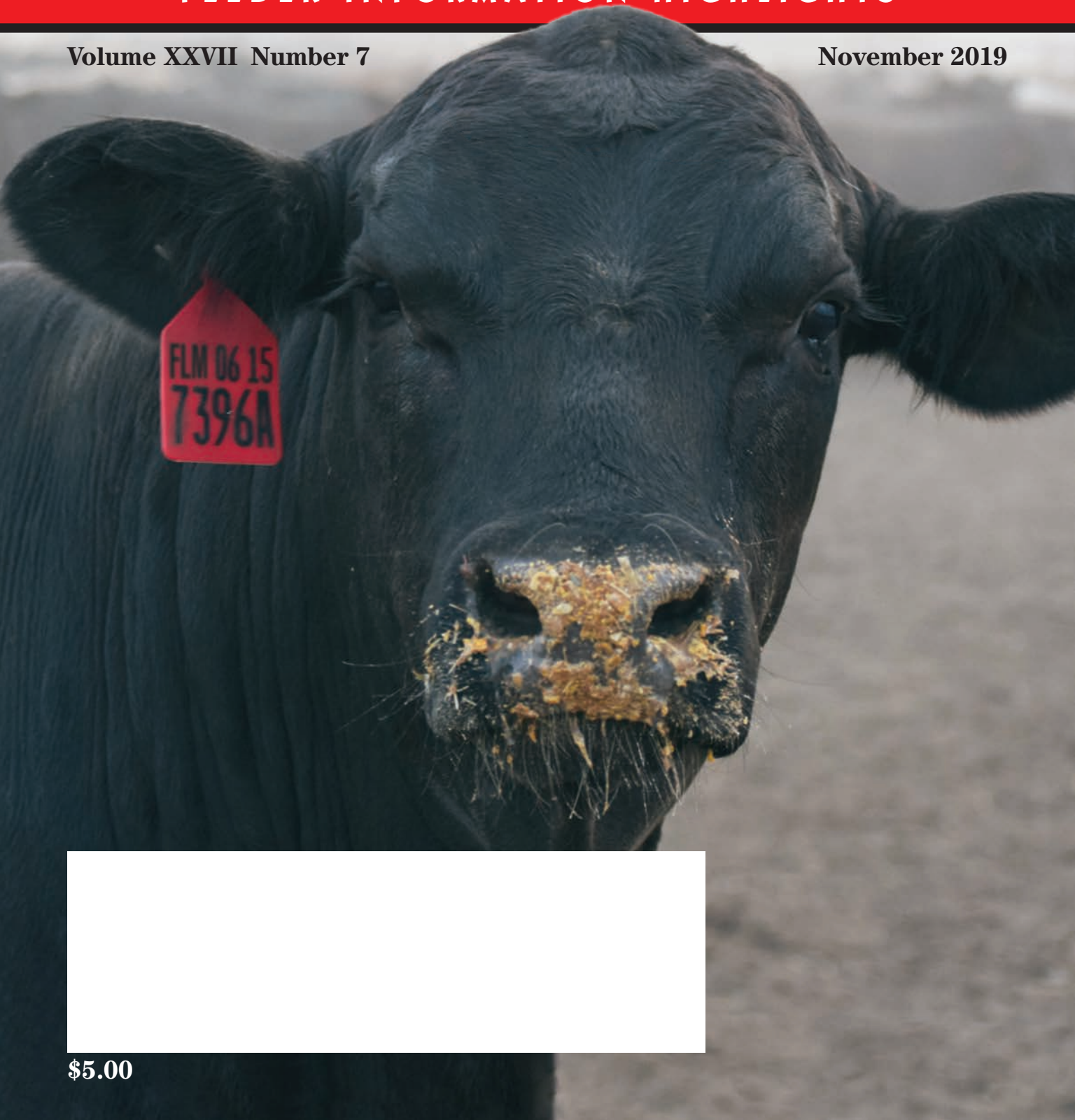
FEEDLOT®

FEEDER INFORMATION HIGHLIGHTS

Volume XXVII Number 7 November 2019



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FEEDLOT

Volume XXVII Number 7
November 2019


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BY JILL J. DUNKEL

A SEASON OF CHANGE

WELCOME to November. Leaves are turning or falling off trees. The business year is coming to a close, and many are ready to see 2019 make an uneventful exit. It has been an interesting year, but it seems that the cattle business has an interesting year almost annually.

All of my family is involved in agriculture, and as child #3 prepares to leave the nest in a few months, he is looking at a variety of opportunities. My husband, who has spent a lifetime farming and in the cattle business, encouraged my son to look outside of agriculture. Find a profession that doesn't make or break you on a rain, or doesn't hinge on a crazy market swing initiated by unknown factors, he said.

So my son did. We've traveled around, looking at schools focused on other professions. But at the end of the day, guess where we are? Right back in agriculture. My kids were raised on our family ranch and are the sixth generation to live in our house. They understand the value of hard work and the responsibility of tending to animals when everyone else is enjoying other activities. They've helped pull a baby calf, and helped end the suffering of an animal. They've enjoyed the bounties of a good year, and understood when we have to cut back at other times. And through it all, it is the lifestyle that all three of my children want to continue.

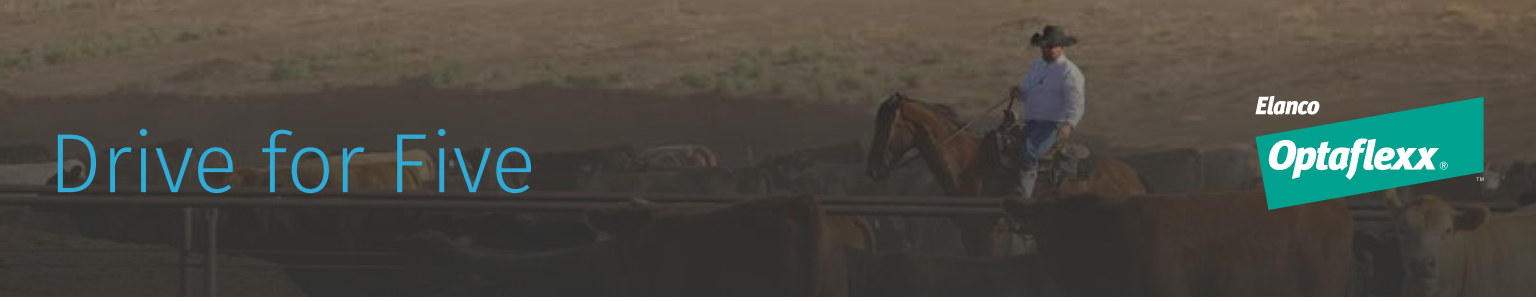
Many agriculture businesses are family owned for generations. In this issue, we examine the patriarch's role, and how these individuals transition from "leader" to one of stepping back slightly to allow the next generation to take the lead. It's a tough step, but often an important one in continuing the business. That article is on page 20.

When you study marketing, it's often a multi-faceted project looking at a variety of conditions, including international trade. AgResource's Dan Basse spoke recently on this topic and how global conditions affect U.S. grain and meat markets. The "dis"order as he calls it is enough to make your head spin. Dan offers his expertise and insight on page 10.

Within that "dis"order, there is often opportunity, although it may be difficult to find. We examine some of those opportunities for cow/calf producers on page 16. It's a good read to see if you can take advantage of a situation even when things might not be going just right. A page turn away on page 18 is the Fall Cow/Calf Check Up with a few friendly reminders for producers headed into winter.

Multiple articles in this issue focus on feeding and nutrition. We know that is the backbone of any successful operation. It doesn't matter how good your genetics are, or what great deal you negotiated on a load of calves if they don't receive proper nutrition. Articles on ingredient sampling (page 6), using corn silage as a winter feed (page 12), the future of distiller's grains (page 14) and wintering bred heifers (page 24) all contain nuggets of information that might be helpful.

I hope you enjoy this November and get to celebrate Thanksgiving with friends and family. I am thankful for the opportunities agriculture has offered my kids. We have one more college to visit before my son makes his decision, and our visit will be focused in the College of Agricultural Sciences and National Resources. My husband and I are proud our kids will continue this livelihood, and we look forward to seeing what opportunities they find. FL



Drive for Five

START SOONER, FINISH STRONGER WITH OPTAFLEXX®

For over 13 years, cattle feeders have found a competitive advantage by feeding Optaflexx (ractopamine hydrochloride) for the last four weeks of finishing. Optaflexx provides an average net return of $25 per head for steers sold on a carcass weight basis.[1] However, new data shows that when they drive for a fifth week of feeding, they can experience even more economic benefits.

START SOONER

Benchmark® data from January 2005 to September 2018 represents the Optaflexx feeding history of 9.7 million steers in over 75,000 pens and 7.8 million heifers in over 50,000 pens. Based on current pricing and marketing conditions, data shows that feeding Optaflexx for five weeks (33 to 36 days) adds incremental value.[1]

Track Advantage: Optaflexx

- Average of $15,000 annually on 15,000 steers fed 300 mg/hd/d
- Average of $9,450 annually on 15,000 heifers fed 250 mg/hd/d

The same Benchmark data showed that removing two days of Optaflexx can result in a loss of $0.74/head for steers fed 300 mg/hd/d. For 15,000 steers closed, the $0.74 per head equates to $11,000.

PREPARE FOR THE FINISH LINE

So, what needs to be considered when adding an additional week of Optaflexx to your four week feeding protocol?

"Feedyard managers should be thinking about managing composition of gain," says Ty Lawrence, Professor of Animal Science, West Texas A&M University. "In general, muscle growth increases at a decreasing rate – fat growth increases at an increasing rate and bone growth is near linear and proportional to live body weight."

Factors that influence composition of gain include sex, fleshiness, health background, weight, age, frame, muscle, previous diet, etc., and all need to be taken into consideration. While these factors, as well as marketing strategy, should be considered when targeting an optimal endpoint, Dr. Lawrence advises that feeding Optaflexx for 35 days — or five weeks — fits the bulk of the population.

One of the top considerations that is consistent among the multitude of permutations of incoming cattle is the implant strategy to maximize performance and achieve the target endpoint.

According to Lee-Anne Walter, Ph.D., Elanco technical consultant and an expert in cattle growth physiology, a good time to assess how the cattle are doing against their initial projections is around nine to 10 weeks from the target out-date.

"For feedyards that use a re-implant program, this is a good time to determine how they're progressing against expectations so they make adjustments as needed.

"To get the most accurate reading when processing cattle during re-implanting, weights should be taken first thing in the morning before first feed," she advises. "Compare those weights to where they are projected to be based on initial average daily gain estimates, look at body composition and then reevaluate if a new projected out-date is required."

As the target endpoint draws closer, six to seven weeks out, visually appraise the cattle to confirm they appear to be tracking against updated projections.

Lawrence recommends looking for filling of the brisket, pones, flank, and shoulder pocket with fat, which is associated with the disappearance of individual muscle separation when animals walk.

"By confirming optimal dose and duration at this point, rather than when you're creating your show list around three to four weeks out, you can take action at a time when it's possible to add incremental value with the fifth week of Optaflexx," noted Walter.

FINISH STRONGER: GRAB THE CHECKERED FLAG

"Cattle feeders should begin with the end in mind," says Lawrence. "They should be mindful of the marketing window and how market conditions — Choice/Select spread, basis, etc., — will prevail when cattle are ready for market."

Elanco is dedicated to working with our customers and their nutritionists to customize a program that will help maximize their net returns and make sure they finish ahead of the competition.

"We have endpoint management resources such as the Optaflexx Optimizer, Optaflexx Market Alert Resource and Benchmark available to help our customers see how feeding Optaflexx for five weeks can deliver a better ROI," says Walter.

Talk to your Elanco sales representative about driving for five with Optaflexx by starting sooner and finishing stronger to boost your bottom line.

The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.

Caution: Not for animals intended for breeding.

Optaflexx: Complete feed For increased rate of weight gain and improved feed efficiency in cattle fed in confinement for slaughter: Feed 8.2 to 24.6 g/ton of ractopamine hydrochloride (90% DM basis) continuously in a complete feed to provide 70 to 430 mg/hd/d for the last 28 to 42 days on feed.
For increased rate of weight gain, improved feed efficiency and increased carcass leanness in cattle fed in confinement for slaughter: Feed 9.8 to 24.6 g/ton of ractopamine hydrochloride (90% DM basis) continuously in a complete feed to provide 90 to 430 mg/hd/d for the last 28 to 42 days on feed.

Optaflexx: Top dress For increased rate of weight gain and improved feed efficiency in cattle fed in confinement for slaughter: Feed 70 to 400 mg/hd/d of ractopamine hydrochloride (90% DM basis) continuously in a minimum of 1.0 lb/hd/d top dress Type C medicated feed (maximum 800 g/ton ractopamine hydrochloride) during the last 28 to 42 days on feed.

[1]Elanco Animal Health. Data on file. (Analysis of Elanco's Benchmark database from January 2005 to September 2018).
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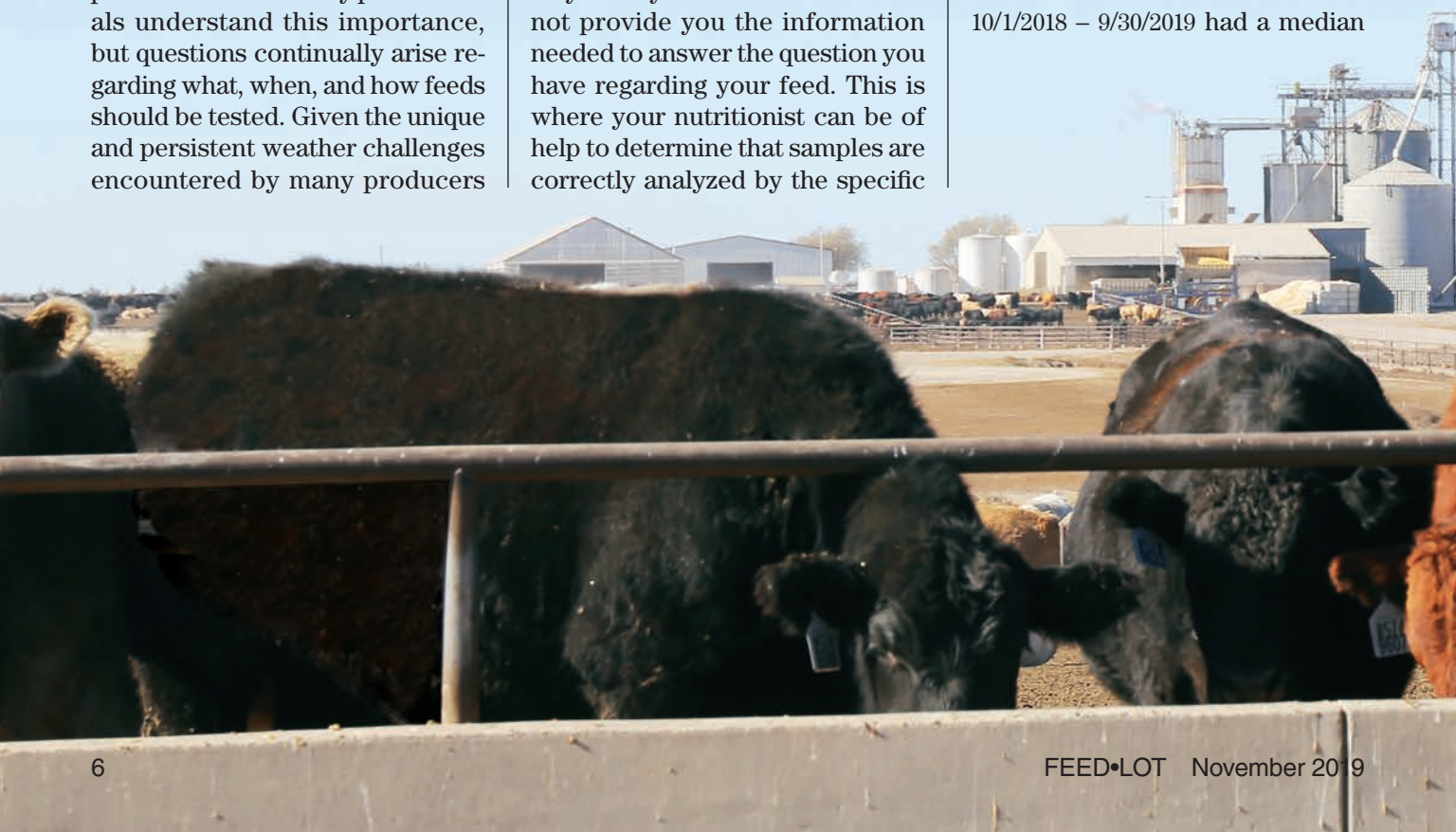
BY DR. KARL HARBORTH AND DR. JASON WARNER,
GREAT PLAINS LIVESTOCK CONSULTING, INC.

Proper Ingredient Sampling Leads to More Precise Rations

Feed is the single greatest production cost in cattle operations. Couple this with weaker cattle markets, and margins are slim on the production side of the beef industry. This only increases the need to test feeds for their nutrient content ensuring the formulation of diets is set to your specific operation needs. By testing your current feed and forage ingredients, not only can we make sure you are not over or under supplementing your livestock, but we can also identify any anti-nutritional factors that may be present and ultimately determine how to best utilize the feedstuff; therefore, maximizing your operation's performance. Most producers and industry professionals understand this importance, but questions continually arise regarding what, when, and how feeds should be tested. Given the unique and persistent weather challenges encountered by many producers across the country this year, feed testing may play a more important role than ever before. Thus, our objective is to review some of the basic principles regarding feed testing and analysis interpretation.

Many feed tests conducted at commercial laboratories that provide us the basic analyses needed to make informed decisions are relatively inexpensive, costing as little as $18, for the information derived. When you consider the value of both cattle and feed in today's economy, it is easy to see that a small amount of money invested in feed sampling can be easily paid for in the long run. However, there is also no reason to spend unnecessary money on a feed test if it does not provide you the information needed to answer the question you have regarding your feed. This is where your nutritionist can be of help to determine that samples are correctly analyzed by the specific lab they are submitted to. The important takeaway is to make sure we understand what we are sampling for and what information we hope to gain by doing so.

We know that feedstuffs, particularly forages, are highly variable due to many factors. Soil type, fertilization, moisture, and stage of maturity at harvest all impact forage quality aside from the type of plant itself. Likewise, growing conditions, degree of processing, and specific processing facilities are typical influencers on nutrient content for most grains and by-products. Data accumulated at Rock River Labs, Watertown, WI on 1275 grass sample analyses submitted from the Midwest area from 10/1/2018 – 9/30/2019 had a median



crude protein content of 11.18% with a standard deviation of 3.76%. Data during the same time frame and region for dried distillers' grains had a median crude protein of 32.47% with the standard deviation of 4.71%. As you can see the potential variation could drastically alter an expected vs actual ration formulation. Forages are generally considered to be much more variable than grains and by-products, so we recommend routine testing of hays, crop residues, and silages. Other ensiled feeds such as high moisture corn or milo and corn earlage should always be tested because the moisture, processing, and subsequent fermentation process will make them more variable than dry rolled or flaked grain. Bottom line is unless you test them you will not know what you are feeding.

Collecting an Accurate Sample

The goal in taking samples for testing is to obtain the most representative sample possible for the feed in question because the analysis is only as good as the sample. While it is a simple task, following these guidelines will help you obtain accurate results when testing feed ingredients.

When sampling hay or forages, identify and test lots separately. A lot will consist of hay which has been produced from the same cutting, field, and stage of maturity. A minimum of 10 cores or samples should be collected; however, more is optimal. If testing baled hay or other forages, a core sampler or probe is a must and will aid in reducing sampling error because it takes a cross-section of the bale. Grab samples are not ideal but can work if necessary for ground or loose hay. Be sure to take several sub-samples and mix and combine them well before taking the final sample that will be submitted.

How silage is stored will dictate the best way to sample it. Due to safety concerns, bunkers and piles of silage should be sampled by removing silage from the face with the loader and then taking samples from the loader prior to the silage being added to the TMR mixer. Silage stored in tower silos should be collected when it is coming off the unloader. Bagged silage can be cored in a similar fashion to hay but remember to reseal the holes made in the bag after sampling. Regardless of how silage is stored, we recommend waiting to sample silage until a minimum of 3 weeks following harvest because the fermentation process can alter fiber and subsequent energy estimates. Silage samples should be stored in a cool place before shipping unless shipped to the lab the same day.

Grains and other grain by-products such as dried distillers grains or corn gluten feed can vary from source to source and should be tested regularly, primarily for protein or fat content. Random grab samples that equal 1lb should be enough for an adequate analysis.

TMR samples should only be analyzed if a potential problem exists with the mixing process or if we just want to check the accuracy of our ration formulation. Handfuls of the TMR should be collected from throughout the entire batch of feed immediately after feed is delivered to the bunk. This sample should then be mixed thoroughly, and a sub-sample of that should be submitted to the lab. Individual analysis of the ingredients will give a better estimate of the ration.

All feed samples should also be fresh and shipped to the lab as soon as possible after collection. Don't allow samples to collect on the dash of the pickup for days or weeks before submitting as sunlight and heating is not good for sample quality. Sample bags, or bottles for liquids, must be clearly labeled with the necessary appropriate information in case samples are separated from submission forms. Your nutritionist or the lab you are submitting to can provide for you all the necessary supplies for proper sample submission. Samples should also be shipped early enough in the week to avoid any downtime during shipping that could affect the quality and ►

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NADA 141-328, Approved by FDA

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Caution: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

READ ENTIRE BROCHURE CAREFULLY BEFORE USING THIS PRODUCT.

INDICATIONS

ZACTRAN is indicated for the treatment of bovine respiratory disease (BRD) associated with *Mannheimia haemolytica*, *Pasteurella multocida, Histophilus somni* and *Mycoplasma bovis* in beef and non-lactating dairy cattle. ZACTRAN is also indicated for the control of respiratory disease in beef and non-lactating dairy cattle at high risk of developing BRD associated with *Mannheimia haemolytica* and *Pasteurella multocida*.

CONTRAINDICATIONS

As with all drugs, the use of ZACTRAN is contraindicated in animals previously found to be hypersensitive to this drug.

WARNING: FOR USE IN CATTLE ONLY. NOT FOR USE IN HUMANS. KEEP THIS AND ALL DRUGS OUT OF REACH OF CHILDREN. NOT FOR USE IN CHICKENS OR TURKEYS.

The material safety data sheet (MSDS) contains more detailed occupational safety information. To report adverse effects, obtain an MSDS or for assistance, contact Merial at 1-888-637-4251.

RESIDUE WARNINGS: Do not treat cattle within 35 days of slaughter. Because a discard time in milk has not been established, do not use in female dairy cattle 20 months of age or older. A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.

PRECAUTIONS

The effects of ZACTRAN on bovine reproductive performance, pregnancy, and lactation have not been determined. Subcutaneous injection of ZACTRAN may cause a transient local tissue reaction in some cattle that may result in trim loss of edible tissues at slaughter.

ADVERSE REACTIONS

Transient animal discomfort and mild to moderate injection site swelling may be seen in cattle treated with ZACTRAN.

EFFECTIVENESS

The effectiveness of ZACTRAN for the treatment of BRD associated with *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni* was demonstrated in a field study conducted at four geographic locations in the United States. A total of 497 cattle exhibiting clinical signs of BRD were enrolled in the study. Cattle were administered ZACTRAN (6 mg/kg BW) or an equivalent volume of sterile saline as a subcutaneous injection once on Day 0. Cattle were observed daily for clinical signs of BRD and were evaluated for clinical success on Day 10. The percentage of successes in cattle treated with ZACTRAN (58%) was statistically significantly higher ($p<0.05$) than the percentage of successes in the cattle treated with saline (19%).

The effectiveness of ZACTRAN for the treatment of BRD associated with *M. bovis* was demonstrated independently at two U.S. study sites. A total of 502 cattle exhibiting clinical signs of BRD were enrolled in the studies. Cattle were administered ZACTRAN (6 mg/kg BW) or an equivalent volume of sterile saline as a subcutaneous injection once on Day 0. At each site, the percentage of successes in cattle treated with ZACTRAN on Day 10 was statistically significantly higher than the percentage of successes in the cattle treated with saline (74.4% vs. 24% [$p <0.001$], and 67.4% vs. 46.2% [$p = 0.002$]). In addition, in the group of calves treated with gamithromycin that were confirmed positive for *M. bovis* (pre-treatment nasopharyngeal swabs), there were more calves at each site (45 of 57 calves, and 5 of 6 calves) classified as successes than as failures.

The effectiveness of ZACTRAN for the control of respiratory disease in cattle at high risk of developing BRD associated with Mannheim*ia haemolytica* and *Pasteurella multocida* was demonstrated in two independent studies conducted in the United States. A total of 467 crossbred beef cattle at high risk of developing BRD were enrolled in the study. ZACTRAN (6 mg/kg BW) or an equivalent volume of sterile saline was administered as a single subcutaneous injection within one day after arrival. Cattle were observed daily for clinical signs of BRD and were evaluated for clinical success on Day 10 post-treatment. In each of the two studies, the percentage of successes in the cattle treated with ZACTRAN (86% and 78%) was statistically significantly higher ($p = 0.0019$ and $p = 0.0016$) than the percentage of successes in the cattle treated with saline (36% and 58%).

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Due to safety concerns, bunkers and piles of silage should be sampled by removing silage from the face with the loader and then taking samples from the loader prior to the silage being added to the TMR mixer. Never stand next to a tall silage face to take samples.

Proper Ingredient... *from previous page*

accuracy of the results.

Commonly sampled ingredients can usually be analyzed by Near-infrared Analysis (NIR). It is quicker, cheaper, and generally will supply the basic information needed to formulate rations. Wet chemistry is the gold standard of feed analysis, but it is more expensive and does not have the turnaround time of NIR. There are cases in which wet chemistry is preferred and/or required such as analysis for TMRs or trace minerals. Consult with your nutritionist if you are submitting feed samples to ensure that you are requesting the correct test.

Interpreting the results

Typical lab analysis reports will have moisture, protein, fiber measurements, macro minerals, and energy calculations based off those fiber measurements. Fat, specific minerals such as sulfur, or other trace minerals, may also be of interest. Crude protein is based on the amount of nitrogen multiplied by 6.25. Fat is expressed as a % and determined by an ether extract assay in livestock feed. Energy can be expressed as total digestible nutrients (TDN), digestible energy (DE), metabolizable energy (ME), net energy of lactation (NEL), net energy of maintenance (NEM) or net energy of gain (NEG). It is important to remember that the energy content of a feed is a difficult thing to assess, and the lab-reported energy values are derived from equations, NOT from true chemical analyses like protein and minerals are. There are many established formulas that convert fiber measurements to energy values, but laboratories are not required to use the same standardized formulas. This makes comparisons between laboratories difficult at times and can an also present challenges when interpreting the energy value of high-fiber by-products (distillers grains, gluten feed). Laboratories can further provide information on the source of the formulas they use as well as analysis techniques. Regardless of the lab or technique used, it still provides more accurate information from which to base decisions than the alternative of not testing. If you have any questions or need help getting feed ingredients analyzed, please contact one of our consultants.

For additional information, visit www.gplc-inc.com FL

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[1] Sifferman RL, Wolff WA, Holste JE, et al. Field efficacy evaluation of gamithromycin for treatment of bovine respiratory disease in cattle at feedlots. Intern J Appl Res Vet Med. 2011;9(2):171-180.
[2] ZACTRAN product label.

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The New (Dis)order in Today's Markets

Why cattle ranchers have one of the most positive outlooks

BY **ABBIE BURNETT**

"Economic and political order has become disorder," said AgResource president Dan Basse, in market analysis comments at the 2019 Feeding Quality Forum in Amarillo, Texas.

In a third of the world's economies today, Germany included, banks charge you to keep money in savings "—you pay them, they don't pay you. How many times in 5,000 years… this is really rare," he said.

The pressure is on to put money to work in those economies, even to the point of devaluing the money.

"In agriculture, everybody is dropping their currencies so they have a competitive edge in producing more supply," Basse said. "This is what's giving us a supply bear market in the grains."

Disincentives to save brought world economic debt to record levels, and the U.S. at $23 trillion holds the largest share of the $243 trillion total.

"It's really why interest rates cannot rise," said Basse. "So, we are kind of locked into this environment of debt and low growth."

Enter the Chinese economy. Growth there and in India will see median annual incomes of at least $20,000 rising to 150 million people.

"That's why this trade war, if you will, or trade debate is so centered on China—because they have the money to spend over the next six to eight years," he said.

In the next four to seven years, China will become the leading economy in the world and at some point after that, India will become second largest.

The longer this trade war goes on, the more worldwide structural production habits change, Basse said: "Someone is going to produce what we don't, and sell to China."

In the midst of these trade negotiations, China is dealing with a major blow to its agricultural industry. African swine fever is reducing the world's largest hog herd, which he said will decline from more than 600 million to 340 million head by year's end.

"[China] is of course stepping up their beef imports," he said. "They are so hungry that they're now turning to Africa to see if they can bring in some beef to fill their needs."

Basse said if we had a Chinese free trade agreement today, "We couldn't keep beef and pork on the shelf."

But still, overall U.S. beef export commitments are good.

"There's a solid demand for our beef, both in terms of the domestic market and the export market," he said. "We think USDA is understating U.S. beef trade, so there's a real argument of a demand bull market that's developing as U.S. cattle prices tighten."

The record-high domestic beef quality grades now are partly a result of U.S. consumer demand for better beef, and one reason premium-quality Angus branding

has done well, Basse said.

"Everybody is looking for that higher quality cut," he said. Record strong demand now and for "many years to come" suggests a clear advantage for producers of that higher quality.

"I think it's a good investment," Basse said. "Consumers will reward you with bigger demand going down the road."

He doesn't have the same optimism for grain farmers. With fewer porcine mouths to feed in China, there's less need for soybeans and corn.

African swine fever in China amounts to a loss of 20 million metric tons per year, compared to the total world meat trade of 7 million metric tons. As bullish as that is for meat, it's bearish for world soybean demand, and leads to an extra billion bushels a year likely remaining in the United States.

Basse's not worried about having enough corn, for now. An adequate supply going into winter should mean a stable spread of $25 or $26 per hundredweight between feeder cattle and fed cattle, but that may widen to the $35 range in early 2020.

"I don't have a long-term bullish outlook for the feed producer or the corn-soybean farmer," he said. "But I would take coverage if you see a real dilemma in South American weather."

Climate change and the warming northern oceans have led to more "angular" jet stream patterns so that weather can settle into one region, sticking around longer than usual.

If the Southern Hemisphere growing season is disrupted by "stuck" weather patterns, China would be forced to buy from the U.S., despite the tariffs, creating an inflammatory market, Basse said.

U.S. weather bears watching as well, because delayed planting put acres at risk of an early frost.

"So you want to be protected maybe at current prices," he said, "but I really have difficulty getting corn too much above $4.20 a bushel relative to spot futures in Chicago."

If weather holds steady, a year from now, corn could be trading at $3 or below, he said.

For cattle, Basse said the cash bottom could be in and fed supplies will tighten into March. The market will turn bullish, normal weather advancing prices to the $122 to $128/cwt. range for the 2020 first quarter.

"I want the cattlemen and the grain farmers to think of profit margins down the road," Basse said. "Always be protective of them because our real goal in this game is to stay in business, expand when our neighbors aren't and to look for opportunities."

Visit the CAB Cattlemen Connection website at www.CABcattle.com for more news from the 2019 Feeding Quality Forum. FL

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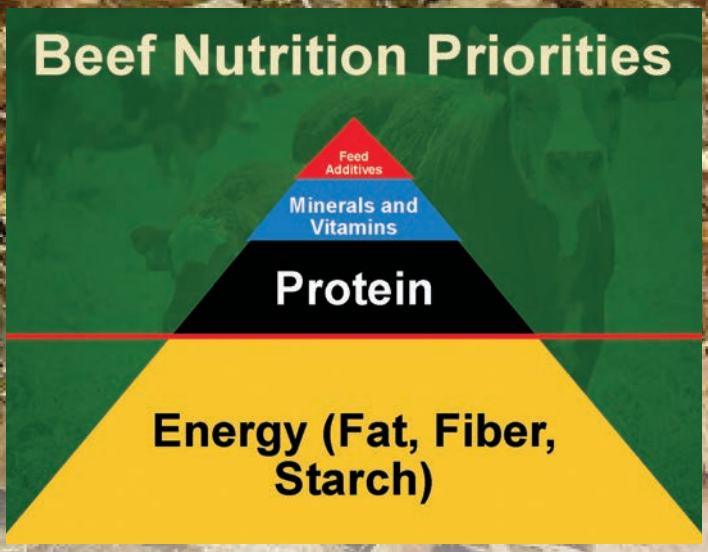
BY TERRI QUECK-MATZIE



Corn silage can be a good feedstuff for cattle through the winter months.

"Silage can provide a tremendous amount of energy," says Eric Bailey, University of Missouri Extension beef specialist and assistant professor of animal science. The feeding option was the subject of his presentation last January at the Three-State Beef Conference, sponsored by University of Missouri, Iowa State University and University of Nebraska-Lincoln, held in Savannah, Missouri, Greenfield, Iowa, and Syracuse, Nebraska.

From breeding cows to backgrounder calves, silage can help meet nutrient requirements and provide needed roughage.

"Many people ask if they need to also feed hay," says Bailey. The answer is "no" unless there are nitrate issues. Drought stressed corn silage should be nitrate tested. "Otherwise," Bailey says, "good silage can be around 50% roughage and 50% grain."

The silage is adequate for most cow needs, although Bailey says its value as a feed may be wasted on non-lactating cows. "Silage can be put to better use. To be the most cost effective, save the silage for lactating and growing cattle."

He says the basic diet for cattle is a relatively simple recipe. "You need forage for the rumen, grain for energy density, a protein supplement, and a vitamin and mineral balancer. If you have those components, it's really a slam dunk."

For calves, producers may find it necessary to add protein. For a simple ration, Bailey recommends 9 parts silage to 1 part dried distillers grain (as fed) to raise the crude protein to 13.5%. This needs to be checked against lab analyses on your feeds to be fine-tuned.

Silage also makes a good supplement to pasture, hay or crop residue.

"Just remember," says Bailey, "Silage is an energy supplement, not a replacement for protein supplements."

Effect of feeding spoiled corn silage on intake and nutrient digestibility in beef steers

	Percent spoiled silage in diet			
Item	0	25	50	75
Feed intake, lb/day	17.5	16.2	15.3	14.7
Digestibility, %				
Dry matter	74.4	68.9	67.2	66.0
Crude protein	74.6	70.5	68.0	62.8
Fiber (ADF)	56.1	43.2	41.3	40.5

Source: Whitlock et al., 2000. Kansas Ag. Exp. Stn. Progress Rep. 850.

University of Missouri Extension

Handle it right

In his work as an extension beef specialist, Bailey often gets requests for him to develop a ration that will solve all of a feeder's issues. "There is no 'perfect' ration," says Bailey. "Some producers think if they are blessed with a perfect ration the cows will get fat, the calves will gain 3 lbs. a day and make $150 per head. But the ration is only a small portion of the total picture. HOW you feed is just as important as WHAT you feed."

How cattle are fed includes when they are fed, how facilities are managed and how feed is stored.

Storing and handling silage is key to its effectiveness as a nutrient supply.

Silage must be stored properly. "I've seen producers not used to handling and feeding silage buy from the neighbor down the road, pile it loosely, and use it over 3 or 4 weeks. That is far from ideal."

"Oxygen is not a friend of silage. It should be exposed as little as possible," Bailey continues. Moldy silage can be fed, but even a little mold will reduce feed intake and can reduce digestibility by as much as 28%. He recommends taking six inches off the face of the pile or pit every day to minimize spoilage.

Bunk management is also essential. Dry feed can sit in the bunk for a few days, but moist silage cannot. Bunks should be cleaned daily before fresh feed is offered.

Silage should be fed at around 65% moisture. When held in the hand, silage with 60-70% moisture should fall apart slowly with no juice. If it holds its shape with some juice, it contains around 70-75% moisture. If there is considerable juice, the moisture level is above 75%. If the silage falls apart rapidly, moisture is below 60%.

How much should they eat?

If feeding to cows, Bailey says feed should be offered according to their nutrient requirements, not their appetites. "A 1400 lb. cow will eat up to 100 lbs. of silage a day when they only require 60 lbs. (on an as fed basis), assuming 35% dry matter."

Meanwhile, a growing calf can't get enough to eat. "The more calves eat, the more calves gain," says Bailey.

He says he often hears concerns about feeding cattle too hard and causing them to get fleshy, but he has received no feedyard feedback on that being a problem, and finds it is easy to underestimate the genetic progress of cattle the past several years and their potential for growth and weight gain. "That applies to cattle from all ends of the spectrum from unknown to high-end genetics."

How much a calf eats in a day is also key to profitability, even with silage being a relatively low cost alternative. Silage costs roughly 10 times per ton what corn costs. At $40 per ton and 65% moisture, that's $115 per ton for dry matter. "That doesn't begin to compare to anything else," says Bailey.

"So if a calf eats 13 lbs. of dry matter a day, he'll gain just over 2 lbs. per day," he continues. "If you can get him to eat 17-18 lbs. per day, he'll gain around 3 lbs. Meanwhile, the yardage days and other fixed costs remain the same." FL

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- Increase average daily gain[3]
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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, 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.
3 Lallemand Animal Nutrition. Unpublished. United States. 1996.
4 Hutcheson D and Lallemand Animal Nutrition. Unpublished. United States. 1986.

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BY: CODY SCHNEIDER, PH.D., CARGILL ANIMAL NUTRITION, CODY_SCHNEIDER@CARGILL.COM

The Future of Distillers Grains

In many parts of life, we adapt easily to constant change. Think of your smart phone… how many of us accept frequent software updates without thinking twice about them? With one tap and a few minutes of installation time, we've got the latest and greatest technology at our fingertips. Change in the feed industry is not as easy to implement, but that doesn't mean it's not happening. The evolution of distillers grains in the last 15 years is a prime example.

With the rise of ethanol production in the late 2000's, distillers grains changed the way cattle feeders looked at protein. It was a paradigm shift; we went from a period when protein was the most expensive ingredient in rations to a new era in which distillers and other by-products enabled us to use protein as an affordable energy source. Wet by-products improved ration mixability and palatability and many feeders reaped gain efficiencies along the way. There's no denying that the rise in popularity of distillers grains took the cattle feeding industry by storm, but where do we go from here?

Because of the direct correlation between the ethanol and cattle feeding industries, as ethanol production evolves, so must we. To stay ahead of the change curve as we consider the future of distillers grains, I recommend three strategies – *1) know what's happening, 2) understand the impact on your operation, and 3) adapt accordingly.*

Know what's happening

We can speak of change vaguely, but that doesn't do much good for your business planning process. So what exactly is changing in the distillers grain category? "Bolt on" technologies are what I'm observing most often. By that, I mean new processes that are designed to be added to existing ethanol production facilities.

Fiber separation is one example of this in which fiber from a corn kernel is being removed prior to fermentation, increasing efficiency of the fermentation process and improving ethanol yields. Fiber separation is easy enough to understand, but the complexity comes after the fiber is removed; what's done next with that fiber is highly variable. Some plants will combine the fiber back with the rest of their spent grains; others are selling the spent grains as high protein distillers; and others are combining the fiber with condensed distillers solubles, selling a fiber plus syrup product. A small percentage of plants will even use that fiber fraction to produce cellulosic ethanol. Each of these products has a different value to your feeding program and none can be viewed as one in the same.

Post-fermentation fractionation is another up-and-coming trend in ethanol production in which manufacturers are exploring new ways of extracting value from existing ethanol by separating distillers yeast from stillage. This yeast portion is a very high quality protein source and energetically, is one of the most valuable components found in distillers grains today. Products with this yeast fraction removed can be expected to have different nutritional values; there will be variability from plant to plant in the end product you're being offered, so you need to know exactly what you're being offered and what it brings to the cattle feeding table.

These are just a few examples of emerging trends in distillers grain production, but I am confident there is more to come. As an industry, we were somewhat caught off-guard when fat removal was introduced in ethanol production a few years ago. Let us all learn from that experience by staying informed about what technologies are emerging and what that means for cattle feeding. Don't be afraid to ask questions of your nutritionist, your feed manufacturers, and other industry experts to make the most informed decisions possible for management of your operation and nutritional program.

Understand the impact on your operation

At the risk of sounding repetitive, I cannot stress enough how important it is to understand the variability from plant to plant in ethanol production. As each ethanol producer employs new technologies in their production processes, there will be differences ranging from slight to extreme in the products they are offering as an output.

Before introducing a new distillers product to your feeding program, you must understand exactly

what the product is and how it differs from and/or interacts with the ingredients you're currently using. As some things are removed from distillers (i.e., fiber), you can expect the concentration of other things (i.e., protein) to increase. How does that impact the ration as a whole?

When distillers grains first gained popularity, we talked a lot about the risks of sulfur toxicity. Over time, with more consistent production and broad understanding of sulfur limits in diets, the industry has collectively managed this concern. As new distillers products emerge, we cannot become complacent to previously identified issues. I, personally, will be looking closely at the impact of some of these new products on sulfur levels and formulating diets accordingly rather than blindly including them in a ration before understanding intended and unintended consequences of doing so.

Viewing your nutrition program holistically is not only a good management practice, but it's smart business. With little room for error in cattle production, analyzing the impact of a new technology on your cattle's health and well-being; their productivity and efficiency; and your economic viability does not mean you're being over-critical. Conversely, it means you have good business sense.

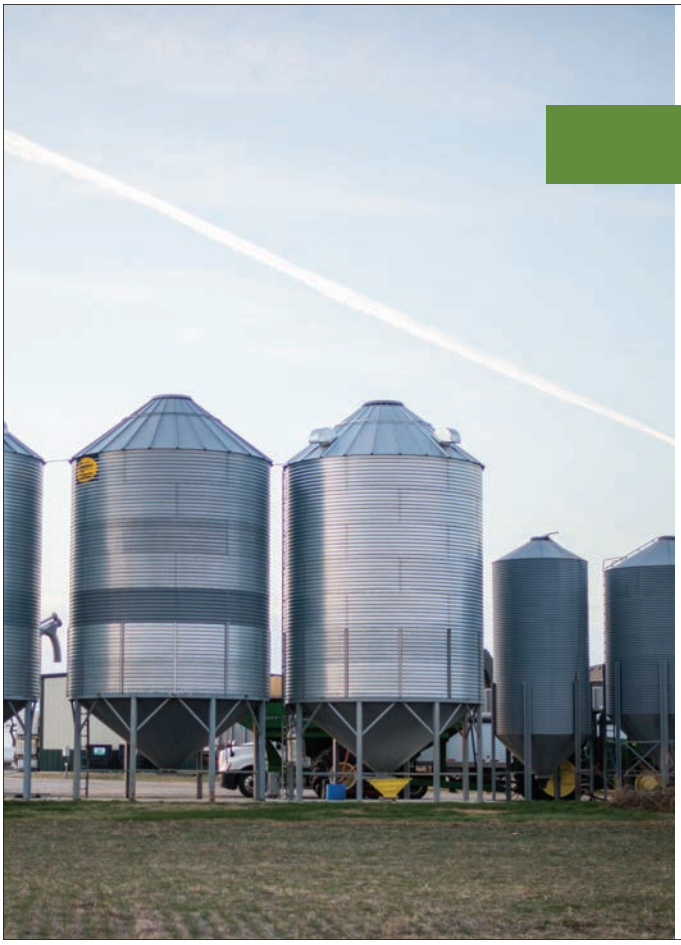
If you're not equipped to fully analyze the situation or product at hand, engage the experts around you. Seek the help of nutrition consultants who have access to state-of-the-art labs and models to help predict how an ingredient change will impact your operation specifically. There is an abundance of information and resources available to support you, so uninformed decision making is no real excuse if things go awry.

Adapt accordingly

While changes in cattle nutrition may never be as simple as the tap of a button, I believe adaptation is critical to the sustainability of our industry. As with every other industry in today's day and age, the ethanol industry is going to continue to evolve in the quest for efficiency and additional value.

We've experienced this before and should not be blindsided by this evolution. Instead, we should stay informed about the changes occurring and how they relate to cattle feeding and production. Make an informed decision with your specific business in mind and tweak your program along the way with the goal of continuous improvement always top-of-mind.

If you've ever skipped out on multiple phone updates, you've likely experienced the frustration of glitches and slow functionality. How might your cattle operation be negatively impacted if you don't at least consider the new technologies being made available? FL



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INDICATIONS FOR USE
LONGRANGE, when administered at the recommended dose volume of 1 mL per 110 lb (50 kg) body weight, is effective in the treatment and control of 20 species and stages of internal and external parasites of cattle:

Gastrointestinal Roundworms	Lungworms
Bunostomum phlebotomum – Adults and L_4	*Dictyocaulus viviparus* – Adults
Cooperia oncophora – Adults and L_4	
Cooperia punctata – Adults and L_4	
Cooperia surnabada – Adults and L_4	
Haemonchus placei – Adults	**Grubs**
Oesophagostomum radiatum – Adults	*Hypoderma bovis*
Ostertagia lyrata – Adults	
Ostertagia ostertagi – Adults, L_4, and inhibited L_4	
Trichostrongylus axei – Adults and L_4	**Mites**
Trichostrongylus colubriformis – Adults	*Sarcoptes scabiei* var. *bovis*

Parasites	Durations of Persistent Effectiveness
Gastrointestinal Roundworms	
Bunostomum phlebotomum	150 days
Cooperia oncophora	100 days
Cooperia punctata	100 days
Haemonchus placei	120 days
Oesophagostomum radiatum	120 days
Ostertagia lyrata	120 days
Ostertagia ostertagi	120 days
Trichostrongylus axei	100 days
Lungworms	
Dictyocaulus viviparus	150 days

DOSAGE AND ADMINISTRATION
LONGRANGE® (eprinomectin) should be given only by subcutaneous injection in front of the shoulder at the recommended dosage level of 1 mg eprinomectin per kg body weight (1 mL per 110 lb body weight).

WARNINGS AND PRECAUTIONS

Withdrawal Periods and Residue Warnings
Animals intended for human consumption must not be slaughtered within 48 days of the last treatment. This drug product is not approved for use in female dairy cattle 20 months of age or older, including dry dairy cows. Use in these cattle may cause drug residues in milk and/or in calves born to these cows. A withdrawal period has not been established for pre-ruminating calves. Do not use in calves to be processed for veal.

Animal Safety Warnings and Precautions
The product is likely to cause tissue damage at the site of injection, including possible granulomas and necrosis. These reactions have disappeared without treatment. Local tissue reaction may result in trim loss of edible tissue at slaughter. Observe cattle for injection site reactions. If injection site reactions are suspected, consult your veterinarian. This product is not for intravenous or intramuscular use. Protect product from light. LONGRANGE® (eprinomectin) has been developed specifically for use in cattle only. This product should not be used in other animal species.

When to Treat Cattle with Grubs
LONGRANGE effectively controls all stages of cattle grubs. However, proper timing of treatment is important. For the most effective results, cattle should be treated as soon as possible after the end of the heel fly (warble fly) season.

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SEARCHING FOR OPPORTUNITIES

BY: **KEVIN LAURENT, BEEF EXTENSION SPECIALIST, PRINCETON RESEARCH AND EDUCATION CENTER, UNIVERSITY OF KENTUCKY**

To say that 2019 has been a challenging year would be a huge understatement. From the excessive rain the first half of the year, to the drought and depressed markets of late, 2019 will definitely be remembered as one of those years much like 2007, 2009 and 2012. Like most challenges in life, there always seems to be an opportunity if we just look hard enough. Some may think these so called opportunities are dressed in camouflage and I wouldn't dare argue with you. However, there have been a few positive signs recently with the market trending higher and many areas receiving some rain. Although we are far from out of the woods on either front, there are a few strategies we can use to minimize losses now and improve our situation in the near future.

1. Wean the calves and precondition them prior to sale. Markets continue to reward weaned calves and preconditioning budgets look very favorable at this time. Two common preconditioning mistakes are not feeding enough concentrate and feeding poor quality hay. For short term feeding programs (<100 days) calves need to gain better than 2.5 lbs. per day to have the best chance of return. Feed the calves hay that is greater than 10-12% protein along with a 14% protein concentrate feed. Concentrate should be fed at a rate of at least 2% bodyweight. Also consider extending the feeding/preconditioning period to 60-90 days prior to marketing to increase pay weights.
2. Shut the gates and rest your pastures. Closing gates and preventing the herd from roaming will allow the remainder of the farm to rest and recover prior to winter and will reduce the chances of cows eating noxious weeds that they would not normally consume. Concentrate the herd in either a drylot or better yet in a paddock or field that is low in fertility. Remember, roughly 80% of what a cow eats is excreted as manure and urine, so concentrating and feeding the herd on a weak pasture can serve to fertilize that area. For more pasture tips see Dr. Teutsch's article on "Reviving Drought Stressed Pastures".
3. Test your hay and begin feeding dry cows. Dry cows in mid – gestation have the lowest nutrient requirements of any class of cattle on the farm. Feed the lowest quality hay to dry cows at this time. Hay that is greater than 8% protein and 48-50% TDN will maintain or add condition to dry cows. If you are running short on hay, consider limiting the time that cows have access to the hay (6-8 hours) or unroll a set amount of hay each day. Realize that this is a viable option only when cows are in good condition (body condition score 5 or above) and hay quality is good. Do not consider this strategy if cows are thin and/or hay quality is poor. FL

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Fall Cow/Calf Producer Herd Check Up

Fall is the time when beef cattle producers make many management and labor decisions, including repairing cattle working facilities, moving cattle to fall grazing, assessing crop residue opportunities and wondering if winter feed supplies will be sufficient.

Producers have other issues they should consider this time of year as well, according to North Dakota State University Extension livestock specialists.

"Scheduling pregnancy checks for cows nursing calves provides a good opportunity to identify cows for market and to vaccinate calves preweaning," says Karl Hoppe, Extension livestock systems specialist at North Dakota State University Extension's Carrington Research Extension Center. "Pregnancy checking heifers provides the opportunity to market open females directly off pasture. If pregnancy rates are lower than expected, it is important to evaluate parameters such as the bull-to-cow ratio, vaccination program and length of the breeding season.

"It is also important to factor in the age of open cows," Hoppe adds. "If most of the open cows are young, there could be a nutritional issue affecting pregnancy rates."

Assessing body condition score (BCS) in cows nursing calves also is a good management practice this time of year.

"Although rainfall and forage production were abundant in many areas of the state, declines in forage quality as plants mature can result in condition losses," says Janna Block, Extension livestock systems specialist at NDSU's Hettinger Research Extension Center. "It is important to remember that for spring-calving herds, the cow is not only providing for the calf at her side, but also entering the second trimester of gestation with next year's calf.

"Although nutrient requirements for the fetus at this time are low, critical developmental events such as muscle fiber and organ development are occurring,"

Block notes. "Research indicates that severe nutrient deficiencies during this period could impact offspring birth and weaning weights, feedlot performance and even carcass quality."

If cows are thin now, producers should consider weaning calves, particularly from first-calf heifers or old cows. A March-calving cow with a body condition score of less than 4 at weaning will have to gain approximately 1.5 pounds per day to achieve a recommended condition score of 5 at calving. Reducing the need for nutrients required for lactation is the most efficient way to put condition back on cows, the specialists say.

Bulls also need to be evaluated in the fall for foot, leg and penile injuries, and BCS, Hoppe says. Mature bulls should have minimal weight loss during the breeding season, while yearling bulls will lose some weight during the breeding season and would benefit from improved nutrition when removed from the breeding herd.

Another key component of fall herd management is an assessment of the risk of certain diseases, and the efficacy and safety of specific products such as vaccines.

"The preweaning vaccination protocol provides an ideal opportunity to follow up on springtime vaccinations and enhance the immune response to respiratory pathogens," says Gerald Stokka, Extension veterinarian and livestock stewardship specialist.

Respiratory disease is one of the primary risks to weaned calves. The bovine respiratory disease complex (BRDC) is associated with the stress of weaning, diet

change, transportation or movement to new surroundings, and often the commingling of different pasture groups on the same ranch. Enhancing the calves' immunity to specific potential pathogens can decrease the risk of BRDC. Sorting and vaccinating calves while they still are nursing their dams reduces the stress of calf processing.

The infection risk is related to several viral and bacterial pathogens.

Depending on a veterinarian's assessment of the risk to the herd, calves may need booster doses at weaning or they simply may be separated from their dams without additional vaccinations.

Modified live virus vaccines (MLV), often called five-way viral vaccines, that are labeled for use on nursing calves can provide excellent protection when properly handled and administered according to label instructions, Stokka says. Mannheimia haemolytica infections often are implicated in pre- and post-weaning respiratory disease cases, and vaccines against this pathogen commonly will be included, very often in combination with the MLV virus vaccines.

In specific herds, other bacterial vaccines may be necessary, depending on herd history and risk.

"It is important to remember that killed/inactivated vaccines will usually require a booster dose to achieve an adequate level of protection," Stokka says.

"Consult your veterinarian about specific products related to viral and bacterial vaccines."

Other health risks to calves include:

- Clostridial diseases, commonly called "blackleg" - The risk of this infection is difficult to assess; however, the organism that causes these diseases lives in the soil and can cause severe illness and death in susceptible animals. A second vaccine dose administered at this time will enhance protection against this family of pathogens.
- Internal parasites if cattle are on grass - Calves with internal parasites will have reduced feed/forage intake, resulting in reduced weaning weights.

Internal parasites also can have a negative impact on the calves' ability to respond to vaccination. If dewormer products are used at preweaning, calves should be moved to clean pastures to avoid re-infection.

- External parasites such as horn and face flies - These populations have decreased dramatically and treatment for them no longer is necessary. Treatment for biting and sucking lice is not recommended at this time. The feeding activity of lice will increase with colder weather, so hold off on treatments until signs of lice appear.

Stokka also recommends commingling calves from different pastures prior to weaning if possible. This may seem unnecessary; however, calves at this stage are much like preschool children, he says. Allow calves to share their bugs and develop a social order while still nursing their dams. This can greatly reduce the risk of postweaning respiratory diseases.

"Preweaning vaccination events, while stressful, can minimize pathogen stress that is normally associated with commingling of different pastures, separation from the dam and changes in diet that occur with weaning," Stokka adds. "Work to ensure that all animal-handling events are conducted in a calm, low-stress manner to the extent possible." FL

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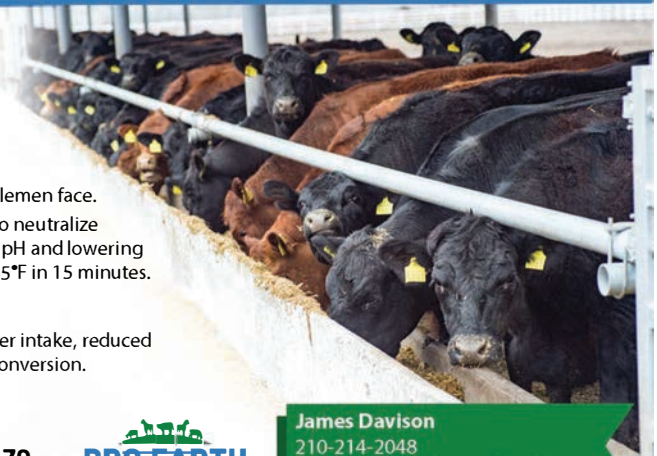

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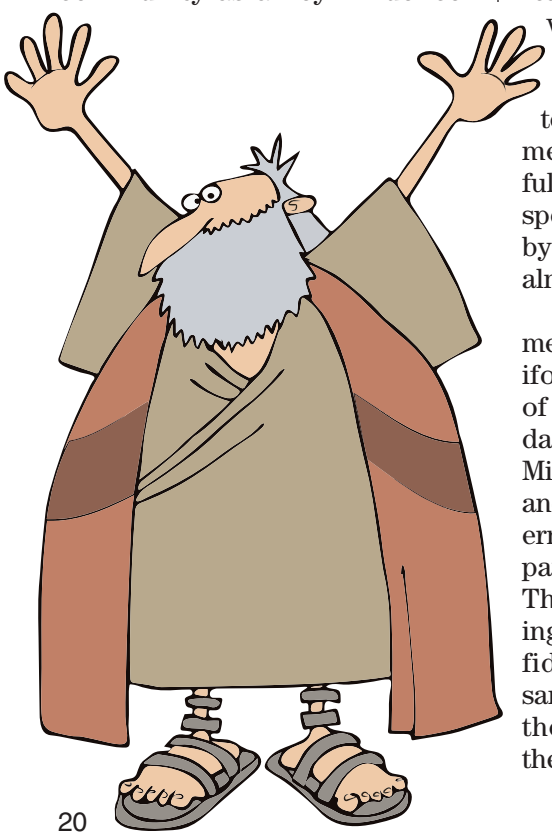
BY: DON TYLER

THE PATRIARCH'S ROLE

It is a true blessing for a successful business to have a patriarch or matriarch *(I'll use patriarch for both roles for simplicity in this article)* that has moved out of their day-to-day leadership role, yet is still available to share their unique wisdom when the need occurs. They are the ones who forged the business into what it is today. They are the wise and respected elder who helped build the business "on their watch" and still provide subtle, and often powerful, influence over major decisions.

Working with these patriarchs over the years, I've observed some consistent patterns in their behaviors. They don't assume a patriarch role just because they are the oldest or own the bulk of the assets. Patriarchs have earned that title over many years of thoughtful, honorable, impartial, noble, principled leadership of their company with unquestioned success. They are known throughout the community as a key influencer and the level-headed arbiter of difficult choices.



Once they have transitioned from leader to patriarch, they rarely interject their opinion unless it is requested, but are ready with a thoughtful response when called upon. They seem to know everything that is happening in the business, even when they've been traveling for three weeks without a single phone call back home. Members of the youngest generation respect them more than any other person and can be found asking the patriarch for advice—often when no one else is looking.

Frankly, these patriarchs are rare. They are willing to risk sharing their control of the business just at the time that they are reaping the rewards of their hard work, so subsequent generations can learn while they still have some influence. In my discussions with them, they are humble, reserved, and watchful. They know what really matters today, and also know what won't make a bit of difference five minutes from now—let alone five years from now. They tend to say the least in business meetings, but garner everyone's full attention when they choose to speak. They are rarely interrupted by others, rarely challenged, and almost always…right.

I have met them in the Sacramento and Imperial Valleys of California, the hog and grain farms of Iowa, Illinois and Indiana, the dairies of Wisconsin, Idaho and Minnesota, and the cattle ranches and feedlots throughout the western states. In all these places these patriarchs are incredibly similar. They have the same commanding presence, the same self-confidence, the same humility, the same universal respect throughout the family and community, and the same predisposition for being right regardless of the question or circumstances.

Here are some suggestions for transitioning from leader to patriarch:

- Learn to let go of control. Whether it's the decision-making process, the final say in every discussion, the complete control of finances, or the day-to-day management of production, you need to give the next generation the chance to prove themselves under your watchful guidance.
- Stay at 30,000 feet. Don't micromanage or hover over all production activities. Be available, but don't be within easy reach.
- Like a good mentor, don't answer every question. But… you can question their answers.
- Practice sharing stories and anecdotes only when they directly fit the situation, and share them infrequently. Stories that are shared too often are rarely appreciated for their educational value.
- Keep learning. In the rapid pace of today's business cycles, technology and market volatility you need to have current knowledge to ensure that your perspectives are still valid and appropriate. You also set an example for the next generations.
- Focus on long-term strategies. Look at trends that point to the future and help the current generation relate their existing strategies to those that are needed for success far into the future. Use your experience to hone their long-term strategic thinking for generations to come.

Having a resident patriarch is a true blessing. Those families without one have no idea what they are missing, nor can they fully compensate for their comparative disadvantage. FL

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Do You Contribute to Quality Hides for the Leather Industry?

Although hides and other by-products are not the primary determining factor for cattle prices, they do have an impact on prices in general and the overall value of livestock. Previously, beef by-products accounted for about 10% of fed cattle prices, according to Derrell Peel, extension livestock marketing specialist with Oklahoma State University. However, that value has fallen to an average of 7.2% for the first 29 weeks of this year. This value includes hides as well as edible and non-edible by products.

According to Peel, hides comprise the single largest part of by-product values, however weak global demand for hides has pushed these values lower. In 2018, hides represented 45.6% of by-product value with an average price of $47.93/piece. However, values have been on a steady decline averaging $34.46/piece in early 2019, down to $27.60 this summer.

Hides with damage from brands or insects are not usable for high quality leather products. Although the National Beef Quality Audit in 2016 showed fewer people are branding calves, brands and damaged hides still represent lost opportunities in the market. Hide discounts attributed to branding costs the industry $29.24 million, according to the most recent Beef Quality Assurance manual.

"The side is absolutely the worst location for a brand," said Ty Lawrence, Ph.D, professor at West Texas A&M University. "It ruins a large section of the hide on the side. Shoulder brands also take a big piece out of the hide. No brand is preferred, and a butt brand by the tail head would be the best. That's why the M brand for Mexican cattle goes there."

University of Nebraska educator Tom Field, Ph.D. authored an extension publication titled "Maximizing the Value of Beef Cattle Hides." In that, Field recommends branding should be restricted to breeding stock, and multiple brands should be avoided to minimize effects on hide value.

Field also said insect and parasite damage can contribute significantly to the loss of hide value. "Insect and parasite damage may be manifested in the hide as discoloration, alteration of grain pattern, various sized pits, holes and other texture irregularities."

The defects caused by parasites are problematic to tanners and users of raw leather products because of problems with grain patterns or uniform dying.

Lawrence said often the insect damage is not apparent until the color of the hide is changed. "Horn flies can cause quite a bit of damage, and warts don't tan properly," he explained.

Producers have dual incentives to follow Beef Quality Assurance guidelines and treat for external parasites. Not only does that help insure the quality of hides resulting in a better product for the leather industry, but treatment also keeps parasites like lice or grubs in check. Research shows lice infestation cost the U.S. cattle industry more than $125 million annually. Moderate to heavy lice infestations can significantly reduce gain as much as 9.2%.

Another hit to hide values can come in the form of mud and manure. According to Field, mud locks are a problem to the tanner because the hide may be penetrated or gouged as it passes through the fleshing process, resulting in a lower quality hide. Feeders should be particularly aware to maintain drainage and pen management to reduce mud.

Although many cow/calf and stocker producers don't see a direct correlation between the quality of the hides on their animals and the price they get for their cattle, they should be aware of the issues with the by-product. According to Peel, current U.S. beef by-product values are reducing fed cattle values by over $110/head compared to peak by-product values five years ago. FL

Insect damage on a hide reduces the value of the hide to the leather industry


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BY HEATHER SMITH THOMAS

Wintering Bred Heifers

Most producers breed heifers as yearlings, to calve as two-year-olds. Shannon Williams, Extension Educator for the University of Idaho, says producers need to remember that the heifer is still growing, her fetus is growing, and she also needs additional nutrients during cold weather just to maintain body heat.

"Nutrition is the most important aspect of winter management for bred heifers. No matter what you feed (hay, silage, concentrates, winter pasture or a mix of feedstuffs), make sure you are meeting those needs, at various stages of gestation," says Williams.

These needs will change. "At 8 months' gestation her demands will be much more than they were at 2 or 3 months. It's constantly changing as the fetus grows (with highest demands during the final trimester) and as the heifer is still growing and getting ready to calve, and preparing to produce milk afterward," she says.

Calving season will make a difference in what you feed during winter because fall-calvers or May-June calvers will be in an earlier stage of gestation than February calvers. "There's also been a lot of research on fetal programming; we now realize that what we feed the pregnant heifer or cow will have an influence on how her calf performs after birth—as a growing calf, in the backgrounding lot, and in the feedlot, or as a mature animal if it stays in the herd," says Williams.

Take feed samples

Nutrition decisions start with knowing the nutrient values of feeds—protein levels, energy, mineral profiles, etc. Homegrown feeds can change from year to year depending on weather conditions, soil fertility, how mature the hay was when you cut it, how long it lay in the field before it was baled. It's important to know if your hay is adequate in protein, for a growing, pregnant heifer or whether you need to supplement.

"If heifers can stay in your herd longer because you fed them properly during their first couple years, testing your feeds is a good investment. When you consider the cost of developing a heifer, and the money you have invested in her—to get her to that first calf—you don't want to have to pay that again (to develop another heifer to replace her) just because you didn't meet her nutritional demands and she comes up open or breeds back late." If she breeds late, she may come up open the next year and her late calf may not be big enough to go on the truck with the rest of the calves.

"Check feed samples before winter, so you can make an educated decision about which haystack you'll feed the pregnant heifers, or if you need to supplement," says Williams. Some of your hay may be higher quality and you should save it for young cattle that need more protein or for when their needs are higher in late gestation or early lactation. Mature cows can get by on a lower level of protein/energy than heifers. You might not want to start at one end of the stack and feed on through; those last loads may be the highest in protein and you need to save them until later.

If you are purchasing feed, always have it tested. "Ask for a feed analysis before you buy. You need to know the protein level (and

sometimes certain mineral levels), but also nitrate levels, especially if it's cereal hay. Even if you buy from the same forage producer every year, these levels can change dramatically with different growing conditions," says Williams.

Winter management

You'll need to feed more forage during cold weather, so cattle can generate adequate body heat. It's also important to provide windbreaks. Otherwise they will need even more feed just to keep warm. "Have a contingency plan with extra feed for those really cold nights or a 3-day blizzard," says Williams.

The necessary energy can generally be supplied by forages since fermentation breakdown of roughage in the rumen produces heat. If cattle aren't fed additional energy during cold weather, they rob body fat to keep warm, and lose weight. The needed energy can be supplied by feeding a little hay to cattle on pasture, or increasing the hay ration. During extremely cold weather, cattle should be given all the hay they will clean up, or a protein supplement on dry pastures to encourage them to eat more. As long as protein level in diet is adequate, they can process/ferment sufficient roughage to provide the necessary energy and body heat. It's also important to separate winter bred heifers from the main cow herd because their nutritional needs are different.

Even on winter pasture, you can save your best pasture for heifers, or partition them off (divide a winter pasture with temporary electric fencing) and give the heifers a supplement (that the mature cows don't need) to augment their pasture. "The additional protein might be provided with a supplement tub or alfalfa hay. If you are providing a supplement tub (protein or mineral to augment deficient pastures) monitor intake, to make sure they are eating the amount recommended. Just putting a tub out there without monitoring, you don't know if they are over-eating or under-eating, or if aggressive individuals are consuming more than their share. If the cattle are consuming too much or too little, call your feed or mineral rep, to re-mix the ingredients to slow or speed their consumption," says Williams.

"Alfalfa hay is often the best protein/mineral supplement, but it depends. If you have to start a tractor or truck every morning (or even every other morning) to feed ►

Wintering Bred Heifers... *from previous page*

alfalfa, it may cost more in time and fuel than putting out protein or mineral supplement tubs that last many days." If cattle are wintering on pasture in terrain where you can't take a truck or tractor, supplement tubs or blocks that can be transported with an ATV might be more feasible.

Other winter management considerations include a general health program with timely vaccinations, and parasite control. Deworming/delousing may be beneficial before winter, so cattle aren't carrying heavy parasite loads that rob them of nutrients and make them more vulnerable to disease if they lose body condition.

"Work with your vet to come up with a good health management plan. This includes preg-checking and evaluating results. If you have a lot of heifers and your calving season is more than 100 days, you may want to divide them into an early-calving and a later-calving group and feed them differently. If you have a bunch that will calve later than you'd prefer, you may decide to market those to someone who calves later. If they don't fit your operation they may work better for someone else," says Williams.

Heifers are an unknown in terms of what they will produce and how easily they will calve. This first pregnancy is an important step to see if they will end up in your herd, and is part of the selection process—whether they calve easily, mother their calves, raise a good calf and breed back on time. You want to give them every chance to do that. "It ends up being survival of the fittest, for what fits your place and your management system. Thus you need to monitor your heifers and make appropriate management decisions," says Williams. FL

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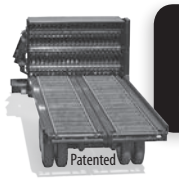

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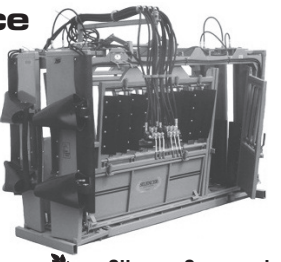

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Audited by: BPA WORLDWIDE

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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