

2 Beef Industry Issues and the Future

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Objectives

- **Identify a set of broad, fundamental issues likely to be the foundation of the majority of industry discussions.**

Any industry as large and diverse as the U.S. beef industry has a constantly changing stream of issues occupying industry attention at any point in time. It is impossible to anticipate the array of short-term issues that will preoccupy the industry in the coming years. This chapter will identify a set of broad, fundamental issues likely to be at the root of the majority of industry discussions in one fashion or another for the foreseeable future. Such a discussion of fundamental industry issues is particularly appropriate at the time of printing. The U.S. beef industry seems to be at a crossroads with respect to the future, and the next five to 10 years are likely to be a time of rapid change, as much as the last five years have been.

The U.S. Cattle and Beef Industry is Extremely Complex

Considering changes that are occurring or will occur in the coming years, it is important to keep in mind the economic challenges inherent in the beef industry. The U.S. beef cattle industry ranks as one of the most, if not the most, complex industries in the world. Recognition of this reality is important to help producers, industry leaders and policy makers understand the need for, as well as the difficulty of, the changes facing the industry.

Disassembly and Product Diversity

The beef industry produces thousands of different products, all of which originate from a diverse set of individual animals. Many of these products are part of related sets of markets from which value must be determined and in which value depends not only on the product, but also the entire set of products in the market at a given point in time. Thus,

the value of an individual animal depends both on its quality characteristics and competing sets of products at the time it is marketed, including all other animals marketed at that time. This is made more complex by the joint product nature of beef production. Every animal represents a basic set of products produced simultaneously. Although fabricating styles and further processing can modify the set of beef products from an animal somewhat, it is fundamentally impossible to produce a loin without also producing a chuck and a round. Many beef products are highly substitutable for other beef products, so the market must simultaneously optimize value over the entire set of beef animal products.

Perishability

Most of the products described previously are highly perishable, which further increases the industry's challenge to provide a stable supply of the set of products desired by consumers. Perishability is most obvious with meat products, but animals are constantly growing and changing in quality, which means live animals, as well as meat products, are appropriately viewed as perishable throughout the production and marketing period.

Geographic Diversity of Production

Beef cattle are produced in all regions of the country, in a wide variety of physical and climatic environments and using a wide variety of feed and production resources. This production diversity promotes additional quality variation in animals and increases the spatial complexity of beef markets. The right way to produce beef and production in each region must balance the economic forces of location, climate and resource availability.

Seasonality of Production and Consumption

Beef cattle production is inherently tied to annual cycles of feed and forage production, thus the market must contend with seasonal patterns of animal availability and age/size demographics influencing animal and meat quality. Moreover, consumer demand is seasonal as well, with climatic- and calendar-influenced variations in quantity and types of meat demanded. Production and consumption seasonality combine to form a complex set of seasonal price patterns

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with different effects on various cattle and meat markets.

Dairy Industry Influence on Beef Production

Dairy product markets dictate the structure and management of the dairy industry. However, production of meat is a co-product of dairy production, and this has a significant influence on beef markets. Roughly half of annual cow slaughter and about 20% of total beef production is derived from dairy animals. Often, the economic signals for dairy and beef markets are different, causing the two beef meat sources to influence meat markets in conflicting ways. In some instances, the beef cattle industry will have to compensate for dairy industry influences that are contrary to meat market conditions, thereby adding more variability and complexity to beef industry adjustments.

Many Final Markets

The vast array of beef products produced by the industry is a complex set of final markets. The three major beef markets are retail grocery; food service, also known as hotel, restaurant and institution (HRI); and exports. Each of these market types represents a different set of market characteristics and therefore, demands for different profiles of the total set of products.

Biological Influence

Cattle production, like much of agriculture, is dependent on the interaction of the biological process and climate to ultimately determine the quantity and quality of production. The biological realities of cattle production also represent additional complexities for the industry. Long production lags (16 months to 20 months to sexual maturity; nine months gestation; eight months to weaning; six months to 12 months growing and finishing) result in pronounced market dynamics as producers attempt to adjust production to changing market conditions. Biology dictates the stock of breeding animals from which production is made and the level of production must both come from the same inventory of animals. Because there is a one-to-one relationship between changes in breeding animal inventory and changes in production, attempts to expand production in the future first require a direct reduction in beef meat supply to increase future productive capacity. Likewise, desires to reduce production result in an immediate increase in beef meat supply as breeding animals are liquidated and the meat becomes part of commercial supply. This is one of the reasons the beef industry tends to exhibit cycles of prices and production through time.

Multiple Stages of Production and Marketing

The beef industry is somewhat unique in having multiple stages of production to produce a single product—a finished animal ready for slaughter. Cow-calf, stocker and feedlot stages often are done in different locations and with changes in ownership. This means the beef industry historically has relied to a great extent on market prices to coordinate the level, timing and quality of animal production. This is a huge burden on a single price signal. Moreover, the stocker and

feedlot stages represent a combination of basic production values plus marketing values, including much of the market's need for assembly, storage and transportation of animals.

Variable Production Systems

The ruminant physiology of cattle makes them uniquely suited to utilize a wide variety of feed resources for production. Cattle are less efficient at utilizing grain for meat production than swine and poultry. This makes beef inherently more expensive than pork or poultry meat. The beef industry maintains relative cost competitiveness because cheaper forage is utilized in early animal production stages to offset higher grain cost for finishing cattle. This use of forage is central to the economic viability of the beef industry. However, some use of grain in cattle production is vital to produce the quality of meat demanded by consumers in the U.S. market. Thus, the beef industry has considerable flexibility to use varying combinations of grain and forage and therefore is able to adjust production systems according to variable market conditions. This represents both an opportunity and a challenge. Changes in the relative values of grain and forages give beef more ability to maintain competitiveness by adjusting production systems. However, doing so requires complex market signals to simultaneously coordinate the activities of multiple stages of production and marketing.

From Commodity Industry to Product Industry

Today's U.S. beef industry really emerged after the Civil War. For most of this 150-year history, the beef industry primarily has operated as a commodity industry, especially at the live animal production level. Producers mostly were focused on production and only indirectly concerned themselves with market demand forces. Although the industry has marketed an increasingly diverse set of products for many years, for the most part, the marketing system primarily was concerned with maximizing the value of the products presented by producers and producers received only crude price signals that did more to change production levels than to change the quality profile of the set of products. Everyone produced what they wanted, when they wanted and the marketing system attempted to find value for those products.

The industry has made great progress in improving production and marketing efficiency, especially during the last 40 years. The industry today is producing more pounds of beef per cow than any other previous time. This is a result of enhanced production efficiency in each of the production subsectors. Better genetics, better management and new technology in the form of growth promotants, feed additives and new drugs and vaccines all have contributed to productivity improvements. However, these gains in productivity have resulted from optimizing within a subsector. For example, producers have utilized better genetics to increase animal size and growth rates with relatively little consideration, at least until recently, of the meat quality or market composition of resulting products. The result has been a tendency

to overemphasize production characteristics relative to consumption characteristics. Producers have responded very well to incentives. Unfortunately, those incentives have been focused largely on pounds of production rather than meeting consumer demand for particular sets of products with specific qualities. The industry's inability to incorporate consumer qualitative and quantitative preferences into beef production systems was a major contributor to the 20-year erosion of beef demand from the late 1970s to the late 1990s.

Since 1999, there has been evidence the erosion of beef demand has reversed. Rapid change has generated much discussion and, in some cases, concern among producers. It appears the cattle and beef industry is dealing with a variety of issues simultaneously, impacting the entire production and marketing system. Economic forces are directing the industry to behave as a unified industry, instead of a set of related but independent subsectors. Optimizing the industry as a single system requires modifications in production and marketing systems compared to practices that optimize individual subsectors of the industry. These questions go beyond what an individual firm in the industry can do alone and imply the need for individuals in the industry to participate in changes sweeping the industry. In short, these changes imply more market coordination in the industry. These changes clearly have been underway for several years and the evolution likely will accelerate for another five to 10 years.

To realize the market potential for an increasing array of differentiated beef products and marketing channels in domestic and international markets, the industry must develop and utilize more precise value signals. These signals must not only influence beef product marketing, but also must focus production to provide the correct set of animals to increase the total market value of the resulting products. For example, to the extent that consumers prefer Choice quality over Select quality, the market must provide incentives not only to produce more Choice, but also to produce fewer Select animals so Select meat is not occupying a spot at the retail counter where Choice is really preferred. Increases in Choice and Prime beef percentages in recent years indicates the industry has responded to value signals in beef markets.

The move from a commodity orientation to a differentiated product orientation for producers carries with it a host of changes and implications and perhaps the loss of cultural elements and traditional comfort zones. For many producers, these changes represent a threat to cherished lifestyles or, at least, considerable frustration as they try to adapt to new ways of thinking and doing business. Whether or not the industry is comfortable with some of the changes, the alternative to moving forward is declining consumer demand and erosion of market share that would continue to reduce the size of the industry. Continued changes in consumer lifestyles and economic status with both domestic and global markets, combined with increased competition and innovation within protein markets, strongly suggest that maintaining the status quo is not a viable option. A differentiated, product-oriented beef industry presents new opportunities and increased potential like no other time in the history of the industry.

Industry Issues

The sections that follow discuss three broadly defined drivers of change that likely will play a major role in the industry in the coming decade:

- Value-based production and marketing of differentiated products.
- Food safety and food quality assurance.
- Global markets and international trade.

These are not new issues; indeed, they have been at work in the industry for several years. The industry has changed considerably, especially in the last five years, but it seems clear more change is ahead. In addition, this chapter includes discussions of two topics that, while not the sources of change themselves, will be critical in shaping how the industry reacts to and evolves in the face of the changes confronting the industry. These two areas include 1) the idea of traceability, which will broaden to eventually encompass things such as animal ID and country-of-origin labeling (COOL) and 2) the power struggles, legal wrangling and political maneuverings that currently divide and undermine the industry.

Value-Based Production and Marketing

There seems to be little doubt beef markets will continue to increase value by targeting products to increasingly specialized markets and developing an increasing array of differentiated products. Beef markets represent a wide variety of products of varying quality for a multitude of different uses. Maximizing value to consumers means producing the proper set of products that serve the intended uses at the lowest cost. This implies a continued and growing need for value signals to reach producers earlier and for production to be targeted to specific final markets. Producers will receive price signals and perhaps non-price signals that are ever more specific to produce certain products and not produce certain products.

Several other trends can be inferred from the growth of differentiated product markets. Product uniformity will take on an enhanced role in the future. Value is not only a matter of the quality of individual animals, but also the predictability and consistency of quality in sets of animals. Additionally, the role of commodity grades and standards will change. With less reliance on the rather coarse system of value distinction that worked well in the past, there will be a need for more detailed determination of value characteristics. Firms will augment commodity grades with proprietary systems of quality grading and product standards. In some markets, it is likely private product brands largely may replace government grades as consumer indicators of value.

The enhanced value of differentiated products consists of providing specific and consistent product quality, plus achieving and maintaining a high level of quality assurance for consumers. Added value occurs when consumers find products that meet specific needs. That value increases over time as consumers develop trust in the reliability and consistency of the

products. In many cases, such quality assurance may require additional information about the production process such as source and process verification. Firms in the production and marketing chain may require such information internally and in some cases, this information is communicated directly to consumers. In an increasing number of instances, consumers are demanding information beyond what is readily apparent in the product characteristics such as assurances about the source or process by which products are produced. Production and marketing systems will include or exclude specific practices as dictated by the particular market. These will include the use or non-use of certain production technologies, production practices, such as animal welfare standards and production systems, such as natural or grassfed. Markets such as natural beef or organic beef likely will grow, but will remain niche markets. Major restaurants and institutional buyers will increasingly require certification of things such as humane animal production and processing standards.

The tendencies identified above have a number of implications for cattle producers. In general, producers need to better understand the market and identify their role in a differentiated product market. Unlike commodity markets, identifying and targeting beef production to specific markets will be important. The change from commodity to differentiated products implies two very important changes for producers: loss of anonymity and commitment. Historically, producers have been able to produce what they want, in the manner they want and market such production anonymously in a vast commodity system. Consumer preferences were felt only indirectly and often with long delays. In a world of differentiated products, there is not only less value in such production systems, there is less and less opportunity for such to remain economically viable. Many producers feel shackled and/or threatened by the growing need to form business relationships or alliances that commit them to specific production where consequences of failure to meet those commitments will be directed back toward them.

The evolution to a differentiated product market will continue to influence market structure in the beef industry. Value-added production and marketing implies increased use of non-price coordination. In many instances, arms-length transactions based on a single price signal are simply not sufficient to provide the quantitative and qualitative information needed. This is not to say that market signals in the form of prices will not be used. Price signals will continue to play an important role and will discriminate product values to an increasing degree. Increased coordination may occur in a variety of ways, including vertical integration by ownership, contractual arrangements or alliances based on a system of information sharing. Economic forces that have pushed the industry to fewer and larger units will continue and will impact the industry at all levels of production and marketing to various degrees. Simultaneously, there will continue to be concern over the potential negative consequences of changing market structure and a need to monitor industry performance.

Food Safety and Food Quality Assurance

More basic than the marketing considerations described in the previous section are the underlying food safety and food quality assurances critical to any food industry. Quality assurance is used here to refer to the system of regulations that maintain consumer belief food is produced and marketed in a fundamentally safe manner. Although related to the previous section, food quality assurance here is concerned primarily with the role of government regulatory systems and inspections to assure the basic safety of food products. The marketing considerations of the previous section depend and build on the underlying consumer confidence in food safety.

The industry faces several challenges related to health and safety in the coming years including ongoing issues of *E. coli* and Bovine Spongiform Encephalopathy (BSE). There is growing evidence that pathogenic *E. coli* levels can be influenced by management systems. While past systems have relied on processing protocols and sanitation to reduce contamination, management systems to reduce the occurrence of *E. coli* are likely to be needed in the future. This will require a determined and coordinated effort by all industry sectors to reduce the presence of *E. coli* in beef products.

BSE clearly is an issue for the global beef industry and a loss of consumer confidence could have enormous impacts. Human and animal health issues are not one-time events, but rather part of the ongoing market environment. It is imperative both government and industry work proactively to identify, quantify and manage human health issues in a forthright manner. In the case of BSE, where the scientific knowledge of the disease is limited, it is critical to commit additional resources to understanding the disease. As understanding of the disease increases, the industry must adapt and adjust production, marketing and the regulations guiding those activities.

The U.S. beef industry is one of the largest in the world, and the U.S. is one of the largest beef importers and exporters. The U.S. beef industry has much at stake in a world where rapid global transportation means human and animal disease threats can travel the globe at unprecedented rates. More intensive and concentrated production and processing facilities handling large volumes make the potential impacts of disease outbreaks more devastating. Biosecurity needs in production and processing facilities will grow in order to maintain food safety and manage human and animal health risks.

The threat of bioterrorism further increases the risk to the industry and to cattle and beef markets. Animal industries are inherently vulnerable to deliberate introduction of animal disease agents that could cause economic havoc in the

U.S. beef market. Political terrorism resulting from global geopolitical sources may evolve from activities using violence targeted toward people to pure economic terrorism, which systematically targets specific components of the economy. The U.S. food supply is clearly a strategic economic target. Moreover, a number of domestic and international groups opposed to animal production in general or to modern intensive production systems constitute a potential threat of economic sabotage and terrorism.

Global Markets and International Trade

International markets for beef products have grown sharply in recent years and have considerable potential for further growth. Several fundamental forces are behind the growing global potential for meat in general and beef specifically. In part, this potential is the result of a natural tendency for agricultural markets toward trade in value-added products rather than basic commodities. Trade in beef products represents value-added trade relative to trade in bulk grains. Each pound of beef exported is equivalent to exporting several pounds of grain.

A second basis for growing beef trade is that much of the potential growth in global beef demand resides in developing countries and is strongly tied to economic growth in those markets. Domestic agriculture in developing countries usually is preoccupied with meeting basic nutritional needs and often is focused on production of basic commodities. As economic resources grow, consumer demand commonly includes higher proportions of high-density animal proteins to replace lower-quality vegetable proteins.

Finally, trade in beef products is economically based on comparative advantages in production and different relative demands for beef products in different countries. Vast differences in the quantity and quality of beef production in different countries imply tremendous opportunities for gain as countries trade beef products to meet different relative demands for specific products.

The coming years likely will see considerable change in both demand, as market potential develops in countries such as China and supply as production potential grows in countries such as Brazil. Growing international trade offers considerable potential for the U.S. beef industry. However, it also implies greater market dynamics and increased risk of volatility as the market is increasingly subject to diverse economic and political shocks in various countries. The U.S. cattle and beef industry must develop agility to quickly understand and adapt to rapidly changing global market conditions.

One final important point should be recognized with regard to international trade of beef products. It was noted earlier the value of beef production in the domestic market depends on matching products to the specific demands of consumers. International trade is a significant means of enhancing domestic demand for beef by exporting those products less desired in the U.S. and importing those products where there is a relative shortage in U.S. international trade. Therefore, it is not only a means of augmenting total demand

for U.S. beef products with additional export demand, but also a means of increasing domestic demand by optimizing the product mix in the domestic market.

Traceability and Animal Identification

One of the fundamental differences in value-added markets compared to commodity markets is product differentiation. Although beef animals vary considerably in quality, the lack of ability to trace those differences through the production and marketing system has forced the industry to operate as a commodity industry and establish values based on system averages. This has been a principal limitation of the industry throughout its history. Differentiating products requires changing the entire production and marketing system simultaneously and has not been feasible in the past. However, it appears very likely the industry will continue to move quickly in the coming years toward full traceability of all animals and products.

Virtually all of the issues previously discussed have implications for traceability. Increased need for animal health and food safety assurance has provided the thrust for a regulatory role in implementing an animal identification (ID) system to trace beef production and marketing. Both likely will be encompassed in an information system that facilitates enhanced animal health management, product source verification and identifies other value attributes.

Development of a system of animal and product traceability represents the principal hurdle for the beef industry to realize the values and needs for value-added production and marketing, food safety and quality assurance, and global market potentials described above. A fully traceable beef industry represents the leap from the historically commodity-based industry to a differentiated value-added product industry. Also, it represents a major crossroads in the evolution of the beef industry.

As a key component in the development of a value-added beef industry, traceability also implies major changes in the way producers must think and act in the industry. Traceability means producers no longer have the anonymity characteristic of commodity industries. Traceability implies not only more regulatory oversight, but more importantly, more economic oversight as the market directs value signals much more precisely and specifically back to producers. Traceability means that once and for all the illusion of a producer's independence to produce what they want, how they want and when they want is gone. The market will demand more commitment from producers and will force more accountability on producers. For many producers, this prospect is a frightening change in an industry characterized by many cherished traditions and a culture that has historically valued the lifestyle at least as much as, and sometimes more than, the business of cattle and beef production. Many producers currently feel considerable frustration and helplessness in the face of these changes. These producers face much soul-searching as they grapple with whether or how to embrace these changes and adjust to them.

Internal Disputes and Industry Politics

The changes the industry will continue to face in coming years have led to a great deal of controversy and animosity. The longstanding suspicion and mistrust between vertical sectors of the industry have boiled over into political and legal wranglings between subsectors and among producers within various sectors. In recent years, factions within the industry have launched political agendas and lawsuits, representing a significant threat to the industry. Many producers, feeling frustrated and threatened by the changes in the industry, have been drawn into a variety of simplistic but unrealistically narrow agendas and proposed solutions to industry issues. Many volatile issues characterized by emotion-laden charges of economic conspiracy, rampant monopoly power and breakdown of competitive markets are really symptoms of underlying economic forces pushing the industry to evolve into a modern food industry.

The industry has undergone tremendous change since the late 1990s and inevitably faces more structural change in the coming years. As the industry stabilizes, it is likely to emerge with a very different look and feel than what exists today. The temptation to preserve the status quo with

political and legal solutions carries with it the significant threat to cause even greater damage from which the industry must ultimately rebuild. The damage, if not permanent, may certainly be long-lived. One-size-fits-all political or legal solutions are unlikely to be appropriate in an industry so vast and complex and, in many cases, will impede the industry's ability to compete in domestic and international markets and needlessly delay inevitable industry adjustments. It may be asking too much for producers to ever trust packers but it is absolutely critical that the two industry segments recognize the common interests they have and the need for each other to survive.

Conclusion

The industry faces unprecedented opportunities in the next decade with the potential for the first time to truly emerge as a modern food industry. Such opportunities, however, carry with them significant implications for changes in the way the industry is organized and in the way business is conducted. Many producers will continue to feel frustrated and threatened until they are able to decide exactly how they will participate in the beef industry.