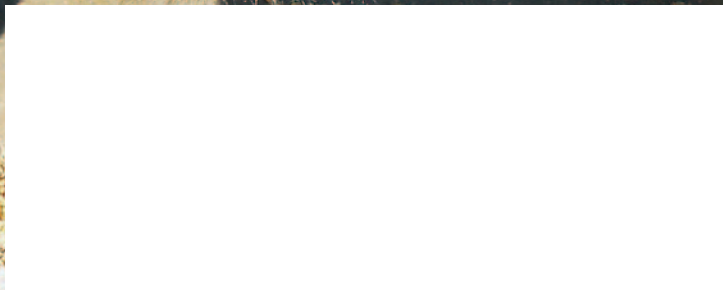


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Volume XXV Number 8

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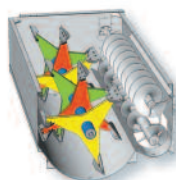
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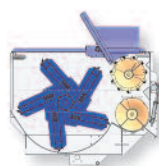
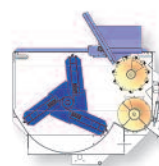


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**Greg Strong**  
Publisher  
800-747-7575  
bigguy@st-tel.net



**Jill Dunkel**  
Editor  
feedlot@st-tel.net



**Annita Lorimor**  
General Manager  
feedlot@st-tel.net



**Amy Spillman**  
Digital/Circulation  
Manager  
circulation@feedlotmagazine.com



**Robert A. Strong**  
Editor Emeritus

## FEATURES

**For National Sales Contact:** Bob Brunker, J.L. Farmakis, Inc., 48 Topfield Rd., Wilton, CT 06897  
Email: bob@jlfarmakis.com / Sales Office: 203-834-8832

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# OPPORTUNITY

They say necessity is the mother of invention. Well, in many cases that is true. There is a need for something, and someone modifies or creates a product that can send ripples through the industry. It doesn't have to be magnificent. It can be a small adaptation that makes a big difference.

Take cell phone cases, for example. Back in 1995, my husband was working as cattle manager at a large feedyard. Bag cell phones were still the "thing," but a cordless "brick" model was new on the cell phone market and would allow a user to send or receive calls from anywhere with a signal. The management team relished at the idea of being able to communicate with each other at any time, and soon my husband was provided a phone. It was about 8 inches tall and 2 inches wide. It had an antenna that added another 12 inches to the height of the device. To say the least, it was bulky. And carrying it in one hand while tending to cattle with the other hand was not easy or practical.

So we headed to a local saddle shop to see if they could create some sort of leather pouch that could be carried on my husband's belt to hold his new phone. He wanted something that could free up his hands, but still be available to his boss in the main office. The saddle maker looked around his shop and found a block of wood the approximate size of the phone, and began to figure out a way to develop a "case." A few days later, the project was complete and my husband was thrilled to have a way to carry his "mobile" phone.

A month or two later, we were back in the saddle shop and several phone cases were for sale. About six months later, other craftsmen had their own version, and in no time decorated, plain, basket stamped, oak leaf... you name it... there were leather phone cases everywhere.

My husband and I smiled. He had a handy case for the not-so-handy phone, and so did so many others. I'm sure we weren't the only ones who came up with a way to carry a bulky phone. We were innovative.

If you sit back and think about cattle feeding for the last 50 years, it is truly amazing the innovations that have taken place, and how they've transformed our industry. From discovering that processed grains are utilized more to looking at gene expression that is emphasized through nutrition, we've come a long way. Now drones can fly over pastures to check on cattle, and GPS receivers can report back how often cattle are eating and for how long.

That's why we've dedicated several pages to new ideas, technology and research. Our industry has its challenges, but it is full of people exploring new ways to improve and exceed expectations. Here's to the next innovation.





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# Animal Tracking Technology: TO INFINITY AND BEYOND

Noble Foundation Researcher Discusses Today's Options. Could One Help You?

What if you could know when each of your cattle took a drink of water, ate from the feed bunk or might be showing early signs of illness? The technology is here, according to Stephen L. Webb, Ph.D., landscape ecologist in the Center for Land Stewardship at the Noble Research Institute. He presented an update on available tracking devices and encouraged producers to let the foundation know how they could best test and further research the applications at the Texoma Cattlemen's Conference in Wichita Falls, Texas.

**GPS collars**

Webb said while most cattlemen are familiar with GPS collars, today's versions include communications

technology not available in previous models.

Perhaps the most useful feature? Webb said the user can now retrieve their data remotely from the collars.

"So, we have our typical satellite system that will allow you to take a GPS point, and then you have a separate set of satellites where you upload your GPS locations to that go then to a central processing center, and then eventually down to the user. But that's not all. The user can also talk backward and change some of the settings on the collar, or they can change notifications, how often the GPS locations are collected, and a number of other features," he said.

**Camera collars**

Early on, the Noble Research Institute built their own camera collars using GoPro units. Today, there are companies offering collars with cameras already built in to their GPS units. These models give the user both video and spatial location.

Webb showed footage of a cow equipped with two of these cameras, each offering its own unique view. One perspective was the cow grazing from above, while the other showed a close-up view of the grass.

"There's some interesting behavioral information we can get out of this, too," Webb says. "Here, we have a line of cattle waiting for water but here comes this freak with this camera and all this technology hanging off his neck. He gets to



move to the front of the line. It's really interesting, from the animal's perspective, how the outfitted animal acts as well as how the other animals perceive him."

One clip of footage made the crowd laugh — when it became evident how often cattle touched noses to another animal's camera. But this information could be helpful, too,

"This is important to know when it comes to disease spread," Webb said. "A lot of diseases are transmitted through direct contact, so now we'll have the level of contacts and how frequently they occur."

### PinPoint GPS receivers

Like the name suggests, PinPoint GPS receivers are small. Webb showed an example of one that was the size of a quarter and weighed about two ounces, and another that was the size of a dime and weighed about one ounce.

While their size makes them very versatile and their power allows for taking many locations, historically the downside was a short battery life (generally about two weeks). Today's models, however, have built-in solar panels to keep the battery charged. They've also integrated a remote communication so the user can collect data without gathering the animals back up.

Webb said commercial manufacturers are currently working on ear tag applications for this technology, but the challenge lies in making them lightweight enough for cattle to be comfortable.

### Bluetooth technology

"If you've got a smartphone, you're probably familiar with Bluetooth technology," Webb said.

It turns out, there are opportunities to use the technology to learn more about our cattle, too.

"If you think about the RFID ear tag we're familiar with, I would say we can fit these Bluetooth circuit boards into an ear tag in the future, and collect a lot more information than just simple animal identification or do asset tracking," Webb said. "We could have a lot more

information, not just on the animal itself, but on the behavior and the welfare of that animal, too."

### Accelerometers

Small circuit boards that measure acceleration, accelerometers are added to a collar. They feature a slot for a micro SD card, which can easily be removed and popped into the user's computer when the unit is recovered.

This technology is especially promising when it comes to evaluation average daily gain, Webb said.

When it comes to tracking technology and practical applications on cow-calf operations or feedyards, he urges cattlemen to not only think outside of the box but to "blow that box up so you aren't tempted by the box," and to contact the institute with comments or suggestions. **FL**



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1 Production Best Practices (PBP) to Aid in the Control of Foodborne Pathogens in Groups of Cattle. Beef Industry Food Safety Council Subcommittee on Pre-Harvest, Spring 2015. Accessed March 19, 2015.  
2 Tabe ES, Oloya J, Doekott DK, Bauer ML, Gibbs PS, Khaitsa ML. Comparative effect of direct-fed microbials on fecal shedding of *Escherichia coli* O157:H7 and *Salmonella* in naturally infected feedlot cattle. *J. Food Prot.* May 2008; 31(7): 539-544.  
3 Lallemand Animal Nutrition. Unpublished. United States. 1996.  
4 Hutcheson D and Lallemand Animal Nutrition. Unpublished. United States. 1986.

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# DRONES

## a Useful Tool for Ranchers and Feedlots

Small unmanned aircraft systems (sUAS), commonly called drones, were once a novelty, but new technology has made them more practical and useful. They have many applications today in agriculture—for crop monitoring and for livestock producers. They are handy for locating missing cattle or checking a fence or water source in a big pasture. A drone can check activity in the breeding pasture or calving pasture—or check for sick animals in a feedlot. On-board cameras can take high quality photos and videos that can be used for many purposes including advertising and marketing cattle.

Brent W. Auvermann, PhD, professor and center director, Texas

A&M AgriLife Research at Amarillo, says there are two types of drones. “The ones with 2, 4, 6 or 8 rotors can go slowly and hover like a helicopter. The other type are fixed wing, more like an airplane. They fly faster but they can’t hover. If you want to cover a lot of ground in a hurry, the fixed wing drones are best,” he says.

“All drones can be outfitted with a variety of sensors and cameras. Many people are familiar with the old GoPro camera that skiers, snowboarders and other athletes strap to themselves, taking videos as they go along,” says Auvermann.

“We can also mount regular cameras or more sophisticated sensors on drones—such as thermal

cameras. Those can detect differences between temperatures of various things in the pasture or field. People can use those for tracking livestock at night or under a canopy of trees.”

Drones are becoming very useful in crop agriculture for checking and monitoring plants. “We can use sensors that measure reflectance of the ground surface or crop canopy in different parts of the spectrum of light—ultraviolet, visual, infrared, far infrared, etc. We can pick up things like water stress, nutrient deficiency, disease or insect pressure on plants,” says Auvermann.

For stockmen, a drone could be useful for detecting a calving or lambing problem, a sick animal, or something that’s not quite right. Videos or photos could be helpful in many situations. “A temperature sensor might be handy, assuming you could discriminate between two animals, and how sensitive the sensor is,” he says. Checking animal movement or patterns of movement can also be useful. A person might be able to tell if animals were lame, or being chased or harassed by predators, for instance.

“Drones can stay under the cloud deck, close to the ground and the things you want to image. We’d like to be able to do some of this from satellites but they are too high and a cloud deck can block that view. The drone can be underneath the cloud deck and we can go very low and slow with the rotary drone, for instance,” says Auvermann.

Drones will also be useful for environmental research on feedlots, looking for greenhouse gas “hot spots” on a feedlot surface, etc. “We’ve started some of that work, developing a sensor and image interpretation,” he says.

### Eyes in the Sky

Texas farmer and rancher Tim Choat uses a drone for a variety of uses on his operation. His drone features an auto hover and “return to home” feature. That feature kicks in when the battery is low. The drone warns the pilot it is running low on battery and is returning home, which is handy when checking cattle or other tasks.

“I can fly it over pastures to locate cattle, check fences, take pictures of cattle to keep a count... lots of things. It saves on maintenance of vehicles, such as preventing flats, scratches from mesquite trees on vehicles, etc.”

Before leaving the store, Tim received a flying lesson practicing take-offs and landings. “It was easy to fly. I had a great instructor, but I also had flight lessons years ago. But the training came in very useful.”



## Regulations

There are some rules people need to be aware of when using drones. The governing authority is the Federal Aeronautics Administration (FAA). In August 2016 the FAA published a new set of rules governing the use of small unmanned aerial systems (sUAS) which are defined as drones that are less than 55 pounds total weight (the drone plus any sensors attached to it).

“Anything under 55 pounds falls under those Part 107 rules. You have to be a certified UAS pilot to do any commercial work with drones. Hobbyists also have to register their drones, but don’t have to be a certified drone pilot.” To fly a working drone (in a business, or hired by a farmer or rancher) you need to be certified.

“A rancher or feedlot operator flying his or her own drone for checking animals would not fall under the hobby category; this use has commercial value so you need to be certified as a sUAS pilot,” explains Auvermann.

“These drones can only operate below 400 feet and must remain in unaided line of sight. You can’t rely on binoculars or additional people. The drone can’t leave the visual line of sight of the person operating it (the pilot). It is good to have additional observers, but this is not required,” he says.

“These drones can only fly in Class G airspace, a definition that refers to airspace that is not under the control of an airport control tower. Most Class G airspace is outside the 5 mile radius of the nearest airport that has a control tower,” he explains.

Part of the training to get a sUAS pilot’s license is learning how to read aeronautical charts to know where Class G airspace is. Then you wouldn’t accidentally fly your drone too close to an airport. “Ignorance is no excuse if a drone strays into controlled airspace without authorization,” he says.



According to current regulations these drones cannot fly at night, and nighttime is defined the same way it is for hunting regulations—30 minutes before sunrise and 30 minutes after sundown. Visibility is inadequate during that time between sundown and sunrise. “You can get waivers to fly at night but you must specifically request and obtain them before you fly. You can also get a waiver to fly in other classes of airspace if you get the right permission,” says Auvermann. If you had a calving or feedlot situation in a certain area you wanted to monitor, you could get a waiver to fly at night.

“Some things like animal temperature will be easier to pick up at night,” he says. A drone at night could be a useful tool that might help a feedlot pen rider or someone monitoring a large calving operation. The drone can provide another “set of eyes” with a good view that may enable you to detect something you might otherwise miss.

Some of the thermal imaging hardware, however, falls under what is known as Export Controlled Hardware, which gets the

State Department involved. “We are trying to avoid high technology (that could be used for nefarious purposes) falling into the wrong hands. If you want a drone with a high resolution thermal camera on it, this will be an Export Controlled purchase. Vendors are well aware of this and you have to go through certain steps,” he says.

Every drone, whether for hobby or other purposes, must be registered with the FAA. This new tool may be of use for many farmers and ranchers in the future, simply requiring a bit of homework and abiding by the regulations.

## Flight Duration

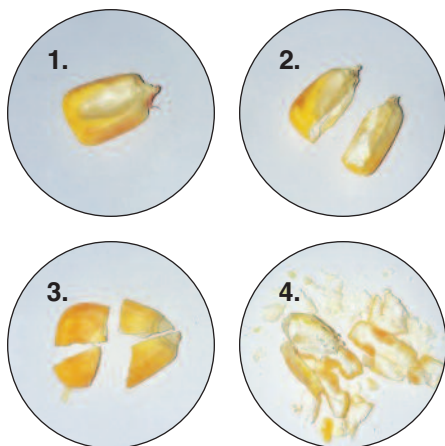
“Most of the flights we do with a rotary drone have a maximum duration of 20 to 25 minutes because batteries are heavy. The more power you need (to operate the drone, sensors, etc.) the more batteries you need and the heavier the drone will be. These short flights can be very useful however. We are excited about drone technology and plan to use it with livestock as well as crop applications,” says Auvermann. **FL**

# Transitioning Calves from Receiving to a Feedlot Diet



When starting calves, pull feed to the center of the feed bunk every 4 to 6 hours for the first 48 hours. Do this slowly so the cattle are intrigued, but not scared.

**T**ransitioning newly weaned calves from a forage diet to a grain and grain byproducts based diet is a critical time period in the feedlot. Since many farmer feeders only receive calves once a year and fall weaning is just around the corner, here's a quick reminder of things to consider.



1) whole corn kernel; 2) whole corn kernel split in half; 3) whole corn kernel quartered; 4) one whole corn kernel broken into many smaller pieces. Each time corn or other grains are ground or split further the total surface area of the feed increases, and the risk for acidosis is increased.

Corn has twice the energy density, and twice the digestibility of most forages, so a pound of corn yields four times the amount of digestible energy as a pound of grass. Allowing animals an adequate time to adjust to corn, metabolically, is critical as the bacteria in the rumen can digest the feed faster than the animal may be able to utilize this additional energy, resulting in a low rumen pH and acidosis.

Many animals are seeing an automatic waterer and learning to eat from a feed bunk for the first time. Further taking into account the fact that newly weaned animals in confinement are developing a new social hierarchy, are being exposed to several potentially harmful pathogens that we must manage through vaccinations, and may develop respiratory problems if we further stress them with rapid diet changes, a gradual increase in energy dense feed intake is necessary. Having a controlled intake allows animals to adjust to grain-based diets and allows them to achieve ad-libitum feed intake on

a pen basis in a manner that minimizes the likelihood of acidosis and respiratory disease outbreaks.

Two critical pieces of information that are needed to create an effective receiving period protocol are the number of calves in the pen and their average initial weight. Reducing within the pen, calf size variability is important, as feed intake is based on the average weight. If there is more than a 25% variation in weight, large animals may over-consume feed resulting in acidosis, and the feed that is taken away from smaller animals may result in their being in a negative energy balance, which sets them up for being susceptible to bacterial and viral respiratory diseases.

Slick bunk management should be used. When done appropriately, this does not reduce the intake of a group of cattle over time. To effectively utilize slick bunk management, care must be given to never increase the amount fed in any given day by more than 5% to 10% of the prior day's intake, and cattle should never have an increase in

total feed intake at the same time the corn portion of the diet is increasing. Additionally, the total diet should not contain more than 60% grain on a dry matter basis, and remember that half of corn silage is grain on a dry matter basis. Also, increase intake conservatively, and NEVER increasing feed intake two days in a row once a pen of cattle has achieved ad libitum intake, should minimize digestive disorders.

**Rules for Implementation:**

1. Feed whole shelled or coarse ground corn (without a screen in the grinder). Young calves chew whole shelled corn so that it's coarse ground in the rumen.
2. When any pen reaches the point where they are leaving .5 lb/hd/d, that pen will be considered to have reached ad libitum intake and be held for at least 1 day before an increase in intake.

3. If a pen is still consuming all feed offered at 2.2% of body weight, it will be held for 2 days before having its feed offering increased.
4. Provide clean water and alfalfa or high-protein grass-legume hay directly off the truck and allow cattle a rest period before processing them.
5. Make sure there is an electrolyte solution in the water that the calves drink immediately off the truck to restore cellular sodium and potassium levels.
6. Provide 30 cm (12 inches) of bunk space per calf for the first 14 days.
7. If corn silage is being fed, it MUST be kept fresh. Clean out feed bunks daily.
8. Remember not to push feed to the back of the bunks where calves can't reach it. Also, don't pull feed so far forward that calves can't see it when they look

in the bunk. Keep feed about in the middle of the feed bunk.

9. Pull feed to the center of the feed bunk every 4 to 6 hours for the first 48 hours. Do this slowly so the cattle are intrigued, but not scared.
10. NEVER walk in the feed bunks, as this spreads pathogens from your boots.
11. Feed newly arrived cattle the same time each day. **FL**

| Day No. | Feed offered as a % of body weight, Dry Matter basis |
|---------|--|
| 1       | 1.50%  |
| 2       | 1.60%  |
| 3       | 1.70%  |
| 4       | 1.80%  |
| 5       | 1.90%  |
| 6       | 2.00%  |
| 7       | 2.05%  |
| 8       | 2.10%  |
| 9       | 2.15%  |
| 10      | 2.20%  |

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# Expectations guide cattle feeding

BY STEVE SUTHER



**T**he performance of healthy cattle on feed is “extremely predictable,” but you have to know what to expect and when to worry. That’s according to Richard Zinn, University of California-Davis animal scientist, who presented at the late summer Feeding Quality Forum in Omaha, Neb., and Garden City, Kan.

Large-scale cattle feeding is only practical because scientists learned what to expect and shared knowledge with the industry, he said. Over the years, rules of thumb as precise as slide rules moved from experiment stations to feedyard managers’ notebooks and computers.

“We have a sense of certainty from looking at millions of numbers, so if a number isn’t what we expect, there’s a problem, and we can look for areas of opportunity,” Zinn said. “It boils down to confidence. But there’s risk and that’s inversely proportional to confidence. The greater the risk [sickness, environment] the more we pay attention.”

The most predictable situations can be confused by assumptions like pencil shrink, poor weighing conditions or simple errors in recording data on the wrong line or wrong sex of the cattle.

“I look at tens of thousands of closeouts, but discharge 3% to 5% because the numbers aren’t just

improbable—they’re impossible,” Zinn said.

There’s real variation that goes against the norms, he said, noting the main one is extreme weather at closeout. Space allowance per animal is another factor, with performance dropping off when that gets below his recommended 130 square feet. Differences in shade, shelter, feed additives and implants tweak expectations but can be factored in.

Changes in energy density of the ration affect feed efficiency as do shifts in starting weight and carcass weight.

“If you’re only looking at average daily gain and feed efficiency, you’re going to be misled in terms of how well the feedlot is actually performing,” Zinn said, suggesting a closer look at the energy component of dry matter intake. “The relationship between energy intake and growth performance is almost certainly the most reliable of nutritional concepts.”

That relationship is critical to profit as well. A model that accounts for gender, frame, quality, in-weight and energy value of the diet can reliably predict outcomes for average cattle.

“Deviations would be areas for the feedlot to look at why performance is not this number right here,” Zinn said, noting the predictability

given accurate input to the model or formula. But what happens if energy intake varies?

One example showed the impact of a 2% increase in energy intake added \$9 per head on the final close-out. Further implications support industry efforts to enhance that intake, and Zinn analyzed a feed additive example that came in 3.3% above average: 40% due to an increase in dry matter intake and the rest from improved energy utilization.

He closed with a mystery solved regarding varied results linked to specific pens within feedyards. He knew that pens encountering the most feed-truck traffic tend toward lower performance from that low-level stress. But a very large feedyard was dismayed that its new addition at the far end of the facility rarely beat average performance.

A study of daily feed logs and other factors showed those pens were always fed last, so every minor breakdown over a year of feeding came to bear on that area.

“If there was ever a problem with electricity going out or a storm, or whatever, performance in those cattle took the brunt of it,” Zinn said. “So we discussed some ways they could mollify that challenge. But it’s good to know all the potential sources of variation when you want to determine what to do.” **FL**



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# Innovation and Research Update

**There is a science to feeding cattle, and companies spend millions fine tuning that science and developing new products. Or in some cases, they revitalize an existing product. Here's a recap of a few innovative ideas and recent research.**

## Nutrigenomic technology

Alltech is targeting feedlot technologies down to the gene level with EPNIX®, a nutritional approach to drive carcass weight gain and improve dressing percentage. Looking at the science of cattle feeding has led to research that determines how specific carcass traits can be better expressed through nutrition. Alltech is utilizing nutrigenomics (how diet affects gene expression) and epigenetics (inherited changes in gene expression) to pinpoint feeding strategies for livestock.

“Since opening our Nutrigenomics lab almost 10 years ago we have looked at countless feeding strategies for multiple species,” explained Brian Lawless, Business Development Manager at Alltech. “Everything affects how genes are expressed within an animal, especially nutrition. There are genes relative to many things such as hair production or muscle

growth. The question for us at Alltech is, how can we get those good genes activated?”

Do specific nutritional regimens turn on good genes or bad genes? Absolutely, says Lawless. “Looking at a feedlot additive, like EPNIX, gives us a more precise way of knowing what is happening with an animal,” he said. “One of the major things we learned is what you feed matters, and specifically when you feed it plays a really critical role in overall performance.”

EPNIX works independently of beta-agonists or antimicrobials, so it can be used synergistically with all conventional feeding strategies. EPNIX is customized specifically for the life stage of feedlot cattle, and is packaged with 100% organic trace mineral supplementation. EPNIX is also Feed Verified by Where Food Comes From® for easy use in Verified Natural (NE3) and NHTC programs, all without the need of a VFD.

To prove its efficacy Alltech has partnered with leading feedlot companies over the last two years to conduct large-scale research across North America. The focal point of the research has been to examine the real-life impact on cattle and the bottom line for feedlots.

“At the end of the day, it gives a positive return on investment for the producer and more meat to the packer. It’s a win-win” Lawless said.

When it comes to digging deeper into science to find new feeding strategies, Lawless said, “It’s always an idea until you can develop a product and test it out. It worked in the lab and now we’re excited to see it working for feedlots.”

## Don't feed the fever

Keeping cattle healthy — and encouraging quicker recovery from

illness — helps animals direct their energy towards growth and production. Any disease challenge requires cattle to mount an immune response. In the zero-sum game of livestock production, this means resources are pulled away from building muscle mass or producing milk.

“It’s extremely important for us to provide the animal with the optimal environment and tools to maintain a healthy immune system,” says Ty Schmidt, Ph.D., PAS, Assistant Professor of Muscle Biology/Physiology at the University of Nebraska – Lincoln. “When we have an animal that mounts an immune response, it has to have enough energy to get the immune system going, fight the infection, then come back and continue producing”

In beef cattle, there’s no more challenging time than after the stress of transportation. The industry has long battled bovine respiratory disease complex (BRDC) in newly received calves. In fact, the average pull rate for BRDC in feedlot cattle has remained around 30 percent for years, even with advances in vaccines and antibiotics to tackle both viral and bacterial BRDC causes.

Probiotics, such as ProTerna-tive® (*Saccharomyces cerevisiae* boulardii CNCM I-1079) are gaining popularity as a tool to help support animals at risk for BRDC. The active dry yeast (ADY) probiotic has been proven to positively activate the immune system of cattle during times of stress by supporting bacterial communities in the lower intestinal tract.

In a recent trial, Dr. Schmidt evaluated yearling steers supplemented with *S. c. boulardii* CNCM I-1079 for 28 days at two different



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levels compared to a control group. On day 29, animals were administered a challenge to stimulate an immune response. Throughout the trial cytokine production was measured, which is a protein produced by the immune system.

During the trial, when compared with the control, cattle who received *S. c. bouhardii* CNCM I-1079 showed:

- A decreased production in their cytokine profile, possibly suggesting a more effective or efficient immune response.
- A decrease in the stress hormone cortisol, which indicates cattle were able to overcome the immune challenge at an effective rate.
- Had a lower body temperature when compared to the control animals.

“When an animal is challenged with a pathogen there is a fever or febrile response, and that takes a

massive amount of energy,” Dr. Schmidt says. “For an animal to increase its body temperature by 1-degree Celsius, it’s estimated it takes about a 13-percent increase in metabolic energy use.”

Steers supplemented with *S. c. bouhardii* CNCM I-1079 had a much lower body temperature after the challenge. This suggests animals may be spending less energy fighting an immune challenge — allowing it to return to production cycle more quickly, Dr. Schmidt explains.

“This shows interesting benefits that could be significant for the beef and dairy industries,” Dr. Schmidt says. “It appeared the feed additive allowed animals to conserve energy and use less energy when mounting the febrile response. This could be a massive tool for us in the industry as we continue to find alternative solutions to minimize illness and other challenges.”

Learn more about the research data from Dr. Schmidt by watching this video: [youtu.be/966XvQJuTuA](https://youtu.be/966XvQJuTuA)

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Congratulations to Our September Winner - Dr. Rhonda Vann from Mississippi



*Innovation ... from previous page*

**Whisper Veterinary Stethoscope System**

Merck is continuing training programs to increase value for feedyards on the Whisper Veterinary Stethoscope System. “At this point in time, we are focusing solely on BRD treatment and training new customers with regard to applying the technology in the hospital,” said Jason Nickell, DVM, Ph.D, DACVPM, Merck’s associate director of live-stock technology and innovation.

Nickell said the training is focused on teaching feedyards how to use Whisper as another piece of information, in conjunction with a rectal temperature, to confirm the diagnose of BRD.

“Based on observational studies, by combining the Whisper score and rectal temperature, we observe an enhancement in the accuracy of diagnosis of BRD. By improving the accuracy of diagnosis, we can reduce the number of

animals treated that don’t actually have BRD, and we can also ensure we identify the ones that do have BRD. It also gives us a clearer picture of where those animals are in the disease process so we can be more strategic in our therapy administration,” he explained.

The Whisper Stethoscope is placed on an animal’s chest wall that has been identified as ill or is demonstrating the signs of illness. Within eight seconds, Whisper provides the user with a Whisper score, ranging from 1 to 5, with one being minimal evidence of lung tissue damage, and a score of five indicating significant and permanent lung damage.

Nickell said that the score is associated with the likelihood of the animal dying from BRD. “What we are seeing from our own information, as the Whisper score increases from 1 to 5, the risk of that animal dying increases as well.”

Depending on the additional

management practices with which feedyards are using the tool, one consistent piece of feedback is they are able to reduce treatment costs by not treating animals that don’t have BRD, Nickell explained. Additionally, hospital and go-home procedures can also be customized based on the information gained by the Whisper score.

“In one feedyard in particular, animals that score 3 or higher are staying in recovery pens until they look normal. They don’t send them back to the home pen until they’re ready to compete for bunk space,” he said. “They see reduced treatment costs by weaning out those who don’t have BRD, but also seeing a reduction in relapses. Knowing the Whisper score affects how they treat the cattle, how they manage those cattle, and has also been used as a training tool for pen riders. In some cases, they’re seeing an improvement in the timing of pulls – cattle getting pulled sooner rather than



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**CONTRAINDICATIONS:** Do not use in animals that have shown hypersensitivity to florfenicol.

**NOT FOR HUMAN USE. KEEP OUT OF REACH OF CHILDREN.**

Can be irritating to skin and eyes. Avoid direct contact with skin, eyes, and clothing. In case of accidental eye exposure, flush with water for 15 minutes. In case of accidental skin exposure, wash with soap and water. Remove contaminated clothing. Consult physician if irritation persists. Accidental injection of this product may cause local irritation. Consult physician immediately. The risk information provided here is not comprehensive. To learn more, talk about Norfenicol with your veterinarian.

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**PRECAUTIONS:** Not for use in animals intended for breeding. Effects on bovine reproductive performance, pregnancy, and lactation have not been determined. Intramuscular injection may result in local tissue reaction which persists beyond 28 days. This may result in trim loss at slaughter. Tissue reaction at injection sites other than the neck is likely to be more severe.

**RESIDUE WARNINGS:** Animals intended for human consumption must not be slaughtered within 28 days of the last intramuscular treatment. Animals intended for human consumption must not be slaughtered within 33 days of subcutaneous treatment.

Not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows as such use may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established in pre-ruminating calves. Do not use in calves to be processed for veal.

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# SACRED COWS

“Sacred Cows” is a term that gets used for a variety of descriptions. It might describe the original use of the phrase, where animals in some parts of the world are deemed sacred, worth more than anything else and are allowed to roam free. Anyone that harms them is punished. The term Sacred Cow is actually an idiom of American origin dating back to the mid 1800’s to describe these animals.

The phrase is now commonly used to refer to a person, organization, institution, program, etc. considered to be exempt from criticism or questioning. Sacred Cows can be found anywhere. I once took over management of a livestock operation where the owner was sentimental about some of his original equipment, especially an old tandem truck and a 970 Case tractor. Though they weren’t being used, they were taking up a lot of space in a machine shed that I wanted to use for other storage. When I asked about them, the managers of other parts of his business said that those were not to be moved. I really needed that space.

Without asking, I charged up the batteries of both, put in

some fresh fuel, aired up the tires, started them up and pulled them out into the driveway. I gave them a much-needed bath, cleaned out the cab of the tandem, and fixed a couple cosmetic things that made them look like they were ready for the field again. I left them there for a couple days so that people could see them, especially the owner. Without saying anything else, I took them down the



road to a long-term storage shed that was used for seasonal equipment. A few days later the owner asked where they went. I explained that I knew how much those meant to him, so I took them out of the shed that had all the traffic going in and out, and cleaned them up and put them down at the other machinery storage where they would be safer. His only response was, "Thanks."

Sacred Cows pose many challenges. First, you must realize when you are dealing with one, and accept that it exists. Then you need to appreciate its origin, learn why it became "sacred" in the first place, and show some respect for the emotional connection its owner has with that project, program, equipment, strategy, person or other item in the business. Finally, and this is the hard part... you have to decide if you are going to feed it, nurture it, groom it and support it—or slaughter it for the meat.

As we develop our business strategy for the new year, an essential part of that process needs to be identifying any Sacred Cows that are no longer valuable, have outlived their usefulness, are creating a barrier to more modern techniques, or causing disharmony among the leadership and management.

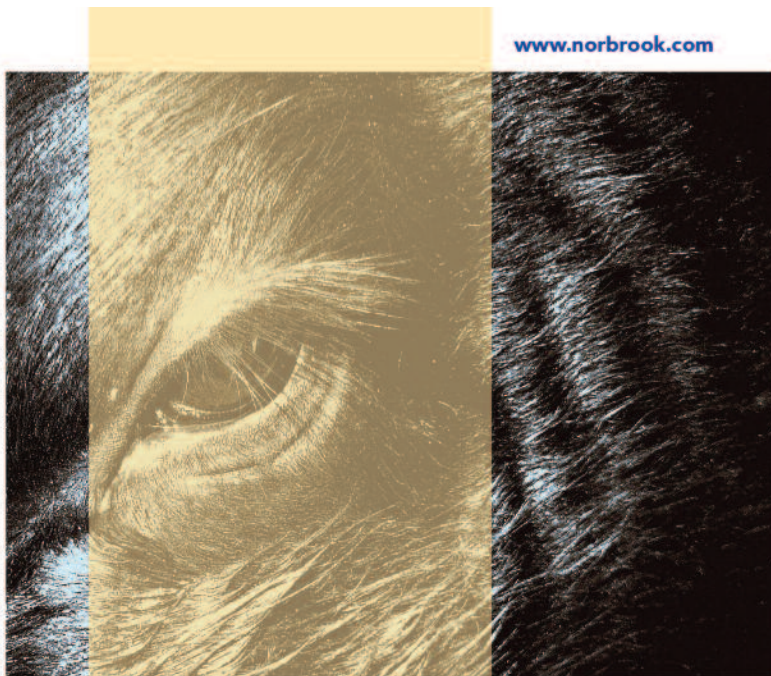
In Jim Collins' book, *Good to Great* he talks about doing "autopsies without blame" where the leadership does an open, honest review of business decisions and outcomes, without any focus on who made the decisions, managed the project or was otherwise involved. Practicing this strategy helps Good businesses become Great ones, because a factual, pragmatic, blame-free review of decisions creates the openness needed to maximize results over time. Managers and leaders will be more forthcoming

with ideas, strategies and even their own mistakes if they know that there are no consequences for their frankness.

Take a straight-forward, unvarnished and conscientious look at your operation. Are there barriers that need to be removed? Are there some topics that cannot be discussed? Are there processes and procedures that have outlived their

usefulness or need a full review? Do you have some Sacred Cows that need to be fed and nurtured... or slaughtered for the meat? Resolving these issues may very well be the difference between profit and loss in the upcoming year. **FL**

*Don Tyler is founder of Tyler & Associates Management Coaching. He can be reached at [dhtyler@frontiernet.net](mailto:dhtyler@frontiernet.net) or by calling 765-490-0353.*



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# Tips on Working Cattle in

# COLD WEATHER

Inclement weather creates more challenges when processing cattle. Russ Daly, South Dakota State University, says cows are less likely to be adversely affected by cold than are calves, since cows have more body mass and stay warmer, but it's wise to use low-stress handling and not get animals excited or exerting—which puts them at more risk for respiratory disease.

“Cattle handle cold better than heat when working them, but you still don't want to run them around too much,” says Daly. Stresses are additive when processing cattle, vaccinating, weaning calves or castrating and dehorning.

### Facilities

Check the chute and moving parts, make sure alleys and crowding chutes are in good repair, and gates aren't frozen down or immobile in a snow drift. Shannon Williams, Lemhi County extension educator, Salmon, Idaho, suggests walking through everything the day

before. Then you'd have time to shovel snow or chop away ice so gates will swing properly. “Be sure walkways and working areas are ice-free. In winter we are bundled up and not as agile,” says Williams.

John Hall, extension beef specialist, University of Idaho, says it is important to have a non-slip surface where cattle exit the chute. If there's packed snow or ice on the ground, or a concrete apron that's wet and slick, cattle may slip and fall.

“We groove the concrete apron, using a diamond tread pattern Temple Grandin recommends. If concrete is snow-covered, shovel it off. We usually put ice-melt or sand on ours. Cinders or ashes will also work on icy spots—anything to make the surface gritty and not slippery,” says Hall.

“There are commercial woven recycled tire mats you can put in front of a chute. The rubber provides a rough surface for better traction, and the woven mats have pockets between the strands so cows can

get a toe-hold as they come out of the chute. Those mats are expensive, but can be moved around where needed, to cover a slick spot,” he says.

“Some equipment may be cold or frozen. We turn our chute's hydraulic pump on at least 30 minutes to an hour before we're going to put cattle through the chute, to warm up hydraulic fluid. If the fluid is cold and thick, chute

speed slows down. Then your timing is off, when catching heads,” he explains.

### Keep Vaccines from Freezing

“Don't let vaccines freeze — whether modified live or killed,” says Daly. “Modified live viruses are inactivated by freezing. Be careful with killed vaccines that contain adjuvants. Freezing the adjuvants may create toxic compounds that could make animals sick,” he says.

“You may need hot packs in the bottom of a cooler so nothing freezes. I use hot water bottles in the bottom of a Styrofoam cooler, with holes in the top to stick pistol-grip syringes into when we aren't using them. This keeps needles from freezing, and syringe contents thawed without getting them too warm,” Daly says.

Williams experimented with temperatures and vaccine in various kinds of coolers to see how long they would keep vaccines from freezing. “I recommend hard Styrofoam coolers that are used for shipping vaccine, or a regular hard-sided cooler. Soft-sided ones don't hold the temperature long enough,” she says.

Start with a warm cooler. “Bring it indoors the night before. Or, to quickly heat a cold cooler, fill with hot water then dump the water out. Or use rice-filled heating pads warmed in a microwave. Put those in a cooler a while, to warm the inside.

If its 36 degrees outside, vaccine and syringes will be fine in a cooler because that's the lower end of the desired window for vaccine temperature. “At 29 degrees, a pint of

Using the pickup defroster to keep vaccines from freezing is not advised because temperatures could exceed recommended levels.



hot water in a good cooler will keep vaccine within proper temperature range for 4.5 hours. If it's 13 degrees outside, you have about 3 hours before the pint cools and it gets too cold inside the cooler. You might need to set the cooler inside your pickup with the heater running," Williams says.

"Don't put vaccines on the heater or defroster in a pickup window or they may get too warm. It's a fine line trying to keep vaccine within proper temperature. To tell if you are within that range, put a refrigerator thermometer in your cooler with the vaccine," she says. If it starts to drop below optimum temperature, put a new jar of warm water in the cooler. Sometimes it's handy to use two coolers—one for syringes and vaccine bottles you're filling from, and the other for bottles you haven't opened. Then you are not opening and closing that cooler all the time and it will retain proper temperature longer.

Some people use propane heaters for keeping the work crew and equipment warm. "But don't expose vaccines to hot temperatures," Daly warns.

"Temperature also affects pour-on products and antibiotics. Start with something that's already at proper temperature and don't let it freeze. If using a pour-on dewormer or delousing product administered via tubing, cold temps may freeze up the tube. Find ways to keep the tubing heated or insulated while working cattle. It's much better to keep things from freezing than trying to thaw them," says Daly.

### Caution

It's not wise to brand and clip cattle in cold weather, but many people do if they've purchased new cattle. If using a pour-on dewormer/delousing product, remember that some have flammable carriers. With long hair, if you used one of those products and then hit the animal with a branding iron, you might set the hair on fire. **FL**



## PROTERNATIVE-THE NEW MEASURE OF PREVENTION

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# National Beef Quality Audits Reveal Improvement, But Also Lost Opportunity

After years of trying to improve beef cattle, have we made enough progress yet?

That question was asked and answered in the 2016 National Beef Quality Audit (NBQA), the most recent since 2011.

For those waiting for the answer, it's still "no," Mark McCully says. The Certified Angus Beef® (CAB®) brand's vice president of supply says cattle are better, but there's plenty of room for improvement. The NBQA cites a lost opportunity of \$15.75 per head in quality grade alone.

"From our vantage point, we think it's bigger than that," McCully says. "Our demand curve would sure support that."

A glance at actual beef grades vs. the NBQA targets of 5% Prime, 35% Premium Choice, 35% Low Choice, 25% Select and no Standards could lead some to proclaim, "Mission accomplished." McCully sees more to achieve and says ranchers have the tools and beef genetics to do it.

"We can still get better," he says.

"Anything throughout the management of that animal that sacrifices quality grade is an economic loss to the whole beef enterprise," McCully says.

Along with weekly grading reports, the periodic NBQA results document quality-grade progress through the beef production chain: 71% of cattle hit

Prime and Choice targets in 2016, the most in audit history, compared to 49% in 1995.

That's good news for the beef industry, says Jeff Savell, Texas A&M University distinguished professor of meat science. He's worked on the audit since its 1991 inception and says the vast majority of cattle produced find a good home in today's market.

As those cattle get better, though, the demand ratchets upward for even more of the better kind.

"So it's a bit of a moving target," Savell says. "Five years from now, when the next audit is published, end users will have a new set of thresholds."

Discounts need not overshadow premiums in value-based marketing, he adds.

Market timing may encourage overfeeding at times, but there's little reason to let cattle get too fat in an attempt to hit high-quality targets, Savell says. Not with today's cattle genetics.

"The relationship between external fat and marbling is at an all-time low," he says.

That's an opportunity, McCully says, for seedstock producers to use selection tools available to maintain upward pressure on marbling while creating more value down the line.

"As genetic designers of the cattle and as the people who manage them, we need to keep yield grade (YG) and cutability in mind. Same with carcass weight," he says.

The NBQA best illustrates room for improvement through calculating lost opportunities in dollars per head [see table 1]. Quality grade made the largest stride forward, cashing in on an extra \$14.69 since 2011, but YG and carcass weight losses grew by \$6.98 and \$4.41, respectively.

**Table 1 – Lost opportunities in quality issues for NBQA-1991, 1995, 2000, 2005, 2011 and 2016 (using 2016 prices)**

|                | 2016            | 2011            | 2005            | 2000            | 1995            | 1991            |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Quality Grade  | -\$15.75        | -\$30.44        | -\$26.62        | -\$29.66        | -\$33.23        | -\$33.14        |
| Yield Grade    | -\$12.91        | -\$ 5.93        | -\$15.60        | -\$15.53        | -\$10.20        | -\$22.19        |
| Carcass Weight | -\$10.88        | -\$ 6.41        | -\$ 4.46        | -\$ 3.44        | -\$ 5.68        | -\$ 4.52        |
| Hide/Branding  | -\$ 0.84        | -\$ 1.95        | -\$ 1.90        | -\$ 2.39        | -\$ 2.67        | -\$ 2.43        |
| Offal          | -\$ 8.68        | -\$ 2.57        | -\$ 2.63        | -\$ 2.82        | -\$ 1.59        | -\$ 0.99        |
| <b>Total</b>   | <b>-\$49.06</b> | <b>-\$47.30</b> | <b>-\$51.21</b> | <b>-\$53.84</b> | <b>-\$53.37</b> | <b>-\$63.27</b> |

SOURCE: NBQA 2016

McCully suggests multi-trait selection to produce cattle that capture more of all the money left on the table.

“Those genetics are out there,” he says. “Cattle that can reach the premium grades with fewer days on feed, without excess fat. Cattle that can fix some of our carcass weight issues.”

Depending on the market, the cattle need some ability to be carried to heavier weights.

“Cattle with flexibility. Maybe that’s how we need to think about it,” McCully says. “It’s not easy to do, but it can be done, and I think it needs to be the goal of every cattleman out there.”

Balance for cattle on the ranch, balance for those on the rail.

Looking at both the genetic ability and recent advancements in quality grade, McCully says, “Angus cattle deserve a lot of that credit.”

Angus-type cattle increased from 45% of fed cattle in 2000 to 58% in 2016 [see table 2], and took over several more percentage points just in the last year.

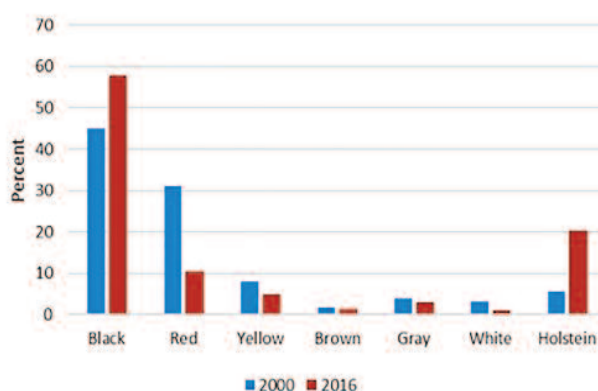
“Then when you look at the marbling advantage of those Angus-type cattle, they are significantly higher [see table 3]. We’ve got more of them and they are of a higher-quality grade, so it seems pretty logical we can look to and compliment Angus breeders for this significant uptick in quality.”

It’s something to celebrate and then make better.

*National Beef Quality... continued page 25* ▶

Table 2

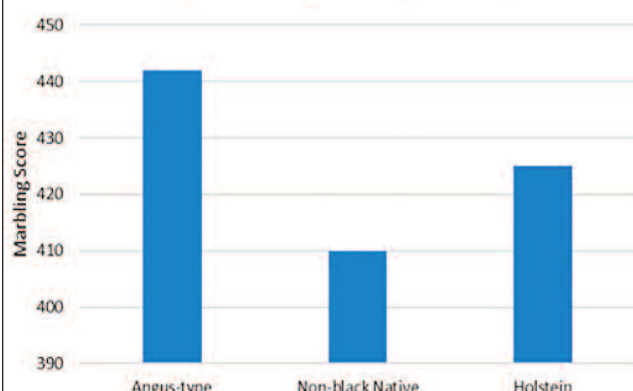
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SOURCE: NBOA 2016

Table 3

Average Marbling Score by Breed Type



SOURCE: NBOA 2016

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TRADE SHOW

National Beef Quality... from previous page

### National Cow and Bull Beef Quality Audit

Newly released audit data about market cows and bulls suggests the industry has made significant improvements in several areas, including: herd management techniques, animal welfare and handling, hide damage, injection-site location and bruises.

In all cattle types surveyed, the vast majority of cattle walked normally into the packing facility with no apparent lameness. There has been a trend toward increased body condition scores in beef and dairy cows since 2007, the research showed, while body condition has stayed relatively constant for the bull population. Meanwhile, about 98 percent of cattle surveyed had no visible swellings resulting from an injection of animal health products, and incidence of injection-site lesions in the round have dropped considerably since 1998.

While identification of bruising in the 1999 National Cow and Bull Beef Quality Audit helped lead to significant industry improvements in bruise reduction from 1999 to 2007, there is still an opportunity to decrease the prevalence of carcass bruising. In addition, greater attention to the size and location of brands could reduce lost opportunities in hide value.

The research relative to market cows and bulls was last conducted in 2007. The 2016 data is the second part of the National Beef Quality Audit. Both the Steer and Heifer studies and Cow and Bull studies were funded by the Beef Checkoff Program.

“Cows and bulls are the foundation of our cattle herds. They also are significant sources of beef that are well worth understanding,” said Dan Kniffen, Beef Quality Assurance Advisory Board chairman. “Well-being is of critical importance to the animals and to us as

beef producers who are stewards of their care. The NBQA helps us find ways to improve our production practices of cows and bulls.”

The following four directives were identified for industry improvement:

- Recognize and optimize the value of market cows and bulls;
- Proactively ensure the safety and integrity of the product;
- Use appropriate management and handling practices to prevent quality defects; and
- Closely monitor herd health and

market cattle appropriately and in a timely fashion.

“Additional emphasis on education contained in the Dairy FARM and Beef Quality Assurance programs can further propel the momentum of the cow and bull industry,” said Kniffen.

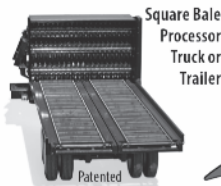
For more information about the National Beef Quality Audit, visit [BQA.org](http://BQA.org). For more information about your beef checkoff investment, visit [MyBeefCheckoff.com](http://MyBeefCheckoff.com). **FL**

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# BQA LAUNCHES NEW TRANSPORTATION PROGRAM FOR FARMERS, RANCHERS

The checkoff-funded Beef Quality Assurance (BQA) program has launched a new training and

certification program for cattle transportation. The program, known as Beef Quality Assurance

Transportation (BQAT), provides cattle producers and haulers with comprehensive training based on their roles in the cattle industry. Online training will be made available beginning immediately, and in-person training opportunities will begin soon.

“The BQA Transportation training and certification program has been a long time coming,” said Chase DeCoite, director of Beef Quality Assurance for NCBA, a contractor to the beef checkoff. “By educating cattle haulers and producers on the best practices in cattle transportation, BQA is helping make improvements in cattle care and beef quality. Participating

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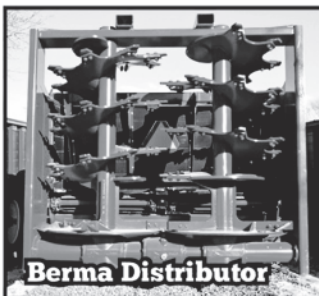
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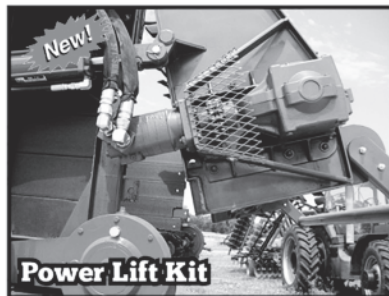
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in BQA Transportation will be an indicator that the beef and dairy industries are committed to responsible animal care during transportation and makes both the BQA and dairy FARM animal care programs more complete.”

The BQA program was first funded by the beef checkoff in the early 1990s and developed its first guidance on transportation in 2006. Today, the program offers training and certification programs for all sectors of the industry: cow-calf, stocker and feedyard. This is the first time a nationally recognized certification has been offered for the transportation segment of the industry.

Online training for BQAT will be offered in two different modules: Farmer/Rancher and Professional. Farmer/Rancher modules will focus on the use of stock trailers and smaller loads of cattle that beef and dairy cattle producers might typically haul themselves. The Professional modules focus on the use of tractor-trailers and larger

loads that are typically hauled further distances.

“Today the BQA program is taking another step in being the leader when it comes to educating producers and the cattle industry on the right things to do,” said Dan Kniffen, chair of the BQA Advisory Board, Assistant Professor of Animal Science at Pennsylvania State

University and a cow-calf producer. “We have known for a long time that transportation plays a critical role in our industry. Now we are fully able to train and show our commitment to beef quality and cattle care from pasture to plate.”

To begin training or learn more, click here. For more information visit [www.bqa.org](http://www.bqa.org). **FL**

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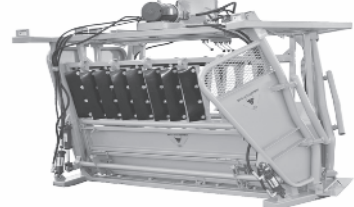
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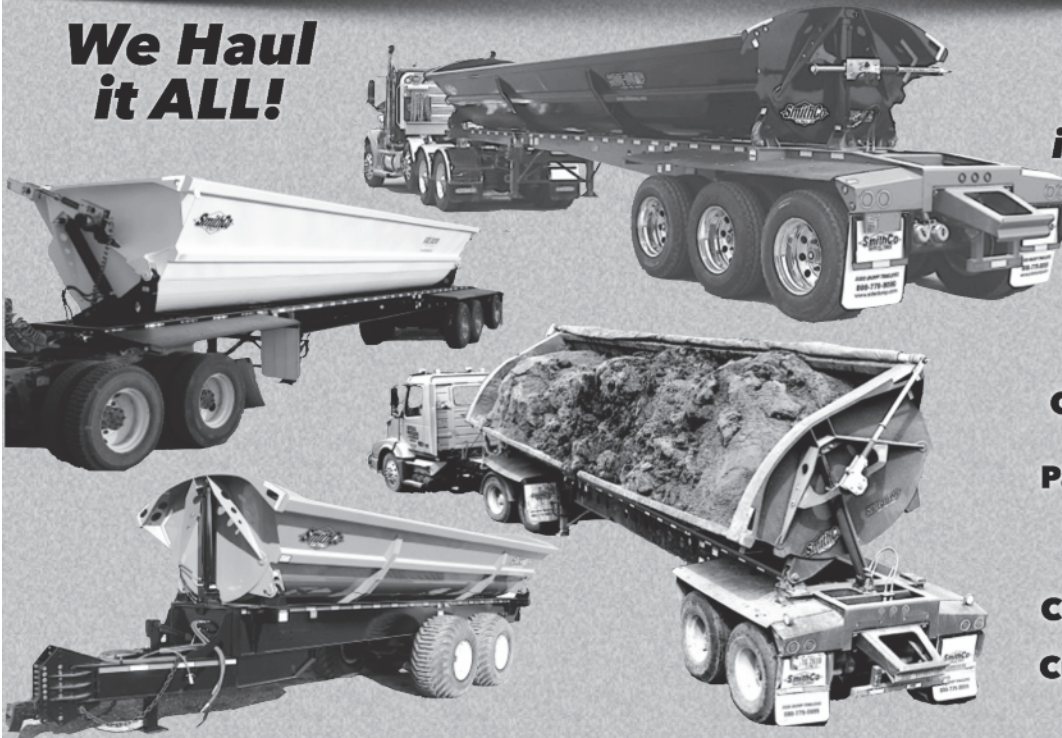
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