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FEEDLOT

Volume XXVIII Number 5
August 2020


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STOCKER SPECIAL

MARKETING/MANAGEMENT

BY JILL J. DUNKEL

THE CURRENT REALITY

I don't think any of us imagined we would still be here. In August. In the middle of the pandemic. I have to admit when this all started, I really thought it would blow over and things would be back to almost normal by now. But it hasn't, and they aren't.

And although I'm not a fan of the term "new normal," we are all learning to deal with the current reality. Business is different. Interacting with employees is different. Accounting might be different.

In this issue, we have a few articles dedicated to dealing with this current reality. One involves the Paycheck Protection Program. Many businesses across the U.S. utilized the program that primarily supported payroll. At some point, some of these businesses will be audited on their use of their PPP funds. Are you prepared for that? Mark Battersby has some tips on how to get your records in order now in case your account is audited.

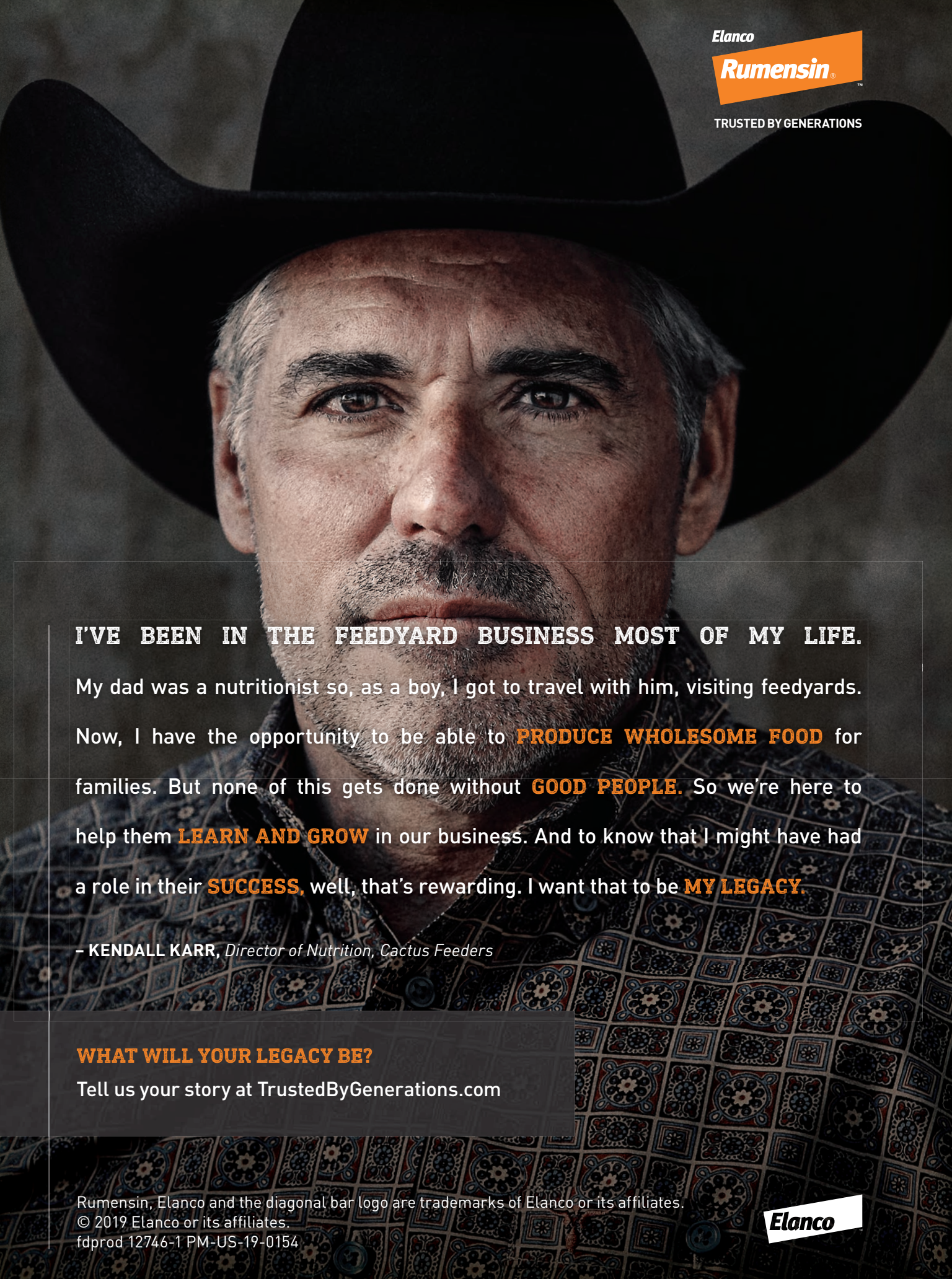
Safety has always been extremely important at a feed yard. At the yard my husband worked for 20-plus years ago, there was a sign on the front gate "XX Days Without a Work Place Injury." But now employee safety takes on a new meaning. COVID-19 hit packing houses hard, and if feed yard employees are exposed or had to be quarantined, it could wreak havoc on an operation. Terri Queck-Matzie explores employee safety as it pertains to COVID-19.

Of course, our nation's need for a safe food supply goes on, despite the pandemic, so this issue of *FEED•LOT* also has other production-related topics. Considerations for stocking rates, concomitant deworming therapy, feeding earlage and considerations for feeding natural cattle are just a few topics included in this issue.

The pandemic has put a focus on the nation's food supply. Farmers and ranchers became heroes. Those who had not been concerned about where their food comes from are taking an interest. That's why topics like using technology to reduce metaphylaxis are important. We take a look at that with Bruce Derksen.

Businesses will come out of the pandemic with a different view. Even if your day-to-day processes haven't changed much, likely something has – your suppliers, markets, the environment – something. Now is a great time to analyze those processes. Could things be done differently? Have you been forced to change things, yet discovered it might be the best way?

Don't let the lessons of this pandemic pass you by. FL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BY BRUCE DERKSEN

Can Metaphylaxis Use be Reduced by Technology?

While metaphylaxis treatments have been a staple of most feedlots, society's pressure to reduce the use of antibiotics is real and ever increasing. In response, operators are constantly attempting to find and access methods of identifying bovine respiratory disease (BRD) susceptible calves, without needlessly treating those that would have otherwise stayed healthy. To conscientious owners, this of course makes financial and environmental sense.

Jenna Funk, DVM and Associate Veterinarian with Metzger Veterinary Services, Linwood, Ontario, and recent Iowa State University researcher, covered her Master's Degree on the diagnostics for BRD and has seen much of the research behind technologies in use or being developed for this field.

Practical Considerations First

She says before specific technologies are used, there are practicalities feedlot operators can look for in arriving calves. Main factors considered are age, weight, place of origin and gender.

Intact bulls are also a big concern. "If calves have to be castrated at the feedyard that's an incredibly stressful event opening them up to getting sick because their immune systems are down." Heifers also seem to be slightly more susceptible to BRD than steers, and lighter calves from multiple origins are more likely to become ill than heavier calves. "The poster child of being open to BRD is a lightweight calf run through a sale barn and mingled in a nose-to-nose situation with God knows how many animals. Light weights that maybe haven't been vaccinated and were just pulled off their Moms. Those are the ones we worry about most."

Detection and Confirmatory Categories

Funk says technologies for diagnosing BRD are split into detection and confirmatory categories. "Detection tests occur in the home pen to find the sick animal, and the confirmatory test is done chute side on an animal identified as maybe being sick. That test is to determine whether an animal truly has BRD."

She describes the most common combination of detection and confirmatory tests for clinical evaluation as typical pen riding. But even with proficient riders, numerous trials demonstrate this appraisal isn't good enough, with average numbers indicating approximately 60 percent of BRD cases are caught in the pens.

"Pen riders are generally good at what they do, but these are prey animals doing everything they can to hide sickness," she said. "It's a poor measuring stick, but it's the one we have and the one everything is compared to. When we start looking at these tests, we have to remember we're coming up against a bit of an odd standard."

Targeting the Pen

For technologies targeting the pen, Funk says the big one is feed intake. Companies such as GrowSafe and Zoetis have developed electronic feed intake monitoring systems that recognize how many times a calf goes to the bunk, how long it spends there and how much it eats. "We know, just like sick people, sick cattle eat less. It's usually a sign they're not well."

Both these technologies create computerized algorithms from gathered information to flag sick animals. "It's still fairly expensive to implement the technology. You're looking at a decent start up cost to get it in the feedyard plus the tags that go into every animal."

Rumen boluses are also a pen technology in use. Inserted into the animals on arrival, they monitor everything from temperature to rumination. Some determine how much animals are moving about the pen. Information is used to create algorithms calculating fluctuations in temperature and rumination, plus screen for rumen PH levels. "Again, these are fairly expensive to initially implement," said Funk. "Startup costs include boluses as well as computer systems and receivers placed around the pen."

Aiming Chute Side

A second group of technologies target confirmations chute side. "Part of this puzzle is rectal temperature is a poor indicator of BRD. Many things cause fever in animals with BRD being only one. Confirmatory tests try to link their results to treatment outcome—can we predict if the animal is going to get better or not based on this test?"

Lung ultrasounds represent this category, scanning lung surface to determine damage. Funk says this procedure works better in younger and lighter animals, as the portion of the lung required for

scanning becomes hidden beneath the front shoulder as cattle grow. For this reason, feedlot use is generally limited.

The Whisper stethoscope created by veterinarians in Western Kansas and presently owned by Merck Animal Health, is another promising chute side technology. In the original model, eight second lung sound recordings were made and wirelessly transferred to a computer where they were analyzed and electronically scored on a scale from 1 to 5—healthy to chronically damaged by pneumonias. Later, this Whisper system became focused for treatment use rather than on incoming calves.

Merck then pursued the technology further, again targeting arrival animals, eventually constructing an entirely different Whisper program with a new stethoscope and algorithms aimed at listening to the lungs of inbound calves.

Other Specialized Testing and Benefits

Funk says other random technologies analyze serums, blood samples and nasal secretions, attempting to uncover changes in the blood associated with BRD by using equipment such as mass spectrometers. "We know there is some difference in blood and nasal secretions between sick and healthy calves. Research is being done but has a way to go before it's really chute side applicable."

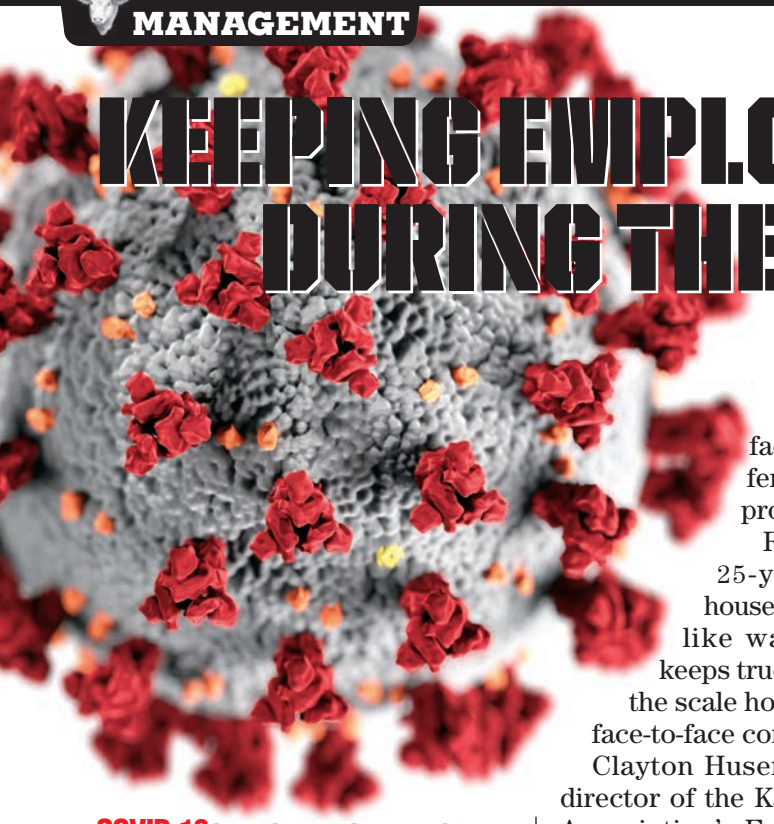
She believes benefits beyond the simple reduction of antibiotic use include lower cost inputs and fewer injections, lowering the risks of reactions and site lesions.

"Obviously, the reduction of antibiotic use has many effects. Reducing our chances of creating multidrug resistant microbes is the big push."

Society's pressure to reduce antibiotics is likely to continue and increase. "As it stands now, we have no gold standard for diagnosis of BRD," said Funk. "We have no single test that promises a hundred percent 'Yes' this animal has BRD or 'No' it does not." She cautions results are not instant but is encouraged by the work of researchers pursuing detection and confirmatory testing in combination with advancing pen and chute side technologies. FL

BY TERRI QUECK-MATZIE

KEEPING EMPLOYEES HEALTHY DURING THE PANDEMIC



COVID-19 has changed many things, even at the feedyard.

But one thing remains a constant: "Our first and foremost responsibility is the daily care and feeding of these animals," says Keith Bryant, manager of Reeve Cattle Company and Reeve Agri-Energy.

To do that, he must first keep his employees safe and healthy.

Reeve Cattle Company near Garden City, Kansas, is a 47,000 head feedyard that includes a small ethanol plant. They depend on 30 employees to keep things running.

"When we first heard of COVID, we knew it would take awhile to get here, so we took a wait and see approach," says Bryant. "We told employees to practice social distancing at home and to stay home if they were sick."

It soon became obvious more extensive measures were needed.

Outside vendors are now kept to a minimum. Access to hand-washing stations and hand sanitizer has increased. Bilingual signage is plentiful and reminds staff to social distance, wash their hands frequently, and stay home if sick.

Facemasks were readily available before COVID for use in heavy dust situations. Bryant tapped a college friend 3-D printing plastic face shields to offer another line of protection.

Remodeling a 25-year-old scale house to install a bank-like walk-up window keeps truck drivers out of the scale house and reduces face-to-face contact.

Clayton Huseman, executive director of the Kansas Livestock Association's Feedlot Division, says some have gone a step further, photographing the scale ticket and texting it to the driver. KLA held a panel format webinar with members to hear issues and possible solutions from producers and feedyards.

"We were able to help our members think through some things," says Huseman. "But there is no one size fits all approach. It's different for everyone."

Reducing employee contact with each other is a key element. At Reeve Cattle Co. work is arranged so employees can "stick with their crew." Large company-wide gatherings and meetings are a thing of the past. Some equipment has designated operators, so the same person is in the cab day after day.

Huseman says in other operations, staff who carpool are assigned to work together all day.

"It pays to know your employees," says Huseman. "You know how they get to work, who rides with who. And you know who carries greater risk of exposure because they have a family member who is a nurse or who works in a packing plant."

Knowing an employee's personal living situation helps deal with the challenges of COVID in other ways as well. Bryant has been able to adjust employees' work hours to accommodate their need to be home at certain hours for home schooling and childcare.

"Good employees aren't that easy to come by," says Huseman. "It's important that they feel safe and confident in coming to work."

Bringing in new employees brings a new set of issues. Where did they come from? Should they isolate for 14 days before beginning work?

"The guiding principal should be how to design the workplace so if one person tests positive, the rest will still be OK and able to continue working," says Huseman.

Bryant says how to make changes to adapt is now front and center and a lot of time is spent talking about "what ifs." "Sometimes you just have to take a deep breath, take things one day at a time, and plan as much as you can."

He can see the virus taking its toll on employee morale. "It's wearing on people. They're edgy, and tired of being cooped up. That's better now that it's summer and people can be outside more, but people like routines, and it's hard to adjust to a new norm."

Follow the rules

Huseman says following guidance put out by federal and state health officials is crucial. Unlike the early days, when local health agencies stepped up to create protocols, sometimes with significant variance from county to county, both the national Centers for Disease Control and Prevention (CDC) and state agencies like the Kansas Department of Health and Environment provide easily accessible information and direction.

"There is now very clear ►

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[1] Wiebusch. 2015. JAM.
[2] Caramalac et al. 2017. J. Anim. Sci. 95:1739-1750.
[3] Micronutrients trial #2017BC106USCZM.

Employees Healthy... *from previous page*

guidance on how to treat essential employees, and ag workers are deemed essential employees," says Huseman. He advises feedyards to create documents spelling out action for specific scenarios, according to the official recommendations. "Even if it is not needed, it helps give employees assurance."

For Bryant, following the official directives makes his decisions simpler.

"It takes the emotion out of the decision making," says Bryant. "We just do what it says we should do, and we know where to draw the line. That way we are treating everyone the same. The decision is not based on emotion. It's out of our hands."

Other headaches

Packing plant closures due to COVID outbreaks have wreaked havoc on the flow of cattle in and out of the feedyard.

But the food chain is not the only disruption. Bryant has a feed truck that was supposed to be delivered in April. He's still waiting.

Parts for the ethanol plant are delayed, as is an expert to come in and diagnose the problem.

They stocked up on vet supplies and regularly needed medicines early on, so they can now maintain a 30-day supply in case availability lags.

Bryant says Reeve Cattle Co. is able to source enough corn locally to feed the cattle and the ethanol plant, eliminating a problem others may have.

It's not all bad

There are advantages to the new COVID way of life. Old friends gather for virtual gatherings, when before the virus they didn't have the time to get together. Relatives check up on each other more frequently.

Bryant says he hasn't had to attend a meeting in months, and he passed on a leadership development opportunity because spending time with his young family is more important.

"I used to drive 4 hours, sit through a 2 hour meeting, and drive 4 hours home," he tells. "Now I just ZOOM from the office, then go home and spend more time with my wife and kids."

Still, one of the advantages of working at Reeve Cattle Co. has been put on hold. "Our employees have access to beef through a local locker," explains Bryant. "But, we can't get booked into the locker until December." FL

Heat Stress – It's Not Just About the Cattle

BY **JILL J. DUNKEL**

Hot weather is tough on cattle, but it's tough on people as well.

That's the message Dr. Michelle Calvo-Lorenzo, Elanco's Chief Animal Welfare Officer, wants to stress during the hottest part of the summer. Although feed yards are doing their best to keep cattle cool, it's important to remember employees.

"Just as we take precautions for cattle, we also need to take precautions for ourselves and our horses," she said.

Calvo-Lorenzo encouraged training employees to watch for heat stress in people. "We think about our job as it pertains to cattle care, but we also need to think about our people. Help workers recognize the signs of heat stress, and make sure employees don't wait until it's too late."

Include the people perspective in the yard's planning, and develop protocols where employees check in on one other. Monitor the weather before processing and set up meetings the day before to check the weather and set the schedule.

She encouraged managers to help employees understand why this is important. "Explain how and why people and cattle are different to emphasize effective ways to avoid heat stress and to cool off."

Make sure the training is easy to understand for all workers, using visuals or hands-on approaches to help coach employees, especially if English isn't their first language. She encouraged employers to empower workers with the responsibility and the tools to do their job, especially if they need to modify protocols for the summer.

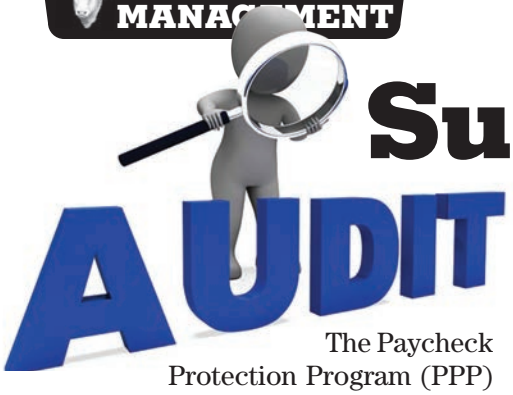
"Nobody likes change, but in times of heat or cold stress, sometimes we have to do things differently," she said.

Often some of the same steps used to mitigate heat stress for cattle can also help employees, like working earlier hours and adjusting schedules so people work during more comfortable conditions.

"Typically we talk a lot about the cattle perspective, but we can't lose sight that we need to talk about people too," Calvo-Lorenzo said. She also stressed not to forget the equine partners.

"Check on the horses. Work with your veterinarian to learn how to cool down an overheated horse. The summer is a very stressful time for the horses as well. They are our partners in caring for cattle." FL

BY MARK BATTERSBY



Surviving an Audit ~ Coronavirus Style ~

The Paycheck Protection Program (PPP) was aimed at helping small businesses keep workers on the payroll and pay other bills during the pandemic. However, confusion about turning PPP loans into non-repayable grants has resulted in the U.S. Department of the Treasury and the Small Business Administration (SBA) both promising to audit all PPP loan recipients who seek loan forgiveness.

PPP loans are loans that may be forgiven if the feedlot meets certain criteria, chiefly spending at least 60% of the loan amount on payroll and no more than 40% on rent, mortgage interest and utilities. Sweetening the pot, the Coronavirus Aid, Relief and Economic Security (CARES) Act allowed any amount forgiven to be ignored for federal tax purposes.

Of course, no tax deduction is allowed for otherwise deductible expenses if the payment of the expense results in forgiveness of the covered loan.

PPP loan recipients were required to certify that "current economic uncertainty makes the loan request necessary to support the ongoing operations of the Applicant." What's more, beef/cattle operations and businesses seeking loan forgiveness were also required to certify they "used the forgiveness amount of keep employees and make eligible mortgage interest, rent and utility payments."

Many feedlot operators are concerned they will be on the hook if they fail to meet all of the conditions. After all certifications found to be inaccurate or untrue are punishable under criminal and civil law.

How can any feeder or seller certify to an uncertainty and what makes the funds necessary? Ultimately, of course, it will be the courts that decide, but given the stakes, all borrowers can expect a bare-minimum file review — or a deep-dive forensic audit.

A feedlot that fails a PPP audit jeopardizes all or part of their loan forgiveness and, potentially face False Claim Act prosecution by the U.S. Department of Justice (DOJ). In addition to SBA audits, borrowers must prepare for investigations by the Special Inspector General for Pandemic Recovery and reviews by the Pandemic Response Accountability Committee as well as the Congressional Oversight Commission. Plus, the DOJ and State Attorneys General have announced enforcement initiatives.

Many feedlot operators, even those with no intent to commit fraud, often fall short when it comes to documentation and paperwork. More often than not, businesses are cautioned to keep good records for tax purposes. This time, those records could be crucial to forgiveness of a PPP loan.

Even if the feedlot pays its taxes dutifully, it may be penalized for lacking documentation. In the case of the PPP, expense and payroll documentation and basic recordkeeping are more important than ever. Remember, the tax law requires every taxpayer to retain the records used when preparing the tax returns for at least three years. Could the soon-to-be announced PPP loan conversion record keeping requirements be any less?

A good recordkeeping strategy might include depositing PPP funds into a separate bank account. Beyond that, all expenses should be documented. Utility bills, rent statements, leases, cancelled checks, bank statements tracing any electronic transfers and other expenses that qualify for loan forgiveness such as health insurance.

These amounts should be consistent with the amounts in the loan forgiveness application. Obviously, judgement is required to project revenue and expenses during these uncertain times, before the economy returns to pre-pandemic levels.

Auditors consider contemporaneous documentation – or an accurate written record of how the funds were applied – as more persuasive than information created once an audit or review begins. In other words, it is more efficient to organize records and documents now rather than attempt to create them later when under pressure.

Little guidance on the loan forgiveness calculations or application process has been provided thus far. In the absence of clear, final guidelines, borrowers should prepare now and maintain meticulous records of how the feedlot used the loan funds.

Borrowers should not be frightened by the government's warning that audits are inevitable, instead preparing now to ensure those benefits are not lost. Beginning early, maintaining accurate documentation, assessing risks and considering the assessment criteria and preparing for a likely audit from any of a variety of sources can help every beef/cattle operation and business withstand the added scrutiny. The advice and assistance of a qualified professional is also an invaluable tool. FL

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[1]Suarez VH, Lifschitz AL, Sallovitz JM, et al. (2009). Effects of faecal residues of moxidectin and doramectin on the activity of arthropods in cattle dung. *ScienceDirect.* 72(2009):1551-1558.
[2]Environmental Assessment. Cydectin® moxidectin 0.5% Pour-On for Cattle. Fort Dodge Animal Health, June 1997.

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BY JOHN MARKS, NUTRITIONIST,
CARGILL ANIMAL NUTRITION

The Challenges of Feeding "Natural Cattle"

One of the more difficult labels to interpret in the grocery store is "natural" because there is no definition to natural when it comes to consumer food labels. Similarly, cattle fed under a natural program, can be just as confusing. That's because there are different ways natural can be defined by processors.

Programs that fall under the natural label can be those that use no implants or other hormones (NHTC), no antibiotics ever ("never ever"), third-party certified such as G.A.P. (Global Animal Partnership), organic, grass-fed and many branded beef programs. Programs have different requirements to meet labeling specifications. Most programs have feed ingredient limitations, and some have animal welfare requirements such as shade, water, space and health care. Knowing what those requirements are and following them could be the difference between profit and loss.

Overcoming Challenges and Garnering Opportunities

Prior to entering a natural program, a good practice is calculating your input costs. When combined with the reductions in performance you will have a better understanding of what kind of premiums you need to make in order to be profitable. Your operational profitability needs to be in line with program premiums, and you need to be able to follow the requirements of the program.

Impacts on performance, health, carcass weights, supply of calves and reliable sell dates can be considered negative aspects of these specific programs.

• Performance – Without implants, ionophores, antibiotics or beta agonists, expect higher feed to gain ratios. Days on feed and the cost of feeding will increase as well. Gains may be reduced by as much as half a pound per day.

• Health – Health and treatment of cattle is a large consideration. Issues like foot rot, pink eye, coccidiosis and respiratory disease can be serious problems in programs that don't allow ionophores or antibiotics. Withholding treatment of sick animals for program acceptance is never acceptable from an animal welfare standpoint. Therefore, in programs like "never ever" producers need to find a way to do what's best for the animal and still have a production stream for those animals that will fall out of the program.

• Fly control – Chemical fly controls are usually not allowed, so using an integrated fly control program with cleared products is a necessity.

• Carcass Weights – Cattle in a natural program fed a similar ration to cattle in programs utilizing growth promoting technologies will finish at lighter weights. A lower finished weight generally means a smaller check. This can be somewhat overcome by framing out cattle during the grower period, targeting lower average daily gains. The downside is longer days on feed and more feed required.

• Supply – Feeder cattle must be natural from birth continuing through the supply chain. Identifying calves with these qualifications can be difficult leading to lower supply and higher demand. Lastly, the natural market is smaller than the conventional market, so supplies need to closely match current demand. Therefore, buyers

will purchase cattle when there is consumer demand, not necessarily when cattle are ready.

Outweighing any of these potential negatives are the positives that come with these programs, such as selling price, incentives, less handling, less labor and less risk of injury.

• Selling price and incentives – There has been an increase in consumer demand for natural products. With that increase in demand comes a willingness to pay more for those types of products. Increased premiums and other incentives on meat quality exist in today's market. Buyers for program cattle are often willing to drop discounts on yield grade or weight because of the increase in demand and short supply of cattle meeting these types of program requirements.

• Less handling and decreased risk – Cattle in natural programs are not handled as much, reducing the number of trips through a chute. This reduces stress to the animal and decreases the risk of injury to animals and employees. There is also a cost savings by not using implants, ionophores, antibiotics or beta agonists.

Feeding Natural Cattle

Beyond the pros and cons of this kind of program, the biggest variable is feed. Every program has certain ingredient restrictions. Animal proteins, hormones and ionophores are often not allowed. In organic or non-GMO programs, all ingredients must be verified to fit those criteria.

Ionophores are common technology used, but if your program doesn't allow them, it may be advisable to use a ration that contains less readily available starch, larger particle size and more fiber.

Yeast products, probiotics and essential oils are often used to support digestion and reduce gas production.

Remember, feeding to reach a desired endpoint may require more management. The ability to get to the optimum carcass size, quality grade and yield grade may be more difficult without additives. More planning and flexibility will be required to make program cattle successful in your operation.

Is Natural for You?

There is a demand for beef that consumers consider "natural." Premiums are available for those animals meeting the requirements of various programs. The cost of production can be weighed against premiums to determine the economics of feeding for these programs. Opportunities do exist and provide alternatives if they fit your facilities, proximity to buyers and the availability of calves to supply a given program. Before beginning a natural feeding program, a visit with your veterinarian and nutritionist would be advised to discuss changes needed in management and feeding. FL

BY MAELEY HERRING

Beef Paradigm Shifts Produce BETTER BEEF

Alexander Graham Bell never imagined the smart phone most Americans carry today. Even those with a touchscreen didn't dream of such wonders a generation ago, and attitudes still vary. From bag phones to flip phones that can text to the latest with an app for everything, each person choses their level.

Innovation presents the option to accept or turn down, said Bill Rishel, longtime Nebraska Angus producer, at the online 52nd Annual Beef Improvement Federation (BIF) Symposium. He challenged listeners to see change as an opportunity for progress.

"I want to stimulate a new way of thinking about the future," he began.

Appreciating the past

That should begin with looking back to recognize "paradigm shifts" when new ideas suddenly supplant accepted or traditional ways.

"The paradigm shifts over the past 50 years certainly improved our industry and got us to where we are today," Rishel said by way of introducing seven that helped everyone from ranch to beef consumer.

• Performance record systems. Significance often overlooked because of their widespread use today, Rishel said the data collection led to in-herd records, breed association databases and national research organizations.

• Artificial insemination. Used since the 1950s by a few registered bull owners, this innovation didn't show what it could do until the early 1970s. When its use was opened to all in the early 1970s, "we witnessed greater opportunity for genetic improvement and long-term sustainability."

• Boxed beef fabrication lowered delivery costs, ensured product safety and increased demand for beef.

• Branded beef programs debuted in 1978 with live and carcass specifications to enhance consistency, Rishel said. "Standing behind the product was a pretty new concept to our industry and the consuming public. It even helped reverse the serious decline in beef demand."

• The Beef Promotion and Research Act of 1985 provided structure and requirements for the Beef Checkoff Program that works to benefit producers and consumers, he said.

• Expected progeny differences (EPDs) allowed anyone to rank individual animals on their genetics, regardless of environmental differences, Rishel said. EPD methodology led to the use of ultrasound technology in gathering carcass data for sire evaluation.

• Genomic-enhanced EPDs (GE EPDs) take in DNA studies and other sources to find economic merit in more cattle and in traits that are hard to measure. "The speed of development and adaptation of genomics has been revolutionary," he said.

The seven innovations offered progress in genetics, efficiency and profitability at each level. They also provide a "paradigm shift philosophy" for future management decisions.

"Perhaps we can apply some of that thinking to our business and industry as we charge forward into the next two decades," Rishel said. "The central idea to these dynamic changes is the desire to improve genetics and improve our enterprises."

Looking forward

Research proves the industry is continually improving beef production.

"I believe we are just scratching the surface," Rishel said. "I have no doubt genomics are destined to play a much larger role," such as selection for strong immune systems, feed efficiency and carcass merit.

Beef quality is a key focus, Rishel said, but that must expand to other consumer connections.

"Producers are making strides in sustainability," he said. Cattle graze land unsuitable for crops and "upcycle" forage into that nutritious source of protein that is beef.

Document conservation efforts that link livestock, wildlife, water and forage management, Rishel suggested.

"We have a great story to tell," he said. "Many of our consumers, even the ones who really love beef, want to know that we are doing the right things for the environment and sustainability of our natural resources."

If we were to look back on the industry in 20 years, what would be our biggest accomplishment?

"I hope the greatest paradigm shift would be our ability to accept change," Rishel said. FL

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BY DAN LARSON, PH.D.,
GREAT PLAINS LIVESTOCK CONSULTING

Earlage for Starting, Growing and Finishing Cattle

I am often asked about earlage, including the value of it as a feedstuff (which I can answer easily, great), the expected yield (which I cannot predict), and the mechanical aspects of harvesting (of which I had a reasonable understanding). Therefore, my research for this article is a compilation of field experience, many lab analyses and more than a few interviews with clients whom harvest earlage and have the practical knowledge.

The purpose of this article is to help you, the producer, make the decision if you want to utilize earlage in your diets and then if you do, how you can harvest and store a high quality product.

We'll begin with the easy topic, nutritional quality and use. Earlage is most accurately defined as the chopped and ensiled ear of corn, including a portion of the husk and all the cob and kernels of corn. Snaplage is also a common term in many parts of the country, but is different from earlage in that the upper portion of the entire plant, including leaf, stem and ear are chopped and ensiled, resulting in a higher fiber, slightly lower energy product. For the purpose of this discussion, I will focus on earlage as described above.

The following is an average of 20 earlage samples from the past year taken between eastern SD and western IL.

These samples represent a nearly ideal average product, about 40% moisture, with adequate starch and low fiber (NDF) content. Based on this analysis, dietary inclusion of earlage will be about 60-65% of the as-fed diet for growing cattle and 40-45% of the as-fed diet for finishing cattle, assuming 65% dry matter of the total diet. Given the luxury of preference, I utilize earlage as the sole source of corn for growing cattle and a major source of the corn, with additional shelled corn, for finishing cattle. We have also been experimenting with using earlage as the sole source of roughage in finishing diets, pushing earlage inclusion closer to 50-55% of the as fed diet, and the results appear very promising. When balanced correctly, earlage is a highly palatable feedstuff for starting, growing and finishing both beef and dairy/beef types of feedlot cattle. Not only is the kernel highly energetic, but the ensiling process also makes the cob somewhat digestible and a good source of rumen starch. Earlage is especially useful for finishing dairy/beef cattle, as it appears to improve palatability of the total mixed ration, without making the diet too high in moisture.

Earlage as a feedstuff is gaining in popularity throughout the Corn Belt; however, questions about earlage production are abundant. The major questions appear to be when to harvest, how to harvest appropriately, what is the expected yield and is it cost effective compared to high moisture corn or corn silage. The question of when to harvest is relatively straightforward. Essentially, earlage should be harvested at black layer, similar to high moisture corn. At this stage, the kernel is about 30-35% moisture, with the plant matter being comparable, to slightly higher. There should be some green left in the bottom of the stalk when earlage is harvested, to help ensure the 35-40% moisture earlage product. Data from Pioneer suggest that earlage is roughly 20% cob/husk and 80% corn on a dry matter basis. The numbers summarized above indicate this is a bit low; it appears earlage is closer to 85% corn and 15% roughage. Thus if earlage is made from 150 bushel yield corn, the expected dry matter yield per acre will be about 4.5 tons per acre. If the earlage is harvested at 40% moisture, the total as fed yield per acre will be about 7.6 tons per acre. In order to calculate space requirements for storage, the estimate is about 32 lb of dry matter earlage per cubic foot. Therefore, if the yield is 4.5 tons of dry matter per acre, each acre of earlage will require 281 cubic feet of storage space. For a customized evaluation of your earlage crop, consult with your Great Plains Livestock Consulting (GPLC) nutritionist. Pricing earlage is perhaps less straightforward and open to interpretation.


North Dakota State University Photo

An accurate price of earlage needs to be based off corn. If we began with $4/bushel corn at 14% moisture ($166/ton of dry matter), and assume that our earlage is 85% corn, then the earlage, based on corn, is worth $141/ton of dry matter. Then we deflate the value of the earlage for its inherent moisture content (40%), the earlage is worth $84.70/ton as-fed. This method is based off the value of the corn, and may not figure in any added cost of harvesting earlage over the cost of harvesting corn and each producer will need to figure that cost differential for themselves.

The final part of the story is harvesting and storing earlage. Typically, earlage is harvested with a snapping or picking head on a chopper. It is very important for the chopper to be equipped with a kernel processor and the ability to apply an inoculant to help ensure full and rapid fermentation. Doing so will produce the best quality feed for the best possible results. In contrast to earlage, some producers have produced snaplage by simply lifting the cutting head on a conventional silage chopper to leave the bottom ½ of the corn plant. However, as stated earlier, this strategy produces an ensilage with lower energy than earlage. Earlage can be stored in an upright silo, silage bag, or bunker. If earlage is to be stored in a bunker, it is critical to harvest it with at least 25% moisture to ensure a tight pack and appropriate fermentation. As with any ensilage, covering the bunker with a PLASTIC cover is essential. An oxygen barrier film is also very beneficial to ensure appropriate and complete fermentation. Due to the cost and labor of plastic bunker covers, producers have experimented with syrup, seeding small grains, and assorted other methods to cover and/or seal a bunker. Rest assured, none of these methods are as uniformly effective as a commercial bunker cover. The cost of the plastic is a small investment compared to the cost of shrink and spoilage in expensive feedstuffs.

Earlage is a high energy, palatable feedstuff with diverse applications in the cattle feeding industry. For those of you growing or finishing cattle, it deserves serious consideration in your production scheme. If you want a customized evaluation of earlage in your operation, please contact your GPLC nutritionist.

For questions concerning this or any nutrition topic, reach out to Great Plains Livestock Consulting at https://www.gplc-inc.com. FL

BY JILL J. DUNKEL

Two Could Be Better Than One

Combining Two Classes of Dewormers May Be The Right Decision For Your Operation

Stocker operators may be leaving gain dollars and health benefits on the table if their deworming program isn't doing a complete job. Products with some parasite resistance can lead to a reduced, but continued parasite burden. However, treating with multiple products – known as concomitant therapy – has proven to pay in additional weight gain and improved immune response.

"Feedyards have used two products in conjunction with each other for a decade or more," said Mike Nichols, DVM, Senior Veterinarian, Boehringer Ingelheim Animal Health. "They do it for two reasons."

First, it makes money, he said.

"When giving dewormers from two different classes at the same time, you see improved gains. Every dewormer works on a different profile of parasites," he explained. The enzamidazole class of dewormers (known as white dewormers) specifically target cooperia, which are often a problem in young cattle. Other products will have an effect on cooperia, but white dewormers are known to do a better job on that parasite, Nichols explained.

"A white dewormer will often eliminate all adult cooperia in 24 hours. That's where part of the weight gain comes from," said Nichols. "But there is another side benefit. Because of that quick action, cattle get a big boost immunologically."

That's the second reason the practice is popular in a feedyard setting. Reducing or eliminating a calf's parasite burden improves the immune response to other challenges like respiratory disease or other stress. The quick response is especially helpful in high risk cattle.

"Getting those cattle cleaned up quick really helps the immune system. Those cattle endure a lot of stress, going through marketing channels and being exposed to other cattle. Killing those parasites on arrival is beneficial to the immune system, and also improves digestion and absorption of nutrients. It's one less thing cattle have to battle during a stressful time in their lives," Nichols explained.

Iowa State research demonstrated that deworming stocker cattle was the most significant technology impacting the cost of production in stocker operations. Deworming was followed by growth implants and ionophores. Nichols said the benefit can increase when two classes of products are used together.

Three classes of anthelmintics are currently approved in the United States – macrocyclic lactones (avermectins and milbemycins), benzimidazoles (white dewormers) and imidazothiazole ((levamisole).

However, benzimidazoles or white dewormers have no persistence. They kill the current parasite load and that's it. Nichols said that's where combining therapies with a longer acting, different class of product comes into play. Products with long term control affect more stages of the parasite and can be effective anywhere from two to four weeks, or up to five months, depending on the parasite and the product.

Many leading cattle parasitologists recommend using two classes of dewormers, Nichols said, as part of a strategic deworming program. The specific protocol can vary depending on the history and type of cattle, as well as the intended feeding program.

"Some drench with a white dewormer during arrival processing, and then wait until the cattle are ready to be turned out and follow up with a longer-lasting endectocide (macrocyclic lactone). If the cattle will be turned out almost immediately, some protocols recommend both types of products at processing," Nichols said.

Depending on the program, Nichols said a veterinarian should be involved. No dewormers are presently labeled for combination therapy use. Only your veterinarian can determine if you need a plan for treating cattle with full doses of two or more products of differing classes.

The addition of long term endectocides has reduced the amount of labor and handling involved in deworming programs for grazing cattle. Years ago, people had to gather cattle every six to eight weeks through the grazing season to retreat and take advantage of the increased gains, he explained.

"The problem was the difficulties in doing that. Gathering is stressful and requires labor. Some only retreated when they were moving cattle. That's why the longer acting endectocides are so valuable," he said.

Nichols recommended producers look at the type of cattle they are buying and consider the grazing plan and marketing program for those cattle. Then figure out what type of parasite control is the best fit for that program.

With multiple options available, it's not a "one size fits all" scenario. FL

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1 Tabe ES, Oloya J, Doetkott 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; 3(71): 539-544.
2 Lallemand Animal Nutrition. Unpublished. United States. 1996.
3 Hutcheson D and Lallemand Animal Nutrition. Unpublished. United States. 1986.

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BY DON TYLER

Managing Disruptions

During some recent visits with the managers of several feed yards, one topic came up repeatedly. "How can we effectively manage with all these disruptions that constantly come up?" It's easy to get distracted by those unplanned events and problems that keep us away from our main objectives for the day, but as we all know, in the livestock business things never go as planned.

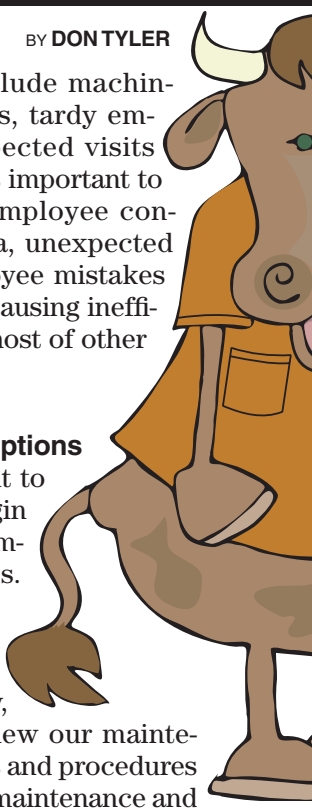
Frankly, some managers just assume that disruptions are common and don't need to be addressed as a management and productivity issue. They see it as just part of the job and learn to live with it. These individuals are missing a great opportunity to significantly improve their labor efficiency, reduce repair, maintenance and labor costs, and increase the engagement and satisfaction levels of their employees.

Effective, productive managers have a knack for calmly, deliberately, and logically addressing disruptions.

Understanding the Source of Disruptions

When we find that events are causing disruptions in our regular workday plans, we first need to analyze those disruptions for patterns. Is there a time of day that they occur most frequently? Do they tend to come from one department more than others? Are certain individuals who are often involved in these disruptions? Determining the most common source of your disruptions can go a long way to being proactive in minimizing or even eliminating them.

Some of the more common disruptions include machinery breakdowns, tardy employees, unexpected visits from individuals important to the business, employee conflicts and drama, unexpected turnover, employee mistakes and oversights causing inefficiencies, and a host of other inconveniences.



Strategies for Reducing Disruptions

It is important to analyze the origin of your most common disruptions. For instance, if mechanical breakdowns occur frequently, we need to review our maintenance schedules and procedures for the types of maintenance and repairs that are performed on a regular basis. How thorough is our regular maintenance? Do the mechanics perform a 360-degree

evaluation of equipment that comes in for regular maintenance, to find potential problems in what seem to be minor repairs to prevent major repairs in the future? Are equipment operators capable of spotting small problems so they can be easily addressed before a major breakdown occurs?

If there is a pattern to mechanical breakdowns that cause disruptions, the first place to look are our maintenance procedures and the proficiency levels of those employees.

Employees can create a significant number of disruptions if expectations are not clear, or if employees are not held accountable for poor performance. If we allow tardiness and unscheduled absences to occur on a regular basis without any consequences, then we can expect they will continue to happen more and more frequently. Some operations tend to be very lax in this area because they are afraid of losing employees. They feel that a late employee is better than no employee.

We've all been there and it's a tough choice to make. It is interesting, though, that operations with very clear expectations and policies that are enforced consistently with appropriate consequences, find they have significantly fewer issues with tardiness and attendance than those that are very lenient. Disruptions caused by inconsistent attendance can be reduced and even eliminated by implementing proactive attendance policies.

When employee conflicts or drama occur on a regular basis, they will cause disruptions that have many potential consequences beyond the initial event or issue. These must be addressed promptly and completely. If left to "go away on their own," they will instead metastasize like a cancer and eventually affect your best and most productive employees. Toxic employees need to be identified and removed quickly for the benefit of the entire operation.

Like any other production problem, to effectively minimize disruptions the issue needs to be researched, analyzed and a logical strategy developed to reduce their frequency. Of course, someone must take the initiative to autopsy the problem thoroughly without assigning blame, staying focused on improving the operational excellence of the entire operation.

For Management and Executive Coaching assistance on this and any topic of interest, a conference speaker or help with your employee and family business challenges, Don can be reached at don@dontyler.com, www.dontyler.com or by calling 765-490-0353. FL

BY HEATHER SMITH THOMAS

Pasture Management:

Determining Carrying Capacity and Stocking Rates

A forage management session at the 2020 Cattlemen's College at the NCBA convention in Texas featured two speakers from the Noble Research Institute: Hugh Aljoe, a pasture and range consultant working with educational programs for producers on the southern Great Plains, and Jeff Goodwin, the Conservation Stewardship Leader and pasture and range consultant formerly with USDA-NRCS in Texas.

Certain soils have capability of producing certain amounts of forage. Goodwin showed examples from one of the ranches he manages--the vegetative productivity on rangeland for a normal year--and described some tools for measuring this. "You can select various things within the tool and it will print a map showing what the productive capabilities are on your property for each of those soils," he said.

This tool puts it in table form showing how each of these soils perform. You can see the ones that are least productive, most productive, etc. "Then you can apply management practices on those soils that will give you the best bang for your buck," Goodwin explained.

Hugh Aljoe talked about forage and how to figure forage production capabilities of a pasture. "This can change from season to season and year to year. There are two terms we use: carrying capacity and stocking rate. Carrying capacity is the amount of forage produced. The stocking rate is the number of head consuming the forage that's being produced. Not always are these in balance. The key is being able to understand what your carrying capacity is at any given time and how to stock that pasture to make sure you are not ever overstocked for any extended period," he explained. "We developed some tools to do this."

It's also important to know how rainfall patterns might affect pastures at any given time. "The drought monitor gives a pretty good idea, but how do you know what it will be on your own ranch? We've developed a tool that will help on this," said Aljoe.

"Most ranchers have a gut feeling about all of this, most of the time. Some of the information is in our heads but we don't have a way to track it, monitor it, and these are the things we need to do.

If you have abundant forage or anticipate abundant forage, identifying the forage early allows for plans to capture this financially.

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Pasture Management... *from previous page*

We need a history of where we are at any given time and need to understand the variances–and the key information we need to be tracking so we can make good decisions in a timely manner. We may figure out that we want to destock, after the fact, but then it's too late," he said.

"On the other hand, if we have abundant forage or anticipate abundant forage, if we can identify this early we can make plans to capture this financially. This is the difference between intentional management and what I call reactionary management," said Aljoe.

"We can use a carrying capacity and stocking rate calculator. When we can begin to predict what the carrying capacity is—the forage that can be produced—we can determine how to set our stocking rate." This tool can make it easy to do that.

You also need to determine the size of your cows, to know how much they will eat, since this affects carrying capacity. "Be honest, look at your sale weight for cull cows," he said.

To improve carrying capacity, the soils and pasture plants need to be in good shape, with adequate moisture to grow those plants. Aljoe says that in most regions by April we should have about 40% of our annual water year. "If you don't have that much, the spring growing season may be delayed and you hope that you get a lot of rainfall within the next two months. If you have enough water in the soil you will get a lot more grass growth."

Long-term rainfall records in your county can help you figure averages for each month and you can track your own ranch with rain gauge records. "This can give you a general idea whether you can be aggressive with stocking rate or need a contingency plan," he said.

Managing native grass residual on pastures is also important. "We know that for every month that we go over plan in feeding, or every month we make the cows really hustle in what's left of the native grasses, we are at least 8.3% overstocked. If you had planned to only feed 2 months of hay and are feeding hay for 4 months, we can tell you about how overstocked you are, using the information you have available," Aljoe said.

The easiest way to document changes in your pasture, either positive or negative, is to take photos, and put them into a system so you can monitor a certain site over the years and actually see the changes.

Goodwin said the 4 tenets of grazing management are timing, intensity, frequency and duration. How long are the cattle there? How intensively are you going to graze the forage? How often do you come back to that pasture, and for what duration? This can help you determine proper stocking rate, but you first need to know the carrying capacity of those pastures. "We develop a grazing plan so we can intentionally add management into those decisions," he said. FL

BY JILL J. DUNKEL

Is It Time for a Vaccine Check Up?

Are you confident your vaccine protocol is providing the best immunity for your calves?

In the world of vaccines for calves, things have changed a bit in the last decade. As advancements in science and new discoveries shed more light on how immunity works, new options for vaccination protocols have emerged. If a cow-calf operation hasn't looked closely at their vaccination program recently, it might be time to give it a hard look.

One option to consider is the use of an intranasal vaccine, suggests Tim Parks, DVM, Technical Services Manager with Merck. An intranasal vaccine is delivered to and processed by the mucosal surfaces in the nose. He said one of the biggest advantages of an intranasal product is the ability to bypass maternal antibodies from colostrum that could hinder an immune response with a traditional injectable vaccine.

By driving antibody production in the nasal cavity with an intranasal vaccine, the calf is more prepared to respond to a challenge. Add to that, when the calf is a bit older in a preconditioning program and receives an injectable vaccine, we can achieve a higher level of antibodies, Parks said.

"Research shows the way antigens present to the immune system, we can create memory in the immune system so when it comes in contact with the virus, it's ready to go. We aren't starting from scratch," he explained.

An intranasal product can be delivered to calves at a very young age, depending on label directions. It can also be utilized at branding or even the stocker phase.

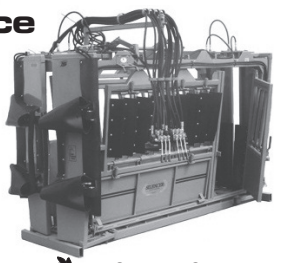
We know the maternal antibodies are still in play at branding. The first 30 days of life, maternal antibodies are extremely high.

The goal is high quality colostrum should deliver early protection to those calves. Then follow up with a vaccine that stimulates active antibody production, he said. Parks suggested working with a veterinarian to develop a specific vaccine protocol for an individual operation.

An added benefit of an intranasal product is less stress on the animal. "We are leaving a shot out. That means no needle that creates inflammation. It can really reduce stress in younger animals if administered appropriately," Parks said.

Like any product, proper administration is key.

"You've got to take the time to get it in the nasal cavity," he said.



Vaccine Check Up... *from previous page*

"If proper beef quality assurance practices aren't there, it doesn't matter what we use. Any intranasal should be handled correctly and administered properly so the calf has the best immunological response."

With new options on the market, a "vaccine checkup" might be a good discussion to have with your veterinarian. Parks also said any feedback from buyers who purchased your cattle in the past can help determine if your vaccine protocol is effective.

"Records help us as veterinarians to determine if herd health protocols are adequate. Good records can

drive decisions, major overhauls or minor tweaks," he explained. "If you can get some records as your cattle move through the production cycle, from weaning to the feed yard, that's when we can really get a handle on what is working." FL

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FEED•LOT is published under ISSN 1083-5385

FEED•LOT (ISSN 1083-5385) is published eight times per year in February, March, April/May, June, August, September/October, November and December at no charge to qualified recipients, by FEED•LOT Magazine, Inc. 116 E. Long, Dighton, KS 67839. Periodicals postage paid at Dighton, KS 67839 and additional mailing offices. Non-qualifying subscription rates: $55 per year within USA. $80 per year for foreign, including Canada. Back issues $10, including postage and handling. Please call FEED•LOT Magazine, Inc. for reprint and copy authorization, 620-397-2838. POSTMASTER: Send address changes to FEED•LOT Magazine, Inc. PO Box 850, Dighton, KS 67839.

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