

## Nutritional Considerations in Drought Events

Drought events have occurred in the US each of the past 5 years in some area of the country and some cases more often. Cowherds become particularly venerable. With the present day value of calves alternatives should be considered rather than selling part of the cowherd.

Energy is the nutrient needed in greatest quantity by cows, particularly during a drought. The cowherd's energy needs maybe satisfied in different ways. The type of feed is not as important as the cattle receiving proper daily amounts of energy. Cow calf producers that normally use forages, such as hay grown on their farm or ranch and when drought diminishes forage production producers can consider other options. Purchased hay may be more expensive that grains or by-product available on an energy basis. Hay is an option but other options exist. Cows can be wintered on corn, corn gluten feed, hominy and other by-products. Producers should explore all options on a cost per energy basis before committing to a hay program.

Drought event results in reduced forage in grazing areas and may result in early weaning of calves. The protein needs of the young growing calf has been compromised during drought events. The protein deficiency results in poor growth due to the reduced milking ability of the cows and lower protein available through the forage. The protein deficiency will result in lower resistance to disease when calves are exposed to the common virus and bacteria. In some cases, calves that are extreme protein deficient may not respond well to vaccine during the background period or at weaning.

Calves moving from drought areas to feedlots will possibly have nutritional deficiencies:

- ? Protein should be considered as to level and type. The dry matter protein of the receiving diet should be at least 14 % and higher for calves less than 500 pounds. The total protein should be limited to 15 to 20 % of the protein from non-protein nitrogen (NPN).
- ? Vitamin A and E storage in the liver is reduced or devoid and deficiency of vitamin A and E may occur, Liver storage of vitamin A and E occurs when there is adequate green forage. Green growing forage contains carotene that is a precursor to vitamin A and tocopherols that are precursors to vitamin E.
- ? Feeder cattle from drought areas should consider a Vitamin A and E injection.
- ? High biological available trace mineral such as organic forms should be considered to be added to the feed. Trace minerals are important to the immune system and highly available sources of trace minerals should be considered.

Consider early weaning of calves when drought conditions requires supplement feeding. When forage is in short supply, then begin supplementing cows as soon as possible. Dry standing forage will be low in protein and protein supplementation should be considered as long as there is available dry forage. Table 1 illustrates the expected intake of cows grazing different quality forages.

Table 1.

Forage Quality	Intake as % of Body Weight	
	Dry Bred	Lactating
High		
No Supplement	2.5	2.7
Protein Supplement	2.5	2.7
Energy Supplement	2.5	2.7
Medium		
No Supplement	2.0	2.3
Protein Supplement	2.2	2.5
Energy Supplement	2.0	2.3
Poor		
No Supplement	1.5	2.0
Protein Supplement	1.8	2.2
Energy Supplement	1.5	2.0

- ? High quality forages would be forages that are 10 to 12 % protein and green and growing with adequate amounts. The high quality forages do not require protein and energy supplementation. Intake is not affected by supplementation.
- ? Medium quality forages are forages that are 6 to 10 % protein. The intake for these forages can be increased with supplemental protein, however energy supplements do not normally increase forage intake.
- ? Poor quality forages lower than 6 % protein. These forages are responsive to protein supplementation however, the intakes are low and a protein energy supplementation is recommended.

Drought can produce low quality forage and decrease availability. A protein and energy supplement is recommend when there is poor quality forage. Corn should be considered but corn contains 75 % starch when high levels of starch can be fed as an energy supplement, forage intake is not increased and in some cases forage intake may be reduced. Forage extenders that are high in digestible fiber such as soyhulls can be used effectively during drought events. Byproduct feeds such as soy hulls, citrus pulp, wheat middlings, corn gluten feed and rice mild feed contain highly digestible fiber and less than 35 % starch.

Limit feeding of high concentrates to cows has been suggested as an alternative to feeding hay during periods when hay is costly or not available. The concentrate should be

introduced slowly and hay decreased over a 2 to 3 week period. Adequate bunk space must be available when limit feeding cows. At least 30 inches per cow is necessary so that all cows will have a uniform intake. Hay should be fed as 0.25 to 0.50 % of body weight. Feeding less hay might reduce cost but management intensifies. Cattle should be fed the same time every day. Calculate the cows needs and supply the energy and protein with the concentrate (corn). The amount fed will be a small amount and cows will appear hungry for a few days after the limited feeding begins. Monitor body conditions and change the amount fed appropriately. Limited feeding of grain can be successfully accomplished but management increases. Table2 illustrates some diets that can be fed to cows.

Table 2.High concentration ration (lbs/head/day)

	Corn	Alfalfa Hay (15% CP)	Poor Quality Forage
Middle 1/3 of pregnancy and calves weaned	4	11	5
Last 1/3 of pregnancy	4	12	5
Lactation	6	15	5

These rations will not satisfy a cow's appetite and appear will hungry and underfed. Adding more poor quality roughage (4.5 CP) will satisfy cows but will add cost

Products that increase the energy utilization from the forage should be considered. Ionophores such as; lasalocid (Bovetec®), monensin (Rumensin®) or bambermyc in (Gainpro™) are approved feed additives that improve forage utilization. These products improve energy from forages. The use of ionophores should be considered, approximately 1– 2 less hay can be fed and the cows will receive the same amount of energy if consumed an extra 1 – 2 pounds of hay.

Fibolytic enzymes are natural products increase energy from forages and are available to producers. Fibolytic enzymes increase the digestibility of fiber from forages.

Evaluate supplemental feed needs and calculate the most economically system that allows the cows to maintain weight through drought events.