



Ridin' Herd

► by **Rick Rasby**, beef specialist, University of Nebraska

Strategies of supplementation

We have discussed in this column supplementation strategies and how to determine if the diet is deficient in protein, energy, minerals, etc. As producers strive to keep input costs in check, there may be some ways to continue to attack fuel and labor costs that are related to the nutrition program. How you deliver a supplement, especially if the diet is deficient in protein, may lead to a reduction in input costs.

Supplementation frequency

Even with the recent decrease in prices, fuel costs can still mount up. Decreasing the frequency of protein supplement delivery can help reduce costs.

Numerous research studies have demonstrated similar animal performance when cattle are fed protein supplements either daily or twice the daily amount every other day. Even longer intervals have been shown to be effective.

In a study completed at Oregon State University, cows were maintained on a low-quality hay diet during the last trimester of gestation and were supplemented with soybean meal. These cows received the following amounts of soybean meal: either 1.6 pounds (lb.) every day, 4.8 lb. every third day, or 9.6 lb. every sixth day.

Cows in all three treatment groups gained the same amount of body condition during the 78-day supplementation period. Achieving similar performance with infrequent delivery of protein supplements is likely a result of the ruminant animal's ability to recycle nitrogen.

Infrequent feeding of protein supplements is effective, but this same strategy does not work with energy supplements. Energy supplements need to be provided daily.

Application

Assume your cows are grazing dormant native range and you have determined that the diet is about 0.68 lb. deficient in protein daily. After shopping around and pricing supplements on the basis of cost per pound of protein, it is determined that the best buy is a 36% protein cake. In addition to fitting what you need to round out the diet, cake fits the equipment you have to deliver supplement — a cake feeder. The cake feeder has a loaded capacity of a ton.

The diet is deficient in protein, and 0.68 lb. per head per day on a dry-matter (DM) basis needs to be supplemented.

The cake is 36% protein. To determine the amount of the 36% protein supplement that needs to be supplemented, divide the deficiency by the percent protein in the cake. Doing the calculations, it is determined that 1.8 lb. ($0.68 \text{ lb.} \div 0.36$) per head per day on a DM basis is needed.

We know that we feed feeds on an "as-fed" basis. The supplement is 90% DM and,

therefore, 10% water. So, on an "as-fed" basis, we need to deliver 2.0 lb. per head per day ($1.8 \text{ lb.} \div 0.90$) of the 36% protein supplement to get 0.68 lb. of protein per day.

If you were to deliver the supplement daily, you would feed 2.0 lb. per head per day — or 4.0 lb. per head every other day or 14 lb. per head once a week.

Logistics

The cake feeder capacity is 2,000 lb. If the supplement were fed once weekly, 143 cows ($2,000 \text{ lb.} \div 14 \text{ lb. per cow}$) could be fed in one trip. If you were feeding twice weekly, 286 cows ($2,000 \text{ lb.} \div 7 \text{ lb. per cow}$) could be fed in one trip. You can do the rest of the calculations.

With this same thought process, you could package cows in groups in pastures that accommodate supplementation amounts and feeder capacity.

In addition, moving cows to closer pastures to reduce driving distance would also help reduce labor and mileage costs. Most producers are already doing this. If you want to utilize a pasture that is away from the headquarters, consider using it first in the winter grazing rotation, when the forage resource needs less supplementation because of the stage of production (further from calving) that the cows are in.

Energy supplements need to be provided daily.

If labor costs were \$10 per hour, the cost per mile was 60¢ per mile, and it took one hour for a 10-mile round trip, the cost to deliver a ton of cake would be \$16. If 286 cows were supplemented per trip, the cost per cow would be 6¢ per head.

Supplementing energy

Energy supplements need to be fed daily. Cattle don't have the ability to recycle starch like they do protein. As a rule of thumb, a protein supplement contains more than 25% protein and an energy supplement contains 20% crude protein (CP) or less. Most supplements contain little or no nonprotein nitrogen (NPN, urea) because urea is expensive. If they do contain NPN, it is a very small amount.

Cattle need energy daily to sustain life. Most energy supplements contain feeds that contain starch, and feeding large quantities of starch infrequently can cause digestive upsets and can have a negative effect on forage digestion. As an example, a heifer diet after calving is usually deficient in energy. Corn is a good energy source, and after balancing the diet, it called for 3 lb. per head per day of corn. Feeding 6 lb. per head every other day would have a negative effect on forage digestion.

Final thought

Continue to trim away at input costs. We discuss a lot about supplementation strategies, and there can be dollars saved when examining cost-effective ways to deliver the supplement, especially if the deficient nutrient is protein. Protein can be supplemented less frequently than daily and cow performance is not jeopardized.

In addition, supplementing less frequently than daily means that more of the supplement is fed and more timid cows, usually young cows, have a better opportunity to consume their fair share. Make sure that the supplement is spread over enough of an area that the boss cows don't push the more timid cows away from the supplement.

In the winter, when cows are in the latter stages of gestation, I like to look at the cows more often than once a week, but twice a week would be plenty good for me, especially if the weather doesn't warrant checking them more often.

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Editor's Note: "Ridin' Herd" is a monthly column written by Rick Rasby, professor of animal science at the University of Nebraska. The column focuses on beef nutrition and its effects on performance and profitability.