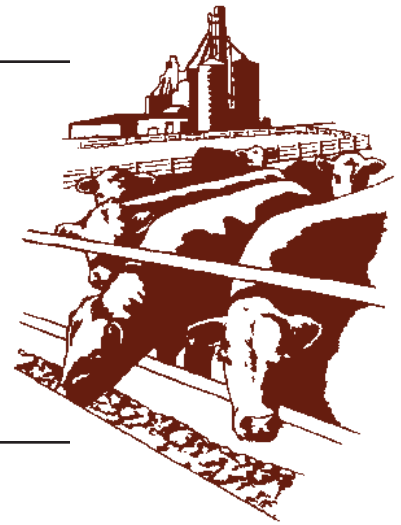


Beef Cattle Handbook



BCH-5201

Product of Extension Beef Cattle Resource Committee
Adapted from the Cattle Producer's Library

Dry Matter Intake for Beef Cattle

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To develop an economical cow-calf program, a producer must have an adequate nutrition program. The greatest expenditure in a cow-calf system is feed. Nutrient requirements for different classes of cattle have been established and rapid, economical feed evaluation procedures are available. To use this information fully, however, dry matter intake of the animal must be estimated.

The National Research Council's (NRC) Nutrient Requirements of Beef Cattle includes a column for daily dry matter intake. This is often mistaken to be the amount of dry matter that the cow must consume regardless of the quality of the feed. In actuality, this is the level of intake that the cow must consume of a ration that contains the energy concentration suggested by the NRC table. Rations that contain more energy than suggested should be fed at a lower dry matter intake, while diets containing less energy than suggested should be fed at higher levels of dry matter. Naturally, you must take into account the protein and mineral requirements and make sure these are met by the ration or with a supplement.

The question becomes how much dry matter will a cow eat. There is no simple answer. Depending on the quality of the diet, a mature cow will usually consume somewhere between 1 - 3 percent of her body weight (Table 1). Factors that influence the amount a mature cow will eat include cow size and condition, stage and level of production, amount and type of supplements, quality and availability of forage, and the environment. With diets high in fiber, the rate and level of digestibility and the rate of passage of the diet through the gastro-

Table 1. Dry Matter Intake of Beef Cattle.¹

Forage type	Dry matter (% of body wt)	As-fed (lb.)
Low-quality hay	1.0 to 2.0	11 to 22
Average-quality hay	1.5 to 2.5	17 to 28
High-quality hay	2.2 to 3.3	24 to 37
Green pasture	2.0 to 3.0	65 to 100

¹ Calculated for 1,000-pound cow, assuming 90 percent dry matter for hay and 30 to 40 percent dry matter for pasture forage.

intestinal tract will have a large effect on intake (i.e., the faster the diet is digested, usually the faster it passes through the tract, allowing for an increase in consumption). In general, alfalfa and other high-quality forages are digested faster, permitting a greater intake, while forages like wheat straw have a slower rate of digestion and thus a lower level of intake.

Feeding more dry matter than is required to meet the animal's nutrient needs is a waste of feed. Table 2 lists some common hays with their nutrient content and the level of intake needed to meet the energy and protein requirements of a 1,000 pound cow in the last one-third of gestation. The amount of dry matter intake varies with the quality of the forage. With a high quality alfalfa hay, the protein and energy requirements can be met with 17.5 pounds of dry matter. When this level of high-quality alfalfa is fed, the rate of passage will probably be fast enough that the cow will appear hungry before the next feeding, even though her nutrient requirements are being met. With wheat straw,

Table 2. Feeding Levels of Various Hays to Meet the Nutrient Requirements of a 1,000-pound Cow in Last Third of Gestation.¹

Forage	Nutrient content		DM to supply required ¹	
	TDN	CP	TDN	CP
Alfalfa hay	60	18.0	17.5	8.9
Alfalfa hay	52	14.0	20.2	11.4
Meadow hay	58	8.7	18.1	18.4
Bromegrass hay	55	10.0	19.1	16.0
Prairie hay	51	5.8	20.5	27.6
Wheat straw	41	3.6	25.6	44.0

¹Taken from NRC (1984).

the cow would have to consume 44 pounds of dry matter to meet the dry matter requirements. Table 1 data indicate that the cow would eat enough straw to supply only 20 pounds at the most, and more likely only 15 pounds of dry matter. In this situation, the cow may appear full, but she cannot consume enough dry matter to meet her nutrient requirements without some type of supplementation. Intake and digestibility of this type of forage could be increased with protein supplementation.

At times when grains are less expensive compared to hay, on a energy basis, it may be cost effective to look at feeding programs based on grain with limited hay. Dry matter intake of diets developed with a high percentage of grains may only be 1 - 1.5 percent of body weight. This type of diet is limit-fed. Cattle fed limited high-quality diets will appear hungry until rumen capacity decreases, although you have met their nutrient requirements.

Cattle do need more feed during extreme cold weather. The increased quantity required depends on the temperature, humidity, wind, and other environmental factors as well as the condition of the animal. Heat of fermentation can be used to some extent during cold weather to warm the animal, and increasing fiber intake during cold weather will help offset needs for additional energy. Cattle can also use body energy for maintaining body temperature. Therefore, increasing the energy concentration of the ration can also be an effective method of minimizing the effects of cold temperatures.

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