Consumers, Business and Breeding Systems: Charting the Beef Industry's Path

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“The path to sustainable, profitable growth begins with creating more promoters [happy customers] and few detractors [unhappy customers]… It’s that simple and that profound.”

Frederick Reichheld, Harvard Business Review, Dec., 2003

Introduction

The cornerstone of prosperity for any industry depends on final consumer demand. All dollars flowing into the industry are ultimately derived from consumers purchasing whatever is produced by assorted enterprises within the industry. However, facilitating consistent production of the right kinds of products at competitive prices is highly challenging. That’s especially true for those industries possessing segmented and fragmented structures (Porter, 1998) – none more so than the beef industry.

That reality is changing, though, as the beef industry becomes more consumer-centric and thus responsive to end-user needs for quality, consistency, efficiency and volume. That’s an important development in terms of the industry’s functional paradigms thus enabling it to create more consumer “promoters” in the years to come. The net effect is establishment of better opportunities for long-term sustainability and prosperity for all stakeholders associated with the business.

The purpose of this paper is to provide some insight into various causes of shifting market signals over time, discuss new dynamics at work within the business environment, and provide some framework around the outlook for future impact upon the beef industry’s value chain.

History

Accurately anticipating the beef industry’s future direction requires some assessment of where it stands today. And much of the current status directly results from important and influential dynamics during the past 30 years.

The beef industry entered the 1980s presented with new, non-routine challenges. Primarily, beef’s competitive advantage was suddenly being pressured by rising concerns about diet and health. Negative consumer perception regarding beef products was creeping into the marketplace and impacting buying behavior. That phenomenon was documented in 1985 with release of the Consumer Climate for Red Meat Study (Yankelovich, Skelly and White). The report marked a significant shift in consumer preferences.

Meanwhile, other influences were also playing in the market place and affecting consumer behavior. The 1980s (especially during the middle years) were economically difficult, marked by a period of significant economic slowdown and rising unemployment. Simultaneously, the home structure was changing with an ever-growing number of two-income households. That spelled greater emphasis on time management: consumers were increasingly time-starved and seeking products enabling convenience and/or ease of preparation.

Beef’s competitors, pork and poultry, were quick to respond aggressively, capturing new consumer spending. In order to assess the rapidly changing market place, the beef industry responded in 1986 with the National Consumer Retail Beef Study (NCRBS) (Savell et al., 1987, 1989). The study proved significant, serving as impetus for both Kroger and Safeway to implement new retail fat trimming programs that now serve as industry standards.

The beef industry monitored the impact of these new efforts through the National Beef Market Basket Survey (Savell et al., 1991). Results indicated retail fat trimming initiatives had indeed been successful in reducing consumer concerns about excess fat in beef. At the very least, beef’s image regarding the health component was stabilizing among consumers.

Simultaneously, the beef industry recognized inefficiency of meeting consumer demands at the retail level; “waste” fat shouldn’t be produced in the first place, to only be later removed in the production / marketing scheme. As such, the National Cattlemen’s Association (NCA) responded by establishing the Value-Based Marketing Task Force to target such inefficiency and initiated a new “War on Fat” campaign (NCA, 1990). Its primary mission was reduction of excess fat at the production level. That was an important development: it was the industry's first unified step towards aligning production practices with some measure of consumer preferences.

It was at this juncture that the beef complex recognized the need to go even deeper with respect to identifying industry shortfalls. That recognition ushered in a new era of documenting and base-lining potential production inefficiencies. The first National Beef Quality Audit was conducted in 1991 (NBQA 91) (Smith et al., 1992). The endeavor was based on total quality management principles and reducing costs associated with non-conformance.

The second National Beef Quality Audit (NBQA 95) was especially revealing across several fronts (Smith et al., 1996). The assessment clearly illustrated the industry had been successful in attacking production of excess fat. However, new concerns about beef's palatability and price/value relationships had developed. Perhaps, the beef industry overreacted in its campaign to "lose the waste fat," and in so doing, beef products had lost the necessary "taste fat" to ensure consumer acceptability. Industry-generated literature estimated that one out of every four steaks "doesn't eat right" (Morgan, 1991).

That estimate was especially troubling because palatability had traditionally been beef's primary advantage in the marketplace and motivator in consumer purchasing decisions (Cross et al., 1986; Savell et al., 1989; Smith, 1989; Smith, 1991). Furthermore, it is this taste advantage that allowed beef to demand relatively higher prices in the marketplace in comparison to competing meat sources. Meanwhile, "low overall uniformity and consistency" was identified in 1991 and remained the number one concern in 1995 (and again in 2000).

The industry was being challenged across numerous fronts over an extended period of time: unfavorable wellness / health perceptions of beef, product inconsistency, eroding palatability attributes and a lack of preparation convenience; simultaneously, its costs were disproportionately rising compared to its competitors. Meanwhile, the pork and poultry industries were very aggressive in attacking both sides of the value equation; both industries improved their respective perceptions among consumers while also becoming more and more efficient. Subsequently, the industry found itself with weakening perceptions of its price/value relationship (a critically important concept to be discussed in more detail later).

As alluded to previously, beef's competitors successfully exploited the weakness and captured an ever-increasing portion of market share. Figure 1 illustrates beef's declining consumer spending base: between 1980 and 1998 the gap widened substantially, with pork and poultry combining for more than $112 in per-capita spending growth, compared to the beef industry's $6.

Demand

The historical perspective invokes the concept of beef demand and subsequent influence on consumer expenditures (both domestically and internationally) at the restaurant or retail level. That context is critical: final demand is of primary importance to all beef producers, given their ultimate connection to beef sales. Aggregate demand (for beef or any other consumer product), is the function of five key factors: population, income, tastes/preferences, expectations and the price of other goods.

Altering consumer habits, especially those involving food purchases, is extremely difficult and takes immense effort. Moreover, beef purchases aren't made independently; they occur within a comparative framework versus competing products (pork and poultry). As such, maintaining and building demand requires intense focus on those factors that can be shaped. Consumer preference is highly influenced by industry promotion and subsequent delivery of quality products.

The effect of establishing positive demand spells prosperity: more customers buying more beef at higher prices. Conversely, failure to consistently generate favorable eating experiences negatively influences demand. That ultimately results in the need for lower throughput, weaker markets and less available revenue for all stakeholders in the beef business (Marsh, 2003). Maintaining (let alone growing) market share is an enduring process that mandates constant innovation and positioning. That reality underscores the importance of continuous improvement regarding product quality and consistency, precision of delivery and efficiency of production.

Quality, Consistency and Consumers

The National Beef Quality Audit noted in 2000 that "low overall uniformity and consistency" remained the number one concern within the beef industry (see Figure 2). Moreover, that attribute was also identified as the greatest quality challenge in which the industry had made the least amount of progress during the previous 10 years. The industry was seemingly ignoring the consumer and beef's long-term demand suffered because of it. Beef's supply chain needed to become more vigilant about consumer expectations on the other end.

While the beef industry provided lots of rhetoric during the 1990s about value-based marketing as a means to induce better quality and consistency, market structures hadn't sufficiently evolved to facilitate that occurrence (Purcell, 2002). Broad-based, quality-driven incentives were generally unavailable or insufficient to create meaningful industry response prior to 2000. Even with the advent of grid pricing, weight remained the primary market signal and overwhelming driver of revenue. That reality is best reflected by quality grade results cited in the National Beef Quality Audits: Prime and Choice had bottomed out around 50% within the harvest mix between 1995 and 2000 (Figure 3). (Annual averages, based on data from USDA:AMS would place those levels closer to 60% in 1995 and 2000, but have since improved to approach 70%. Either way, the pattern is similar.)

The staying power of the quality grade system speaks to its general effectiveness. The long-term trend noted above was problematic. Because quality grades represent expected eating quality categories, wholesale trade is priced accordingly. Higher USDA quality grades are associated with higher levels of marbling and generally increased likelihood of a favorable eating experience (see Figure 4). Alternatively, the "risk" of a bad eating experience decreases from 59.1% to 5.6% as quality grade improves from Standard to Prime, respectively (Smith et al., 1987). Improved quality grades also help to ensure that advanced degrees of doneness do not negatively impact beef tenderness (Reagan et al., 1995).

The quality grade trends reflected a need to establish more systematic, process-driven incentives that would create a reliable, steady supply of cattle in the future to meet customer demands (versus relying on haphazard cooler sorts). Improvement efforts had to work back upstream into the supply chain. NBQA 2005 correspondingly identified several key components to ensuring that occurrence: 1) clarification of market signals that encourage production of cattle, carcasses and cuts that conform to industry targets; 2) foster communication among groups and segments of the beef supply chain; and 3) increase age-and-source verification to build supply lines to fit domestic and export markets. Those objectives establish the premise of industry coordination based on objective and verifiable market signals.

Supply

Supply quantity has been an item of major concern within the beef industry in recent years. Correspondingly, it plays a vital role in discussion of supply chain coordination and ability to provide meaningful volume of differentiated beef products.

Timing of many of the industry's challenges discussed previously corresponds with the front-end of an ongoing, long-term decline in the nation's beef cow inventory (Figure 5). The starting beef cow inventory of 29.3 million cows in 2013 marks a selloff of 6 million cows during the past 17 years – the equivalent of about 350,000 head per year. Moreover, that trend is seemingly accelerating; considering USDA's upward revision to the 2012 inventory, this year-to-year decline was the largest selloff since the industry's ongoing liquidation began in 1997.

Such a long-term liquidation is likely the result of multiple factors within the commercial cow/calf sector, including: 1) drought, 2) growing diversification of many operations that run cows – resources are committed elsewhere, 3) shifting producer demographics, 4) land competition, 5) rising and variable feed prices, and 6) regulation. Whatever the reason, the cattle supply situation, and potential depletion, is a serious one with important consequences throughout the supply chain.

For example, USDA's July 1, 2012 feeder cattle supply outside feedlots (35.664 million head) represented an inventory less than 2.5 times active feedyard capacity (~14.5 million head) – barely sufficient to provide normal turns of cattle, let alone provide opportunities for extended grazing and/or heifer retention. Relative overcapacity has also plagued the packing sector. Cargill announced in early 2013 plans to cease operations at its Plainview (Texas) plant, explaining the decision was largely the result of limited supply that has made the operating environment particularly challenging in the area.

That reality has forced an enduring business rivalry in an attempt to secure cattle and helped to spur markets ever higher over time. It has resulted in an enduring margin squeeze, particularly severe in recent years, within both the feeding and packing sectors (Figure 6 and 7).

In response, feeding and processing companies are increasing efforts to buffer against the risk of supply shortages and to ensure operation at full capacity. That typically occurs through implementation of active, coordinated supply management arrangements that seek to reduce slack capacity and ensure more consistent throughput schedules. Such arrangements also have secondary benefits including:

- Enablement of economies of administration. Combined operations allow for reduced administrative costs associated with replacement procurement.

- Avoidance of "hassle" factors linked to locating and purchasing either feeder or fed cattle.

- Reduced exposure to spot market volatility with regular inventory turnover.

- Enhanced ability to profit from disciplined hedging strategies.

- Improved prevention of quality shortfalls. Greater influence prior to purchase helps eliminate quality shortfalls either in the feedyard or in the cooler.

- Enhanced opportunities for marketing differentiation. Ability to secure appropriate cattle establishes additional marketing outlets and potentially facilitates increased revenue.

The culmination of those motivational factors, and others, has led to cattle feeders and packers decreasingly utilizing the spot market (Figure 8 and 9) to conduct their respective businesses.

Perhaps most important to this particular discussion, it indicates increasing willingness and proclivity towards intra-sector cooperation within the beef industry. That brings up some important implications for procurement logistics and supply chain alignment to better meet end-user demands –important from a number of perspectives. Primarily, it speaks to the ability to meet quality-driven specifications while also improving cost management efficiencies.

Food/Retail

While the production structure of the beef industry has been changing in recent decades, beef's value chain on the other side of the business has witnessed dramatic transition, too. The restaurant, food service and particularly the retail food sectors have been transformed during the past 10 to 20 years. The traditional supermarket model began to be challenged by various new formats during the late 1990s – most especially, the supercenter introduced new competition for traditional grocery outlets (Figure 10).

Much of the shift resulted from Wal-Mart's decision to compete in the grocery business, introducing operational strategies. Most notably, Wal-Mart carefully monitors individual item turnover performance, and respective format success depends heavily upon efficient inventory management (including the meat case). Those efforts aid in eliminating supply chain shortfalls, and Wal-Mart passes cost savings on to customers. Lower grocery prices attract more customers, build store loyalty among consumers, and stimulate traffic within higher-margin departments to increase overall store yield.

The success of the supercenter concept has not gone unnoticed in the wider food world; the format has dominated growth in recent years as many companies are introducing similar food retailing models. There's an important underlying basis here: achieving better profitability for large companies is generally derived from improved supply chain management. Coordination improves cost control and establishes more efficient scheduling of inputs.

The upshot of this discussion is to draw attention to the importance of efficiency of movement when it comes to food procurement and inventory management. Restaurant and retail companies want to offer high quality, competitive products while also facilitating consistent and predictable inventory turnover; in turn, processors seek development of specified capabilities from producers to deliver those attributes. These endeavors increasingly enhance the bottom line for companies, especially in the face of rising costs; information-based supply chain coordination efforts improve efficiency while emphasis on differentiated, value-enhanced production boosts revenue. Such emphases serve as an important tool for business stability when planning features and/or menus. Moreover, it's important to note that once companies make a commitment to offer high-quality, differentiated beef products, it's very difficult to reverse course; going back represents risking negative consumer perception and reduced customer loyalty. Given the outlook for ever-tightening supply in the year(s) to come, this emphasis and its influence upon the supply chain will likely be amplified.

Financial Crisis/Markets

The financial crisis remains an overarching theme within the economy and it has an enduring influence on all types of business and commerce. The ultimate outcome will be some type of "new normal" going forward. Most important among the aftershocks, though, is the lasting effect of changing consumer behavior; at the very core we're witnessing a kind of deleveraging at the consumer level.

The economy will be less able to depend on consumer spending to drive economic growth going forward. Worries about the global economy, personal finances and overall job security still hamper economic recovery. Consumers are becoming more and more discriminating: they demand high quality food at reasonable prices. As a result, food and beverage companies need to be prepared for more prudence and discernment from consumers (Figure 11).

Meanwhile, the beef industry's success in recent years in passing along higher prices is surprising and favorably reflects upon beef's standing among consumers in the market place. Clearly, the industry has made great strides, but the upper limit is not something that needs to be tested on a continual basis. The primary question that must always be considered from a business perspective, especially amidst surging beef prices: "At what point do consumers begin to push back?" (Speer, 2012)

It's also important to consider that huge financial commitment is associated with maintaining and running various types of businesses within the food business. Predictable return on investment and efficient management of working capital is a priority for such entities. As such, they seek improved operational and financial efficiencies in all areas.

Most important for the beef value chain, escalating food costs and ongoing influence of the financial crisis in the consumer sector drives restaurants and retailers to remove price volatility from the business model. That's particularly significant given supply challenges described previously. There's an ever-greater need to produce more beef that meets end-user quality specifications. Therefore, they are more likely to seek volume assurances coupled with price stability for their customers. Those factors combined contribute to even greater pressure for alignment and pursuit of dedicated business-to-business relationships with the production sector.

Transition Over Time

Rebuilding demand following the 1980-1998 era mandated a new commitment to continuous improvement. The beef industry needed to improve its precision of matching production output to customer specifications. That's neither easy nor quick in a complex industry fraught with segmentation and fragmentation. Nevertheless, the beef industry possesses heightened awareness of the need to synchronize the value chain and ensure channeled delivery of high-quality, specified production.

That influence has made its way back to the cow/calf level in a significant way with markets becoming increasingly differentiated at all levels. Producers now have a variety of means to garner additional revenue from their respective management and genetic decisions over time. Accordingly, there were 34 programs listed in the 2011 Alliance Yellow Pages (BEEF, 2012) developed over the course of the past 15 years.

Even more important, though, the recognition for heightened consumer awareness has resulted in a decidedly sharp surge in the number of alliances and USDA certified beef programs during the past 10 years. Certified Angus Beef (CAB), initiated in 1978, holds the distinction as the first USDA-certified beef program. Other efforts required another 20 years just to establish 10 additional programs. However, in the13 years since then, 129 new programs have been introduced (see Figure 12) – nearly 80% of which are Angus-based. This trend clearly has important implications for the beef industry going forward. Most significantly, it points to ever-growing marketing differentiation.

That reality is illustrated by Figure 12, depicting branded-product boxed beef sales (the USDA designation includes BOTH lower- and upper-Choice) in proportion of total wholesale beef volume. The share of branded sales was relatively flat for about six years (2003 through 2008). However, the relative proportion of branded product in the marketplace has steadily grown in recent years (even in the face of the financial crisis). Weekly branded sales volume established a new high point in August, 2012 (15%), and the running average is nearly double compared to just a few years ago (Figure 13). That's not surprising, though, in light of recent research revealing demand for a high-quality brand of beef is exceeding demand for commodity Choice product (Zimmerman and Schroeder, 2013). That's best demonstrated by surging economic value of wholesale USDA Prime and Branded products during the past decade: the value of weekly combined sales (a function of both volume and price) has increased nearly 400% since 2003 and now represents nearly $4 billion on an annual basis (Figure 14).

Perhaps most significantly, the increasing presence of various Angus brands has dramatically influenced beef industry genetics and breeding systems in recent years. That was especially evident in the 2011 National Beef Quality Audit outlining growing percentage of predominately black-hided cattle (see Figure 15). That shift has been largely derived from strong price signals throughout the supply chain, and producers have responded accordingly. As noted earlier, supply availability has increased for branded programs; correspondingly, programs can reinforce demand with delivery assurances and improved pricing arrangements.

That's particularly significant because higher degrees of marbling are positively associated with USDA's A-stamp percentages (Emerson et al., 2012): A-stamp rate for Traces, Slight, Small, Modest, Moderate, Slightly Abundant and Moderately Abundant marbling scores being 49, 55, 66, 71, 81, 84 and 92 percent, respectively (Figure 4). Stated another way, A-stamp cattle possess a higher probability of grading Choice or better, thus explaining quality grade improvement to meet market specifications described above. The beef industry has benefitted from that marbling ability, considering the increased prevalence of black-hided cattle explains the improvement in quality grade over time.

That development has also pervaded perception among various sectors. When asked about the definition and/or description of "genetics" (see Figure 16), "primarily black hided" was the most cited response among retailers, food-service, packers and feeders. Meanwhile, the secondary response among retailers, packers and feeders highlighted the category as "genetic potential for marbling;" the second most frequent response among the food-service sector being "primarily British." While those terms are somewhat innocuous, the implication is a reference to the rapid rise and ensuing success of Angus-based programs.

That outcome has largely underpinned price signals throughout the supply chain. Producers now have a variety of means to garner additional revenue from their respective management and genetic decisions over time. That's best illustrated by data available through Superior Livestock Video Market sales (Figure 17). Feeder calf market premiums and discounts for health management and cattle genetics are especially important. For example, a producer who invested in a VAC 45 program and documented Angus-based loads would have received over $11/cwt in premiums.

The beef complex has begun to establish a self-reinforcing system. Market signals have sufficiently worked to increase available supply for branded programs; in turn, that allows programs to build demand by providing volume assurances and/or price stability. Successful growth and promotion of breed-specific programs and ensuing product availability influences perception; meanwhile, perception mandates increased production of beef derived from breed-specific programs.

The industry can't rest on those laurels – especially true when considering that higher prices (see Figure 18) equal higher expectations (Stika, 2012). Simply put, "it has to eat right." There exist even more opportunities ahead for the industry to establish value while meeting attribute and volume requirements for the current marketing system. The market is attempting to pull even more high-quality product into the harvest mix (Figure 19). Wholesale price spreads reveal an upwards trend for branded programs; even more dramatic, the Prime/Select spread has experienced a sharp uptick in recent years with the 26-week moving average having tested $60/cwt (~$500/head). Those are important signals from a final-demand perspective; consumers are increasingly calling for high-quality, program-backed beef products.

New Expectations

Final results of the 2011 National Beef Quality Audit (see Figure 2) reveal an important shift occurring among the general public relative to the food industry. The latest round of "quality challenges" highlights the importance of consumer interest in where their food comes from. That analysis also reveals just how far we've come in a relatively short period of time.

The first several audits underscored the industry's weaknesses with respect to its primary competitors and the urgent need to shore up product quality. That is, the focus from the '91, '95, and '00 reports were largely inward-looking. The primary concern revolved around mounting deficiencies regarding consistency, uniformity and predictability. That's especially significant because it's also higher priced. As such, beef was lagging behind pork and poultry from a price / value relationship perspective and thus possessed an inherent competitive disadvantage.

The beef industry worked diligently to correct those shortfalls and initiated a sharp focus on improving customer perceptions from a product quality standpoint. Those efforts were largely successful. The payoff become apparent; by 2005 there was a subtle shift with respect to the various quality challenges going forward. For the first time, the NBQA outlined some new and varying priorities compared to those included in prior assessments.

One of the crucial aspects included a growing need for producers to document specific information when making livestock sales. There was an explicit need to increase age and source verification to subsequently build supply lines of cattle designated for specific domestic and export markets. While that was a new emphasis, the focus still remained largely within the confines of improving product quality, supply chain communication and market efficiencies.

That history provides an important backdrop for 2011. The most recent audit adds an entirely new element and underscores the sharp change in our business. The industry's product is still top priority. However, there's a new theme not previously articulated: "How, when, where cattle were raised." Stated another way, consumer interest now extends beyond the product itself. For a variety of reasons, consumers want to know more about the products they purchase and the process from which those products derive.

The public's awareness regarding food and food production practices is an increasingly important consideration for the entire food industry. Simple focus on product-only attributes is no longer sufficient – the process also matters. Going forward, there's clearly opportunity to fill that demand around the more intangible aspects of food products. That'll surely give rise to development of new business models to take advantage of the changing environment. The message from consumers is coming through loud and clear: they want to know, or at least have access to, the narrative surrounding their purchases.

New expectations from consumers introduce increasing need for the supply chain to document, verify and maintain integrity of information throughout the production cycle. Most significant, it provides opportunity to establish relationships with customers and create loyalty to the industry and its products. And while complicated, there's upside potential to be captured by those entities that successfully manage the coordination, in maintaining a core focus on quality with the added ability to deliver various intangible attributes preferred by customers.

Convergence

Everything a business and/or industry does should be derived from customer needs and priorities. Long-term success is contingent upon a strict focus on the customer where quality, consistency, efficiency and volume become the key emphases. Delivering on those attributes, though, mandates value drivers across the entire supply chain being well coordinated, highly synchronized and clearly communicated. Such focus reverses traditional thinking: it puts the customer first.

Conversely, traditional thinking around production and merchandising begins with core capabilities and assets and subsequently tries to shape investment and effort into products that may (or may not) meet consumer demand (Slywotzky and Morrisson, 2012). Within that framework, commoditized businesses face a continuous question: "What's the market going to do?" That paradigm, though, implies a price-taker mentality and fails the broader industry from a consumer standpoint.

Within the new mindset, success is defined by the ability to deliver quality, consistency, efficiency and volume across a whole realm of products and attributes in multiple channels. Specifically, the beef industry collectively understood that consumer spending at the low-end of the marbling curve and/or inability to consistently deliver quality can prove defeating when it comes to establishing customer satisfaction. Those considerations have mandated the beef industry move from a relatively uncoordinated commodity-sorting system to growing adoption of more specialized production.

Hitting the consumer target going forward requires several considerations. First, the quality and consistency aspect is of utmost important. The industry needs to maintain a full-court press in creating high-quality beef to ensure customer satisfaction. That reality is reflected by the challenges the beef industry has successfully overcome during the past 10 years. Secondly, the matter of price is critical. There's always the need to establish more efficient production with fewer shortfalls thereby improving price competitiveness within the overall protein market. Third, reliable product delivery, volume assurances and longer-run price stability have become increasingly important in the food business. Lastly, an emphasis upon product story and the need to inform consumers about where food comes from will likely be critical when considering product positioning in the market.

Given those considerations, the beef industry will witness the development of more coordinated networks for the purpose of creating beef products that meet such requirements and fit specified markets. The shape of such networks will vary depending upon end-user targets. Nonetheless, increased coordination will facilitate improved cost controls, more efficient scheduling of inputs, enhanced financial discipline and better risk management. Simultaneously, networks also facilitate enhanced quality drivers due to emphasis on feedback, supply chain stability, new value creation and open communications. Finally, coordination helps ensure long-run competitive positioning around volume and pricing strategies. Those attributes all lead to more competitiveness and efficiency.

Consumer focus will likely mean less autonomy and independence as there'll be greater need to make use of cost controls and price stability, more efficient scheduling of inputs, enhanced risk management and better production feedback. Consequently, each and every stakeholder in the food production value chain will have to become even more versatile in the future, willing to share accountability to meet end-user stipulations. For the beef industry, that likely equates to greater influence on genetic inputs and breeding systems that most effectively create high-valued beef carcasses. Additionally, specified management schemes to ensure avoidance of shortfalls would be increasingly important. In combination, there'll likely be increasing delineation around market premiums/discounts of all sorts to establish high-quality product lines.

The beef complex is on a favorable path to meet those requirements, shifting away from a commodity mindset (characterized by adversarial transactions, short-term focus, little concern for added value, limited communication and largely unresponsive supply chains). The path leads to a sharp improvement in both beef quality and consistency: uniformity and tenderness no longer top the list among quality concerns.

Improved customer satisfaction has underpinned beef spending in these challenging times. The spending trend prevalent between 1980 and 2000 has since reversed. Beef is not only keeping up with the competitors but grabbing more than its fair share of new spending (Figure 20). That outcome is especially impressive in this era of trying economic times, heightened competition and empowered consumers. Such efforts to date have served the beef industry well during the past several years – a time in which consumers have had ample opportunity to switch away from beef amidst the financial crisis.

Summary

Deming's core philosophy of quality management revolves around the concept that any sub-process of production should be evaluated only in terms of its relative contribution to the entire system, not based upon its individual production merit or profit (Neave, 1990). Unfortunately, the beef industry is a good example of what occurs when the broader aim of the system is overlooked. History reveals that mutual consumer indifference is devastating: the beef complex endured the 1980-to-1998 era with minimal consumer demand growth.

During that time the market signals were designed to reward only efficiency of production before cattle became the possession of the processor. The result was declining beef demand and challenging markets. The industry needed to refocus to reward both efficiency and encourage production of high-quality cattle, carcasses and the ensuing beef products.

Whatever the targets that evolve over time, though, there'll be growing pressure to maintain genetics and breeding systems capable of delivering high-quality beef products coupled with synchronized supply chains that also facilitate a number of attributes including "product story."

Moreover, coordination will be further driven by new dynamics at work within the business environment, including production and logistic efficiencies.

To ensure continued prosperity, the beef industry will need to be more "transformative minded" while building better networks of managed supply chains to consistently deliver wholesome, desirable beef to consumers as efficiently as possible. That's most effectively derived from all participants thinking about consumers first and working backwards from there. Each stakeholder must consider their respective contribution in the value chain, from the first supplier to the end consumer, as part of a larger network of participants, (Kauffeld, Sauer and Bergson, 2007). Such thinking ultimately spells new opportunities for those beef producers willing to partner and participate in scheduled, structured systems that reward desirable genetics and skilled management.

The protein business, like all businesses, is highly competitive. The beef complex must produce and deliver consistent, high-quality products in an efficient manner to maintain competitiveness in the marketplace. Shifting consumer demand and market-channel influences by restaurants and retailers will increasingly mandate the need for responsive and efficient business models going forward. That equates to the need for even greater influence on genetic inputs and breeding systems to ensure high levels of customer satisfaction. Simultaneously, production management will also need to continually improve to ensure avoidance of shortfalls and to maintain efficiency. By doing so, the beef industry becomes more effective, responsive and ultimately establishes a virtuous loop: production of higher-quality, more desirable products establishing better consumer demand – and in turn, better consumer demand creating the need for even more beef.

"If we don't take advantage of becoming customer-oriented, we'll just be one more generation that missed the opportunity. The food business climate is one of impatient customers and aggressive marketers. What you decide here will determine the direction the industry takes."

Chuck Schroeder, Former CEO,
National Cattlemen's Beef Associaiton (2000)

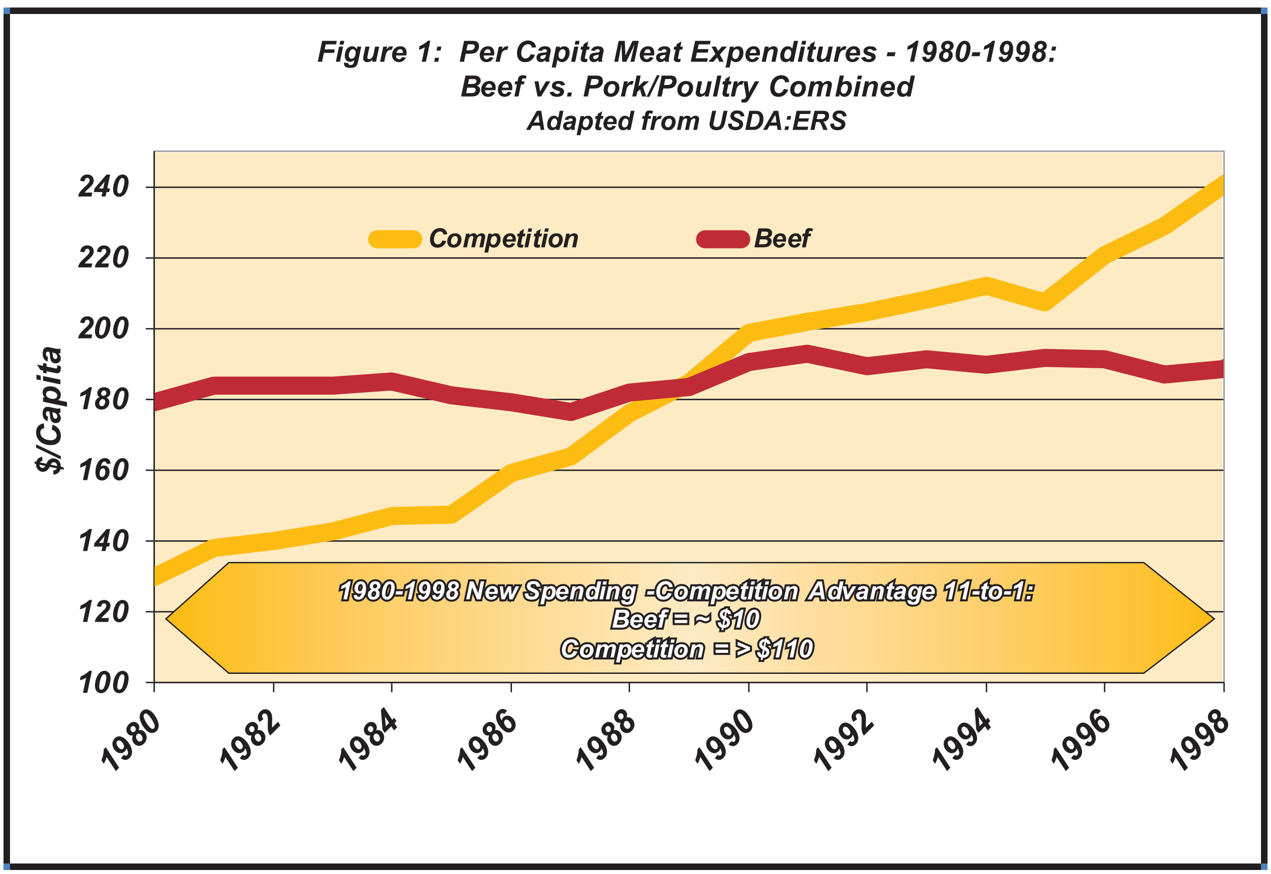


Figure 2: National Beef Quality Audits
Quality Challenges Ranked by Priority
(CBB and NCBA, 2012)

Year				
1991	**1995**	**2000**	**2005**	**2011**
External fat	Overall uniformity	Overall uniformity	Traceability	Food safety
Seam fat	Overall palatability	Carcass weights	Overall uniformity	Eating satisfaction
Overall palatability	Marbling	Tenderness	Instrument grading	How, when, where cattle were raised
Tenderness	Tenderness	Marbling	Market signals	Lean, fat, bone
Overall cutability	External and seam fat	Reduced quality due to implants	Segmentation	Weight and size
Marbling	Cut weights	External fat	Carcass weights	Cattle genetics

Figure 3. Steer/Heifer Harvest Mix:
Percentage Prime and Choice
Adapted from NBQA, 2011

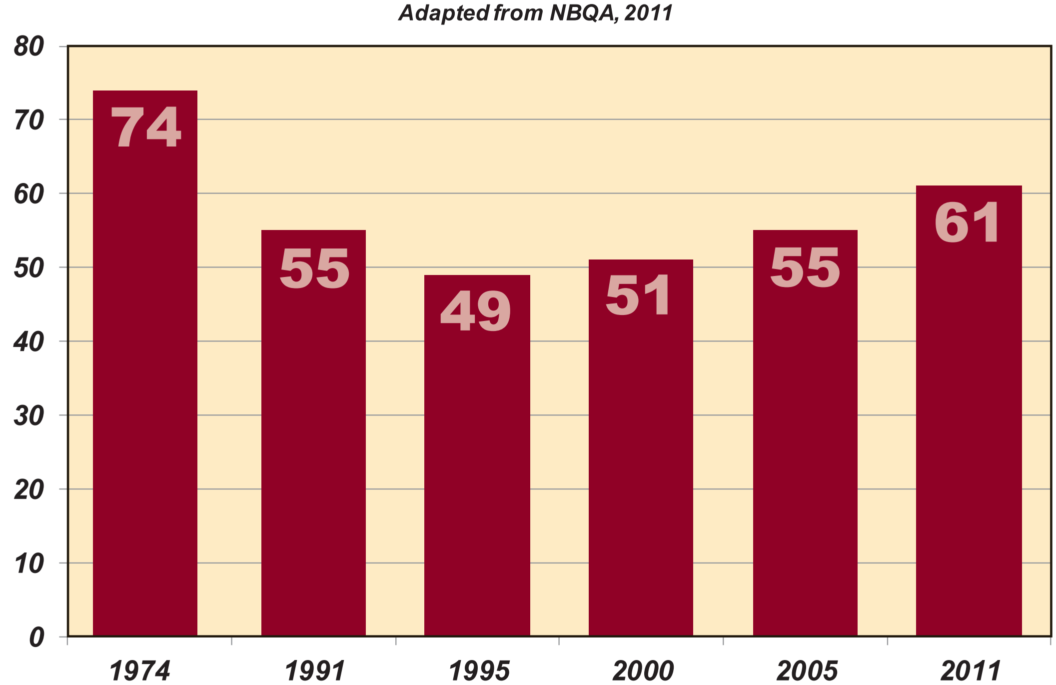


Figure 4. Positive Sensory Experience (% Respondents) and A-Stamp Qualification Rate (%) Categorized by Camera-based Marbling and Corresponding Quality Grade Scores
Source: Emerson, et al. 2013

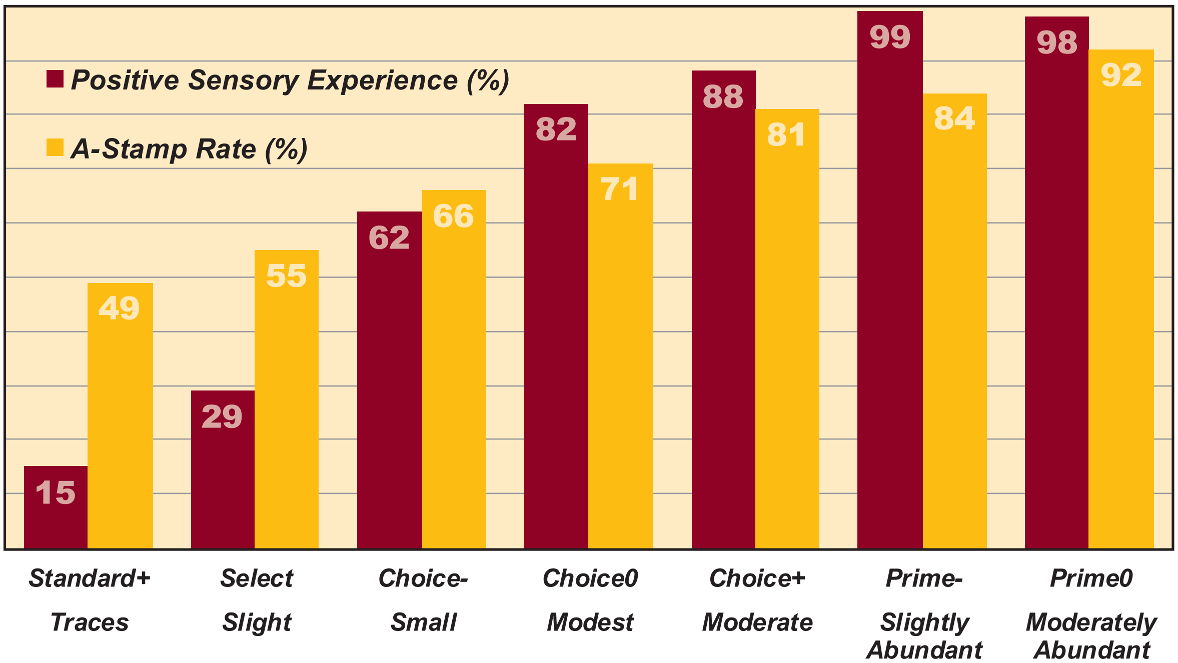
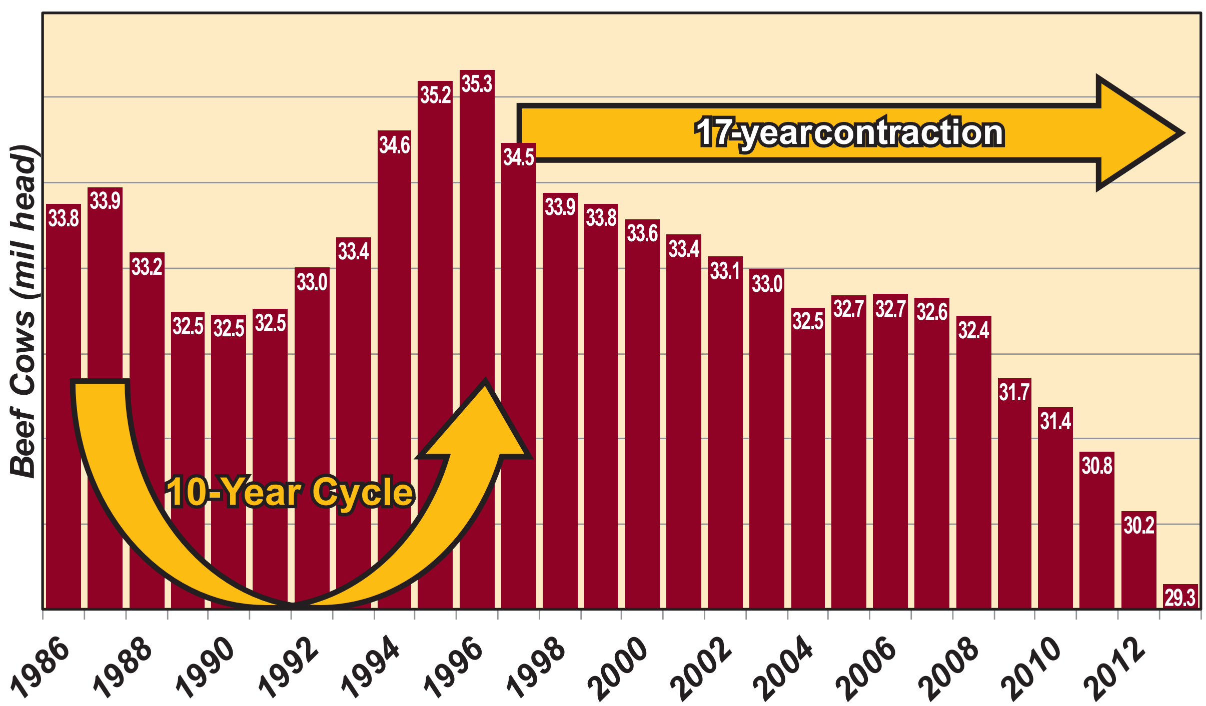


Figure 5. U.S. Jan 1 Beef Cow Inventory (mil cows)
Source: USDA:NASS



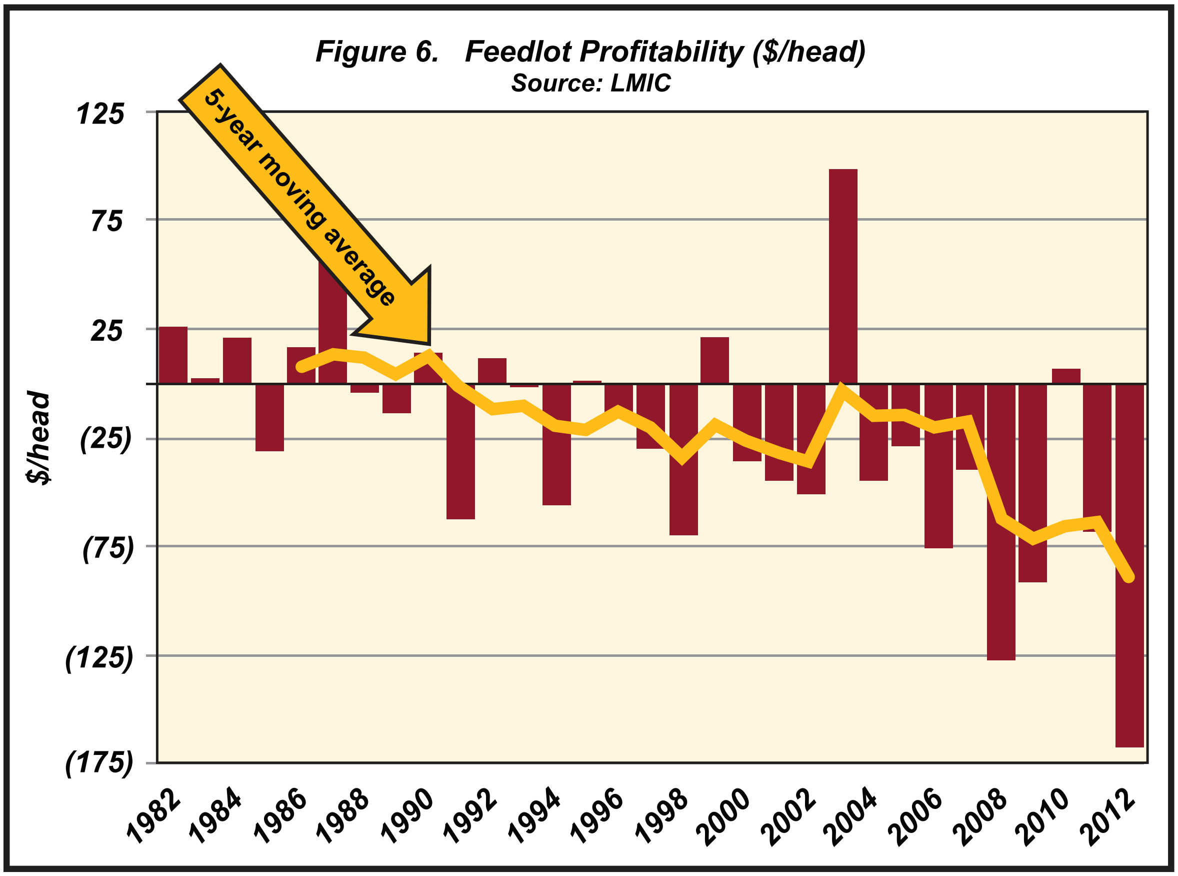


Figure 6. Feedlot Profitability ($/head)
Source: LMIC
5-year moving average
125
75
25
(25)
(75)
(125)
(175)
$/head
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012

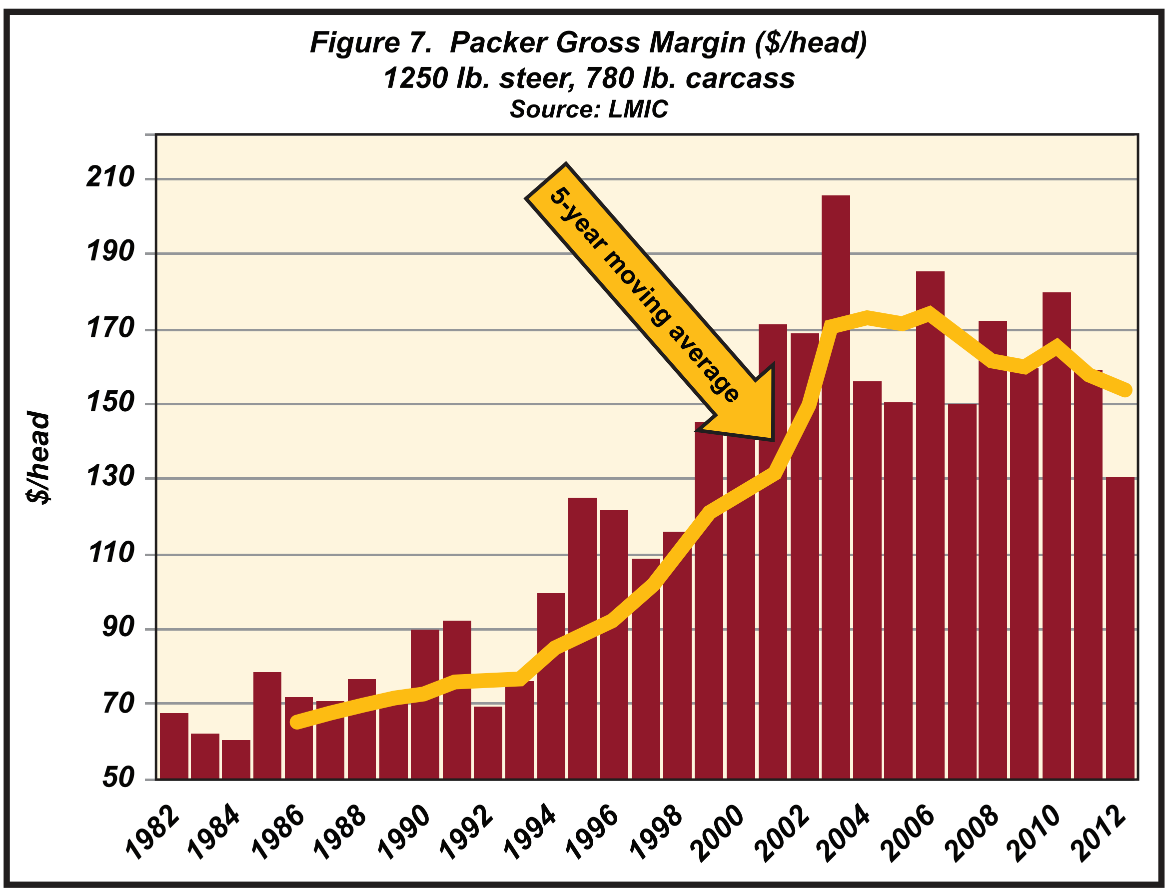


Figure 7. Packer Gross Margin ($/head)
1250 lb. steer, 780 lb. carcass
Source: LMIC
5-year moving average
210
190
170
150
130
110
90
70
50
$/head
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012

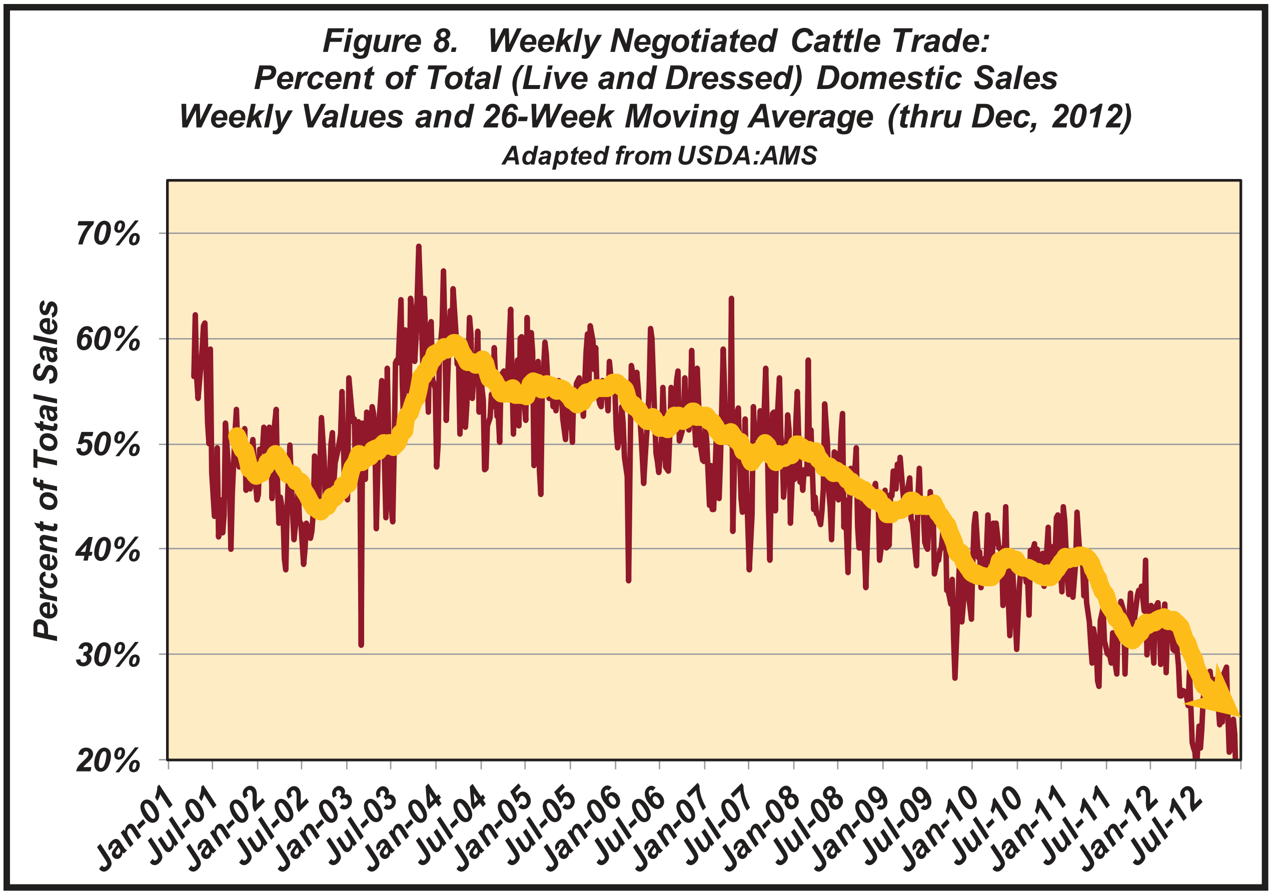


Figure 8. Weekly Negotiated Cattle Trade:
Percent of Total (Live and Dressed) Domestic Sales
Weekly Values and 26-Week Moving Average (thru Dec, 2012)
Adapted from USDA:AMS
Percent of Total Sales
70%
60%
50%
40%
30%
20%
Jan-01
Jul-01
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12

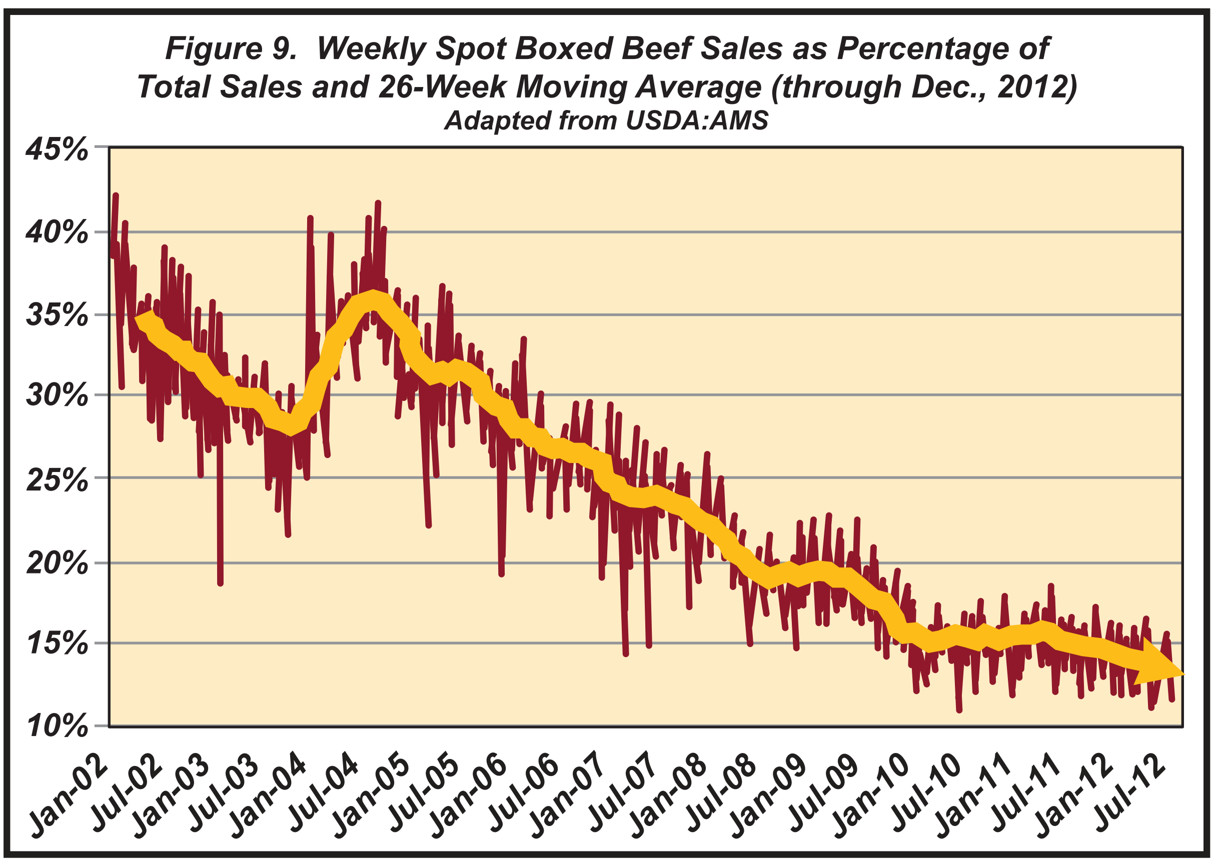


Figure 9. Weekly Spot Boxed Beef Sales as Percentage of
Total Sales and 26-Week Moving Average (through Dec., 2012)
Adapted from USDA:AMS
45%
40%
35%
30%
25%
20%
15%
10%
Jan-02
Jul-02
Jan-03
Jul-03
Jan-04
Jul-04
Jan-05
Jul-05
Jan-06
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12

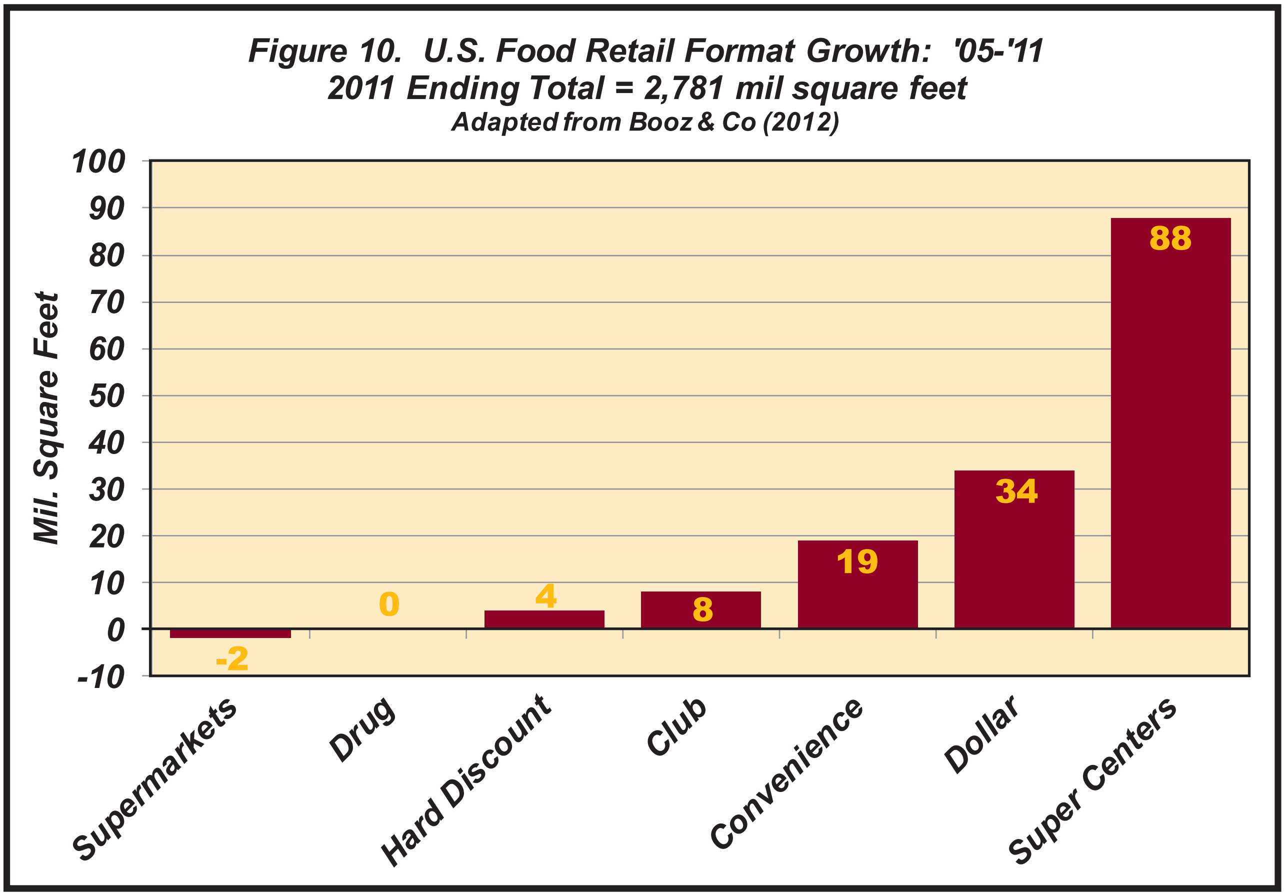


Figure 10. U.S. Food Retail Format Growth: '05-'11
2011 Ending Total = 2,781 mil square feet
Adapted from Booz & Co (2012)
Mil. Square Feet
100
90
80
70
60
50
40
30
20
10
0
-10
-2
0
4
8
19
34
88
Supermarkets
Drug
Hard Discount
Club
Convenience
Dollar
Super Centers

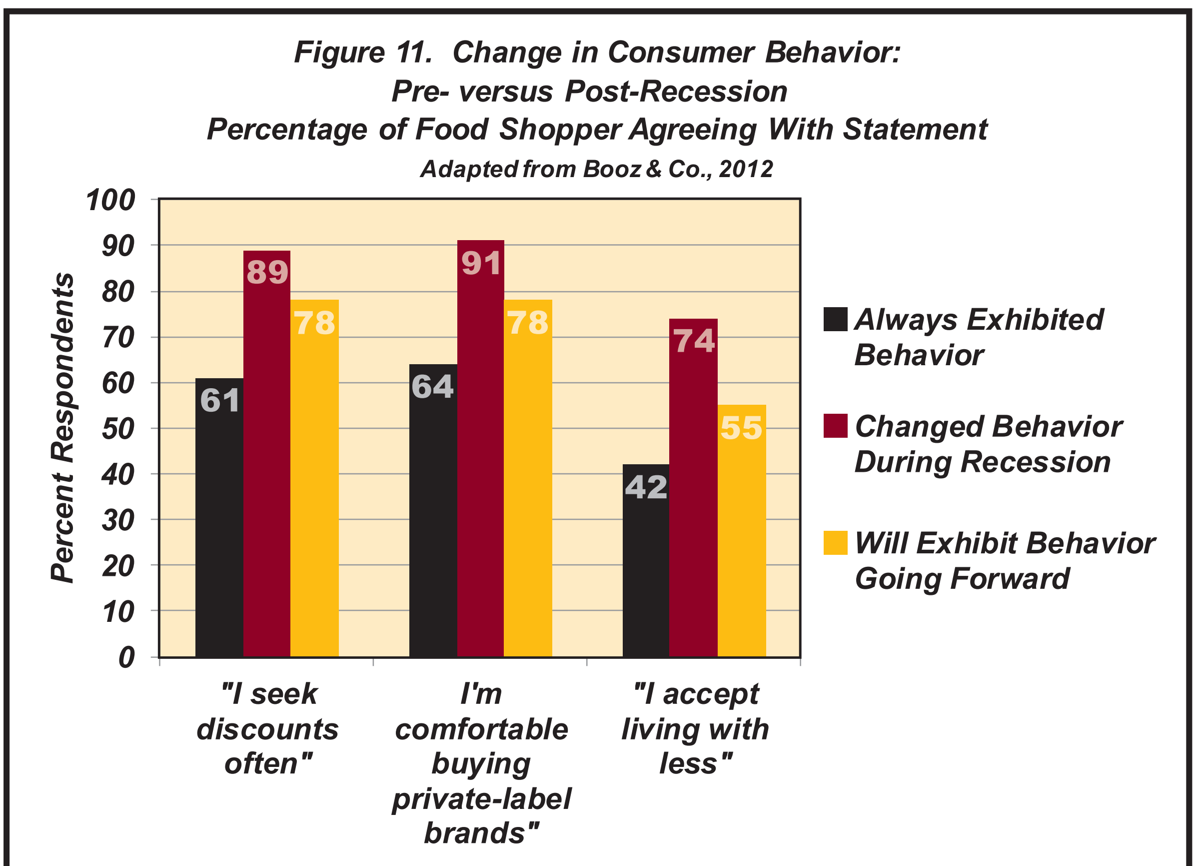


Figure 11. Change in Consumer Behavior:
Pre- versus Post-Recession
Percentage of Food Shopper Agreeing With Statement
Adapted from Booz & Co., 2012
Percent Respondents
100
90
80
70
60
50
40
30
20
10
0
61
89
78
64
91
78
42
74
55
"I seek discounts often"
I'm comfortable buying private-label brands"
"I accept living with less"
Always Exhibited Behavior
Changed Behavior During Recession
Will Exhibit Behavior Going Forward

Figure 12. Cumulative Total of USDA Certified Beef Programs
(categorized by initial release date - adapted from USDA:AMS)

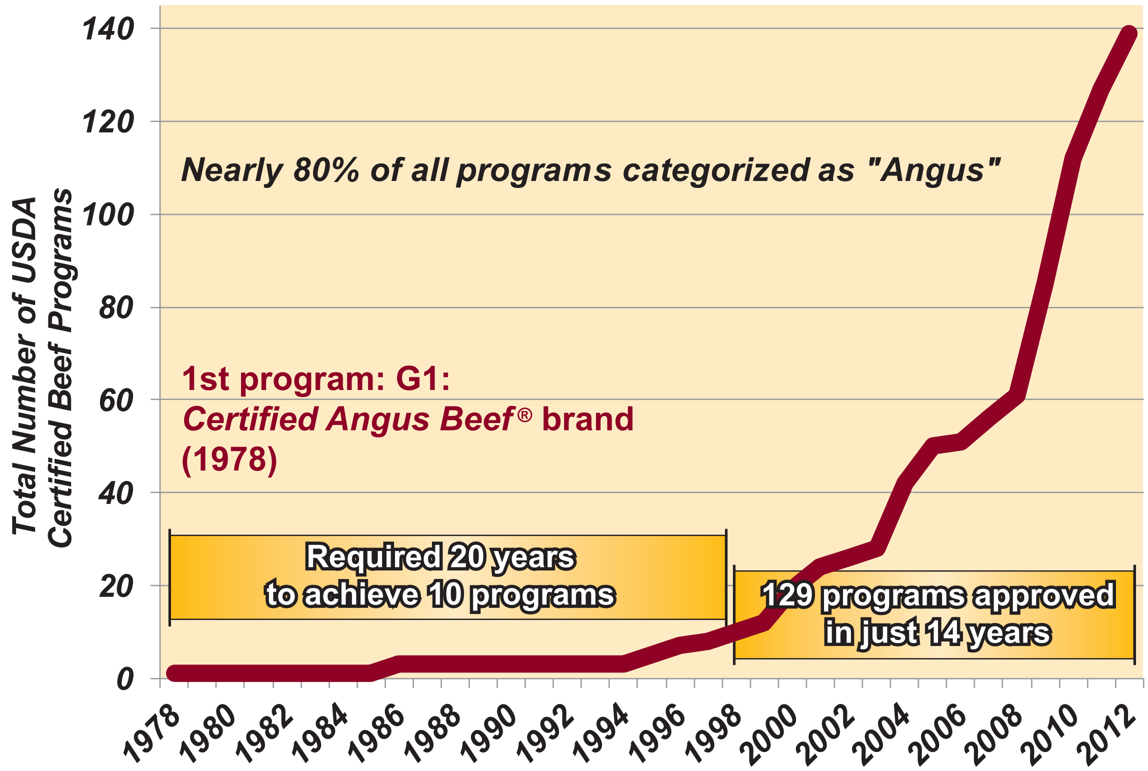


Figure 13. Branded Boxed Beef Sales:
Branded Product as Percent of Total (thru April, 2013)
Weekly Spot Values and 26-week Moving Average
Adapted from USDA:AMS

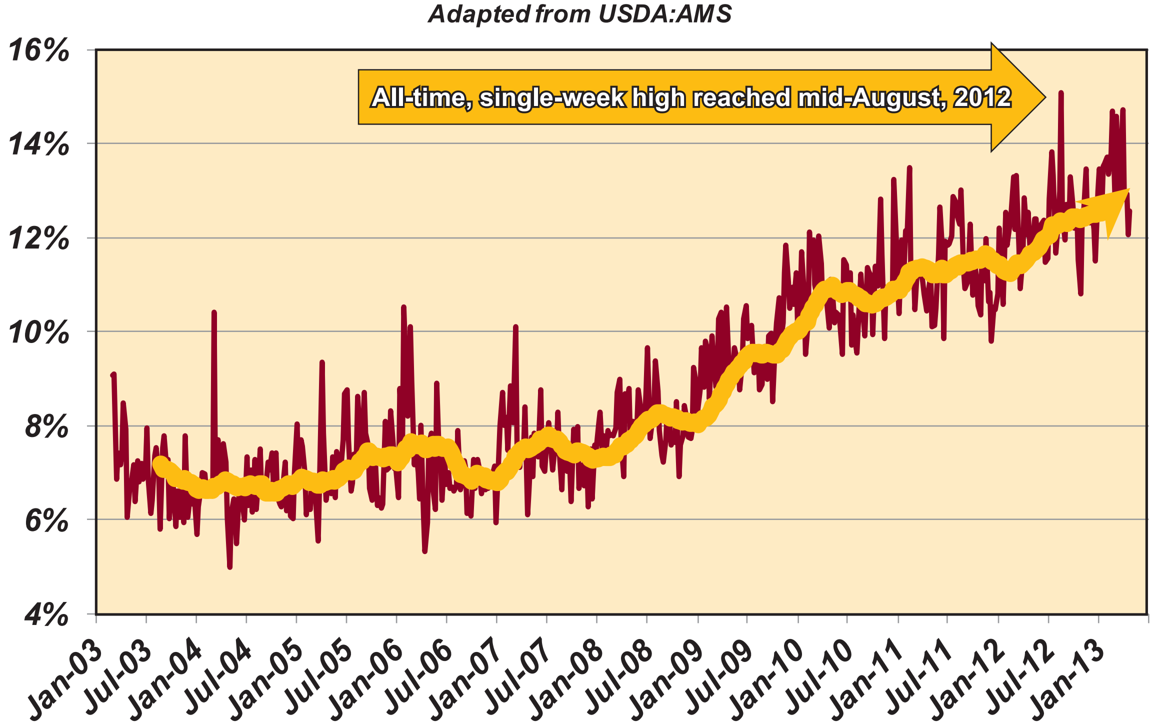


Figure 14. Combined Value of Weekly Prime and Branded Beef Sales (mil $) and 52-week Moving Average

Adapted from USDA:AMS

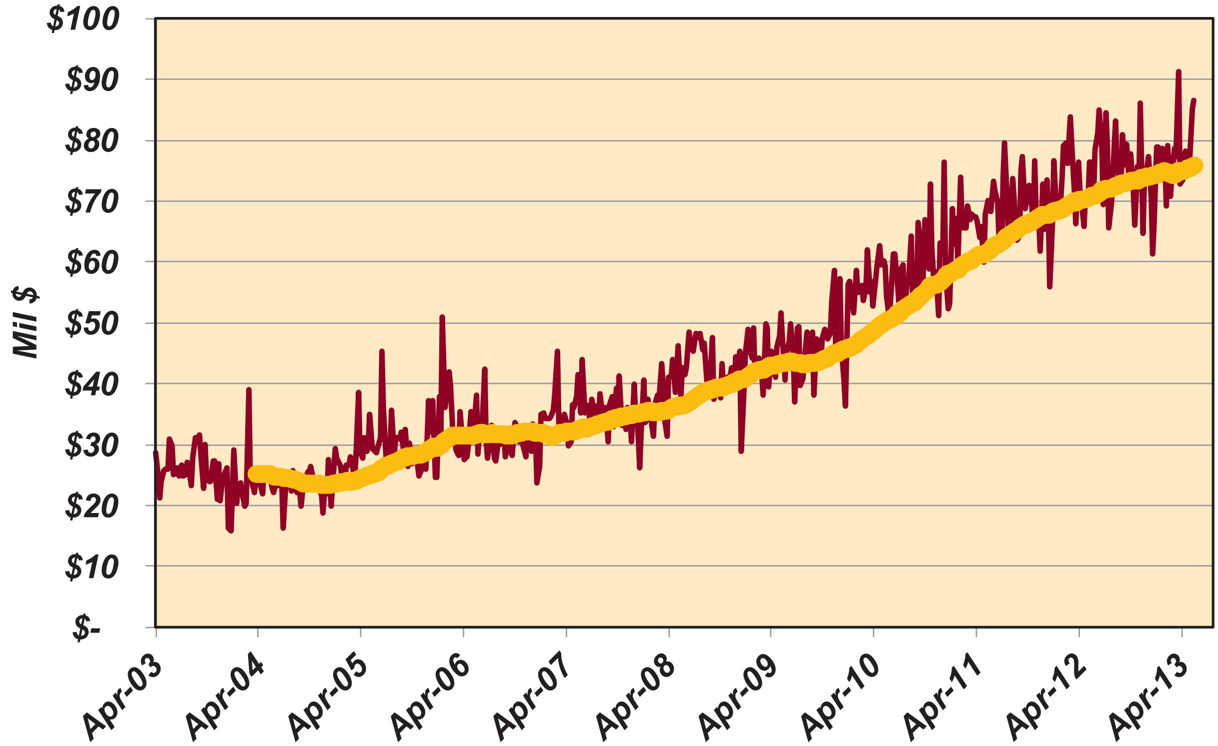


Figure 15. Steer/Heifer Harvest Mix: Percentage Predominately Black Hided

Adapted from NBQA, 2011 (CBB/NCBA, 2012)

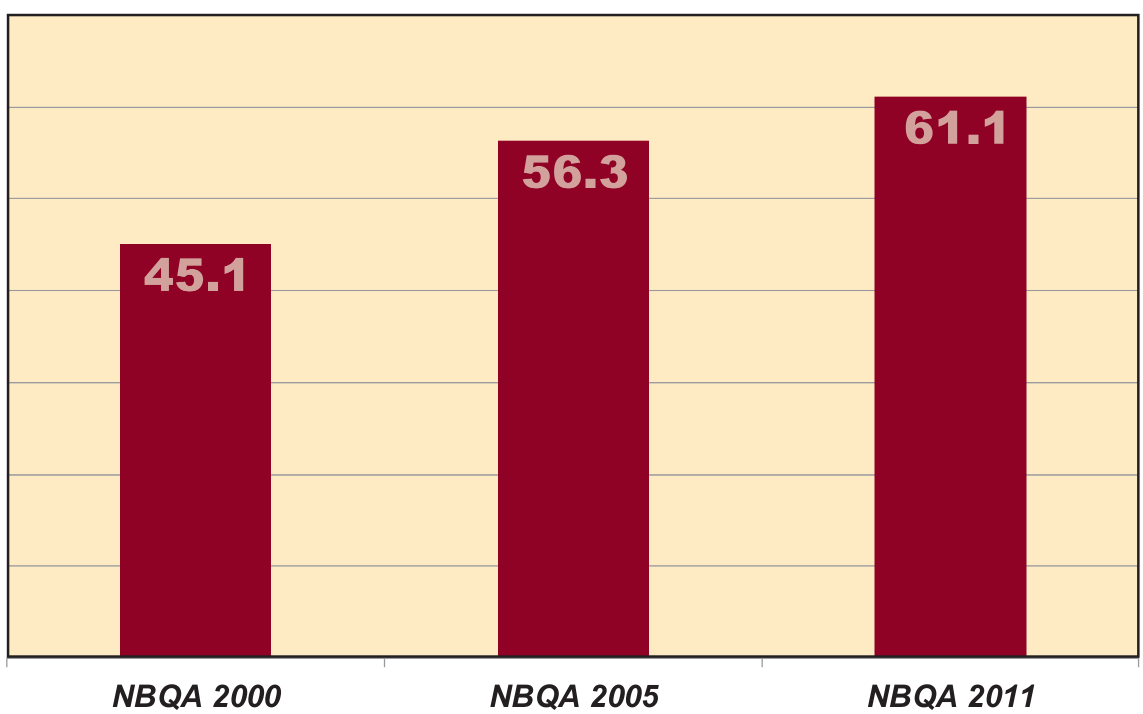


Figure 16. Steer/Heifer Harvest Mix: Percentage Predominately Black Hided
Adapted from NBQA, 2011 (CBB/NCBA, 2012)

Sector				
Retailers	**Foodservice**	**Packers**	**Feeders**	**Government & Allied Industry**
Primarily black hide	Primarily black hide	Primarily black hide	Predominately black hide	Quality genetics
Genetic potential for marbling	Primarily British	Genetic potential for marbling	Genetic potential for marbling	Genetic potential for marbling
NOT Bos indicus	NOT dairy type	Primarily British	Genetic potential to gain	EPDs

Figure 17. Value-Added Management and Documentation: 4-700 lb Steer and Heifer Market Premiums/Discounts ($/cwt) (Simple Average, 2001 - 2010, Superior Livestock Video Sales)
Adapted from Zimmerman et al., 2012

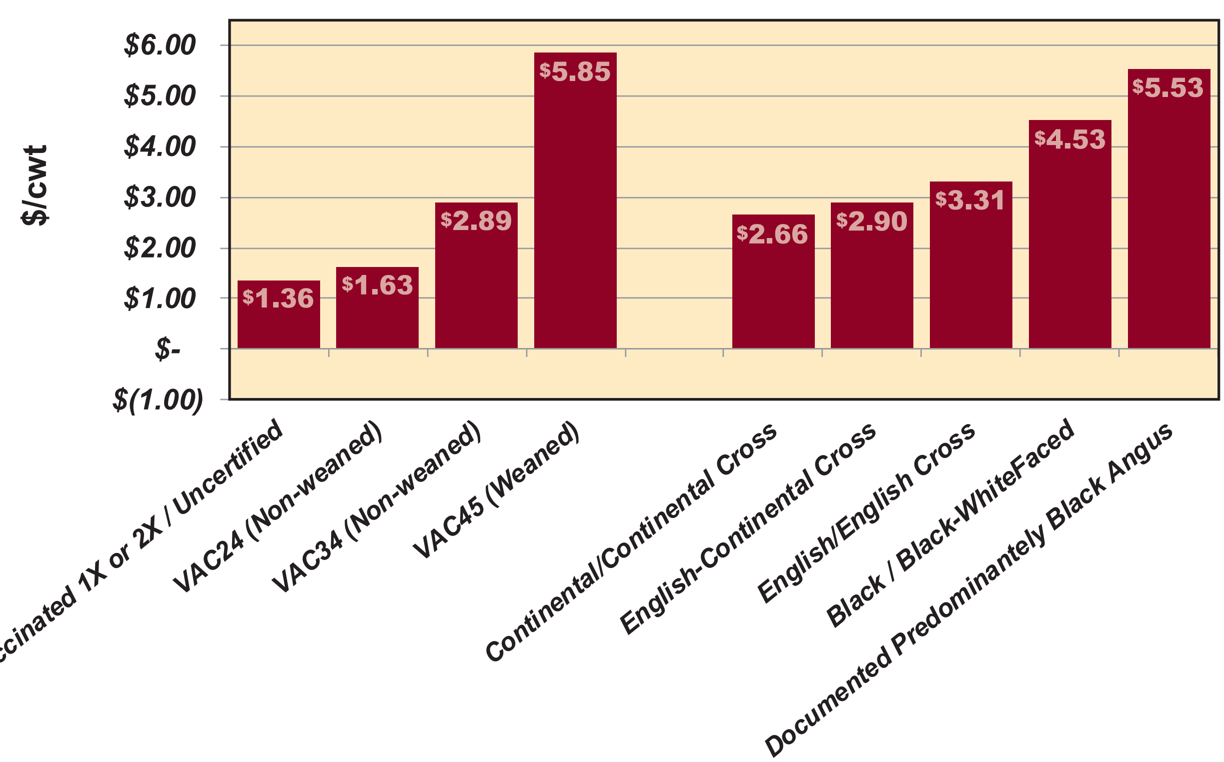


Figure 18. Relative Monthly Retail Prices:
Beef vs. Pork / Poultry (%)
Trendline:12-month Moving Average (Through Feb., 2013)
Adapted from USDA:ERS

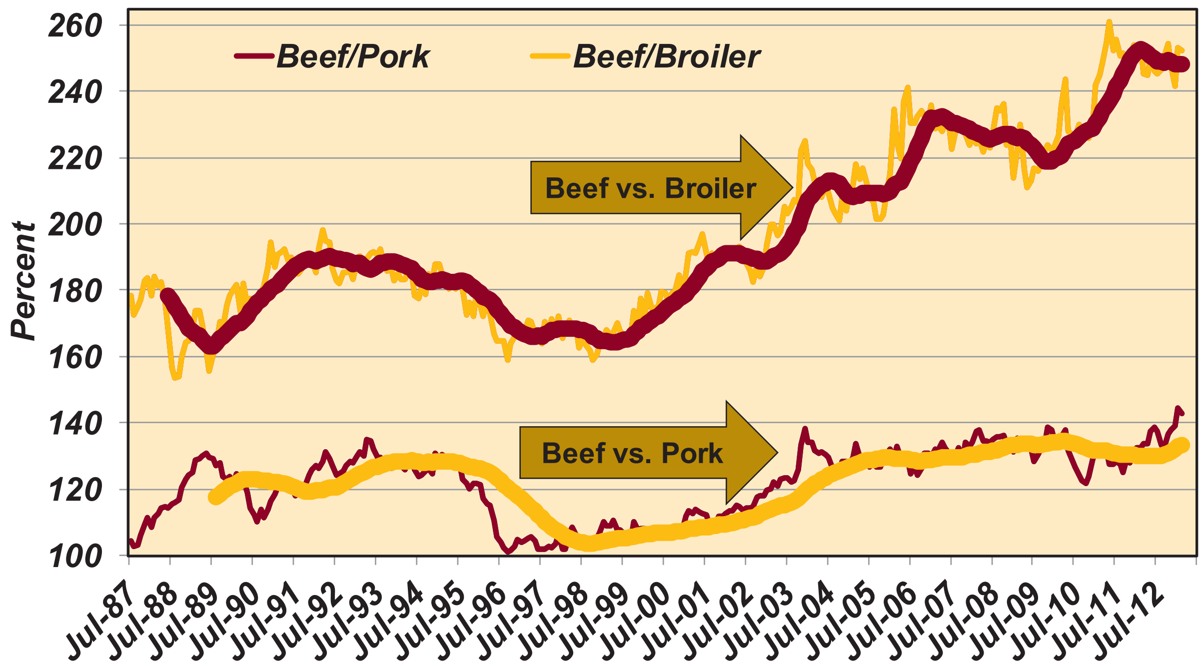
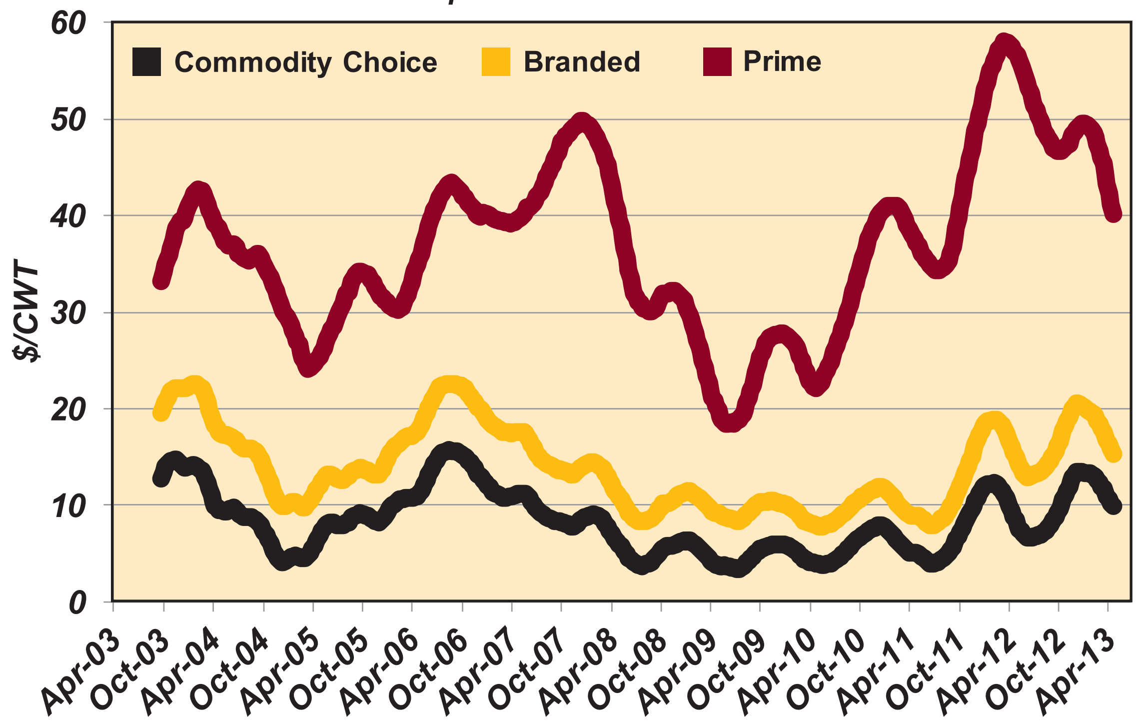
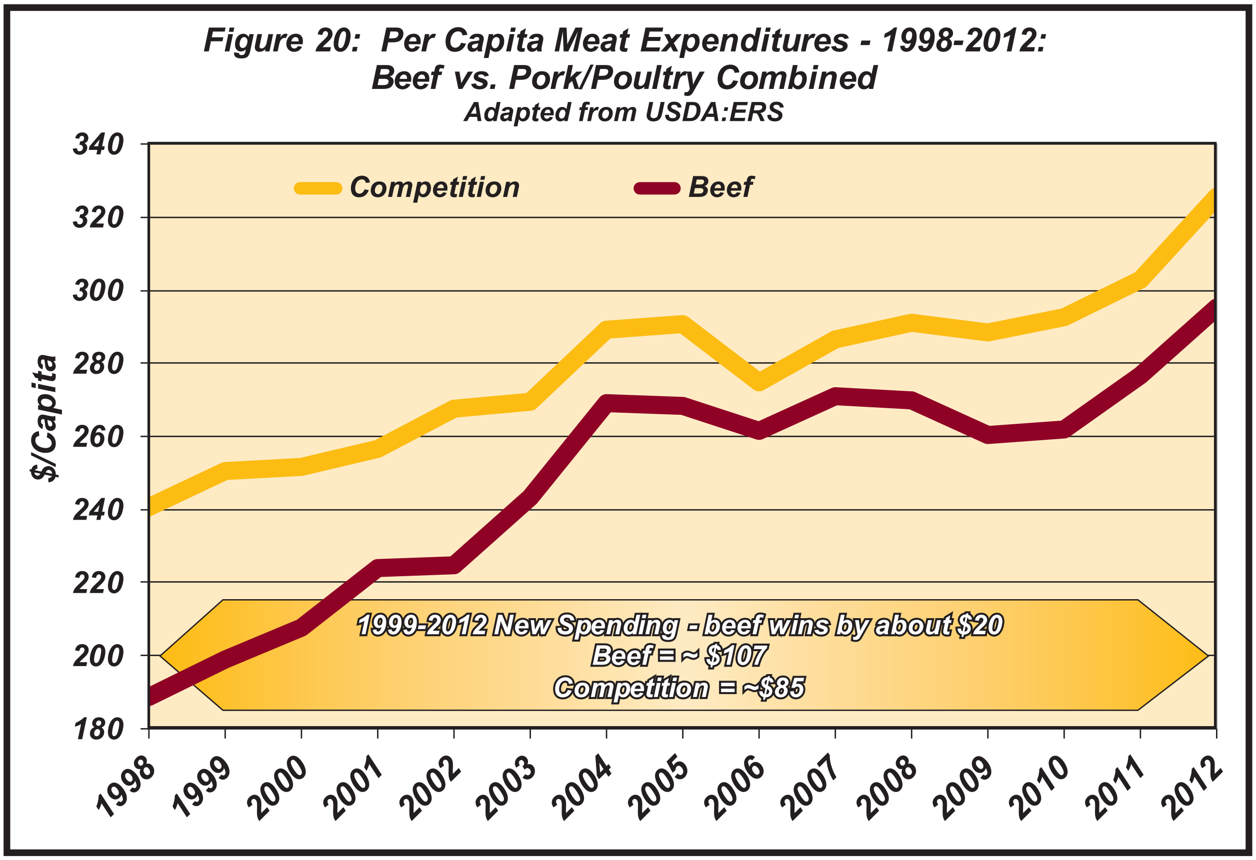


Figure 19: Comprehensive Cutout Price Spreads
Prime, Branded, Choice Product versus Select
26-week moving averages (through April, 2013)
Adapted from USDA:AMS





References

CBB and NCBA. 2012. *National Beef Quality Audit 2011 Producer Fact Sheet*. Cattlemen's Beef Board and National Cattlemen's Beef Association. Centennial, CO.

Cross, H.R., J.W. Savell and J.J. Francis. 1986. *National consumer retail beef study*. In: Proceedings, Reciprocal Meat Conference. American Meat Science Association.

Emerson, M.R., D.R. Woerner, K.E. Belk, and J.D. Tatum. 2013. *Effectiveness of USDA instrument-based marbling measurements for categorizing beef carcasses according to differences in longissimus muscle sensory attributes*. J. Anim. Sci 91:1024-1034

Hodson, N., T. Blischok and M. Egol. 2012. *Four Forces Shaping Competition in Grocery Retailing*. Booz & Co, New York, NY and San Francisco, CA.

LMIC. Livestock Marketing Information Center. Denver, CO.

Morgan, J.B., J.W. Savell, D.S. Hale, R.K. Miller, D.B. Griffin, H.R. Cross and S.D. Shackelford. 1991. *National beef tenderness survey*. J. Anim. Sci. 69:3274.

Kauffeld, R., J. Sauer and S. Bergson. 2007. *Partners at the point of sale*. Strategy and Business, Autumn, 2007 Issue 48. Booz & Co. New York, NY.

Marsh, J.M. 2003. *Impacts of declining U.S. retail beef demand on farm-level beef prices and production*. Am. J. Agri. Econ. 85(4): 902-913

NCA (National Cattlemen's Association). 1990. *The war on fat: a report from the value-based marketing task force.* National Cattlemen's Association. Englewood, CO.

NBQA, 2011. National Beef Quality Audit – 2011. Cattlemen's Beef Board and National Cattlemen's Beef Association. Centennial, CO.

Neave, H.R. 1990. The Deming Dimension. SPC Press, Knoxville, TN.

Porter, M.E. 1998. *Competitive strategy: techniques for analyzing industries and competitors*. The Free Press, Simon and Schuster, New York, NY.

Purcell, W.D. 2002. *Communicating value to cattle producers: Issues, opportunities and looking ahead*. J. Anim. Sci. 80(E. Suppl. 1):E87-E93

Reagan, J.O., M.J. Buyck, J. Bellinger, M. Schiller, D.F. Haley, J. Dyer, J.D. Tatum, J.W. Wise, J.W. Savell, R.K. Miller, T.R. Neely, C.L. Lorenzen and J.F. Taylor. 1995. *Beef customer satisfaction. Report to the industry – a comprehensive in-home product test among frequent beef consumers*. National Livestock and Meat Board, Chicago, IL.

Reichheld, F.F. 1993. *The one number you need to grow*. Harvard Business Review, December. Boston, MA.

Savell, J.W., R.E. Branson, H.R. Cross, D.M. Stiffler, J.W. Wise, D.B. Griffin and G.C. Smith. 1987. *National consumer retail beef study: palatability evaluations of beef loin steaks that differed in marbling*. J. Food Sci. 52:517

Savell, J.W., H.R. Cross, J.J. Francis, J.W. Wise, D.S. Hale, D.L. Wilkes and G.C. Smith. 1989. *National consumer retail beef study: interaction of trim level, price and grade on consumer acceptance of beef steaks and roasts*. J. Food Qual. 12:251

Savell, J.W., J.J. Harris, H.R. Cross, D.S. Hale, L. Beasley. 1991. *National beef market basket survey*. J. Anim. Sci. 69:2883

Schroeder, Chuck. 2000. National Cattlemen's Beef Association, Englewood, CO.

Slywotzky, A.J. and D.J. Morrisson. 2002. *The profit zone: how strategic business design will lead you to tomorrow's profits*. Three Rivers Press, New York, NY.

Smith, G.C., J.W. Savell, H.R. Cross, Z.L. Carpenter, C.E. Murphy, G.W. Davis, H.C. Abraham, F.C. Parrish, and B.W. Berry. 1987. *Relationship of USDA quality grades to palatability of cooked beef.* J. Food Qual. 10:269.

Smith, G.C., J.W. Savell, R.P. Clayton, T.G. Field, D.B. Griffin, D.S. Hale, M.F. Miller, T.H. Montgomery, J.B. Morgan, J.D. Tatum, J.W. Wise, D.L. Wilkes and C.D. Lambert. 1992. *Improving the consistency and competitiveness of beef. The Final Report of the National Beef Quality Audit – 1991*, conducted by Colorado State University and Texas A&M University for the National Cattlemen's Association on behalf of the Cattlemen's Beef Promotion and research Board. Centennial, CO.

Smith, G.C., J.W. Savell, J.B. Morgan, T.E. Lawrence, K. Belk, T.G. Field, L. Garcia, D. Griffin, D. Hale, T. Hoffman, J. Scanga, J.D. Tatum, D. VanOverbeke and K. Voges. 2006. *Improving the Quality, Consistency, Competitiveness and Market-share of Beef. The Final Report of the Third Blueprint for the Total Quality Management in the Fed-Beef (slaughter steer/heifer) Industry. National Beef Quality Audit – 2005*, conducted by Colorado State University, Texas A&M University, Oklahoma State University and West Texas A&M University for the National Cattlemen's Beef Association on behalf of the Cattlemen's Beef Promotion and Research Board. Centennial, CO.

Speer, N.C. 2012. *State of the Industry*. BEEF Magazine. Penton Media, Minneapolis, MN.

Stika, J. 2012. *Relevance of marbling to the beef industry*. American Meat Science Association, Savoy, IL.

USDA:AMS. Agricultural Marketing Service. United States Department of Agriculture, Washington, D.C.

USDA:ERS. Economic Research Service. United States Department of Agriculture. Washington, D.C.

USDA:NASS. National Agriculture Statistics Service. United States Department of Agriculture. Washington, D.C.

Yankelovich, Skelly and White. 1985. *The consumer climate for red meat: executive summary*. Prepared for American Meat Institute and National Livestock and Meat Board. Yankelovich, Skelly and White. New York, NY.

Zimmerman, L.C., T.C. Schroeder, K.C. Dhuyvetter, K.C. Olson, G.L. Stokka, J.T. Seeger and D.M. Grotelueschen. 2012. *The effect of value-added management on calf prices at Superior Livestock Auction video markets*. J. Ag. and Res. Econ. 37(1):128-143.

Zimmerman, L.C. and T.C. Schroeder. 2013. *Defining and quantifying Certified Angus Beef ® brand consumer demand*. Certified Angus Beef, Manhattan, KS and Wooster, OH