# Managing the Beef Cattle Herd through the Cattle Cycle

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The beef cattle industry is an extremely dynamic industry that requires extensive management skills ranging from management of production components (forage, genetics, feeding systems, and health) to management of marketing characteristics (weight, time, location, and marketing method) as well as the interaction between the two.

Many production and marketing decisions are yearly decisions that vary only slightly from year-to-year unless necessitated by outside factors such as weather. However, an added intricacy to the beef cattle industry is the cattle cycle. The cattle cycle is a well-known component of the beef cattle industry, and many industry participants have navigated the cycle several times during their respective careers. The beef cattle cycle is composed of three phases: expansion, contraction, and turnaround. These three phases influence decision making and management of cattle herds across the nation.

Figure 1 illustrates January 1 beef cow inventory in the United States from 1920 to 2016. It is fairly easy to see times of expansion and contraction in beef cow inventory which define the cycle. An individual beef cattle cycle will generally last 8 to 14 years with 10 years being the average. Periods of higher cattle prices are typically associated with the expansion phase as the higher prices spur cattle producers to retain more heifers and reduce the cull rate of mature cows that are reproductively sound. Alternately, periods of lower prices usually precipitate the contraction phase as cow-calf operations reduce the size of their cow-herds through increased cow culling and reduced heifer retention.

It is imperative cattle producers understand the cattle cycle which is primarily influenced by expectations of incentives (higher profits) and disincentives (lower profits). However, many cattle herd expansion and contraction decisions are made on short-term price information and not long-term fundamentals, which can result in lower profits than anticipated. Thus, the purpose of this publication is to outline management considerations and strategies

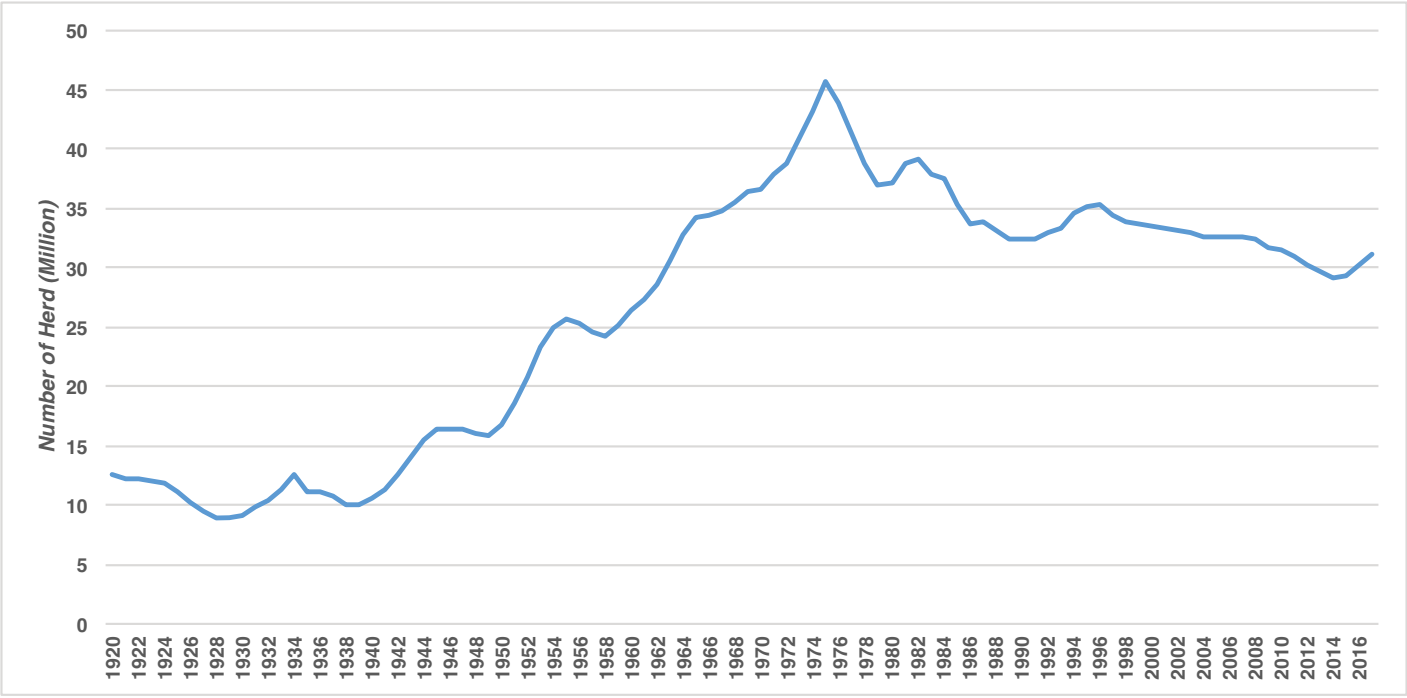


**Figure 1. January 1 U.S. Beef Cow Inventory from 1920 to 2016 (Million Head).**
**Source:** USDA-National Agricultural Statistics Service

for cow-calf producers and margin operators (stockers, backgrounders, and cattle feeders) while navigating the cattle cycle.

**Managing Costs through Expansion and Contraction**

The cattle cycle is a major reason why the beef sector tends to have cyclical periods of good years and bad years. It is often said, it is how one manages through the good times that determines how one can manage through the tougher times. This is an accurate statement, especially as it relates to managing costs. In general, cattle producers have more control over their cost structure than over their revenue stream. Thus, it is imperative producers first understand the total cost of cattle production and then evaluate expenditure categories in which cost savings may be possible without negatively impacting production. When considering cost management strategies, it is important not to reduce a cost that will result in more lost revenue than the reduction in cost.

Major cost categories for a cow-calf operation include feed, pasture maintenance, health program, reproduction, marketing, breeding stock depreciation and overhead costs such as land, buildings and equipment. Margin operators, such as backgrounders and stocker operators, also have the purchase of the animal. Some costs are not easily reduced and often should not be. For instance, it is difficult for producers to reduce costs associated with animal health. Many cattle producers have an established vaccination program to reduce the incidence of health issues which largely minimizes health costs. Similarly, stocker producers through cattle feeders have established health practices meant to minimize health treatments and thus health costs. Thus, many producers are managing health costs by using preventative methods to reduce the incidence of sickness. Reducing money spent on a preventative health program can make the herd more vulnerable to major health issues and could lead to financial disaster through higher death losses. However, this is a common error that producers make when cattle prices are lower and profit margins are squeezed.

Cow-calf production costs developed by Standardized Performance Analysis of herds in Texas over the 2007-2011 period are contained in Figure 2. Of course in other areas of the South will be different this data provides an interesting rundown of costs. This data represents total production costs. The third largest category is purchased feed. Yet feed quickly jumps to over 20 percent of total costs when fertilizer is included.

The largest cost categories are usually the easiest to reduce costs without negatively influencing profits. For most operations, feed costs will be the largest cost category and may include pasture, hay, fertilizer, supplemental feed, and mineral. From a feed cost standpoint, mechanically harvested feedstuffs, such as hay, that are typically fed in the winter are usually more expensive than forages harvested by the animals. For the cow-calf and stocker producer, managing cost through improved grazing strategies can be one method of reducing feed costs without negatively impacting production. Grazing strategies to evaluate include rotational grazing, specie diversification (cool and warm season perennial grasses), annual forages, and stockpiling. These practices may not work in every production system, but they generally have a lower cost per unit of production than mechanically harvested feedstuffs. Producers should consider ways to increase the number of grazing days per year if those additional grazing days can be added for less than the cost of winter feeding days.

From the cattle finisher standpoint, there is limited flexibility when managing feed costs. Cattle feeders are constantly evaluating least cost rations, but they cannot change rations quickly without negatively impacting production. Rations have to be adjusted slowly for cattle that are already on feed. The only abrupt change that can be made is when cattle are entering the feedlot.

Reproductive costs come in the form of sires to breed females and in the form of a failure to successfully breed animals. The failure to successfully breed females may be the most expensive reproductive costs. Failure to breed can occur for several reasons, but proper health and nutrition for both sire and dam are necessary to ensure that large costs are not incurred in this category. In relation to sires, the purchase of a sire is a large expenditure. One sire may be able to breed 25 to 35 cows in a short breeding season. Thus, the cost of the sire minus his expected value when he leaves the herd, should be spread across the number of females bred. For cow-calf operations that retain their own heifers, sires are typically kept for a maximum of two years. In addition to the "depreciation" of the bull, producers should also include the cost of maintaining him when estimating breeding costs for the cow-herd. The ability to spread breeding costs across more females reduces the cost per calf marketed. When multiple sires are needed and when they are not fully utilized, the use of artificial insemination or other reproductive technologies can be used to manage breeding costs.

Marketing and land costs are not easily changed. Marketing costs are associated with the method in which cattle are marketed with commission and transportation

being the most common components. Marketing costs are a cash cost when a marketing agency is utilized and a labor/management costs if private treaty is utilized. Land costs are associated with rent or the opportunity cost of rent. However, it is difficult to change land costs because obtaining land either through purchase or rent can be difficult.

The second largest cost category in the SPA data is depreciation at $88 per cow and 14.9 percent of total costs. Depreciation costs are the ones that are often forgotten about but are critical to account for in order to be able to replace assets at the end of their useful life. Depreciation expenses can include equipment like trucks and tractors and also bulls and cows depending on how they are replaced in the herd. These are also costs that are difficult to reduce quickly. But, given that they are not cash expenses, they are often ignored until it's too late.

Building and equipment costs per unit of production usually decline with increases in the size of the operation. Thus, there are economies of size related to some costs. Most operations have buildings, working facilities, and equipment, but the ability of larger operations to spread those costs over more animals allows them to reduce the overall cost per animal unit. This is an area that should often be examined during low priced times of the cattle cycle as putting off major purchases, or refinancing existing long-term debt, may improve cash flow until the market improves enough to provide additional capital.

At all points in the cattle cycle, producers are encouraged to manage costs, because this can reduce the negative effects experienced when the cattle herd is in the contraction and lower price phase. Additionally, it may benefit producers to pay down debts on land and other capital assets during the expansion and higher price phases. Operations that are efficient and have lower cost structures will be in a much better position during times of reduced cash flow.

## Cow-Calf Producer Considerations

The cattle cycle has times of high prices (leading to herd expansion) and low prices (leading to herd contraction). When prices are relatively high, producers typically retain or purchase more heifers and retain reproductively sound mature cows past their normal culling age. Producers do this to market more animals in the future and capitalize on high prices. However, over time the retention of more females results in larger calf crops and more feeder cattle being marketed in future years, which depresses prices. This is further complicated by the fact that breeding stock becomes more expensive when calf prices are high and the demand for reproductive females increases.

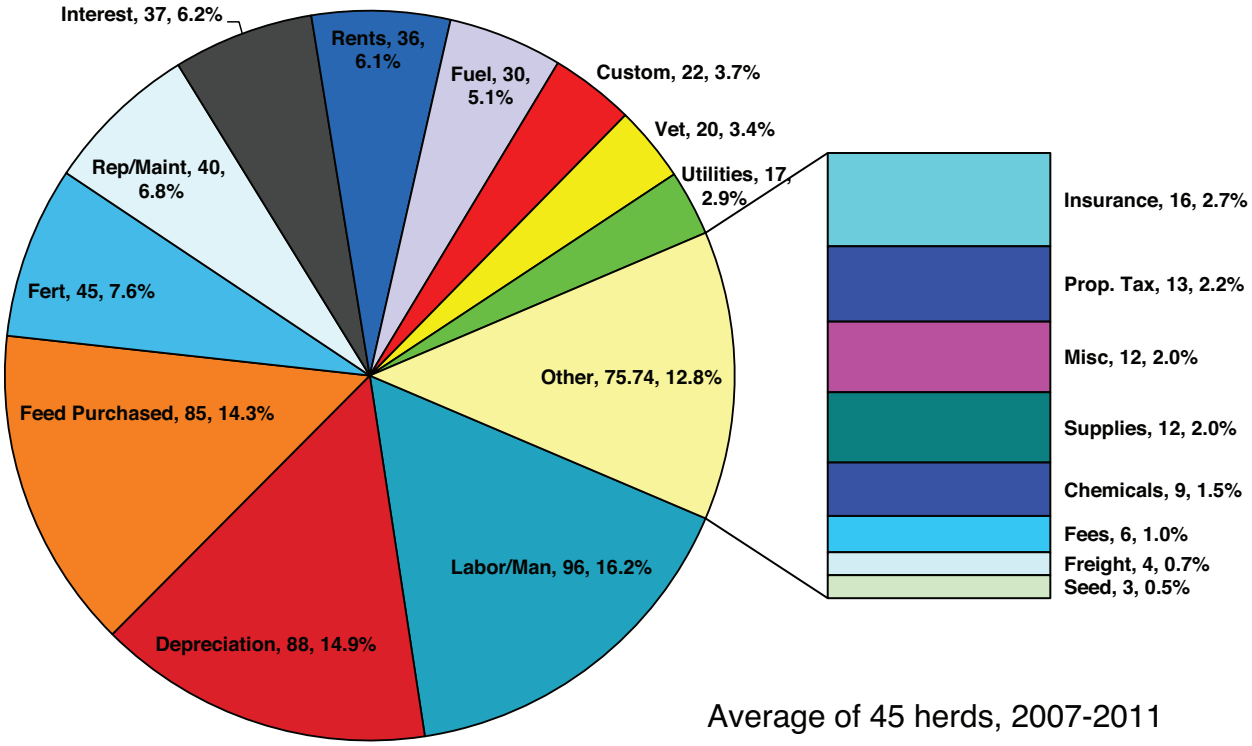


**Figure 2. Texas Standardized Performance Analysis (SPA) Breakdown of Expenses per Female and Percent of Total Costs in Each Category, 2007-2011.**

**Source:** Stan Beavers, "Standardized Performance Analysis (SPA) for Decision Making" Presentation. 2012 Beef Cattle Shortcourse, College Station, TX, August 8, 2012.

In terms of economic production costs retaining heifers is the same as purchasing those animals for the price they could be sold in the present period. Think of it as the opportunity cost of not selling that heifer at the high price. Thus, a heifer retained during time periods of higher prices is more expensive than a heifer retained in time periods of lower prices and will need to generate a greater return over her productive life to recoup that cost. In practical terms, when the costs of raising one's own heifers is lower than purchasing heifers then producers retain heifers.

Alternatively, producers generally market more heifers and cows when prices are declining. This is done because the future profitability of a heifer appears bleak given the lower price levels. However, the marketing of more heifers as calves and feeder cattle will eventually result in a smaller breeding herd and small calf crops in subsequent years. The reduction in the number of calves being marketed over time will support calf prices in the future.

The contraction and expansion tendencies previously mentioned result in producers marketing fewer animals when prices are high and marketing more animals when prices are low. This seems contrary to most business operations that try to buy when prices are low and sell when prices are high, but really occurs for two primary reasons. First, a heifer that is weaned in the fall of 2016 would be bred the first time in the spring of 2017 and wouldn't wean her first calf until the fall of 2018. This time lag between heifer retention and the impact on the size of the calf crop is a major reason why we have cattle cycles in the first place. Secondly, individual producers tend to be small and unable to affect the market. So, responding to profits by retaining heifers makes perfect sense for an individual cow-calf operation. However, when this occurs across the entire industry, supply increases and downward pressure is put on prices.

With the thought of buying low and selling high, it may be advantageous for producers to move opposite of the cycle. Thus, when prices are high, producers may want to market more animals to capitalize on high prices and then retain more heifers and build the herd when prices are low. This contrary movement can result in cash flow problems during periods of lower prices since prices are low and fewer cattle are marketed. However, revenue management during periods of high prices can help smooth the cash flow situation when prices are lower. Past research has explored this "contrarian" strategy and the results have not indicated it to be a profitable strategy.

A more common alternative utilized by producers is maintaining the same size herd. This management practice can smooth revenues relative to moving opposite of the cattle cycle which reduces cash flow problems. This practice is fairly common as many cattle producers are fully utilizing forage resources and base production on fully utilizing that asset.

Cow-calf producers have an asset in their breeding stock which is generally built over time as genetics are improved. Thus, producers with strong genetics are hesitant to decrease herd size because of fear of not being able to replace those animals with comparable or better genetics. The building of perceived value through genetics or other ways can make it difficult for some producers to manage through the cattle cycle, but producers should consider that increased profits provide a higher propensity to replace breeding stock.

**Margin Operator Considerations**

Margin operators, such as stocker producers, backgrounding operations, and feedlots, own animals for a much shorter time period than cow-calf producers which result in different management tactics. Since margin operators are buying and selling cattle over shorter time periods, they are more vulnerable to short-term swings in price than the longer term changes associated with cattle cycles. In truth, they can be profitable when cattle prices are high or low, but will be greatly impacted when prices swing wilding between purchase and sale.

When prices are decreasing, margin operators purchase animals on a strong market relative to the market they will sell on. A declining market requires margin operators to place more focus on managing the sell side of the business. The sell price can sometimes be managed by forward contracting cattle or using risk management strategies to lock in a price or set a floor price. Another alternative is for margin operators to reduce the number of animals purchased or stop purchasing animals. This is generally not the best alternative as many margin operators have fixed costs that are incurred regardless of the number of animals purchased. Thus, most producers will continue to purchase animals as long as variable costs are covered.

When prices are increasing, margin operators purchase animals on a relatively weak market and sell cattle on a strong market. This situation is favorable for margin operators from a selling standpoint, but increased management is needed on the purchasing side. Most margin operators purchase animals to replace the animals previously marketed. Thus, they are buying animals on just as high of a market as they are selling on. The management of future purchases when prices are increasing can reduce the purchase price of the animal which provides a larger

margin for operators to work with. The risk to this strategy is in relation to the turnaround where prices go from increasing to decreasing which could result in a producer paying more cattle.

Margin operator decisions are shorter term decisions and more risky from a capital standpoint. These decisions have more to do with operating within a phase (contraction, expansion, turnaround) of the cattle cycle than navigating the entire cycle. However, the cattle cycle should be considered when purchasing and selling cattle.

**Conclusions**

The cattle cycle is a major factor in cattle production and producer profitability. The cycle is predictable from the standpoint that there will be periods of expansion with higher prices, contraction with lower prices, and a turnaround on both ends. However, it is also unpredictable as to the timing of these phases and this is primarily where the risk exists. Outside forces, such as weather, can prolong or shorten phases of the cattle cycle. The outside influence then can enhance the effects of the next phase which increases the complexities of management.

The key points are that producers should manage costs through all phases of the cattle cycle, evaluate strategies that can reduce the financial impacts posed by the cattle cycle, and attempt to reduce risks presented through each phase. The cattle cycle has been a constant for many years, and it is likely to influence the business for many years in the future.