



Cattle Producer's Handbook

Factors to Consider When Feeding Grain Supplements to Beef Cattle

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Energy intake from forage is often inadequate for range cattle during periods of increased nutrient needs (late gestation, lactation, after weaning, harsh weather, etc.). Consequently, many beef cattle producers provide supplements of cereal grain(s) to their animals in order to improve or maintain acceptable levels of production.

Grains are high in starch, which is a major source of dietary energy (Table 1). However, whole grain starch digestibility is not equal for all types of cereal grains. Therefore, many grains are processed to improve starch availability and animal performance.

Grain processing also affects preference and consumption by cattle. Research with corn, sorghum, and oats suggests that beef cattle prefer, in order of preference, whole grain, cracked grain, and ground grain. As a result, "Does the grain need to be processed?" is a common question concerning grain supplementation. The answer is dependent on many variables including processing costs, type of grain, animal age, and expected animal performance.

The following discussion will concern the use of grains as energy supplements for beef cattle consuming forage-based diets. The review is limited to grains

routinely used in the western United States (corn, barley, wheat, oats, and sorghum) and to processing methods commonly available to most cow-calf producers (grinding, dry rolling, and steam rolling).

Method of Processing

Common methods of grain processing for supplementation of beef cattle consuming forage-based diets are grinding, dry rolling, and steam rolling. Other methods of processing grain are used, however, these processes are expensive and are used primarily with high concentrate diets fed to finishing cattle (steam and pressure flaking, reconstituting, extruding, etc.).

Grinding—This is a process by which a feedstuff is reduced in particle size by impact, shearing, or attrition. Grinding is normally accomplished using a hammermill, with particle size controlled by screen size, hammermill size, and moisture content of the grain. Grinding is the most common, cheapest, and simplest method of grain processing.

A major advantage of grinding compared with other processing methods is the economic feasibility of having a portable grinder/mixer available on the ranch. Potential disadvantages of grinding include increased dust, increased wastage, lower palatability (and consequently lower intake), and increased danger of ruminal disorders (i.e. acidosis) compared with whole grain.

Dry Rolling—Also known as cracking or crushing, this refers to the passing of grain between closely fitted steel rollers (without steam), which are usually grooved on the surface. The kernel is broken, resulting in a product resembling coarsely ground grain.

Table 1. Starch content of cereal grains.

Grain	Percentage starch (Dry matter basis)
Corn	72
Barley	60
Wheat	65
Oats	45
Sorghum	74