The Latest Paradigm Shift For Ranchers Is A Profit Every Year Even In A Severe Drought

By Steven D. Lukefahr

KINGSVILLE, Texas: Since 1994, I have maintained a small cattle operation in south Texas. In 2012, I began the year with an inventory of 50 cows and breeding heifers on a little more than 500 acres of mostly leased land. Since 2002, I have not fed hay after reducing stocking rates by over 50%. I also implemented a rotational grazing system and adopted a low-input production system using adaptable cattle genetics.

However, in the wake of years of extreme to exceptional drought since 2009, it has become evident that my beef cattle business must now have a focus on drought management using a holistic approach. I have recently redefined my business goal. It is now to make a profit every year - even in years of drought.

To realize this goal, several key aspects of the business must be integrated into a holistic model of drought management. Each of these aspects entails critical factors that relate or connect to drought management. These key aspects include: Genetics, Herd Management, Forage and Land, Low-input System, and Business Decisions. The purpose of this article is to describe each of these aspects based on over 15 years of experience in coping with drought conditions.

Analogies of this holistic model are parts of an engine or pieces of a puzzle. Needless to say, if even one part of an engine is missing the engine will simply not run. Likewise, I know that if any aspect or part of an aspect is not appropriately addressed or ignored my entire operation could be at serious risk of business failure. As a visual guide to the model, see the graph on page 2.

GENETICS

As presented in previous articles appearing in the Stockman Grass Farmer (Nov. '11 and Nov. '12), at Lukefahr Ranch a composite herd of “STAR” cattle has been developed based on Red Angus, Senepol and Tuli breeds. Angus is a reputable breed but red color

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don offers more heat resistance than black color. Senepol was developed on the island of St. Croix in the Caribbean, based on crossings of N'Dama cows to Red Poll bulls.

Both N'Dama and Tull are Bos taurus breeds that evolved over 5,000 years in Africa. These cattle were exposed to the harsh elements - climactic, nutritional and parasitic - posed by the tropical environment. Nature molded these cattle into tough genotypes, being both heat resistant and drought adapted.

In addition, N'Dama and Tull cattle were not traditionally fed dietary supplements; they subsisted entirely on grass. Nor is there extremism in the amount of bone, flesh or milk or in mature body size, which is the recipe for easy care cows. In the Tull breed it is not unusual for cows to produce calves every year for 20 or more years.

This unique combination of breed genotypes (in addition to hybrid vigor) has resulted in STAR cattle that maintain high fertility levels (100% in most years) and good body condition during persistent drought. Also, daytime summer grazing is the norm. These slick-haired cattle are also very fly resistant. Many visitors have been impressed too by the gentle nature of these cattle.

HERD MANAGEMENT

Besides utilizing appropriate genetics, it is essential to work with Nature. In 2009 a hard lesson was learned when cows mostly calved in March when there was less than one inch of rain received from January through March, and especially when only about one and one-half inches were received during the entire spring.

By calving too early in the year, cows dropped in condition, which only worsened later due to the spring drought. It became necessary to provide costly energy and protein supplements to extricate cows from this nutritional predicament (by keeping them at a minimal BCS of 5) so that they would later rebreed. As a consequence, the feed cost per cow was $185 in 2009.

Since 2010, calving occurred mostly in May. In 2010, 2011, and 2012, feed costs dramatically dropped to $44, $44, and $16 per cow. Both 2011 and 2012 were serious drought years. Indeed, I learned my lesson.

Even if there is some moisture in the ground from the winter but no significant spring rains, the increasingly higher temperatures will likely result in some green-up of forage so that cows can ideally be at a minimum body condition score (BCS) of 6 before calving. Among other advantages, this practice will help to ensure that cows will readily rebreed some.
three months later. Also, calves are not born in freezing or hot temperatures.

Bulls are turned out with cows from mid-July through August. Typically, bulls are fertility tested prior to turn-out. STAR bulls tested to date, have had live/normal sperm scores between 85 and 95 percent.

The genetics for heat tolerance certainly pays off in terms of using bulls with both high fertility and sex drive during this brutal time of year in south Texas. Moreover, being heat tolerant, matings occur even in the afternoons at above 100 degree F temperatures.

Calves are weaned not according to the calendar but rather at the onset of fall rains. This is another critical way of working with Nature. The forage flush or green regrowth will give cows an opportunity to recoup condition before winter such that feed costs will again be kept to a minimum throughout the winter season. Being in the dry-maintenance stage is important because this is the time in the cow’s production cycle that she has the lowest nutritional requirements.

However, in years of exceptional drought, calves have been weaned as early as three months of age. This practice minimized feed costs of cows and maintained BCS to ensure timely rebreeding success.

Early weaning was practiced most recently in 2012. Subsequently, spring 2013 calving results were 97.0 percent cows calving per total cows exposed with 81.5 percent cows calving within 28 days (April 27-May 24) based on conceptions during the 1st heat cycle.

The above discussion is reflected in Figure 2 on page 4 that shows the natural seasonal cycle as related to forage quality and the cow’s nutritional (TDN) needs.

**FORAGE AND LAND**

As stated at the beginning of this article, I lease a little over 500 acres. In 2012, the stocking rate was 10 acres per animal unit. Being conservative is imperative, especially during drought. For example, during the drought year of 2009 it was not necessary to feed hay or destock cows because a proper stocking rate was used and there was close monitoring of
pastures and cows.

In October 2008, the forage supply was estimated at 4,460 pounds per acre, but by August 2009 it was reduced to only 1,427 pounds per acre. Close monitoring of the pastures was critical to ensure that healthy polyculture-based pastures were not being overgrazed to the point that plant health became jeopardized.

In 2013, the stocking rate has been close to 16 acres per animal unit. This figure was realized by expanding my permanent leases of 509 acres with temporary leases involving an additional 204 acres that, for the most part, had not been previously grazed for months or even a year. Cattle were removed entirely from most of the permanent properties to prevent the risk of causing harm to the

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health of plant communities. This practice will also allow pastures to recover more quickly once sufficient rains return.

Most of the temporary leases were located within a 10 mile radius from home, although most required some fence work and making water accessible. This was worth the effort because some idle pastures had a lot of dry mature forage available. Most landowners would not accept lease payments. Talk about having good neighbors!

This was actually a win-win because some landowners were able to regain Ag value status (i.e., using land for agriculture). When the cattle were removed, several requests were made to bring some cattle back again later and keep them there long enough to maintain Ag value status. Here in Kleberg county, a minimum of six months of grazing activity is required, regardless of the number of head of cattle, to maintain Ag value status. We may provide a few dry cows this coming winter.

Another point here is that these idle pasture properties are a reserve for future droughts. This ability to secure small, temporary leases is an advantage of being a small rancher. Finding large leases is very difficult during drought because of competition among larger ranchers.

Payments to some landowners were usually made at the rate of $15/cow/month, but only when my cattle were on their premises. In this case, I have calculated that such leases are still about 25 percent less expensive than buying hay at $80 per round bale, which was the local price during the drought.

During most of 2013, cows (before and after calving) were regularly moved by trailer or by walking to another property. The decision to move was based either on the depletion of forage or the need for cows to improve their body condition. Once moved to a fresh pasture (usually with green Guinea grass growing under mesquite trees), cows quickly regained good body condition. This timely practice prevented the need for feed supplements.

Brush control is an important related activity. When brush is removed, more rain becomes available for grass and, in turn, more grass supports more cattle. Making more moisture available can make the difference between live versus dead grass plants in a drought.

At one lease property that consists of 125 acres that I have possessed since 2007, brush spraying was initially very costly. Once the brush invasion by mostly mesquite and huisache (acacia) trees was under control, spraying was then relaxed to every other year. In 2013, the cost was only 75 cents per acre. Now there is a lot more grass.

The challenge of prolonged drought wreaked havoc on exotic
grass species. The recent deluge of 10 inches of rain from mid-July through August 2013 has begun to recharge the water cycle and has stimulated growth of a plethora of native forage species. Nature will find a way.

In a recent NRCS pasture walk, earthworm castings were observed, which is rare in south Texas.

LOW-INPUT SYSTEM
We have not fed hay in over 10 years. Annual feed costs are typically less than $50 per cow. By working with Nature and using suitable cattle genetics, feed costs can be kept at a minimum.

In 2002, the last year hay was fed, the pastures were overstocked with continuous grazing. The average figure for total costs per cow was above $500 (nearly $300 was in feed costs). In 2012, the figure for total costs per cow was $306 (only $16 was in feed costs, mostly cottonseed cubes fed for a brief period in winter).

In the context of a low-input system, a breeding objective could be to select good cattle with minimal nutritional needs. These cattle have to have the ability to maintain good body condition, make just enough milk, re bred easily, have few, if any, health issues, and ideally produce a good calf every year for many years.

This last quality defines the trait “longevity.” However, the really good cows have both outstanding longevity and superior biological efficiency.

Invariably, the very best, most profitable cows in the herd not only meet the above protocol but are, as well, the most efficient ones. In a cow-calf or grass-finishing operation, certain cattle, for various and not entirely known reasons, are able to digest fibrous feed or grass more efficiently and/or absorb nutrients from the gut and utilize them more efficiently.

This intrinsic ability accounts for some cows being thin, while others, even of the same body weight, are fat, even though their calves may weigh the same at weaning. This ability may, to some extent, explain the functional basis of cows with superior longevity.

A relevant term called residual feed intake (RFI) is a measure of how feed is used by the animal after first meeting its maintenance and production requirements.

In other words, an efficient animal uses less feed to meet its maintenance and production requirements and consumes no more feed than this. Some breeders are now selecting for RFI to improve production efficiency. RFI is about 40 percent heritable and genetic markers have recently been discovered to aid breeders.

I believe that in Africa, Nature had already been at least indirectly selecting for RFI in N'Dama, Tuli, and other similar cattle populations.

It is well established that smaller cows are more efficient than bigger cows. They consume proportionately less feed simply because they have less body weight to maintain. The following is an example from 2012 involving two cows - one weighing approximately 900 pounds and the other 1,600 pounds.

The first cow was Tuli-sired and out of a Red Angus X Senepol F1 dam. The second cow was Senepol-sired but was from a large Beefmaster-cross cow. These cows produced calves with 205-day adjusted weaning weights of 624 and 540 pounds, respectively, representing 69 and 33 percent of their own body weights.

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The big cow was soon sold along with her calf. I was surprised when this cow’s weight of 1,600 pounds was revealed on the auction slip. I then sold the rest of my larger cows.

Case in point, I would prefer to have three 1,000 pound cows rather than two 1,500 pound cows, mostly because of the improved efficiency. I have also observed that smaller cows are able to maintain better body condition.

In addition, I firmly believe that my most efficient cows produce calves that, like themselves, mature rapidly. The above 624 weight heifer calf should be relatively close to her full mature body size potential. Hence, I expect her and other heifers like her to readily breed at 15 months of age, following several previous heat cycles. Many heifers in my herd do in fact show puberty at six and seven months of age.

Please bear in mind that my cattle may be very genetically unique, whereby such early maturing characteristics (no doubt stimulated by hybrid vigor), may not be the general norm, especially for purebred cattle.

Of relevance for a low-input system, one very useful management tool is the measure of body condition scores (BCS), which are routinely made on cows at Lukefahr Ranch. In 2011, a very interesting pattern as presented in the following figure was observed when examining BCS trends of cows at calving in May and later at weaning in September.

The first point is that the vast majority of cows were at a BCS of 6 or higher at calving - a target goal.

For BCS at weaning, there were two distinct groups of cows. One group of cows had BCS of five to six and the other group had BCS greater than six. There are two most common values or modes: 5.5 and 7.5. See chart on page 5.

Both groups weaned good calves in terms of average weights. Considering the fact that it was a drought year and no hay or feed supplements had been provided between calving and weaning, scores ranging from five to eight might be viewed as acceptable. However, this is a wide range, which in my view was an opportunity to identify my most efficient cows.

Some cows in this elite group had clearly gained flesh while raising a calf during drought. Perhaps the best explanation is that these easy keepers had the lowest nutritional requirements (not too big or making too much milk) and the lowest RFI levels.

In the late summer of 2011, as the lactation curve began to decline after 90 days. Kingsville received 2.13 inches of rain during September (but none in August or October). For the easy keepers (especially cows that calved the earliest), this was an opportunity to quickly recoup body condition.

Again, some cows even increased their BCS to a 7.5 or eight, and with a good calf at side. Needless to say, the elite cow group “coasted” during the winter season by maintaining good condition and not requiring costly energy or protein supplements.

Of course, in any good year both groups of cows would look great. The point here is that the drought challenged my cows. It separated the “sheep from the goats” (no harm intended), which allowed management to more accurately and appropriately cull inferior, less adapted cows.

As the drought further persisted into 2012, cows in this same group really began to fall apart in terms of their inability to maintain good body condition. They were sold in 2012. In contrast, the elite group fared well and truly represents the creme de la creme in terms of genetics.

BUSINESS ASPECTS

It is important from a business perspective that there is a dispersal plan in place for timely implementation once a pending drought becomes evident. My dispersal plan consists of three phases: culling from the fall-cows, the spring-cows, and then the spring-breeding heifers.
In 2012, when the persistent drought resulted in only 2.8 inches of rain in the fall, resulting in less than 1,000 pounds forage per acre, the first phase (fall-cow) decision was made. This plan resulted in selling about 20 percent of the cows in the fall after early weaning the calves.

Cows culled were those that were older (>10 years), larger and less efficient (>1,400 lb), higher milking, and less fertile (i.e., the latest calving cows). In hindsight, I should have culled these cows sooner. By selling the bottom 20 percent of the cow herd, we were able to maintain low stocking rates into the winter thus putting less pressure on the limited forage supply.

Another option could have been to sell all the calves and keep any bull or heifer calf replacements.

In 2013, a decision was made in April and May when needed rains had not arrived. It became necessary to apply even less grazing pressure on permanent pastures and required removing cattle entirely for several months from some permanent pastures. The stocking rate was reduced from eight to 16 acres per cow in those pastures that were still stocked. These business decisions are critical to safeguard the health and integrity of plant communities in pastures.

According to the second phase (spring-cow) of the dispersal plan, the remaining breeding herd was split by moving half the cows to temporary leases. The third phase (spring-breeding heifers) was implemented at the same time by selling all breeding heifers to a cooperator breeder who already had a herd of STAR cattle.

Breeding heifers were soon exposed to a purchased Pharo Cattle Company Red Angus bull with low birth weight and maintenance energy EPDs. It was agreed that I had the rights to buy back the heifer calves. This scheme for my business would allow me to gradually return to herd capacity once rains returned and pastures became restored.

One optimistic business objective is to produce over 100 pounds of beef per acre and a profit of over $50 per acre based on actual calf weaning weights and conservative market price values. These are the true yardstick measures of business productivity in the beef cattle business as opposed to the mere average profit per cow.

In 2006, before the current drought years, I achieved 101 pounds per acre and $46 profit per acre, which indicated that I was doing well as a rancher in south Texas.

(In actuality, most calves at Lukefahr Ranch are sold at higher prices as breeding stock. Nonetheless, I use market based prices to be conservative so that I can hopefully encourage ranchers that these production targets are indeed possible.)

I have confidence that with this holistic drought management model that these business expectations concerning production and profit per acre are both realistic and achievable.

Now my new modus operandi is to plan for the next drought. I believe that this model is to a large extent applicable to both small and large ranchers. Hopefully, some of you are also planning to do the same. Good luck in 2014! □

This paper was prepared in part from a presentation delivered last July in Ft. Worth at a grazing land conference sponsored by NRCS. Lukefahr is with the Dept. of Animal, Rangeland, and Wildlife Sciences at Texas A&M University-Kingsville. He can be contacted at slukefahr@gmail.com. His business website address is lukefahr-ranch.com.

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