

The Challenge of Cow Size

by *Kris Ringwall*

The solution is finding moderately sized cows that produce steers to meet current market desires and specifications.

Size has been the common denominator in revenue generation for cow-calf, backgrounding and feedlot operators. The process of raising cattle has been quite steady, with a general acknowledgment that growth is key to success.

Calf weight, the product of the cow-calf producer, and carcass weight, the product of the feedlot, drive total dollars. Additionally, bigger cows produce bigger calves, but the discussion becomes clouded when factoring in mature cow size.

Often, cow size discussions open debate rather than offer further understanding of the issue. Dollars generated as take-home pay depend on net return above expenses and offer a return on assets, which are not totally driven by the physical growth of the calf. The challenge is realizing this issue has three distinct players: the cow, the bull and the calf — which have grown in physical size.

Cow size affects bottom line

The impact on the maternal and paternal animals and progeny is simply larger cattle. Calf growth, at least among those harvested, is a function of time. Bulls are selected to produce

progeny that fit market specifications — mission accomplished. The same is true for the cows, except herds have more cows, and they must be maintained year-around.

The cow is the progenitor and the caregiver for the progeny, which means she carries the bulk of the expenses. As a result, cost control and production efficiency must come from the cow. Heifers are a byproduct of a very fine-tuned steer production system. Thus the dilemma — How are the cows replaced and appropriately sized if they are simply the counterpart of fast-growing steers?

Producers need to be cognizant as expenses creep upward while trying to maintain an ever-increasing size of the maternal unit. The solution is finding moderately sized cows that produce steers that meet current market desires and specifications. Simply put, cattle are not near their maximum capacity for growth and mature size. Somewhere, producers must implement breeding systems that will develop cattle that moderate maternal growth.

The impact

Let's focus on 300 lb. of cow rather than the actual size of the cow. Regardless of the size of a cow, the

issue for the day is 300 lb. What does that mean, and how does 300 lb. of additional cow weight impact beef production? The Dickinson Research Extension Center has focused on two cow herds that differ in mature weight by 300 lb. The numbers are not exact, but the principle is there. Let's just say, as a beef producer, one can decide to add or subtract 300 lb. to the mature weight of the cow herd.

For the past three years, the center has been feeding heifers individually to get a handle on the difference between the calves from large-framed cows and smaller-framed cows. The heifers' daily diets have been the same. Essentially, the heifers have been eating approximately 2.2% of their body weight. Assume these heifers will continue to eat 2.2% of their body weight for their productive lives. Feed consumption will change through time, but again, let's not get lost in the decimal places.

The extra 300 lb. times 2.2% is 6.6 lb. of feed per day. In a year, 6.6 lb. times 365 days means 2,409 lb. of feed may be consumed to sustain the extra 300 lb. of mature cow weight.

Let's review the two cow sizes at the center. Based on total cow weight, a

1,400-lb. cow would consume 30.8 lb. a day, or 11,242 lb. per year. In four years, the cow would have consumed 44,968 lb. of feed. The 1,100-lb. cow would have consumed 24.2 lb. per day, or 8,833 lb. per year. In four years, the cow would have consumed 35,332 lb. of feed, or 9,636 lb. less than the 1,400-lb. cow.

That 9,636 lb. of feed directly relates to the 9,636 lb. of extra feed needed to add 300 lb. of mature weight to a cow. In simple terms, reducing cow size 300 lb. saves enough feed to support one additional cow for four years.

Yes, cattle growth is important, but controlling expenses is important as well. The actual size of a cow is not as critical as the concept of simply lowering cow weight to lower expenses. At the same time, those 20% more cows will offer 20% more calves, the real benefit of trying to lower cow size within a herd. What is the right cow size? The answer will vary, but think about it. The impact is real. **HW**

Beef Growth Performance Continues to Be Stable

The current growth benchmark for actual weaning weight is 554 lb. at 192 days of age, with an average daily gain of 2.5 lb.

Beef cattle performance growth trends, as calculated through the Cow Herd Appraisal of Performance Software (CHAPS), are very stable. The North Dakota State University Extension Service and the North Dakota Beef Cattle Improvement Association (NDBCIA) collect and analyze the CHAPS data to produce meaningful

annual benchmarks. The current growth benchmark for actual weaning weight is 554 lb. at 192 days of age, with an average daily gain of 2.5 lb. These calves are a 5.2 frame score.

Herd performance benchmarks

The NDBCIA uses the CHAPS program to calculate five-year rolling benchmark values for average herd performance, which have been quite consistent. Let's look closer at age and weaning, weaning weight, average daily gain, and frame score benchmarks in the table to the left.

Perhaps the commercial beef cattle business could be called mature, at least for growth on the cow-calf side of the business. A producer needs to decide what level of performance is expected and how much he or she is willing to expend to get that performance. Performance is really herd output, a function of age and growth.

The benchmarks provide a tool for herd evaluation, a review of growth annual trends and a number on which to base future goals for the operation.

Interestingly, producers continue to market cattle with considerable growth potential, based on current trends for expected progeny difference (EPDs) within available herd sires offered for sale. They're actually selling calves at historical weights, thus allowing the feeding industry to capture the additional growth potential bred into the cattle.

Managing growth

Historical marketing brings comfort to established cow-calf programs. However, historical marketing programs apparently do not allow for expression and payback for the growth potential hidden within the phenotypes of the calves brought for sale.

Ironically, the heifer mates to these cattle are retained at the homeplace. The heifers grow into cows and their mature weight is naturally similar to the steers that were sent to the feedlot.

They have gotten bigger, so producers face some challenges —

growth genetics that are not being captured as the progeny are marketed and subsequently larger mother cows that cost more to keep. The real answer to the management of growth genetics needs to return to where it started — sound breeding systems combined with more flexibility in the marketing of the offspring.

Historically, breeding systems were intended to allow producers to maintain the most efficient maternal cow at home, to purchase good terminal-type sires and to produce a terminal offspring that was intended for the feedyard. At some point, another breeding system would be utilized to produce the replacement maternal cow — thus, the best of both worlds. Cattle breeding systems with additional marketing options may well be the better answer. Producers need to implement terminal and maternal breeding systems with additional marketing flexibility. **HW**

Kris Ringwall is a beef specialist at North Dakota State University Extension Service. He can be reached at kris.ringwall@ndsu.edu.

Stability Seen in Long-term Trends

Year	Age at Weaning	Weaning Weight	Average Daily Gain	Frame Score
2003	196	558	2.3	5.4
2004	194	556	2.4	5.4
2005	192	558	2.5	5.4
2006	191	562	2.5	5.5
2007	189	561	2.5	5.5
2008	189	560	2.5	5.8
2009	189	567	2.5	5.8
2010	189	565	2.5	5.8
2011	189	563	2.5	5.8
2012	190	563	2.5	5.7
2013	190	558	2.5	5.7
2014	192	556	2.5	5.5
2015	192	555	2.5	5.4
2016	193	553	2.5	5.2
2017	192	554	2.5	5.2

Source: www.ag.ndsu.edu/publications/livestock/2017-north-dakota-beef-report#section-31