

Supplementing Performance

A balanced supplement program optimizes rumen microbes, digestion and cow performance.

by **Katie Maupin Miller**

Today's nutrition can affect your cattle months later. Increased postpartum intervals, calves with less vigor, poorer quality colostrum, lighter weaning weights and even herd health challenges all plague cow herds in poor condition. As Kansas State University professor and Extension beef cattle specialist Dale Blasi says, a beef cow in poor body condition feels like taking an old farm truck with lousy suspension through the pasture — every little bump along the way is incredibly jarring. And with more than two-thirds of America's cow herd facing drought as of the last week of November, according to the U.S. Drought Monitor, many producers are facing limited forage options this winter. Blasi says this reality is compounded by other external economic factors not driven by Mother Nature, such as inflation, rising energy costs, etc. This all makes keeping your cow-calf operation in the black a bigger challenge.

With this perfect storm of dry conditions and turbulent input costs, producers are searching for supplementation solutions to optimize the delicate balance of feed costs and cow performance. Although there are no one-size-fits-all beef cow supplements, there are some guiding principles producers should keep in mind when tailoring their supplementation program. And unsurprisingly, a lot of supplementation success starts in the rumen.

Feeding the bugs

The largest compartment of cattle's four-compartment stomach and the namesake of grazing animals, a healthy rumen, is paramount to supplementation success. The rumen houses more than a quadrillion microbes, protozoa, bacteria and fungi, which break down feedstuffs into useable energy and protein for the cow, according to Purina Animal Nutrition. The delicate internal ecosystem of "bugs" helps drive a cow's body condition by how well the microbes break down feedstuffs and forages cattle consume. Changing pH, sudden feedstuff changes and

even missing macrominerals can keep the bugs from optimally performing their role in digestion. Or, as Blasi simply states, "We feed the rumen bugs to feed the cow."

Purina beef cattle technical services director Ted Perry agrees that feeding the rumen bugs is the ultimate goal of any good supplementation program. When the rumen microbes are working at their peak performance, Perry says producers can get 20% more energy out of their forage. This means four bales of hay give cattle with healthy rumen microbes as much energy as five bales of hay gives your average herd. In drought, a 20% savings in forage is especially notable.

But drought does more than limit the quantity of forage; it also limits the quality. Forages' protein, energy, digestibility and trace minerals are all affected during drought. And these lower-quality forages go hand-in-hand with a good supplementation program. Supplements serve cattle producers two-fold. They help fill in the nutritional gaps left by low-quality forages, and they give rumen microbes what they need to digest these forages better.

"By feeding the rumen bugs, we get more out of the forage, but not only that, cattle can also physically eat more of the low-quality forage because the rumen can

better ferment it," Perry says. "When you fill the rumen with poor-quality forage, you're basically filling a fermentation vat with sticks. The only way you can put more sticks in there is if some sticks go out. The rumen microbes increase the rate of fermentation, so those sticks disappear faster. And not only are the cattle eating more forage because that forage is getting out of the way, but they're getting more out of the forage because the rate and extent of digestibility is going up."

Where to start

Blasi and Perry agree that creating a supplementation program for your cow herd starts with taking an inventory of your available forages and feedstuffs, followed by forage testing. This gives

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producers a starting point. By knowing the quantity and quality of their available forages and feedstuffs, cattlemen and women will know where they will likely have to fill in the blanks for their cow herd.

Both experts also add that, especially in times of drought, producers need to evaluate the size of their cattle realistically. They've seen cow size increase over the last decades, but many producers are still calculating supplementation programs for a 1,200-pound cow.

Perry suggests all cow-calf producers have a mineral program. He has seen many producers improve cattle's body condition scores (BCS) simply by providing their cow herd with mineral. The mineral helps ensure adequate macromineral levels, especially phosphorus, which the rumen microbes need to help digest forages and feedstuffs more efficiently.

The next step depends mostly on producers' circumstances. What are their current forages and feedstuffs lacking? What feedstuffs are available nearby? What are the current costs of supplements? What means do they have to deliver the supplements? How much time and labor do they have available to supplement the cattle? How big are their cows, and what production stage are they in?

"I ask, 'How much forage do I have? What is my mineral program?' And then I use supplementation to fill in around the edges where the forages and minerals aren't meeting," Perry says, but reminds producers not to overcomplicate their supplementation programs.

Blasi says producers feeding low-quality forage — anything less than 6-7% crude protein — see a response to supplementing protein because the supplements provide much-needed nitrogen and preformed amino acids to the rumen microbes. And those bugs indirectly provide cattle with added energy. He also prefers what he terms "rumen-friendly energy," or non-starch energy supplements for beef cattle, such as wheat middlings or soy hulls. Too much starch can cause a decline in the rumen pH balance, affecting the rumen microbes and their ability to ferment and digest nutrients.

"Can we bring corn into the equation if you're short on roughage and need additional energy? Yes, but in limited quantities — 0.3 to 0.5% of a cow's body weight. For a 1,200 pound cow, that's no more than 4-5 pounds per head per day," Blasi says. "You have to have sufficient protein with the additional energy provided. You can't completely impact the rumen environment."

And if producers limit-feed cows on a high-starch diet to get through a time of limited forage, Perry reminds them that those cattle will need three to four weeks of transition back to forage to increase the size of their rumen and keep the rumen microbes working correctly. A sudden switch from feed to forage often leads to a BCS crash.

Blasi recommends producers use feed cost calculators, such as igrowlivestocktools.org/#!/calculators/feed-cost or agmanager.info@suppcost, to help find the most cost-effective feedstuffs when creating a custom supplement program.

With all cattle supplementation methods — hand feeding cubes, limit feeding, lick tubs or blocks, etc. — there are pros and cons for producers to weigh within their operation. Take lick tubs, for example. Perry has seen them work well for producers because they often eliminate the "boss cow" problem, which can accompany hand feeding, and balance the BCS of both the thin and fat outliers to a more moderate ideal. Blasi sees lick tubs as a good convenience item for producers who live far from their cow herds but worries about non-feeders that may slip through the cracks. Both nutritionists agree that a key to a good supplementation program, no matter the method, is evaluating your cattle's BCS and manure.

Checking your cows

BCS is the leading indicator that your supplementation plan is working. Both Blasi and Perry encourage producers to use it as an evaluation metric. Although Blasi adds that sometimes scoring



Supplements fill in the nutritional gaps left by available forages while helping the rumen operate more efficiently.

your cows' body condition is akin to noticing how much your children have grown because changes tend to happen a little at a time. He suggests having a straight-shooting and trusted neighbor walk through your herd with you occasionally to give honest feedback on BCS.

"A cow's body condition score is like a battery," Blasi says. "If it gets too depleted, nothing will work."

Both experts encourage producers to separate their cow herds into groups based on their nutritional needs if they have the labor and facilities available to do so. By ensuring that younger cows, thinner cows or cows with higher nutritional demands receive extra supplementation, producers can keep those at-risk cows from falling behind and optimize feed costs by concentrating their inputs on the cows that need them the most.

In addition to regularly evaluating the cow herd's body condition, Blasi recommends that producers observe if their cattle are "content." Content, thrifty cows can often be seen licking and grooming themselves and ruminating.

Perry looks at his boots for another herd nutrition indicator.

"I'm a big fan of manure scores. Manure scores tell us how we did yesterday. BCS tell us how we did over the last month," Perry says.

Pastures full of stacked or almost horse-like manure often have thin cattle because they're not wholly digesting forages. In his experience, producers who provide mineral to thin cows with poor

manure scores often see an improvement in both the BCS and manure scores within a month because the macrominerals supplied by the mineral bolstered the rumen microbes.

As research has shown and both Blasi and Perry say from experience, cow herds in better condition simply perform better. They have fewer fertility problems, less herd health challenges and more pounds of weaned calves. Cow herd nutrition has a long-term effect on producers' bottom lines, especially in times of drought and economic strife.

"I always maintain current situations result in the consequences six months later. So, the

harvest and the forage quality conditions we experienced during the summer months have the consequence of the lower quality feed that we produce when we feed it six months later," Blasi says. "And right now, with our feeding programs, and we're getting ready to begin calving here before too long, we're going to see the consequence of this in six months."

And as Perry says, this means that a well-managed cow herd pays off well past the winter months.

"The number of times we have a big disease outbreak or a reproduction failure on cows on mineral with BCS 6 is none," Perry says. "If I feed my cows mineral and monitor BCS, the cows will take care of 80% of everything else. Cows do a pretty good job in spite of us. Give the girls what they need when they need it, and then get out of their way." **HW**

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