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AgriLIFE EXTENSION
Texas A&M System

Supplemental Feeding

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When forage quality and/or quantity is affected by drought, livestock producers are usually faced with decisions about supplemental feeding. First, they must determine whether they can afford to supplement, and if so, then decide what to supplement and how to manage feeding.

If the drought continues or worsens, they will also need to decide when to stop supplementing and start selling livestock.

Whether to supplement

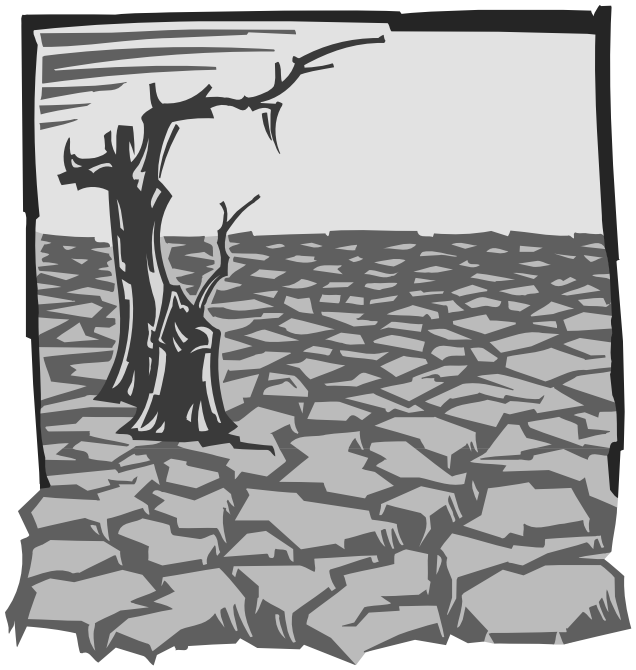
When deciding whether or not to feed during a drought, the first question a producer should ask is, "Can I afford to meet the animal's nutrient requirements?" rather than, "How much can I afford to spend on feed?" (and hope that whatever is in it does the job).

A good place to start is with a monitoring program for animal body condition. As always, this should be a routine part of management. To further define what specific dietary nutrients may be lacking and in turn, what kind and how much of the supplement might remedy the problem, livestock managers can use additional tools such as forage testing and fecal analysis. Results of these tests can indicate the diet quality of free-ranging animals.

For more information on these technologies see:
http://cnrit.tamu.edu/ganlab/ and
http://soilcrop.tamu.edu/soiltest/index.html

Supplementation in relation to forage quality and quantity

The goal of a supplemental feeding program is to augment a forage-based diet. Therefore, having a proper stocking rate is critical, because even in drought situations, the majority of dry matter consumed by livestock should come from pasture forage.



This typically means adjusting stocking rate to a level appropriate for forage supply, and then supplementing protein to improve diet quality and forage consumption. In planning, remember that an average 1,000-pound cow will consume 20 to 30 pounds of dry forage per day or 2 to 3 percent of her body weight.

Either hay or high energy supplements may be used to extend or partially replace existing forage supplies. Note, however, that this comes at higher cost, and when more than 3 pounds of high energy supplements are used, it results in lower efficiency of feed conversion.

Therefore, this technique is probably best reserved for specific, short-term situations. Supplementing large amounts of energy in any form for long periods is usually uneconomical.

Remember also that if high-energy grain supplements are chosen to compensate for short grass (probably being fed at more than 2 to 3 pounds per day), feeding frequency may affect animal performance. Feed grain supplements daily (as opposed to skipping days and increasing amounts). This will help keep acidosis problems in check and minimize the inhibitory effects of grain on digestibility of pasture forage.

As an alternative, supplements that are high in digestible fiber, such as wheat mids, soybean hulls, peanut skins, etc., can also be used to extend forage supplies. These supplements provide energy, but because they are lower in starch, they lessen undesirable effects on the digestibility of pasture forage.

For more information, see Extension publication B-6067, *Supplementation Strategies for Beef Cattle.*

What to supplement

When evaluating supplements, remember that there are no "magic bullets." Animals will perform as long as the supplement compensates for the nutrients that are lacking in the diet.

A dry cow or ewe requires a minimum of 7 percent crude protein in her diet just to keep the digestive system microbes healthy and working on forage digestion. Therefore, the first limiting nutrient in dormant or drought-stressed forage is usually protein.

When evaluating supplements, the most important factors to consider are nutrient content and price per pound of nutrient(s) in the supplement. To choose the right one for your herd, you need to not only calculate the cost per pound of supplement, but also consider the supply and quality of available forage.

For example: You are comparing two types of cubes to add crude protein to the livestock diet. One cube contains 38 percent crude protein, the other 20 percent. Which is the better buy?

First, calculate the cost per pound of crude protein. The 38-percent cube provides 760 pounds of crude protein per ton of bulk feed; at $280 per ton, it costs $0.37 to provide a pound of protein. The 20 percent cube provides 400 pounds of actual protein per ton of bulk feed; at $210 per ton, it costs $0.53 to provide a pound of crude protein.

If protein were the only concern, then the 38 percent cube would be the better buy. However, if grass is not only dormant but also in short supply, then the 20 percent cube, fed at twice the rate, would probably be a more complete feed because it would provide some extra energy as well. Note however, that this would add 30 percent to the overall cost of the supplemental feeding program.

The form of supplement—be it block, tub, cube, meal, etc.—is unimportant as long as the animal consumes enough of it to compensate for nutrients lacking in the pasture diet. If animal supplemental requirements are particularly high, some types of self-fed supplements may limit intake to a level below what is needed.

Molasses is another energy supplement that is often used to stretch forage supplies. It is convenient because it can be self-fed, and in most cases it also contains some type of protein additive.

Be cautious: Some pre-formulated molasses supplements may use high levels of nonprotein nitrogen (NPN), such as urea, as their primary "protein" source. High NPN supplements are not drought supplements. If and when they are used, it should be in situations such as this: forage is abundant, but dormant; dietary protein requirements are low (dry mature females); and protein deficiency is only minor.

Feed management tips

Sort and feed livestock by age, body condition and production status (growing vs. mature, lactating vs. nonlactating, etc.).

If reductions in stocking rates are needed, begin by culling the open cows, or dry spring and summer ewes. If numbers need to be reduced further, follow by culling lactating females in poor body condition (they probably won't re-breed anyway).

Other feed management tips include:

- Buy and store feed in bulk. You can sometimes trim a few dollars by forward contracting.
- Feed protein supplements less often. Supplements high in natural protein may be fed as infrequently as twice or even once per week. Conversely, feed high-energy supplements daily to avoid chances of acidosis.
- Use a good 1:1 calcium-to-phosphorus mineral.
- Inject vitamin A or provide it in frequently fed supplements if it has been more than 3 to 4 months since the diet has included any green forage.

In many situations, supplementation strategies are just a best guess, unless something is known about diet quality in relation to animal requirements. A lot of that guesswork can be removed by using some of the previously discussed technologies that predict pasture diet quality.

Knowing diet quality can help you evaluate supplements for their biological benefits to the animal. Livestock and feed prices will tell you if that answer is economically feasible.

Other drought-management publications include:

E-61, *Rangeland Drought Management for Texans: Planning: The Key to Surviving Drought*

E-62, *Rangeland Drought Management for Texans: Livestock Management*

E-64, *Rangeland Drought Management for Texans: Stocking Rate and Grazing Management*

E-65, *Rangeland Drought Management for Texans: Toxic Range Plants*

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Extension publications can be found on the web at http://AgriLifebookstore.org

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