

Today's Changing Meat Industry and Tomorrow's Beef Sector

by Chris Bastian, DeeVon Bailey,
Dale J. Menkhaus and Terry F. Glover

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The meat industry has changed dramatically in recent years. Most notable is the changing structures of the broiler, pork and beef sectors. The purpose of this article is to examine the changes which have occurred in each of these sectors and discuss the implications for the future of the beef industry.

Structural change has been the principle characteristic of the meat industry in recent years. Structural change can be defined as changes in the number and/or size of firms in an industry. Structural change can also relate to the amount of product differentiation or changes in the ease of entry into or exit from an industry. Changes in consumer demand brought about by convenience and perceived health concerns have likely stimulated the recent structural transformations within the meat industry.

Firms have become larger and/or fewer in number in all types of meatpacking. Not only have the market shares for large firms increased, but the relationships between processors and producers have become closer, either through contractual agreements or actual integration (ownership) by the processor. The movement towards a closer relationship between processors and input providers is linked in part to the cost structure of the meat processing industry. Meat processing is a decreasing cost industry, i.e., economies of size exist. This implies that the average costs of processing decline rapidly as the number of animals slaughtered increases.

Vertical integration and/or coordination has been the primary method used by processors to increase efficiency in livestock marketing channels. Vertical integration refers to ownership across pricing points in a market channel. An example of vertical integration would be the ownership of hogs by processors from birth through processing and wholesaling. Vertical coordination may occur with or without vertical integration. That is, different segments of the marketing channel may coordinate their efforts with or without the same firm owning both segments. Vertical coordination between producers and processors takes several different forms. Dr. Clement Ward at Oklahoma State University describes these forms as "(1) packer feeding of livestock in packer-owned facilities or on a custom basis; (2) forward contracting or production contracting; and (3) purchasing livestock under exclusive marketing/purchasing agreements." Whether vertical integration or coordination is used, the result is basically the same, producers and/or handlers act in tandem with processors, and processors gain control over at least a portion of the supply needed to operate processing plants efficiently and to better provide the types of products demanded by consumers.

These structural developments in the meat industry have brought about varying degrees of change for the poultry, pork, and beef sectors. Poultry and pork have moved, or are moving, rapidly in terms of product development and differentiation, service, and genetics. This presents an increasing challenge to the beef

industry to remain competitive. The following discussion of the current structural states of the broiler, pork, and beef industries may help to contrast the differences in these industries and trends that will reshape the beef sector in the future.

The Broiler Industry

In a 1990 survey by USDA, it was estimated that 92% of all broilers were raised under production contracts between processors and producers with the remaining 8% being raised on integrator-owned farms. Approximately 45% of all broilers in the United States are processed by the four largest firms. Fully-integrated broiler complexes are designed to capture economies of size that exist in broiler and feed processing. A complex consists of five major components: 1) breeder farm, 2) hatchery, 3) feedmill, 4) grow-out houses, and 5) processing plant. Market coordination between these different components is accomplished by the firm through ownership of the birds literally from egg through final product. For example, even though local producers grow out most broilers in the United States, most of these operators are under contract to broiler processors who own the birds and simply pay a fee to the producers for furnishing the grow-out buildings, labor, and utilities needed to raise the birds for slaughter. The processor furnishes chicks and feed to the producer who is also rewarded with payment incentives for efficient feed conversion.

This integrated production process and coordination across pricing points has gained some efficiencies for the broiler industry. Comparing the broiler and beef sectors, it is apparent that the broiler industry has a cost advantage. According to a study done at Utah State University the break-even price for whole-body, eviscerated broilers in the South FOB the processing plant during 1992 was between \$0.40/lb. and \$0.45/lb. while the break-even price for carcass beef during the same time period was more than \$1.10/lb.

The broiler industry has stressed the development of value-added products and has been very successful in developing new products that have increased the demand for broiler meat. The marketing emphasis for broilers in recent years has moved from price competition to non-price competition where firms compete based on the level of service and brand name recognition (advertising). The relatively recent entrance in the broiler market of large food companies indicates these companies believe there is still a substantial growth potential for this market. Companies will likely continue the trend of developing new uses for broiler meat in a variety of food products.

The Pork Industry

Although the pork industry is considerably less integrated than the broiler industry, a steady increase in the amount of hogs under production contract has occurred since 1988. A study conducted at the University of Missouri found that the percentage of all market hogs under contract in 1991 was 15%-16%, up from 11%-12% in 1988. In the 1991 University of Missouri survey, large contractors (over 50,000 hogs or more marketed per year) accounted for slightly more than half of all of the hogs contracted that year.

In some parts of the country contracting is not very popular and is even viewed as a threat, while in other parts of the country contracting is the primary method for marketing hogs. Precisely which direction the pork industry is headed is the subject of some debate. However, many believe that fully-integrated hog operations will continue to increase in importance. Recent moves by some large firms in the hog industry to build large, fully-integrated facilities in new locations tend to support the notion that the industry trend is toward fully-integrated complexes.

Improvements in genetics and better management practices have aided the hog industry in reducing feed conversion ratios and death losses. While feed conversion ratios of 3.5 lbs. of feed per pound of gain (3.5:1) to finish hogs are common in some parts of the country, other producers are able to obtain finish feed conversions of 2.8:1.

Some large firms that are developing improvements in swine genetics capture the returns to this type of research by marketing their own hogs (usually under production contract). Independent producers purchasing breeding stock from traditional sources may not be able to match the genetic capabilities of contractors in the future. A key issue is which group, contractors or non-contractors, will win the battle of matching the genetic qualities of pigs with the desired market characteristics. If one group is more successful in matching genetic qualities, such as leanness and excellent feed conversion, with market demand, then that group will be the one to prosper in the future. It is possible that those who develop superior genetic materials may be willing to sell this technology, but its value will be capitalized mostly into higher prices for breeding stock.

As feed conversion ratios for hogs and poultry decrease, another significant trend also may occur in these sectors. In the past, the development of the livestock feeding industry usually has been in the vicinity of relatively cheap sources of feed, e.g., the swine and cattle feeding industries in Iowa and Nebraska. However, as the amount of feed required to support a livestock feeding complex diminishes, transportation costs of finished products to final markets become a more important component of total costs. As a result, the decision as to where to locate new pork and poultry complexes in the future likely will be driven more by final market location and environmental issues than by the location of available feed sources.

The Beef Industry

The structure of the beef industry has changed dramatically during the last decade. The biggest change has been the dramatic increase in concentration that has occurred in the beef packing industry. In the early 1980's, the four largest firms slaughtered nearly 33% of the cattle. By 1990, the four largest firms slaughtered 70% of all steers and heifers sent to market.

Cattle feeding also has become more concentrated. Farm feedlots controlled nearly 25% of the nation's cattle on feed in 1980, but by 1990 they controlled less than 16%. Commercial feedlots increased their share of the cattle on feed from 43% to over 50% between 1980 and 1990. The largest commercial feedlots now control almost 33% of all the steers and heifers on feed.

Increases in concentration for beef packing and feeding have brought about more integration and coordination between these two market segments. As processors' plants have become larger, more pressure has been placed on packers to keep these plants near capacity to keep operating costs per head low. This has forced processors to search for methods to ensure future supplies of cattle to slaughter, especially during periods when cattle supplies are anticipated to be tight. According to Dr. Clement Ward at Oklahoma State University, contractual arrangements between feedlots and packers have become more prevalent in some parts of the United States in recent years. Forward contracting is becoming more common. Another practice gaining wider acceptance is the use of marketing agreements in which a feedlot agrees to market a certain number of cattle to the processor on a predetermined schedule with a prespecified price or pricing mechanism. Packer feeding also has increased, but is less common in beef than in the poultry and pork sectors.

Implications for the Beef Sector

In the near term, it appears likely that beef will continue to lose market share to poultry and pork. If the total demand for meat stabilizes or lessens over time, then real beef prices will decline to compete with other meats keeping continued pressure on the beef industry to reduce costs. A shrinking market share and increasing carcass weights both imply that fewer cattle will be needed in the future in the United States unless something is done to stem these trends. The beef industry needs to continue efforts in product development and advertising which address health and convenience concerns. Biotechnology needs to address the issues relating to lower feed conversions and the production of leaner muscle tissue.

Increasing beef exports is an important market strategy that may offer at least a partial short-run solution for U. S. beef producers to keep cattle numbers stabilized. As the domestic market for beef declines or even if it stabilizes, meatpacking firms will increase their efforts to export more beef. The demand for beef appears to be growing in the emerging economies of the world. However, this type of market will be much less stable than the domestic market and will face stiff competition from lower priced competitors such as Australia and Argentina.

More market coordination in the beef industry appears certain. In the face of stiff competition from other meats, beef processors will need to keep their plants operating at efficient levels and provide the type of products demanded by consumers. This probably will be accomplished through an expansion of packer feeding and/or contracting. The logical conclusion of this trend will be the necessity for producers to be part of a production/marketing system involving some type of contractual arrangement.

The prospect of the cattle industry moving to a more coordinated system will have consequential impacts on where cattle are born, backgrounded, and eventually fed. It is possible that processors could control supplies from birth through processing, with contracts or through ownership. For example, through contractual arrangements processors may seek to become more efficient by minimizing total production costs throughout the system, including transportation, labor, feed, and management costs. It is almost certain that streamlining the system will result in some regions of the country becoming net gainers and some net losers in cattle numbers.

In this coordinated system, cattle buyers will likely have stricter standards concerning the type of cattle purchased, size of lots purchased, health programs of producers, type of feeding regimes the cattle were on previously, whether implants were used and expectations for feedlot performance. It is likely that lots of cattle smaller than 100 head will become harder to sell. One strategy might be to have several producers pool their cattle and sell larger lots of cattle jointly. In fact, cow-calf producers may be able to pool their cattle based on like characteristics and receive premiums for them. That is currently being done successfully by a group of producers in Utah.

A more coordinated beef production system is in line with the National Cattlemen's Association and its endorsement of a more Total Quality Management system suggested by the *Strategic Alliances Field Study*. This study centered on bringing the various production segments together in a partnership so the reward for optimizing production would be shared equally by all segments. This was stimulated by the results of several studies which indicated non-conformance between segments hindered the beef industry from competing more effectively at the retail counter with pork and poultry.

Chris Bastian [bibliography and picture] is an Extension Educator in Agricultural Marketing for the Department of Agricultural Economics at the University of Wyoming. DeVon Bailey is the Extension Marketing Specialist and Professor in the Department of Economics at Utah State University. Both

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 [Back](#) [Return to Index](#)