

# Cattle and Grazing Management Strategies for Surviving Serious Droughts

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Droughts are a reality in the cattle business. In south Texas, records show that about 38% of years between 1950 and 1997 were drought years. In 2009, the old-timers here attested that it was the worst drought since the 1950's. Whether or not they were right, we (the co-authors who are business partners) were very relieved when it was over. As a result of careful planning, we did not have to feed hay or sell any cows. The price however was \$160 per cow in supplemental feed costs, but in the following year all of our cows calved, so it was a good investment of both capital and labor. We also learned from our experiences by becoming better grass farmers. And now only two years later weather experts state that 2011 has been the worst recorded drought year in Texas history. By mid-September, the south Texas region was over 13 inches below "normal". The average figure is 26 inches. Is there any such thing as a normal rain year?

Unfortunately, the local hay supply is now exhausted. Hay is presently selling for about \$100 per bale. Some ranchers are cutting hay on any idle land that they can find, even if only one bale for every 2 to 3 acres is harvested. No doubt a sign of desperation. Some of our neighbors have been feeding hay continuously since the 2009 drought. Although 2010 was a good year for rain, those ranchers who practiced poor grazing management, which did not allow pastures to recover, still did not have enough forage for their cattle. Certainly a sign of a business that is losing money!

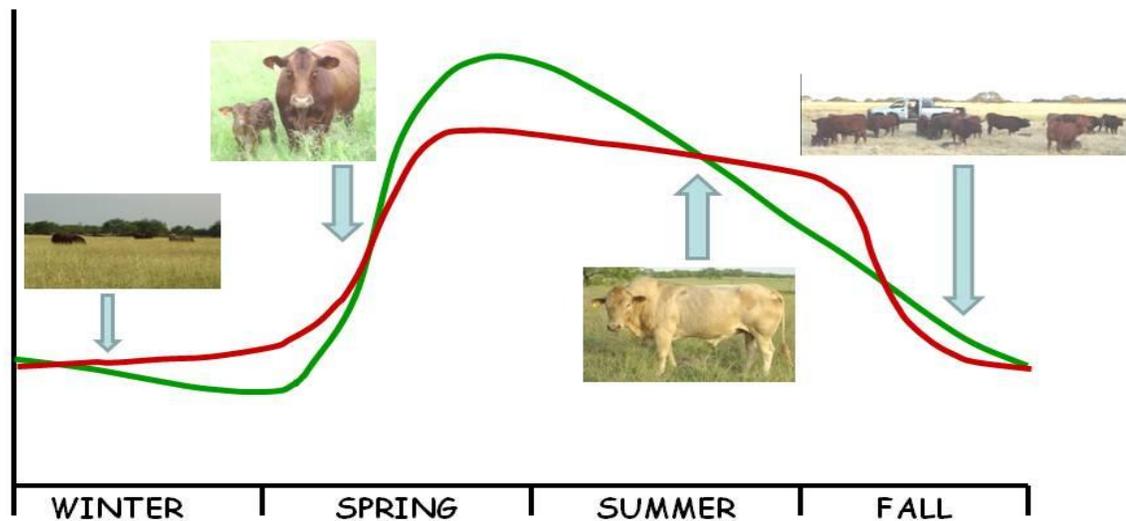
Of course, a serious drought is a painful experience, especially to ranchers who have been left with no choice but to sell good bulls and cows, even their entire herd. Our hearts also sincerely go out to fellow Texans who lost their herds from the terrible recent wildfires.

The purpose for this article is to share with others some strategies to minimize the adverse effects of drought based on our experiences. We wish to approach these strategies in the following list:

- 1) **Work with Nature.** First and foremost, match the forage supply with cow's nutritional requirements. This concept should apply to any cow-calf operation, and regardless of whether or not it is a drought year. Nonetheless, this concept will pay back big dividends in drought years. The figure below reflects the essence of working with Nature in terms of timely calving when cows have the opportunity to consume green forage BEFORE they calve, which also avoids calves being born during blizzards or heat waves. This schedule requires that breeding occurs in the summer (mid-July through August). This is the real challenge to this system because in south Texas many bulls are not fertile in the summer. High temperatures can also cause embryonic mortality within the first 60 days after conception. Both potential problems are especially likely if bulls and cows are black-hided. At Lukefahr Ranch, bulls are fertility tested prior to cow turn-out. To date, most "STAR" bulls tested have had between 85 and 95% live/normal sperm scores. Moreover, being heat tolerant, matings even occur in the afternoons at 100 degree temperatures. Another example of working with Nature was in 2010 when there were ample rains. The feed

cost was only \$41 per cow. No energy supplements were provided (mostly some cottonseeds or cubes were fed in the winter). Of course, mineral supplements should always be provided.

Figure 1. Matching forage supply with cow's nutritional requirements (green line: forage supply; red line: cow's nutritional (TDN) requirements).



Calve in May - Breed in late July-August - Wean in Oct.-Nov.

(Modified figure from Kit Pharo.)

2) **Use heat tolerant and drought adapted genetics.** At Lukefahr Ranch, a composite herd of “STAR” cattle has been developed based on Senepol, Tuli, and Red Angus breeds. Senepol was developed on the island of St. Croix in the Caribbean, based on crossings of N’Dama cows to Red Poll bulls. N’dama is a breed from West Africa. Tuli originated in Zimbabwe. Both N’dama and Tuli breeds evolved in Africa for over 5,000 years, being subjected to the harsh elements of the tropical environment. Natural selection genetically molded these cattle to become heat resistant and drought adapted. In addition, N’dama and Tuli cattle were never traditionally fed feed supplements; they easily fattened on grass. There is also no extremism in degree of bone, flesh or mature body size or in milk production level, which is the recipe for easy care cows.

3) **Maintain a controlled breeding season.** Tight control of the breeding season is paramount. In 2010, all calves but one were born within 21 days, and in 2011 all calves (except AI calves born a month earlier from first-time heifers) were born within 42 days. It is less stressful to management to wean calves at one time of the year. It is also cheaper to take one trip to the auction and to feed only dry cows in the winter. With rising production costs it is important that such cost saving measures be adopted. The traditional practice of having calves born every month of the year offers little opportunity for management to practice good management!

4) **Maintain a conservative stocking rate.** In our operation, the stocking rate is about eight acres per cow. Rotational grazing is practiced on mostly leased land. There is less risk involved in leasing land. One example is if one has to vacate a lease due to drought, the property is the sole responsibility of the landowner. In rotational grazing, cattle are moved to a fresh, rested pasture before they graze half of the available forage (ergo take half and leave half). Many of our neighbors provide only about two acres per cow while practicing continuous grazing management, which is a sure recipe for disaster in the next drought. Over the years, our rotational grazing system has ushered in the return of native grass, forb, and legume species. A polyculture pasture is more robust to the adverse effects of drought than a monoculture one.

5) **Stockpile, stockpile, stockpile!** This year, our cattle have mostly been grazing forage that was stockpiled last fall. No hay or energy supplements have been provided this year to mature cows. Out of some 25 pastures, only three pastures are usually being grazed at any one time. In a drought it is important that the integrity of the plant community is not compromised by overgrazing or a rest period that is too short. Plants are already stressed enough from drought conditions. It is also important to continue to monitor pasture response in terms of productivity in order to make timely grazing management decisions that will affect pasture and animal responses for several months ahead. Flexibility is the key! Ignore your calendar and instead make timely decisions based on factors such as the effects of the most recent rains, or the lack thereof in the case of drought.

6) **Regularly monitor forage supply.** At least every season, we estimate the quantity of forage available in pastures. Again, it is critical that at least 50% of the forage supply is not grazed but rather is reserved for future grazing. Of course, this means that cattle must be moved to another pasture in a timely manner. In October of 2010, it was estimated that there was 4,282 pounds per acre of forage. Let's do some math here. Figure that only half of the forage will be consumed. In a 100-acre pasture this would provide 214,100 of forage. Also figure that you have 40 cows that each consume 25 pounds of dry forage in a day. This relates to one-half ton of forage consumed daily. By dividing 214,100 by 1000, an estimate of 214 days is targeted for the 100-acre pasture. Of course, depending largely on rain activity during this period, mathematical adjustments can be made accordingly.

Ultimately, such an effort can lead to healthier plant communities that are more resilient to drought and that recover more rapidly, and be more productive in response to favorable moisture conditions once the drought is over. Presently, pastures are carrying about 2,500 pounds per acre. The basic challenge is for the rancher to properly safeguard the integrity of the plant communities and the herd in order to re-establish the production cycle following the drought.

7) **Regularly monitor cow body condition.** One of the most important skills a rancher can learn is how to body condition score (BCS) cows. The range is from 1 to 9 with 1 being an emaciated cow and 9 being an obese cow. A useful website with photo examples is available at North Dakota State University (<http://www.ag.ndsu.edu/pubs/ansci/beef/as1026w.htm>). Of course the ability to BCS cows is a learned skill that requires a lot of practice to be both accurate and consistent. Just as pastures are monitored every season, cows are visually inspected and a BCS is recorded.

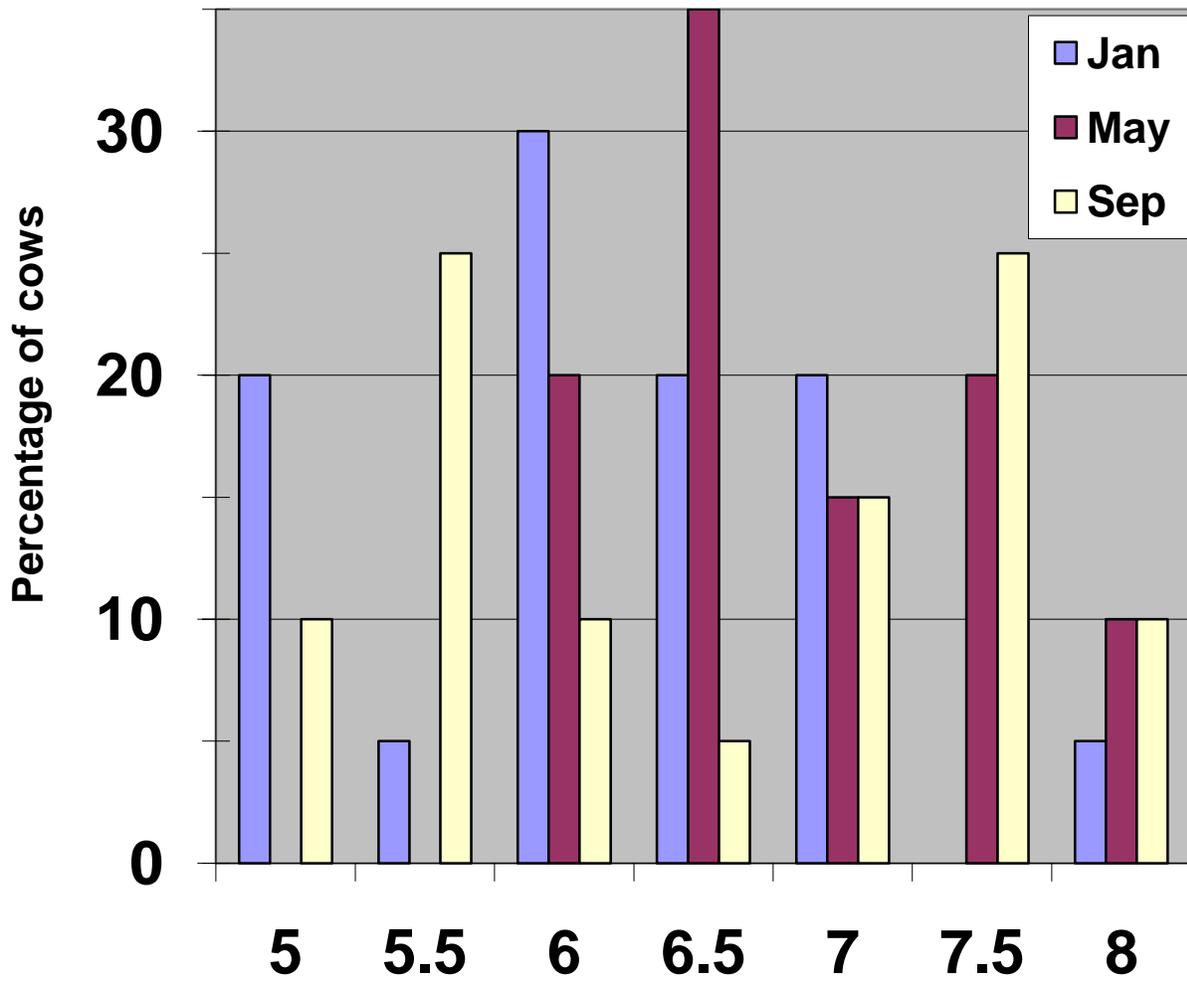
One goal is for cows to attain a minimum BCS of 6 before winter sets in. In most years, calves are weaned after the first fall rains occur so that cows have a large window of opportunity to regain flesh and fat before the first freeze occurs that results in a reduction in forage quality.

In the case of drought, early weaning of calves whose dams have a BCS of 5 is another good strategy. A cow with a BCS of less than 5 has a low chance of conceiving, and it is also more difficult for a thin cow to regain flesh and fat without major feeding of costly supplements. In a serious drought, these thin cows as well as older cows are prime candidates for culling.

During the present drought, in mid-August our area received only 6/10 inches of rain that resulted in some cows improving their BCS by a ½ score or higher. Again, the pastures responded because the plant community was healthy. This was also a great test to determine which cows in the herd are true easy care keepers! Two years ago, we sold a bull calf that was raised by the fattest cow during the 2009 drought to a good friend and successful grazer. It is eagerly anticipated that those good genes will soon become widespread in his herd.

In the figure below, a chart illustrates how to monitor BCS trends. For example, the figure confirms another goal for cows to all have a minimum BCS of 6 at calving time to ensure rebreeding success. During this severe drought, between spring and summer, some cows were able to maintain BCS's between 7 and 8 while raising good calves! Obviously, these are true easy keepers.

Figure 2. Body condition scores of mature cows in winter, spring, and summer of 2011.



In conclusion, going through serious droughts can produce the best of planners and managers for those ranchers who make a genuine effort. In the drought of 2009 it was not necessary to feed hay or destock the herd, but it was costly to feed supplements. In 2011 it is anticipated that it will again not be necessary to feed hay or destock the herd, and we expect to avoid use of costly feed supplements. However, due to the severity of the present drought it is also anticipated that grazing pressure will need to be reduced since forage production was severely affected in some pastures where stockpiling will likely not be possible. We have been searching for more land to lease in order to support sustainability of the plant communities without adversely affecting cattle productivity.

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