



Ridin' Herd

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Beef cow nutrition basics

Feed costs make up more than half the cost of producing a weaned calf. This year, due to drought and the more recent increase in corn prices, cow costs have the potential to be higher. Profitable cow-calf producers tend to have three items in line with one another: weaning weight, reproductive rate and the cost of producing a weaned calf.

Weaning weight and reproductive rate will likely not be maximums, but optimums given the feed, labor and capital resources available. However, reproductive performance of the cow herd has a major effect on the economics of the cow-calf enterprise. Maximizing the use of winter and summer grazing opportunities, and using harvested and commercial feeds strategically are important in making the cow-calf enterprise profitable.

Feed first-calf cows separate

Managing first-calf cows after calving is a challenge. Extra protein and energy especially are needed in the diet because these females are lactating and still growing. This isn't the time to challenge them from a nutritional standpoint. Although there is not much difference in total pounds (lb.) needed to meet the protein and energy requirements of older cows vs. first-calf cows at similar stages of production, there is a tremendous difference in the percentage of the ration that needs to be protein and energy.

For this reason alone, first-calvers should be managed separately from mature cows before and after calving, especially when harvested feeds are being fed. In addition, you'll be able to "target" those feeds that are higher in protein and energy to better meet the young cow's nutrient needs.

Consult any nutrition book, Extension educator or nutritionist for nutrient requirements for beef cattle. The most recent is the 1996 *Nutrient Requirements for Beef Cattle*.

Feed cows to a BCS

Body condition score (BCS) describes the relative fatness or body condition of a cow through the use of a nine-point scale (BCS 1 = emaciated, BCS 9 = obese). A BCS 5 cow is in average flesh and represents a logical target for most cow herds at calving. Target first-

calf heifers to calve in a BCS 6. Feeding to a higher body condition is not economical, and feeding to a lower body condition could result in reduced reproductive performance. [Editor's Note: Visit the Angus Productions Inc. (API) body condition scoring web site,

www.cowbcs.info, for how to determine BCS, as well as example photos and video.]

Body condition of beef cows at calving has a dramatic effect on their subsequent rebreeding performance, with cows in less than BCS 5 being significantly slower to rebreed. In addition, thin cows at calving (BCS 4 or lower) produce less colostrum and give birth to less vigorous calves that are slower to stand. These calves also have lower immunoglobulin levels,

thus impairing their ability to overcome early calfhoo disease challenges.

Harvested forages

Harvested forages are the primary energy source for the cow herd when the pasture or crop residue resource has been used up. Therefore, at some point in time during the winter, harvested forages will be used before and/or after calving. Forages available can differ tremendously in quality. "Average" values provide only part of the story on forage quality. As expected, forage quality differs tremendously among the different forages, but there are also wide variations within each type of forage.

Test forages for quality. Test for crude protein (CP), energy [total digestible nutrients (TDN)] and moisture. Knowing forage quality allows for efficient and economical use. Commercial forage-testing labs will only accept samples taken using a forage probe. Most Extension offices have a forage probe you can use. Make sure you identify the forage sample correctly because most labs are using near-infrared (NIR) technology. Forages of differing quality can be "targeted" in a feeding program to reduce cost.

Protein supplements

Cost per ton is perhaps the most obvious way to compare supplements, but the intrinsic cost factors must also be evaluated. Management from one operation to the next can vary tremendously in terms of the amount of home-raised supplemental ingredients raised as well as labor and time constraints to the beef operation. Unfortunately, supplemental protein is often purchased as a convenience item. Consequently, the manager may be unknowingly oversupplementing one nutrient to meet the requirements for another unless he/she custom-designs the supplement to meet the cow herd's requirements.

A good place to start when evaluating protein sources is to evaluate them on a relative basis of their nutrient content. If the moisture content of the feeds are different, then calculate the amount (pounds) of nutrient (protein) on a dry matter (DM) basis. Divide the price of the feed by pounds of nutrient.

Energy supplements

Energy supplements are not commonly used prior to calving for mature cows, but may be used then if the quality of the diet is low. Most harvested-forage diets after calving are deficient in energy, especially for first-calf cows. Remember, alfalfa is a good source of protein, but is also a good energy source. Energy levels of commercial supplements are difficult to evaluate because the amounts in a commercial source are usually not available from the manufacturer.

The best indication of energy in a supplement is the level of fiber. As a general rule, the higher the fiber in a range

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supplement, the lower the energy. Energy sources such as corn, ear corn, wheat, corn byproducts, etc., are usually a cheap source of energy. Ear corn can be fed on the ground the same as range cubes. Data suggest 3.5 to 4.0 lb. per head per day of ear corn may be the upper limit in high-forage diets because of some negative associative effects. In these diets, make sure that the protein, especially the digestible intake protein, is adequate.

The cost of processing grains and cubing add to their expense. When processed feeds and supplements are expensive, it may be worth the money to invest in feedbunks to eliminate feed losses. If the ground is hard, feed losses will be almost zero.

Molasses in range liquid supplements is usually not as high in energy or as desirable in type of energy as supplements containing grain or grain byproducts. The sugars in molasses are digested very rapidly and are not in the rumen for a very long period of time, plus the water content is much higher in liquid supplements compared to dry supplements.

Consequently, the level of energy on an as-fed basis is usually lower than comparable all-natural plant protein or grain supplements. Fat supplies 2.25 times more energy than starch. Remember, don't exceed 5% fat in the total diet on a DM basis.

Final thoughts

Feed costs are the major cost of producing a weaned calf. Understand the quality of the feeds you have on hand and buy the "nutrient" you need. Make sure your decisions on supplements are cost-effective. Pay close attention to body condition score of first-calf cows and mature cows. Keep feeding losses to a minimum, especially in years when forages are expensive.



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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.