



## Preparing for the Next Drought

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Hindsight, as they say, is 20-20. Be that as it may, it is quite possible that you find yourself in the middle of a drought and are wondering what steps to take to minimize the negative effects of a drought the next time around. And believe me, there *will be* a next time.

Unless the production system is irrigated, drought will always be part of the risk associated with forage production, and by extension, livestock production. One immediate, and dramatic, strategy that can mitigate the negative effects of future drought events is to adjust the stocking rate of the cow herd down to the point where only 75% of the available forage is utilized. This stocking rate *should* be based on several years' observations of how much forage is produced under typical management strategies. Therefore, a forage sampling program that provides information on the amount of forage produced annually from each pasture should be initiated. Although one year of information will seldom provide the information required, it is a start.

When stocked at 75%, livestock producers will typically not be overstocked during drought years. This will prevent having to purchase hay at elevated prices while attempting to "feed your way out of a drought" during years with below normal precipitation. The 75% stocking rate will also reduce the need to sell stock at a time when many other producers will likely be selling their stock. During years of good forage production, stocker calves may be used as flex grazers to utilize excess forage. Calves may come from the producer's own herd wherein calves are weaned and pastured until the excess forage is utilized. Calves may also be purchased and pastured in the same manner. Pasture may also be provided for other producers looking for additional forage and charged based on the quantity of gain realized or on a per-head per-month basis. Excess forage in good years may also be harvested and conserved as hay, or sold to local hay producers wishing to harvest more acres.

Forages should never be grazed "to the roots" under any circumstance; removal of most or all green photosynthetic material (leaves) deprives the plant of the ability to convert sunlight into carbohydrates (energy) vital to plant growth. Decreased carbohydrate production results in decreased root production, thus reducing the plant's ability to obtain necessary moisture and nutrients from the soil profile. The relationship between leaves and roots is critical at all times, but much more so during periods of moisture stress. Therefore, it is important that an adequate level of forage residue be left in the pasture. Besides allowing the plant to carry out optimum photosynthetic activity, adequate forage residue also reduces the amount of soil evaporation of vital moisture and allows for better infiltration of any precipitation that is received, rather than being lost as overland flow from the site. Pastures where there is little or no forage residue have very low infiltration rates of precipitation and most of the moisture received leaves the site as

runoff. For bermudagrass, a target residue height should probably be no less than 4" in height; other species will be different depending on their growth habit. Sod forming grasses may generally be grazed to a shorter height than bunch grasses, and some of the tall grasses should not be grazed shorter than 8" to 10". NOTE: Close grazing usually occurs *during* drought, but this same close grazing impairs forage grass recovery *from* drought.

During drought, hay supplies are in short supply and are higher priced. Emergency supplies of hay should generally be purchased early in the season when prices are typically lower. Waiting until the need for hay becomes apparent only increases your feeding costs unnecessarily. To stretch limited hay supplies, use corn or other plant by-products as substitutes for hay. Remember, however, that forage roughage should comprise 50% of the diet. Corn will substitute for good quality hay typically at a 1:2.25 ratio. That is, one lb of corn will take the place of 2.25 lbs of hay. An example of the substitution would be to use 450 lbs to substitute for a 1000-lb round bale of hay. Be aware, however, that attempting to "feed your way out of a drought" can be very expensive and is difficult to recover from in an economical sense. Don't be afraid to sell cattle when the need arises!

Fertilizer is never inexpensive, but during 2005 all fertilizer nutrients have increased in cost dramatically compared with 2004 prices. Thus, the first inclination of forage and forage-based livestock producers is to withhold fertilizer during a time of drought. This is seldom a wise strategy. Maintaining the proper soil nutrient status helps forage plants tolerate and survive drought better than plants that do not have proper nutrients for optimum growth. While nitrogen is generally the most limiting factor to plant protection behind moisture, phosphorus is critically important for root development and overall vigor of the plant. Potassium is an essential element for plant production and is important in water use relations. Plants that receive adequate potassium can tolerate drought better than plants that do not. Thus, a well-balanced fertility program can help plants survive drought better than plants that are poorly fertilized or not fertilized at all. Good fertility will also enable drought stressed plants to recover more rapidly after the drought has ended.

If fertilizer has already been applied, but there has been no significant precipitation, the fertilizer is still in the upper soil profile. With the exception of urea as a nitrogen source, which is subject to volatilization loss as ammonia gas to the atmosphere under certain conditions, the fertilizer investment in the pasture program will not have been wasted. When precipitation does occur, the plant will re-initiate growth and plant uptake of the fertilizer nutrients will take place.

If fertilizer has not been applied, the tendency of many producers is to take a "wait and see" attitude regarding a break in the prevailing dry weather pattern. This strategy reduces financial risk but may result in missing the first good precipitation event. The "miss" occurs because when it becomes apparent that rain is on its way, many producers will be requesting fertilizer at the same time, but fertilizer dealers may not be able to service all requests for fertilizer application due to the increased demand. Some producers actually wait until the first precipitation event and then assume the drought is over and that fertilizer can then be applied any time thereafter. These producers are known as "two rain" producers. It takes one rain to motivate them to action and then a second rain to actually move the fertilizer into the soil profile. Unfortunately, in many instances, the second rain does not come for a long period. Pay attention

to weather forecasts and if there appears that the pattern may change and offer a higher potential for precipitation, make every attempt to get the fertilizer in the field before that first rain.

In summary, the following key points should be remembered regarding preparation for the next, and inevitable, drought event. Paying attention to these points can help forage and livestock producers to reduce the negative effects of drought.

- 🔑 Realize that drought will always be part of the risk associated with forage and livestock production; no one is immune.
- 🔑 For livestock producers, attempting to feed their way out of a drought with hay, plant by-products, or grain-based rations, remember that this strategy may not be economically viable and careful consideration should be given as to whether or not this strategy should be attempted.
- 🔑 The cow herd should be stocked for 75% utilization of the forage produced based on long-term records.
- 🔑 Well-fertilized forages tolerate drought better than poorly fertilized forages.
- 🔑 Well-fertilized forages recover from drought more rapidly than poorly fertilized forages.
- 🔑 It is generally better to have fertilizer in the field waiting on a precipitation event, than to withhold fertilizer until “times get better”.
- 🔑 Do not be afraid to sell cows. Cull deeply before the drought becomes too severe.