

Supplementation Strategies for Range Cattle

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Nutritional supplements, which include harvested or purchased feeds and supplements, account for approximately 70 percent of total variable expenses to cattle producers. Providing the proper supplements at the correct amount and time can stretch a producer's dollars and forage resources.

Determining the proper supplementation program requires an understanding and an evaluation of the:

- nutritional requirements of a cow,
- nutrient content of forage,
- costs of supplementation and expected benefits.

The reason for supplementing cattle on a cow-calf operation is to provide nutrients that are absent or below the level needed by a cow to meet her maintenance, breeding, pregnancy, and lactation requirements.

Beef Cow Nutritional Requirements:

The greatest influence on nutritional requirements of cattle is their stage of production. A 1,200-pound heavy milking cow requires 19 mega calories (Mcal) of net energy, or 33 pounds of good quality alfalfa hay (63 percent total digestible nutrients, or TDN), per day following calving, but that same cow only requires 10 Mcals, or 19 pounds of the same hay, after the calf is weaned.

Obviously there are tremendous opportunities to influence supplementation requirements by altering a production system to best fit forage resources. Nutritional requirements of a cow increase during the last 60 days of pregnancy and peak two months after calving. If resources allow, arranging the calving season to coincide with grass green-up has proven to greatly reduce feeding expenses.

The size of cows, their milk production, weather conditions, and activity levels all affect nutritional requirements of cattle. It is important to consider the costs of factors that will increase nutritional requirements (i.e. larger cows, heavier milking cows, late winter/early spring calving) with the expected benefits of producing heavier calves, and be certain that these factors have a positive affect on net income.

Forage Nutritional Content

Before a producer can begin to develop an appropriate supplementation program, he or she must know the nutrient content of the forage (range grass or hay) available to the cow. When range pasture is the primary forage source, estimating its nutrient content is





appropriate due to the difficulty in attaining an accurate sample. However, the estimate must be for the proper season and should be representative of the forage found in the vicinity.

When feeding harvested forages, testing a representative sample taken with a hay probe is essential. Protein and energy content of hay can vary as much as 20 percent from year to year. Forage test results should be used to price, buy, sell, and determine the amount of hay to feed. Cattle producers are encouraged to pay close attention to the crude protein (CP) and the TDN values of hay tests. If CP exceeds 12 percent, hay should be priced and fed based on its TDN percentage.

Balancing the Diet

Low Quality Forage

On most Wyoming ranches, range forage is the primary component of beef cattle diets, but when range grasses have matured by mid-summer, their quality is considered low. Even though the protein content is low, these forages still contain an adequate amount of energy to meet maintenance requirements for a mature cow. Supplementing protein will allow a cow to more quickly and easily digest the energy contained in these low quality forages.

It is important to design a supplementation program to enhance, not inhibit, a cow's ability to effectively utilize the available range forage. When providing energy supplements, it is important to not feed too much non-structural carbohydrates (i.e. corn) as these can reduce an animal's ability to digest forage. This occurs because microbes in the rumen of a cow either digest starch or cellulose, not both. When too much starch is fed, cellulose-digesting bacteria are reduced and forage digestion decreases.

For example, two pounds of whole corn fed to grazing cattle can reduce forage digestion enough to negate any benefits provided by the corn. As a rule of thumb, when cattle are consuming forage as their primary feed, non-structural energy supplements should not be fed above a level of 0.5 percent of the animal's body weight.

Harvested Forage or Moderate to High Quality Range Forage

Producers in the Intermountain West often winter their cattle on high quality hay – alfalfa or grass that often exceeds 12-percent crude protein. In these cases, protein is usually of adequate supply and energy requirements sufficient enough until a cow begins lactating. The most common mistake producers make is over-feeding expensive supplements when they are not necessary. If cattle have met their protein needs, excess protein will not improve their level of production. Under these circumstances, it is important to test feeds and evaluate how best to use them to maintain desired production levels at the least possible cost.

Many factors unique to each operation affect how to best supplement to meet the nutritional requirements of cattle. There is no one-size-fits-all solution. The basic element of any supplementation program must include balancing a ration for livestock using laboratory analysis of available feeds. Although not discussed in this publication, vitamins and minerals are also important nutrients and should not be overlooked.

There are several computer programs that take the guesswork and complicated math out of balancing rations, and they allow producers to consider many scenarios. These programs are available from the University of Wyoming's Cooperative Extension Service, and some of them are free of charge. Area extension educators are glad to help producers develop or evaluate their supplementation programs.