



Beef Cow Rations Rules of Thumb

With high feed costs and limited resources, beef cattle producers should pay close attention to meeting cow nutritional needs without going overboard. There are five key nutrients that cattle require: water, energy, protein, minerals, and vitamins. Some are prioritized more than others, but all should be considered for a well balanced feed ration. Beef cow ration rules of thumb are a good place to get started with meeting these needs. In general they can be trusted, but producers must understand that differences in cattle type, environment, and management can affect the end result. Cattle should be assessed regularly to better understand if the ration and management is resulting in the desired performance.

Crude Protein

Crude protein is a building block and component of muscles, connective tissue and the nervous system. It is required for maintenance, growth, reproduction and lactation. These stages of growth and production result in differing needs for cattle dependent of age, pregnancy status, and other phases of production. The rule of thumb for protein when it comes to mature cows is the 7-9-11 rule. Cows in mid-gestation and not lactating require 7% crude protein, those in late gestation require 9% crude protein, and after calving they require 11% crude protein on a dry matter basis in their diet. While on the topic of protein, weaned/feeder calves follow a 14-12-10 rule where protein needs decrease as their growth slows. Calves 550-800 lbs require 14%, calves 800-1050 require 12%, and calves 1050 lbs to finish require 10% crude protein on a dry matter basis in their diet. A tip for determining if there may be a deficiency of protein is to look at the manure. If protein content is too low based on animal size, management, and stage of production there will be high levels of undigested fiber in the manure (Yurchak & Okine, 2004).

Energy

Much like protein, energy in the diet is necessary for growth and other body functions. There are six measures of energy including total digestible nutrients (TDN), digestible energy (DE), metabolizable energy (ME), and net energy for lactation (Nel), maintenance (NEm), and gain (NEg). Considering TDN (total digestible nutrients), mature cows should follow the 55-60-65 rule of thumb. Considering a maintenance of body condition during winter, non-lactating mature cows in mid-gestation should receive 55 TDN, those in late gestation 60 TDN, and after calving cows should receive 65 TDN in their diet on a dry matter

basis (Yurchak & Okine, 2004). To determine the energy content in the diet, monitor body condition score of cows. Cows will lose body condition if energy is lacking in their diet. If a producer feels more comfortable with a measure of energy other than TDN, they should develop their own rules for energy.

Minerals

Minerals are necessary for several functions such as skeletal development, nervous system function, carbohydrate metabolism, energy, growth, immunity, reproduction and lactation. When deficiencies occur, these functions cannot be carried out properly. Ensuring these needs are met is important on any beef cattle operation. If feed rations are tested to include mineral levels, one can determine if the needs are being met for proper body function. If not, a commercial mineral product can address these needs.

Intake

Once feed quality is determined based on animal requirements, the amount fed is the next step. The rule of thumb for feed intake is that all beef cattle will consume approximately 2.5% of their body weight on a dry matter basis. However, feed quality plays a role in intake and tends to increase as quality increases, please refer to Table 1. Another important thing to remember when considering dry matter intake is that water content and waste need to be factored in to the amount fed (Yurchak & Okine, 2004). If a 1400 lb cow is to consume 2.5% of body weight of dry matter of an average quality hay and 5% is wasted she should be delivered approximately 41 lbs. That mature cow should consume 35 lbs of dry matter per day. That turns to 39 lbs as fed assuming the hay is 90% dry matter, then another 2 lbs are added to account for a 5% waste.

Rules of thumb will never replace sophisticated ration balancing programs. To better understand how a ration is meeting the nutritional needs of a specific class of cattle, be sure to utilize feed analysis and a ration formulation program. If unsure where to start, contact your local extension office. There you will have access to feed sampling equipment and receive help with feed ration programs.

For more information or resources for beef cattle rations, please visit or call the Cheyenne County Extension Office at (785)332-3171.



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Table 1. Guidelines for forage intake as percent of body weight on a dry matter basis. Adapted from Beef Ration Rules of Thumb. 2004. T. Yurchak & E. Okine. Agdex 420/52-4

	Straw and poor forage	Medium quality forage	Excellent quality forage
Growing and finishing cattle	1.0 %	1.8 to 2.0 %	2.5 to 3.0 %
Dry mature cows and bulls	1.4 to 1.6 %	1.8 to 2.0 %	2.3 to 2.6 %
Suckled cows	1.6 to 1.8 %	2.0 to 2.4 %	2.5 to 3.0 %