Alternative Feeds for Cattle During Drought

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Quick Facts

- Drought is a part of the normal production cycle. Dealing with dry periods and decreased feed supplies needs to be part of the overall management plan.
- In many cases, the best solution for cow/calf producers is to utilize a limit-fed, high grain diet fed in dry lot or semi-confinement.
- Since intake on concentrate diets is restricted, cattle may appear gaunt and behave as though hungry, however, after 14 to 21 days, they will adapt to the reduction in feed intake.
- Consider the full cost of alternative feeds. If you must travel a long distance to get a 'cheap' alternative feed, make sure the transportation makes financial sense.
- Feed strategically based on cattle nutritional needs individually and throughout time. You can waste money by overfeeding a cow that does not need it. Consider whether some cattle need more nutritional support than others.

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A Note on Drought

Drought is part of the normal production cycle in Colorado and integrating it into the overall management plan can help prevent financial losses, reduce stress associated with it, and lesson impacts to the health of the herd and land.

In the face of drought, producers may sell livestock to decrease herd size and grazing pressure, but alternative feeding strategies are an option for the remaining population.

Alternative Feeding Options

When deciding on an alternative feeding program, there are several options to consider. The goal is to re-breed cows while maintaining calving intervals, maintain pounds of calf produced per cow, and minimize feed cost per pound of calf sold. When considering feed options, think about the following:

- Design a feeding program to utilize local feeds fully,
- Supplement low-quality feeds correctly
- Analyze forages and feed precisely
- Substitute 1 pound of grain or other concentrate feed for 2 pounds of alfalfa hay or 3 pounds of grass hay,
- Carefully balance every ration against the animal's requirements,
- Make every effort to reduce feed losses
- Feed the highest quality feeds to animals that have higher feed requirements (i.e., growing replacement heifers or growing calves),
- Feed the lower quality roughages to cows in the middle-third stage of pregnancy (i.e., can you save money by feeding lower quality feed strategically),
- Save the better quality feeds for periods before and after calving, and
- Treat low-quality roughages with various feed additives. Additives can improve palatability and feeding quality. (Brownson, 1996).





Stretching the Hay Pile

Substitute 1 pound of grain or other concentrate feeds for 2 pounds of alfalfa hay or 3 pounds of grass hay. Do not exceed grain feeding beyond 0.4 percent of the live body weight when forage is the major component of the diet. Grain is not always practical to feed, but there are ways to feed it even in pasture or in rangeland situations. Many producers use barrels, gated pipe split in half, bunks, or old hog feeders mounted on a trailer.

Relocating the cowherd into drylot is a management alternative that may allow producers to take advantage of grains and byproduct feeds (Wright, 2002). Diets for drylot cows are formulated to meet the nutrient requirements of the cows while minimizing feed costs. As a result, intake is generally limited, and more concentrate feeds are included to cheapen the diets.

Since intake on concentrate diets is restricted, cattle may appear gaunt and behave as though hungry. After 14 to 21 days, they will adapt to the reduction in feed intake, but they may continue to appear gaunt. Cattle should adapt to highgrain diets in seven to ten days and should be observed closely during that time. A minimal amount of roughage is required to maintain rumen function. Generally, cows should receive at least 0.5 percent of their body weight as roughage (90 percent dry matter basis). Thus, a 1,200-pound cow should receive at least 6 pounds of roughage per day.



In many cases, the best alternative for cow/calf producers is to feed a limit-fed, high grain diet in dry lot or semiconfinement. The most expensive nutrient for a cow is energy (TDN). Table 1 shows the nutritional requirements and typical rations for beef cows - either a fall or spring calving cow where the calf has been weaned or a lactating cow producing 14 to 16 pounds of milk per day (calves should be creep-fed). The initial reaction of many people evaluating these diets is that cows will not survive on that small amount of feed. But it is important to keep in mind that grain is a concentrated energy source with 10 pounds of grain supplying the energy equivalent of 15 to 20 pounds of hay.

Cows should be slowly adapted to high grain feeding, just like feedlot cattle. A suggested practice is to begin with 2 to 3 pounds of whole shelled corn per head, per day and free-choice roughage. Then, increase the grain by 1 pound per day, and reduce the hay by 2 pounds each day until the final ration is attained. Make sure plenty of bunk space is provided so all cows can eat at the same time. Feed two times per day, if possible. Once the cows are switched over to the limit fed, grain-based ration, observe their body condition (fleshiness) over time and adjust the grain as needed to maintain adequate condition. Obviously, the rations shown in Table 1 represent high levels of grain feeding to minimize the amount of scarce forage used. However, other proportions of grain and roughage can be used depending on the forage supply, so long as the ration is formulated to meet the cow's nutrient requirements.



Alternative feedstuffs used to decrease the dependency on alfalfa or grass hay include harvested corn stalks, millet hay, wheat straw, sorghum-sudan, cottonseed hulls, soybean hulls, wheat middlings, and corn gluten feed. Cottonseed hulls are low in protein (3.5 percent), but equal in energy to late cut grass hay. Cottonseed hulls should be fed with 2 to 3 pounds of 30 percent to 40 percent all-natural protein supplement and mineral. The crude protein in soybean hulls ranges from 10 percent to 16 percent. Soybean hulls can be fed with hay in a 2-to-1 ratio. Wheat middlings are a good source of protein (18 percent) and energy. It is best to mix at least 5 pounds of forage with the wheat middlings. Corn gluten feed is a byproduct of the corn wet milling industry and is available in wet or dry form. It is high in protein (25 percent) and

Feeds

should be fed at a rate of 0.5 percent of body weight, with a forage source. A calciumphosphorus mineral mixture and salt should always be available to cows, especially when utilizing any alternative feeds. Vitamin A may need to be supplemented, also.



In especially dry times such as the 2018 drought in western CO, or the drought + COVID situation in 2020, you may consider unconventional feeds, depending on local availability. Examples include distiller grains, hemp pellets, or cull potatoes. As with all alternative feeds, doing a nutritional analysis is essential (see below), and thoughtful management is advised. Unconventional feeds, and switching diets to rapidly, can cause problems, and livestock must be carefully monitored. For example, where cull potatoes or other root crops are an option, consider processing them before feeding. Animals may choke on root vegetables, though this is more of an issuewhen animals are stressed and competing with others for feed. Excess sweet potatoes can cause dental caries and possibly loss of molar teeth.



Some alternative feeds like distillers grains may have a short shelf life, but you can extend this fermenting them by making "cow lasagna." This entails unrolling a round bale of the cheapest straw grass hay that you can find and spreading wet distillers grains on top, and then another bale, followed by distillers' grains. Repeat this as much as is safe (i.e. will not fall over). Then pack with a tractor to resemble a silage-like quality. Cover with a tarp or silage plastic and let it ferment for at least 30 days. As a more stable feed, you can feed wet distillers over a longer period and do not have to worry about it spoiling in 7-9 days. Though these provide a few examples of alternative feeds, as with any feed, it is essential to conduct a nutrition analysis and to evaluate if the feed alternative makes sense (see "Economic Considerations" below). Additionally, your local feed store is a good resource, as well as your county Extension agent.

Conduct a Nutritional Analysis

When considering alternative feedstuffs, conduct a nutritional analysis. In addition, test for nitrates in annual forages, including sorghums and for prussic acid levels in sorghums, sudans, and sorghum-sudan varieties. (See fact sheets <u>1.610, Nitrate Poisoning</u> and <u>1.612, Prussic Acid Poisoning</u>.)







Economic Considerations

The economic viability of using alternative feeds is a key consideration. Hay prices average \$200-240/ ton in western Colorado. Upon the onset of drought conditions, hay prices often increase and may become scarce. Keep an eye on local hay availability and prices at the first signs of drought. For example, if you learn of a cheaper alternative feed, consider the location of the feed source and the transportation costs to obtain the feed. If you produce high-quality hay, it may be financially viable for you to sell the high-quality hay at a premium price and purchase lower-quality hay to feed for extended periods. Feed prices and cattle prices fluctuate, and there is no one-size-fits all solution, but general considerations with regards to economics can help maintain financial sustainability and herd health in drought. For information and resources to help you make cost-effective decisions regarding alternative feeds during drought, visit the <u>CSU Extension Decision Tools Page</u>.

Planning for Spring Forage

Spring forage is always a premium. Small grains, such as cereal rye, triticale, or oats, can be used to fill the void of spring forage. In planning for next year, plant these varieties in August or September to provide forage the following spring. Keep in mind that nitrates may be an issue if the annual forage has been stressed (drought, wind, excessive soil nitrogen, shade, frost, certain herbicides, acid soils, low growing temperatures, and nutrient deficiencies), and be sure to have the forage tested for nitrates. Up to a threshold, high nitrate forages are consumable by diluting them with other feedstuffs and supplementing with energy (fact sheet <u>1.610, Nitrate Poisoning</u>).



Planning for Summer Forage

Plant sorghum-sudan for summer grazing. Sorghum-sudan uses less water than corn and produces enough forage for two to three cuttings or grazing rotations. However, care must be taken when grazing or harvesting sorghum-sudan. Sorghum-sudan is susceptible to prussic acid accumulation. Prussic acid accumulates in stressed plants. The stress may be a result of drought, a freeze, excessive fertilization, or wind. Grazing on stunted plants during drought is the most common cause of poisoning of livestock by prussic acid-producing plants. Management of sorghum-sudan includes:

- No grazing or green chopping for several days after a killing frost,
- No grazing until the regrowth of shoots is 15 to 18 inches tall,
- Make sure that animals are not hungry and turn them in later in the day, and
- Dilute with grass or alfalfa hay.

Other forages that can be planted for summer grazing are millets, teff, Italian rye or oats. They can also be grazed in the fall. Planning for fall forages can be critical during drought years as lack of water and forage may force some producers to come off of the rangelands and summer pastures early. Planning in advance ensures that there is ample grazable forage available for the livestock.

Planning for Fall Forage

In June, plant winter varieties of rye, triticale or wheat. In addition, plant oats, sorghumsudan, teff or canola. Turnips planted in late summer/early fall can be grazed late fall and into winter.

Additional feeding and harvesting strategies include windrow grazing, stockpiling forage, ammoniation of forages, and adding liquid supplementation to the forage.

Drought is a part of the normal production cycle and needs to be part of the overall management plan. Preparing for these dry periods and decreased feed supplies is essential. Alternative forages can help bridge the gap and reduce financial losses. For resources on comprehensive drought planning for the ranch, see the <u>Drought Outlook webpage</u>.



Table 1. Possible high grain rations for dry and lactating cows

Dry Cows

1. Requirements TDN - 9.2 lbs Protein - 1.3 lbs Phosphorus - 16 grams Calcium - 16 grams Vitamin A - 25,000 IU

2. Possible Ration Corn - 10 lbs Hay^{**} - 3 lbs Soybean Meal - 0.5 lbs Free Choice Mineral (high calcium feedlot type with Vitamin A)

Lactating Cows - 1050 lbs*

1. Requirements TDN - 13 lbs. Protein - 2.3 lbs. Phosphorus - 24 grams Calcium - 32 grams Vitamin A - 40,000 IU

2. Possible Ration
Corn - 13 lbs.
Hay** - 4 lbs.
Soybean Meal - 2 lbs.
Free Choice Mineral (high calcium feedlot type with Vitamin A)

* For each 100-pound increase in body weight, increase TDN by .7 pound and protein by .1 pound per day.

** Assumes average to poor quality grass hay, or crop residues. If good alfalfa hay is fed, no supplemental protein is needed by the dry cow and the lactating cow would need only 1 pound of soybean meal or equivalent. Urea can be used as the protein source in these rations due to the higher energy level.

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References

- Brownson, R. 1996. Beef Cattle Feed Management During a Drought. CL1130. Cow-Calf Management Guide and Cattle Producer's Library. University of Idaho, Moscow, ID.
- Stanton, T. 1994. Colorado State University fact sheet 1.610, Nitrate Poisoning in Livestock. Fort Collins, CO.
- Stanton, T. 1994. Colorado State University fact sheet 1.612, Prussic Acid Poisoning in Livestock. Fort Collins, CO.
- Wright, C., 2002. Limit-Feeding Cows in a Drylot. ExEx 2032. South Dakota State University Extension Extra. Brookings, SD.

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