cage.

Particles given off by the animals’ breathing were at a constant, much lower rate.

They also showed immune guinea pigs with influenza virus painted on their fur could transmit the virus through the air to other susceptible guinea pigs, showing that the virus did not have to come directly from the respiratory tract to be infectious.

You can read the open-source article here: bit.ly/aerosolizedfomites.

APHIS distributing RFID ear tags

The USDA Animal and Plant Health Inspection Service (APHIS) has awarded contracts to purchase up to 8 million low-frequency radio frequency identification (RFID) ear tags for bison and cattle.

As part of its effort to increase traceability in cattle and bison, APHIS distributed more than 1.1 million RFID tags to

38 states from January to July.

APHIS said in a bulletin in mid-August the contracts for RFID tags were awarded to three American tag companies, all compliant with the Buy American Act: Allflex in Dallas; Datamars in Temple, Texas; and Y-Tex in Cody, Wyo.

The agency said contracting with all three manufacturers

will allow USDA to procure the number of tags needed to meet an industry volume equivalent to the number of replacement heifers in the U.S.

Each state veterinarian distributes the tags in a way that best serves the state's industry.

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New help diagnosing heart failure in feedlot cattle

By Heather Smith Thomas

Bovine congestive heart failure (BCHF) is now recognized as an increasingly frequent disease in feedlot cattle — but thanks to the latest research, it is possible to test for the condition.

BCHF is an untreatable, fatal condition involving pulmonary hypertension that culminates in right ventricular failure, but may begin with left-heart dysfunction.

Many cases occur at low and moderate altitudes, and involvement of both ventricles is a notable difference compared to classic heart failure associated with high altitudes.

Two researchers in Nebraska have been working with some degree of success to identify genetic risk factors associated with heart failure.

They are Dr. Brian Vander Ley, veterinary epidemiologist, University of Nebraska-Lincoln Great Plains Veterinary Educational Center, and Michael P. Heaton of the Genetics, Breeding and Animal Health Research unit at the USDA

Agricultural Research Service U.S. Meat Animal Research Center in Clay Center, Neb.

“We collected samples for a case-controlled study, and through our screening process, identified 21 genetic risk factors that increase the odds of heart failure in animals that have the risk factor — compared to animals that don’t,” Vander Ley says.

“We prioritized validation of the two most significant risk factors, each of which individually increased the odds of disease by about 7.5 times, and together about a 15-fold increase over animals that didn’t have either of them,” he says.

During the past year, Heaton and Vander Ley have been validating those risk factors, collecting samples from affected animals, and Heaton has been working on establishing the prevalence of those risk factors in the U.S. cattle population.

“Our validation is in progress and those details will be published soon,” Vander Ley says.

The other 19 genetic risk factors still need to be examined, he says. “The two we validated are available now, and producers can test their cattle for these.”

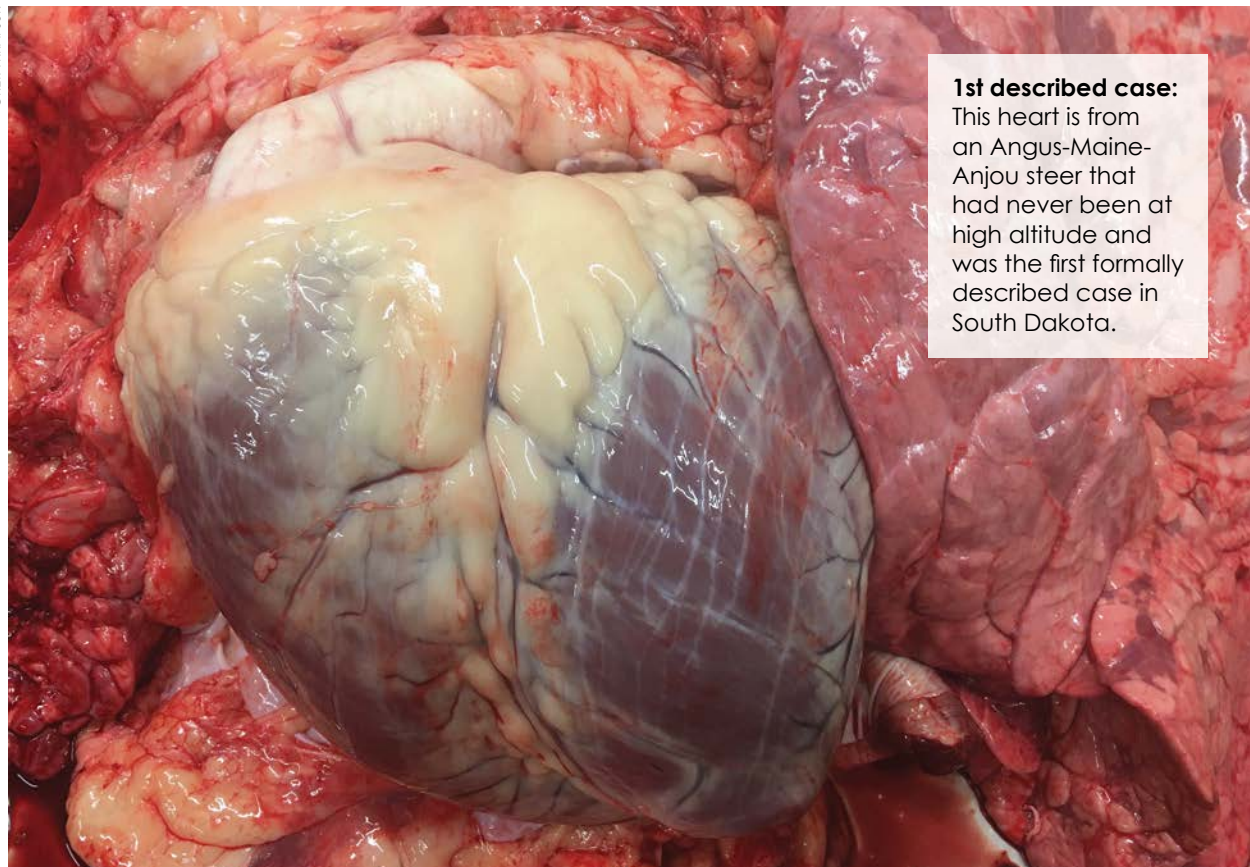
Information is posted online at the USMARC website. Veterinarians and cattle producers interested in knowing more about it can look it up at bit.ly/bchfriskfactors.

Good postmortems

It is key to do a complete necropsy when an animal dies, Vander Ley says. “Some cattle operations have this problem more frequently, but as veterinarians and producers become more aware of the disease, they seem to find more cases.

“Necropsies are an opportunity to find diseases that are not usually expected. This disease is an example,” he adds.

“We open animals up that die for unknown reasons, and if we don’t take time to look past the lungs and GI tract for less common things like heart failure, we can miss some

**1st described case:**

This heart is from an Angus-Maine-Anjou steer that had never been at high altitude and was the first formally described case in South Dakota.

“Necropsies are an opportunity to find diseases that are not usually expected.”

— Brian Vander Ley

important things. I think this has happened a lot with this disease.

“These animals often appear dyspneic, but it does not have as much to do with pulmonary pathology as with cardiac function. There may be some lung involvement, but a thorough necropsy might show heart problems as well.”

Vander Ley adds that while he and Heaton were doing necropsies for their research, they found many of these animals had healthy lungs. They were relatively free of lesions

that would indicate active or chronic respiratory disease.

He says this is something to keep in mind when posting feedlot cattle. He adds that they have photos online, both antemortem and postmortem images, of affected cattle. These are available on the aforementioned website.

Things to look for postmortem are a misshapen heart with a dilated right ventricle. Sometimes there's a dilated left ventricle as well, he says. The heart may be almost ball-shaped, and the walls are thin.

“We often see severe liver congestion and scarring — probably secondary to the heart problem. As heart failure progresses, poor right ventricular function leads to hepatic congestion and hypoxic damage to liver cells. With time, damage results in scarring,” Vander Ley says.

“When you slice into those livers at necropsy, it often feels like cutting through gravel. These livers are large and blue-purple color rather than normal tan-brown. If something is not right with

the heart, the liver often stands out as abnormal,” he explains.

Clinical signs

Before death, subtle signs might be picked up by experienced feedlot pen riders.

“They are good at this,” Vander Ley says. “Some of the yards we work with have unfortunately had a lot of opportunity to study animals that get BCHF, and the crew gets really good at identifying cases early.

“They tell me one of the first things they see is the animal starting to pull its elbows out away from the body.” This “bulldog stance” is a common adaptation to increase inspired air in animals struggling to maintain tissue oxygen levels.

Necropsies show a lot of fluid in the chest and abdomen. This creates a potbellied appearance and often results in animals having a swaybacked appearance while in the pens, Vander Ley says. Those two things often precede the brisket edema which is classically associated with this disease.

Many of these cattle are hypoxic and develop severe exercise intolerance. When asked to move, affected cattle may quickly begin open-mouth breathing in an attempt to improve oxygenation.

Diagnosis in the live animal can be a challenge, because, early on, BCHF will often manifest as a depressed calf that seems to have trouble breathing, which is often the same way pneumonia cases present.

Thomas writes from Salmon, Idaho.

Genetic pathways for lipids might be the cause

A South Dakota researcher says her work shows cattle with bovine congestive heart failure have a unique inflammatory metabolic condition.

Dr. Greta Krafur, a diplomate of the American College of Veterinary Pathologists, made congestive heart failure in feedlot cattle the subject of her doctoral dissertation while at Colorado State University.

She is now an assistant professor in the Veterinary and Biomedical Sciences Department at South Dakota State University, and is also employed by the University of Colorado Denver Anschutz School of Medicine Cardiovascular Pulmonary Research Lab.

In that capacity, she works alongside physician-scientists, whose expertise in pulmonary hypertension and heart disease influence her thinking regarding the complex

problem of bovine congestive heart failure (BCHF).

For several years she also has been working on a USDA-funded project with researchers at the U.S. Meat Animal Research Center in Clay Center, Neb., and the University of Nebraska's Great Plains Veterinary Educational Center, also in Clay Center, to understand more about feedlot heart disease.

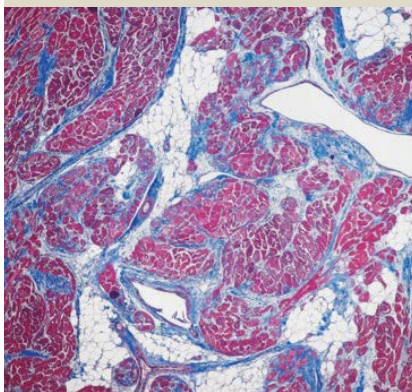
Following a study with 100 steers at the CSU feedlot facility in Akron, Colo., at an elevation of 4,100 feet, she made some observations. The steers were slaughtered in June 2019, and Krafur was in charge of tissue harvest for this study.

“I also collected fat from around the heart, as well as visceral abdominal fat. I'm analyzing the proteomic, metabolomic and lipidomic signatures, because I suspect that these cattle have a unique inflammatory metabolic condition,” Krafur says.

“The ones that eventually develop pulmonary hypertension and congestive heart failure have this unique signature that is pro-inflammatory. They go to glycolytic metabolism and also tend to have a lot of heart fat,” she says.

“I think cattle that suffer from this condition have a genetic variance when it comes to how lipids are trafficked and how they are metabolized.”

Krafur described a recent



Much fat: This micrograph shows fatty infiltration and scarring in the heart tissue of a steer with BCHF.



Severe: This heart is from a steer with high mean pulmonary arterial pressure (mPAP) of 105 mm of mercury. It was severely enlarged in both the right and left ventricles and shows much epicardial adipose.



Normal: This heart is relatively normal, and is from a steer that went through the entire feeding period with a low mPAP.

classic case of BCHF in South Dakota. It was a Maine-Anjou-Angus-cross steer that had never been at high altitude, and he died about 120 days

into the feeding period, which is typical.

He started going off feed, showing the classic signs of brisket edema, ventral edema

and bounding jugular pulse, she says.

"He was part of a group of cattle enrolled in a study at SDSU. The university veterinarian treated the steer for presumptive hardware disease, which is always a legitimate possibility that needs to be ruled out," Krafusur explains.

"The steer was given the typical antibiotic therapy regimen, and everyone thought he was getting better — then he suddenly died. They brought him to the SDSU veterinary diagnostics lab and asked me to do the necropsy.

"He had obvious late-feedlot congestive heart failure. I got photos of the classic lesions — remodeling in both left and right ventricle, remodeling in the pulmonary venous and arterial circulations, and classic nutmeg liver. When the right heart is failing, blood backs up into the liver.

"Knowing the work that doctors Mike Heaton, Brian Vander Ley and Dale Grotelueschen had just finished, published and presented in January 2020 [regarding genetic factors], I sent some of the heart tissues to Mike," Krafusur says.

"Sure enough, this animal was homozygous for both variants [risk factors] that Mike had identified. This meant that this animal had a 15-fold more likely chance to have this problem than the average steer."

Great feedback is the way to build great employees

By Alan Newport

There's no better way to motivate and mold employees than regular and well-done feedback by management.

"The link between feedback and performance is documented by decades of research and dozens of studies," says Richard Stup, agricultural workforce development specialist for Cornell University.

"My own research into the organizational commitment of dairy employees found feedback and participation were the biggest drivers."

Further, a lack of feedback can be demotivating, he adds. The reason may be the human propensity to fill in the gaps where there is a lack of information.

The yearly formal performance review has been a standard for many years, but can actually be more negative than positive if used inappropriately, Stup says. It can be useful as part of a larger employee management plan and communication; but used alone, it has too many faults.

Stup says yearly reviews are too infrequent, and thus are ineffective if they are the only source of feedback. Employees may actually fear them, and they have a high potential for cognitive bias by the manager(s).

If they are part of a more frequent feedback system, employees already know pretty much what is coming because of the frequent feedback, and that's a good thing, he says.

When you begin to increase feedback to your employees, they may be suspicious, so tell them what you're doing, Stup says. Say something like, "I went to a seminar, and this management expert said ... So that's what I'm going to start doing."

Make the commitment and stick to it, he says. Start by noticing good work and offering praise for it. Use two-way conversation with employees. The more you provide feedback, the more comfortable it becomes for everyone.

2 versions

As you begin to train yourself to give better and more frequent feedback, consider first that there are two basic forms of this communication: group feedback versus individual feedback.

Individual feedback is for things within the control of the individual. It would be for things the manager can objectively observe or measure.

Group feedback is for things that affect a group, and might include data on the group's performance, information about emerging trends the group can influence, and group recognition to build teamwork and recognize successes, Stup says.

Pros and cons

Stup notes there are four types of feedback you'll need to use:

1. Praise. This is used to encourage correct behaviors. Praise is free and powerful, Stup says. Employees crave it. You should use it frequently



Beginnings: A great starting place is noticing good work and offering praise for it. Build from there.

and not worry about being repetitive.

2. Redirect. This is used to stop wrong behaviors and refocus on correct ones. It should be positive in nature.

3. Ignore. This is used only when a person is doing extra steps that don't hurt anything, and when experience will teach them to stop on their own.

4. Punish. Never punish a learner. Use punishment only when necessary to stop willful wrong behaviors. He adds punishment can be as simple as saying, "I saw you doing that, and you know better. Why are you doing it?"

Coach them well

Stup offers several coaching tips for helping your employ-

ees become better.

First, catch people doing things right, and praise them for it. Keep providing them with deeper and more substantial information about why they are doing things, and how doing things right makes the business work better.

Also, encourage people to become experts at their work.

When collecting information for individual feedback and coaching, Stup says you'll need to do performance checks, meaning you'll check the results of each employee's work after an assigned job is completed, watch them while they are completing their work and keep data you can analyze.

These are things you should

write down to help you keep track of your coaching and feedback.

Stup says effective feedback for employees has five components, and he summarizes them with the acronym SCORE:

- specific, including details
- credible sources of information
- on time and frequent
- relevant to performance
- ends looking ahead

2 examples

In a recent meeting of the American Association of Bovine Practitioners, Stup offered the following two examples of good employee coaching. One is praising and the other is redirecting.

"Joe, you are getting better at prepping animals for surgery. I watched you work today and saw that you communicated well with your co-workers, and that you followed our surgery prep procedures closely and methodically.

"The patient was well-prepared when I started. How do you think it went?

"Tina, you need to be more patient and consistent when prepping animals for surgery. I watched some of your work today and saw that you were hurrying to get it finished. The patient could have been better prepared, but I went ahead with surgery anyway.

"Slow down, work methodically and pay attention to detail. You can do this!"

How to better serve a family business

Management Matters by Don Tyler



Tyler has been self-employed as a management coach and adviser since 1995 for a variety of businesses, mostly in agriculture. He and his wife, Peggy, have been married for 37 years, and live in Clarks Hill, Ind. Reach out to him at dhtyler@frontiernet.net.

The family business is a unique client, with great benefits and some interesting challenges.

We enjoy their loyalty to our business, passion to maintain their lifestyle from generation to generation and their devotion to the heritage of their animals. They may also have a dynamic decision-making style, nondescript organizational structure and fluid accountability.

Their unique needs

Family businesses often struggle to have clarity in their roles and responsibilities. These may change from day to day and person to person. For some, their organizational structure is best described as an everybody-does-everything approach to getting the job done.

By their nature, most family businesses have multiple generations as a part of their workforce. Some have two or three, and I even have clients with five generations represented — each with their own preferences for work culture, technology, work-life balance and economic lifestyle.

When each member of these generations has a role

in regular duties and responsibilities, our professional relationship can be difficult to navigate.

In addition to generational differences, there will be personality differences that affect their decision-making style, time management priorities, communication style, motivators and learning preferences.

Your strategy

If you've worked with families a long time, you certainly have some strategies that work for you, so keep doing them. Also, share your wisdom with your staff, so they can replicate your strategies in their interactions.

Each of these unique challenges and tendencies has a specific strategy that can be taught and implemented over time. For immediate, practical application, let's focus on some basic approaches that nearly everyone can appreciate.

Professionals should develop a culture in their business where understanding and appreciating their family business clients is a core competency.

Actions that support this competency include being readily available for any and all of their needs, respecting

the authority structure in their business (even if it's a little baffling at times), showing an interest in each generation of the business.

It also means being one of their most enthusiastic cheerleaders when tough decisions are needed and successes are achieved.

We can also position ourselves as a part of these family businesses' future by helping develop the competencies of their next generation; acting like a partner in their business rather than a vendor; and learning their passions, core values and long-term visions so we can align ourselves and our services with those preferences.

Be a student of their decision-making process, even if they can't define it themselves. Remember, in family businesses there are often two CEOs. One is the traditional CEO position who makes the main decisions, even if no one has that title.

The other is the "chief emotional officer," who influences the CEO and other decision-makers. This person can be anyone in the family — and could even be someone with whom you rarely interact.



TEKIRKDOGAN/GETTY IMAGES

Confusing: Multiple generations, personality differences and sometimes uncertain decision-making responsibilities are just a few of the challenges in dealing with family businesses.

Respecting this person's influence is essential, though at times you may be puzzled as to how and why this person carries this level of power and control. Navigating your rela-

reputation, profit, long-term success, maintaining their rural lifestyle, leaving a legacy, or some other overarching focus that impacts all decisions?

Aligning your business

understanding and influence within these family businesses.

Some of your staff may know them better than you do, but they must respect the business-to-business relationship that exists between your two enterprises.

The employees in your company can enhance these relationships through keen interaction with the next generation's pets, 4-H projects, FFA involvement and other personal interests.

Gaining permission to post your interactions with them on your company's website and social media pages adds a personal touch to your involvement — and promotes your business to a new generation of potential customers.

By their nature, most family businesses have multiple generations as a part of their workforce.

tionship with this individual can be difficult but is essential to your long-term level of influence with the family.

It can also be wise to identify their true motivators for being in business. Are they driven by appearances, community

relationship with these preferences will enhance your partner-oriented legacy for many generations.

More ideas

Your staff can play a role by reinforcing your involvement,

How can we hold virtual meetings effectively?



Geis practices veterinary medicine at Sioux Nation Ag Center in Freeman, S.D., and raises cattle with his veterinarian wife, Carolyn, in northeast Nebraska. He can be reached at the cowdocs@gmail.com.

Chuteside With Jake by Jake Geis, DVM

By the time this magazine lands in your hands, I hope that vaccine or nature has induced herd immunity to the coronavirus in the human population.

So many have been hurt by this, physically, financially and emotionally, and it needs to end soon. And it needs to end before I'm stuck on one more virtual meeting.

The quaint novelty that was the virtual meeting in a pre-COVID-19 world has become a mainstay for communication. Maybe some of you readers don't mind them, but I'd rather have a toothache for a week than participate in one of these lovely events.

Conducting one feels like talking to the intro for "The Brady Bunch," only the TV is on mute and the characters are probably surfing through Facebook instead of interacting.

Woefully, this unfortunate communication method is likely to persist past the pandemic. With more practices covering multiple locations, as well as the vast distances we cover in beef medicine, the benefits in time and money saved on travel are undeniable.

So, if we are condemned to

ANDREYPOPOV/GETTY IMAGES



Making it work: In short, get prepared, keep things short and simple, and create a way to handle questions.

The quaint novelty that was the virtual meeting in a pre-COVID-19 world has become a mainstay for communication.

a computer-bound fate, how can we make it an effective way to communicate information?

Test your equipment

First we need to make sure we have an operable system to

conduct the virtual meeting. "I can't join the meeting" will likely be one of the most-used phrases of 2020.

Nothing makes people grouzier and more disinterested right out of the gate than

waiting around because of technical difficulties.

Test your equipment with select people prior to the meeting. Start with the people you know are tech-savvy to work out the initial kinks. Then, reach out to the folks who perennially have trouble with technology to walk them through the process step by step.

That way on the day of the meeting, you know how to run your equipment, and the most likely offenders won't be coming in cold.

Keep it in short segments

Once your meeting starts, a major challenge is keeping people interested. Long-winded lectures are a no-go.

Think about videos on the internet — most of them are no longer than 10 minutes for a reason. That means information needs to be administered in similar-length sections.

The best option is to keep presentations short. Say what needs to be said and then switch speakers. With a longer presentation, consider breaking up the monotony with a poll. Having people click or type in a response to a question leads to more interaction.

Have a discussion system

One of the most frustrating things about virtual meetings is attempting to use them for discussion.

Because we don't have our normal cues to facilitate discussion in a virtual meeting the way we do in person,

conducting a group discussion virtually can be chaos. Some people talk too long, and others never have a chance to speak up.

Add to this a situation with a location that has two or more people together for discussion, while others are on the virtual portion only, and your moderator is in for a tough job.

To keep everyone involved and allow all to hear what is said, prediscussion ground rules need to be set.

For example: Are all questions and comments typed in? Is there an indicator the moderator can watch for to open a certain person's dialogue capabilities? Does each person speak in a specified order?

Whatever way you choose to organize the meeting, it is best to have a moderator dedicated to coordinating the process. That way, the discussion leader can focus on the topic at hand, not losing his or her focus in technical traffic control.

As much as I detest them, I will concede that virtual meetings have been very useful to get information disseminated this year. Through trial and error, we've become more effective with them.

Learn from our mistakes to make your experience run more smoothly, and you'll probably see them as a handy way to communicate remotely.

I only say probably, because it's still weird to see all your co-workers stacked on your screen like "The Brady Bunch."

Advertisement

PRODUCT INFORMATION
NADA #141-450, Approved by FDA

Banamine® **Transdermal** (flunixin transdermal solution)

Pour-On for Beef and Dairy Cattle 50 mg/mL

BRIEF SUMMARY: (For full prescribing information, see package insert)

Non-Steroidal Anti-inflammatory Drug

Only for topical use in beef and dairy cattle. Not for use in beef bulls intended for breeding; dairy bulls; female dairy cattle 20 months of age or older, including dry dairy cows; and suckling beef calves, dairy calves, and veal calves.

CAUTION: Federal law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION: Each milliliter of Banamine Transdermal pour-on contains 50 mg flunixin (equivalent to 83 mg flunixin meglumine), 150 mg pyrrolidone, 50 mg L-menthol, 500 mg propylene glycol dicaprylate/dicaprate NF, 0.20 mg FD&C Red No. 40, and glycerol monocaprylate NF qs.

INDICATIONS: Banamine Transdermal pour-on is indicated for the control of pyrexia associated with bovine respiratory disease and the control of pain associated with foot rot in steers, beef heifers, beef cows, beef bulls intended for slaughter, and replacement dairy heifers under 20 months of age.

CONTRAINDICATIONS: NSAIDs inhibit production of prostaglandins which are important in signaling the initiation of parturition. The use of flunixin can delay parturition and prolong labor which may increase the risk of stillbirth. Do not use Banamine Transdermal pour-on within 48 hours of expected parturition. Do not use in animals showing hypersensitivity to flunixin meglumine.

USER SAFETY WARNINGS: Not for use in humans. Keep out of reach of children. Flunixin transdermal solution is a potent non-steroidal anti-inflammatory drug (NSAID), and ingestion may cause gastrointestinal irritation and bleeding, kidney, and central nervous system effects.

This product has been shown to cause severe and potentially irreversible eye damage (conjunctivitis, iritis, and corneal opacity) and irritation to skin in laboratory animals. Users should wear suitable eye protection (face shields, safety glasses, or goggles) to prevent eye contact; and chemical-resistant gloves and appropriate clothing (such as long-sleeve shirt and pants) to prevent skin contact and/or drug absorption. Wash hands after use.

In case of accidental eye contact, flush eyes immediately with water and seek medical attention. If wearing contact lenses, flush eyes immediately with water before removing lenses. **In case of accidental skin contact and/or clothing contamination, wash skin thoroughly with soap and water and launder clothing with detergent.** **In case of ingestion do not induce vomiting and seek medical attention immediately.** Probable mucosal damage may contraindicate the use of gastric lavage. Provide product label and/or package insert to medical personnel.

RESIDUE WARNINGS: Cattle must not be slaughtered for human consumption within 8 days of the last treatment. Not for use in female dairy cattle 20 months of age or older, including dry dairy cows; use in these cattle may cause drug residues in milk and/or in calves born to these cows or heifers. Not for use in suckling beef calves, dairy calves, and veal calves. A withdrawal period has not been established for this product in pre-ruminating calves.

PRECAUTIONS: As a class, cyclo-oxygenase inhibitory NSAIDs may be associated with gastrointestinal, renal, and hepatic toxicity. Sensitivity to drug-associated adverse events varies with the individual patient. Patients at greatest risk for adverse events are those that are dehydrated, on concomitant diuretic therapy, or those with renal, cardiovascular, and/or hepatic dysfunction. Banamine transdermal should be used with caution in animals with suspected pre-existing gastric erosions or ulcerations. Concurrent administration of other NSAIDs, corticosteroids, or potentially nephrotoxic drugs should be avoided or used only with careful monitoring because of the potential increase of adverse events.

NSAIDs are known to have potential effects on both parturition (see Contraindications) and the estrous cycle. There may be a delay in the onset of estrus if flunixin is administered during the prostaglandin phase of the estrous cycle. NSAIDs are known to have the potential to delay parturition through a tocolytic effect. The use of NSAIDs in the immediate post-partum period may interfere with uterine involution and expulsion of fetal membranes. Cows should be monitored carefully for placental retention and metritis if Banamine Transdermal pour-on is used within 24 hours after parturition.

Not for use in dairy or beef bulls intended for breeding because reproductive safety has not been evaluated.

HOW SUPPLIED: Banamine Transdermal pour-on, is available in 100-mL (NDC 0061-4363-01), 250-mL (NDC 0061-4363-02), and 1-L (NDC 0061-4363-03) bottles.

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Susceptibility to SARS-CoV-2 varies by animal

By Alan Newport

Two recent studies have examined the links between SARS-CoV-2 and a wide range of animals, with various outcomes.

A study by researchers across the world found a variety of other species have varying levels of vulnerability to SARS-CoV-2, the coronavirus that causes COVID-19 in humans.

This international team of scientists used genomic analysis to compare the main cellular receptor for the virus in humans — angiotensin converting enzyme-2 (ACE2) — in 410 different species of vertebrates, including birds, fish, amphibians, reptiles and mammals.

Among these were 252 mammals, 72 birds, 65 fishes, 17 reptiles, and four amphibians.

ACE2 is normally found on many different types of cells and tissues, including epithelial cells in the nose, mouth and lungs. In humans, 25 amino acids of the ACE2 protein are important for the virus to bind

and gain entry into cells.

The researchers used these 25 amino acid sequences of the ACE2 protein, and modeling of its predicted protein structure together with the SARS-CoV-2 spike protein, to evaluate how many of these amino acids are found in the ACE2 protein of the different species.

The researchers reported that the 18 species predicted as “very high” risk were all Old-World primates and great apes with ACE2 proteins identical to human ACE2 across all 25 binding residues.

By their reckoning, cattle, sheep and cats were in the medium-risk category. Pigs, horses and dogs fell into the low-risk category.

Read the paper, published in *Proceedings of the National Academy of Sciences (pnas.org)*, that references the studies at bit.ly/sarscov2vulnerability.

Bat research

A study by the University of Pennsylvania is questioning whether bats in a state wildlife



SOURCE: UC DAVIS

rehabilitation program are susceptible to SARS-CoV-2, or can harbor the pathogen, and therefore present a threat to humans or other animals.

Researchers are developing a rapid diagnostic test using bat guano sent from local wildlife rehabilitation centers.

There is no evidence that North American bat populations currently harbor SARS-CoV-2 or other beta-coronaviruses like MERS and SARS, but it is possible that humans could transmit disease to bats, one of the researchers says.

This would present a public health risk because it could create another reservoir from which it could transfer back to humans.

Read the news story at bit.ly/upennbatscovid.



Hosted by Orion Samuelson and Max Armstrong with Greg Soulje

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Banamine®
Transdermal
(flunixin transdermal solution)



**FOR PAIN AND FEVER IN CATTLE,
RELIEF IS IN THE PALM OF YOUR HAND.**

New Banamine® Transdermal.
The first FDA-approved pour-on for pain control in cattle.

Pain and fever can cause cattle to go off feed. But new, easy-to-use Banamine® Transdermal (flunixin transdermal solution) helps get 'em back where they belong.

FDA-approved to control pain due to foot rot and fever due to BRD, Banamine Transdermal is the only non-steroidal anti-inflammatory (NSAID) cattle product available with a convenient pour-on route of administration. Visit BanamineTD.com to learn more.

IMPORTANT SAFETY INFORMATION: NOT FOR HUMAN USE. KEEP OUT OF REACH OF CHILDREN. Only for topical use in beef and dairy cattle. Do not use Banamine Transdermal pour-on within 48 hours of expected parturition. Do not use in animals showing hypersensitivity to flunixin meglumine. Cattle must not be slaughtered for human consumption within 8 days of the last treatment. Not for use in female dairy cattle 20 months of age or older, including dry dairy cows; use in these cattle may cause drug residues in milk and/or in calves born to these cows or heifers. Not for use in suckling beef calves, dairy calves, and veal calves. A withdrawal period has not been established for this product in pre-ruminating calves. Not for use in dairy or beef bulls intended for breeding because reproductive safety has not been evaluated.

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