Managing for Today's Cattle Market and Beyond

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Prescriptions for a Healthy Beef Industry

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Background

The title suggests that there have been problems in the beef sector or that it has somehow been "ill." Actually, that is the case. The data show that demand for beef decreased each year from 1980 through 1998. The reasons for that longstanding decline have been widely discussed and widely documented, and they are no mystery at this date. But the problems did persist over a long time period, and we saw a pattern of forced disinvestments and forced downsizing as the industry lost over 30 percent of its market share compared to the mid-1970s.

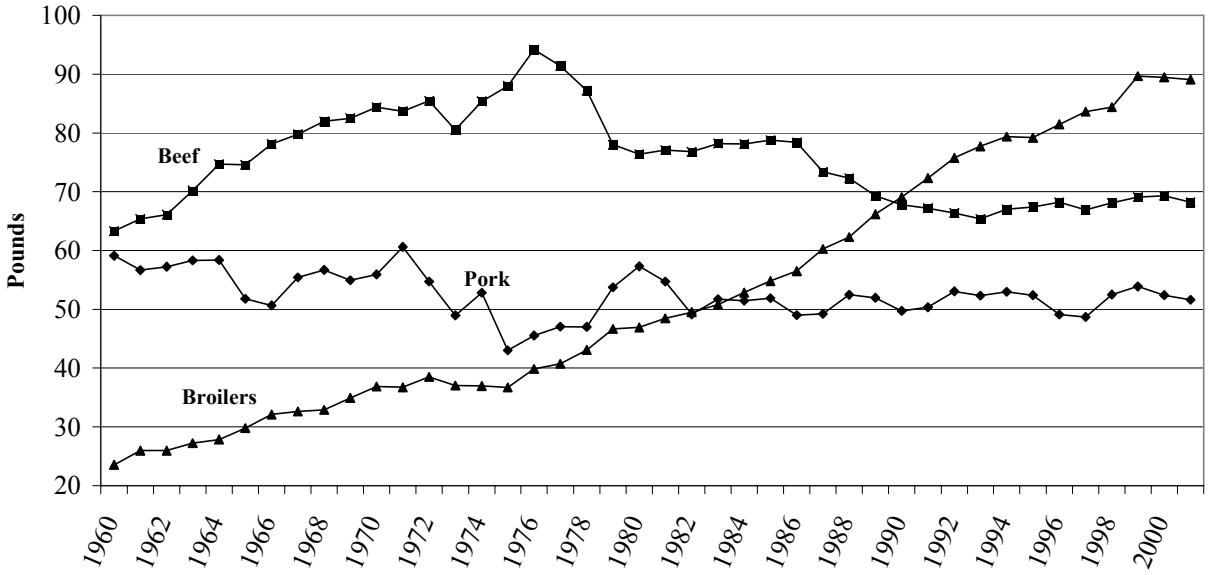
In the business world, where a particular commodity sector has been and what it looks like today are important determinants of what its future is likely to be. Long-term trends are hard to reverse. In the process, then, of formulating a vision of a beef industry that would be economically healthy, viable, competitive, and would offer an efficient entrepreneur at any level in the system a decent chance to make a profit, it is worthwhile to spend time looking at where we've been and why those trends occurred.

The methodology being employed in this forward-looking effort will involve three related steps. First, the long-term trends and tendencies in this industry will be documented and discussed. These are the base-setting phenomena that have determined where the industry is today. Secondly, it is important that there be a rigorous examination of why any negative trends that emerged and persisted did in fact have such longevity. If demand decreased each year from 1979-80 through 1998, why did this occur and why were the causal factors not identified and corrected before a downward spiral that ran for nearly 20 years was completed? Third, and related, it is important to take into account what has developed in the past, why past trends and emerging developments were so difficult to change or correct, and then employ that reasoning as a base on which to build a vision for a competitive, efficient, and potentially profitable industry for the future.

The Historical Picture

Figure 1 documents what has happened to the beef sector in an aggregate sense. The plot of per capita consumption is a plot of per capita supply or per capita availability since the available quantities of perishable product will be consumed at some price. When you look at the pattern presented by the beef sector and see the decline from some 95 lb in 1976 to the 65 lb level in the early 1990s, it is apparent that resources have been pushed out of beef production. On a per capita basis, there was something in excess of a 30-percent reduction in offerings across that time period. There has to be an economic reason for that dramatic development. The reason can come from either the supply or the demand side. For example, if resources were earning a much higher investment in some alternative application, they would tend to be taken

Figure 1. Per Capita Consumption of Beef, Pork, and Broilers, 1960-2001



out of the beef sector and put into more profitable use. Without question, some of that has happened across time, but that development still begs the question. What was the catalyst for the lack of return on investment in the beef business and the consequent reduction in resources committed to beef production, distribution, and marketing?

This pattern in beef per capita availability suggests the possibility of some difficulties on the demand side. Clearly, supply has been reduced on a per capita basis, but it is important that we find the reason for that reduction. Economists talk about an issue called "identification," and in simple terms, identification deals with what is happening when price traces out a path over time. Are those changes in price due to changes in supply or changes in demand or in both? In other words, there is a need to "identify" what the catalyst is for any significant move in prices over time.

Figure 2. Per Capita Consumption and Inflation-Adjusted Prices (CPI, 1982-84=100) for Beef, 1960-2001

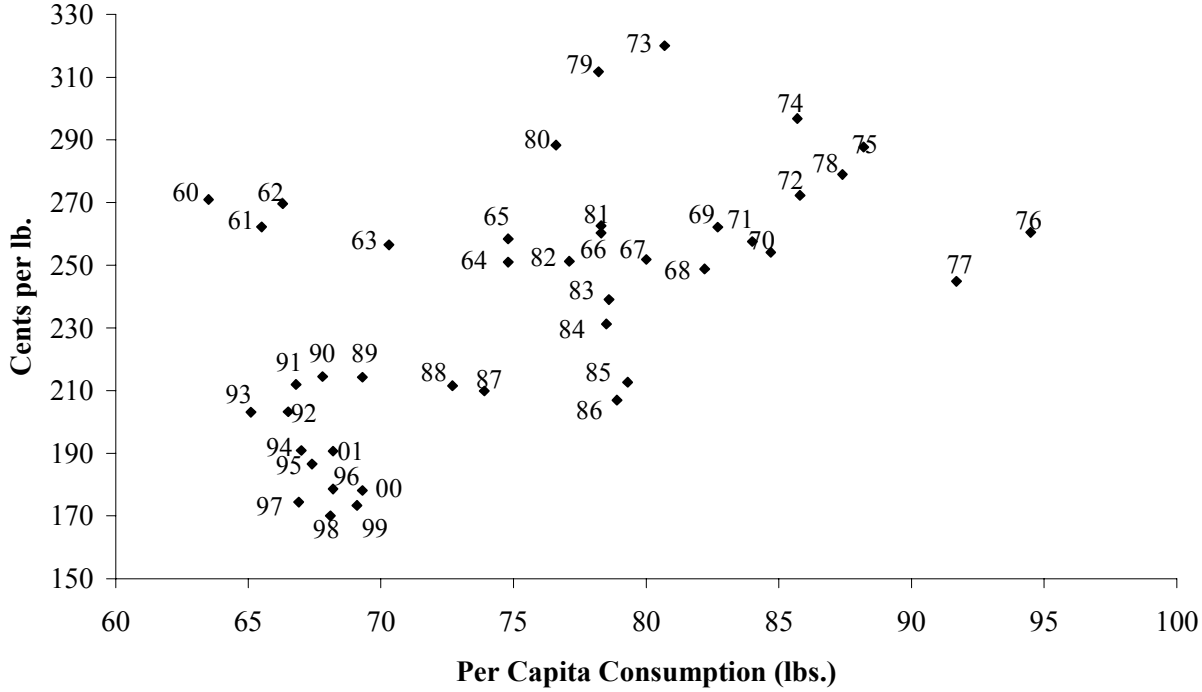
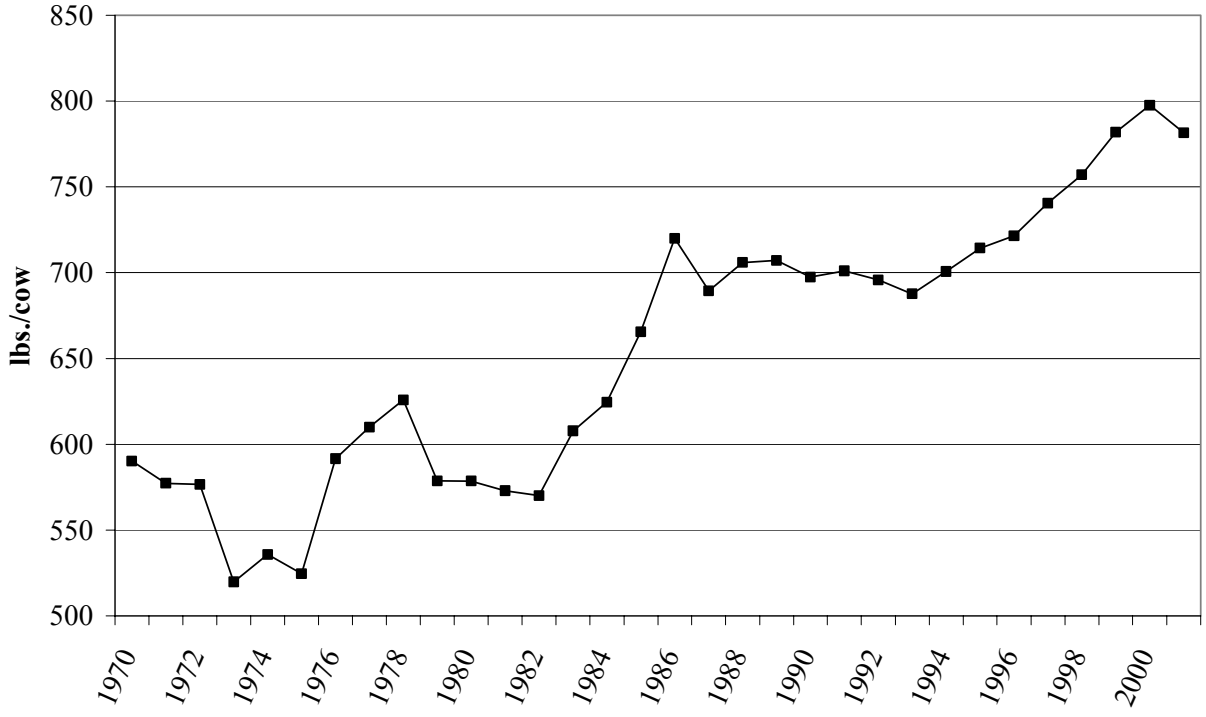


Figure 2 is a scatter plot of inflation-adjusted prices from 1960 to date against per capita consumption of beef. Each year is identified in the plot. Picking up in 1979, it is abundantly clear that since that time period, the movement on the surface of the graph has either been down or down and to the left. Note that from 1979 through 1986 with per capita offerings of beef, and therefore per capita consumption, largely constant around 78 lb, the inflation-adjusted price declined over 30 percent. After 1986, the pattern was more nearly a movement to the left as price was maintained by reducing offerings, and that pattern continued in the early 1990s. More recently, we have seen the early 1980s pattern start to evolve again as per capita offerings have been relatively constant in the high 60s in terms of retail weight pounds, and prices declined through 1998. Decreases in both price and quantity or decreases in price with quantity constant are clear cases of decreases in demand.

These decreases have been confirmed in a number of studies. The recent work done by economists at Kansas State University for the Cattlemen's Beef Promotion and Research Board confirmed the significant and prolonged decline in the sector.[1]

A somewhat more simplistic statistical modeling of beef demand involves a single equation model that explains the quarterly beef prices since 1960 as a function of quarterly per capita quantities of beef, per capita quantities of pork, per capita quantities of chicken, inflation-adjusted disposable per capita income and seasonal dummy variables to account for factors causing variation in price not explained by the traditional supply-demand measures. If this model is estimated starting in 1960, by 1980 you start to see a non-random pattern in the statistical error terms, which suggests that something significant is happening that is not being picked up or explained by the traditional price shifting variables in the statistical model. Some other important explanation variable is apparently missing. Adding a 0-1 shift variable for the quarters of each year measures the magnitude of the shift in the intercept of the model in each year, shifts not explained by the other explanatory variables in the model. Those shift variables on a quarterly basis were consistently more and more negative through 1998 and reached a magnitude that was often over 100 percent of the inflation-adjusted mean price in the data set. Something other than the traditional price moving factors was acting on the beef sector.[2]

Figure 3. Beef Production Per Cow, 1970-2001



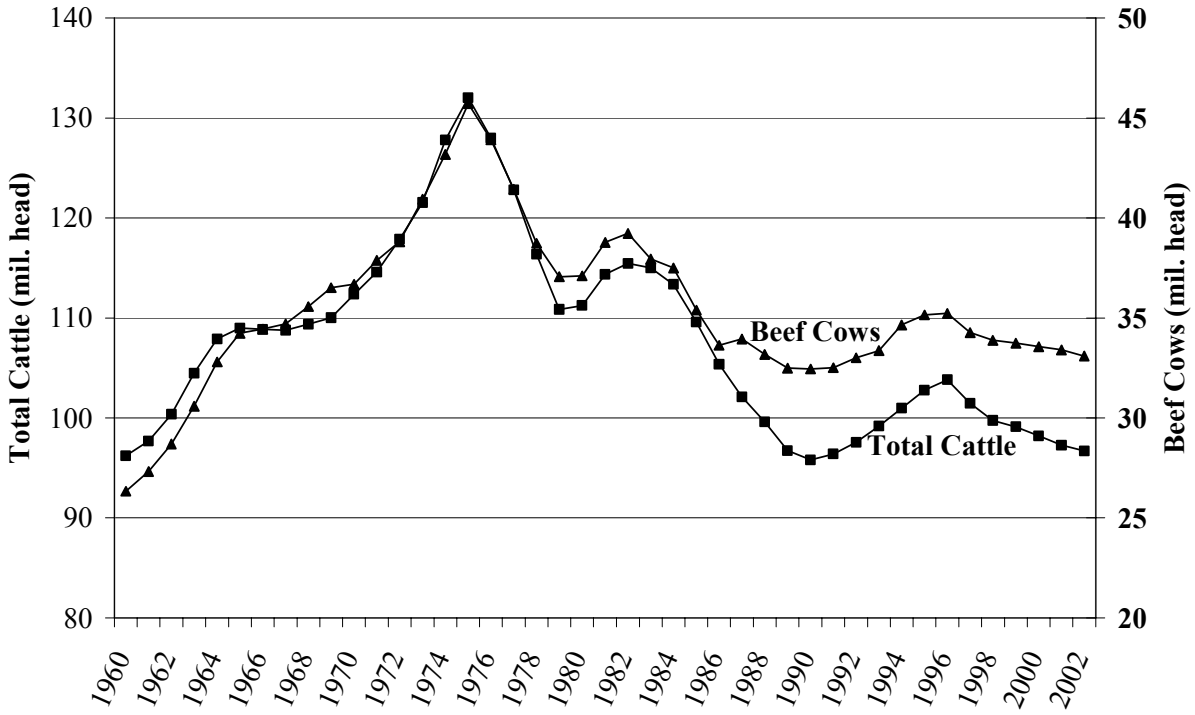
As industry leadership finally recognized that demand problems were persisting, an effort was launched in 1997 with a demand study group under the auspices of the Cattlemen's Beef Board, and requests were made to develop a simple measure of what was happening to demand. The response to those requests is an index of beef demand that uses an elasticity of -.67 and calculates the cumulative percent departure in price each year from the demand constant price using 1980 as a base year. Yearly and quarterly indexes have been broadly distributed. An annual index that shows cumulative decreases of almost 50 percent from 1980 through 1998 is being used by industry committees in efforts to revitalize demand. The indexes can be accessed by staff from the National Cattlemen's Beef Association, from those who staff the Cattlemen's Beef Promotion and Research Board, or they are available on the Internet at www.aaec.vt.edu/rilp.

What we have to this point, then, is a picture of dramatic and sustained decreases in demand constituting an economic "hit" on the beef industry that is virtually without parallel for any other food or fiber product. In response to that downward pressure on price and the squeezing of profit margins, we would expect the initial reaction by producers to be one of trying to reduce costs and keep the production resources in use. The dramatic vertical decline in price in Figure 2 suggested this would be the case. Recall that per capita offerings were maintained around 78 lb even though price was declining over 30 percent as we moved from the late 1970s into 1986. After that time period, there is indirect evidence on that same scatter plot that resources were being rapidly pushed out of production as the ability to keep quantity up in the face of declining prices reached its limits.

The reaction of the industry is apparent in Figure 3. It shows a phenomenal increase in output per beef cow during the early 1980s. We have seen another, but less impressive, surge in the 1990s coming from consolidation of operations and economies of size at the cow-calf level, and continued upward trends in average carcass weights.

Figure 4 clearly shows that many in the industry were not able to withstand the pressures from downward spiraling prices and the tendency for costs of equipment, feed, labor, fertilizer, and other inputs to increase. The graph shows total January 1 inventory numbers and records the significant decline from above 132 million head in 1975 down toward the 95 million head area in the early 1990s. The beef cow herd is also shown on the plot with a decline from around 46 million to the 33 million head level.

Figure 4. January 1 Cattle and Beef Cow Inventory, 1960-2001



What we have, then, is a picture of an important industry going through a 20-year period of dramatic forced change. As the demand problems accumulated, beef producers were not able to push costs down enough to stay in business. Beef production at the cow-calf level, where the cow-calf entrepreneur is a residual claimant on what is left after the consumer determines the value of the beef product offering and the middlemen extract operating margins, was not profitable.

That assertion leads to the next obvious question: Why did these negative conditions persist for so long, and if attempts were made to correct an obvious disequilibrium in the marketplace, why were they not successful? There are two ways to stay in business and maintain or even grow market share when selling prices are being pushed lower. One is to increase operating efficiency and reduce costs enough to allow the industry sector to maintain or even grow in spite of declining prices. That is not an impossible model, and it is one that we have seen in evidence across the past 20-30 years in the poultry sector. Since the early 1980s, per capita offerings for poultry have tended to increase, and they have often increased in the presence of declining inflation-adjusted prices. There were enough efficiencies to be gained and sufficient opportunities to reduce costs to keep the integrated poultry operations profitable even when there was no positive incentive in terms of better selling prices. But in spite of what are clearly Herculean efforts to increase output per unit and keep costs down, the beef industry was simply not able to reduce costs enough to keep resources in business.

The other approach to correcting the disequilibrium and keeping producers in business is to do something about the continuing decreases in beef demand. The data suggest that whatever was done during the 1980s and much of the 1990s in either or both of these areas was not sufficient. You either have to get costs down enough to have a chance to be profitable or you need to do something about pushing selling price up. It is worth looking at both as possible solutions and, in the process, discuss why the solution was so difficult to achieve.

Cost of Production

There are huge variations around the country in the cost of producing a weaned calf. The paper by Rodney Jones at www.aaec.vt.edu/rilp under "publications" documents some of these variations and attempts to model some of the causal factors in terms of the huge range in cost. It is important to recognize, then, that there is still a big potential for improvement coming from increased efficiency and reduced costs.

One of the reasons this cost variation has resisted correction and reduction is the huge differences in the objectives of those who own the beef cows. The large operator who is working hard at record keeping, buying genetics from outstanding herds, and trying to move efficiencies up and keep costs down has made significant progress across the past 20 years. Sophisticated and computerized monitoring systems and identification systems have been employed, and record keeping systems that bring back performance data from the feedyard and the fabricating room have allowed many of these large operators to modernize their genetics and move the efficiency of their operation to a significantly higher plane. Against this, however, is the much smaller owner of a significant percentage of the beef cows in the United States who is less attentive to technology and to efficiencies and is often earning the bulk of the family income from off-farm employment. The beef cow enterprise tends to become a secondary enterprise that uses hours of labor on evenings and weekends, and there is less concern about efficiency and cost reduction.

In spite of widespread efforts by the Extension Service in virtually every land-grant university in the United States to encourage record keeping and better management, there are still a large number of beef cows in the United States that have a bull in the pasture year-round with sporadic and unplanned calving programs and little or no attention to the genetics that would be needed to improve efficiency and modernize the beef product offering. At least partly as a result, there has not been enough progress on the cost side of the profit equation to keep market share near the levels the beef sector achieved in decades past.

The Demand Considerations

It's on the demand side of the profit equation that the data suggest much of the blame for lack of profitability has to rest. The dramatic declines in inflation-adjusted prices leave no room to buy high-cost machinery and new technology, and there hasn't been enough improvement on the efficiency and cost

side to keep the cow-calf operators in business. As the price that consumers were willing to pay spiraled downward, even on a smaller per capita offering, virtually all of that economic pain gets passed back down to the cow owner. Packers, processors, and retailers are margin operators, and increasingly the feedyards would like to be able to buy feeder cattle at a price that allows them to lock in a margin by forward pricing the finished steer. This pain is compounded, of course, if the middleman's margins are expanding. All this suggests an immediate interest in examining the nature of the demand-side problems and then looking at why they were not corrected.

The difficulty started in the late 1970s when consumers started paying more attention to dietary intake and putting more emphasis on cholesterol and fat levels in meats. This was, and continues to be, one of the reasons for the prolonged decline in demand, but it certainly is not the only one. Surveys indicate that in recent years, the big problem that has been present and persists until today in the consumer-level fresh beef offering is lack of quality and lack of consistency in quality. Tenderness is a major factor in the level of satisfaction in the beef eating experience.

The beef quality audits conducted in 1990 and again in 1995 by leading meat scientists showed that quality and concerns about quality and quality variation were of increasing interest to the consumer.[3] As more and more women moved into the workplace and the majority of homes now have two wage or salary earners working outside the home, the demand and need for convenience in meal preparation grew, and grew on a sustained basis. There was little that was done about this during the 1980s and well into the 1990s. Technical problems in precooking beef had not been resolved to make beef microwavable, and there were very few cooked beef offerings available for modern consumers who were showing an interest in a more convenient line of food products and were willing to pay for added convenience.

What was developing, then, during the 1980s and growing in importance during the 1990s was a divergence between what the changing consumer wanted and was willing to pay for and what the beef industry was offering. That divergence was obviously growing at an exponential rate when we moved into the 1990s as the product offering continued to remain the same, and the consumer continued to change.

The question of why this obvious market disequilibrium and the imbalance were not corrected is an interesting one. Part of it is attributable to the way the beef sector is organized, but that issue can await attention. The more pressing need is to reflect on why price did not prompt a change in the nature and quality of production to stay aligned with a changing consumer.

The Failed Pricing System

Historically, the beef industry has been structured with separate ownership and a separate profit center at each of the various functions that have to be performed along the supply chain. The cow-calf producer has sometimes moved into the stocker phase and readied calves for the feedyard, but generally that part of the supply chain is operated as a separate profit center as compared to the feedyard where some feedyards take ownership of cattle. Then, beyond the feedyard, there is a slaughtering function that is increasingly combined in large operations with the fabricating function. As the product moves beyond that level, it may go directly to retail, or it may go to a purveyor who does some value-added further processing, getting it ready for an institutional outlet. The key point is that there are several profit centers between the decisions that determine genetics and the quality of the beef offering and the consumer who is buying the product.

Historically, the coordinative mechanism that was relied upon was the price system. You can find, in many of the older marketing textbooks, elaborate explanations of how the price system would correct any problems. Theoretically, the consumer generates price signals, either premiums or discounts, and those signals get sent down to the producer to communicate a message of change.

In practice, this system has failed miserably. There has been no effective communication from consumer to producer, primarily because the USDA-administered public quality grades have been outdated and outmoded for at least 20 years. Quality grades are based primarily on marbling scores. Marbling is one determinant of tenderness and palatability and the enjoyment of the eating experience, but it is not a very good indicator of palatability and eating satisfaction. Tenderness, in

particular, has been identified as a major problem, and this problem has been documented in many places including the beef quality audits of 1990 and 1995. Meat scientists using sheer tests found that 20 to 25 percent of Choice steaks were so tough that it was virtually impossible to chew them.

In theory, that situation calls for a rather obvious correction. Put technology in place and put five categories of tenderness in the Choice grade, and allow the consumer to buy Choice tenderness 1 or Choice tenderness 3, or whatever they prefer to pay depending on the price presented to them and the intended end-use for the product. That would have created signals that would have given some incentive to the producer to change genetics and move more nearly toward breeds, breeding programs, and management techniques that were designed to produce tender beef. That simply has not happened. In late 2001, fed cattle tend to be sold in a time window of about two hours each week with virtually all of the steers and heifers coming out of the feedyards bringing the same price.

If we accept, and we must, that the price system has failed to accomplish the vertical coordination across functions along the supply chain and to provide any semblance of quality control for anyone who wanted to offer a quality controlled product, then we have to reflect on why improvements were not made in the heterogeneous product offering that was being presented. Here, the structure of the industry and the proliferation of different profit centers along the supply chain become an issue. Even though it was increasingly recognized that the product offering was out of date and needed to be modernized with value-added further processing, nobody in the prevailing industry framework saw fit to make those needed investments.

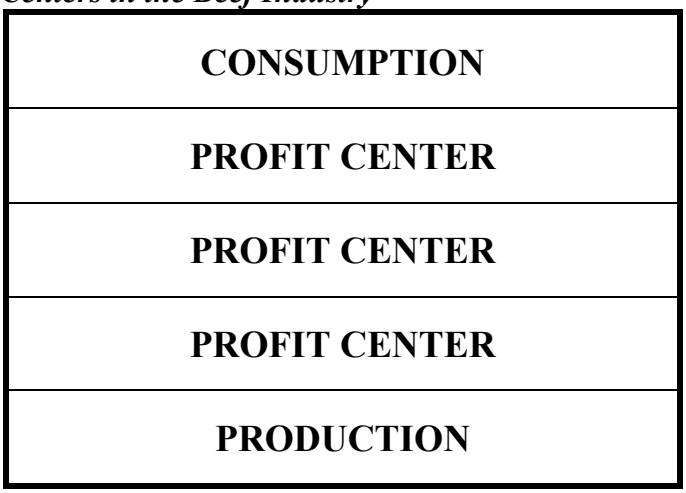
The Profit Center Paradox

Figure 5 is a useful schematic against which to think about these issues. At several points between the producer and consumer, there is a profit center that has its own goals and objectives and its own ideas as to what it needs to do to maximize short-term profits to the business. If you combine these short-term profit motivations from several separately owned and operated profit centers along the continuum, any chance of getting a vertically coordinated program for the beef industry as a whole that would generate quality controlled products is purely coincidental. It is widely known that many of the relationships between buyer and seller along that chain have been adversarial. In the midst of this mode of operation, there is no one in the system that has been willing to make the much-needed investments in modernizing the product offering.

As the receiver of residual values passed down through the supply chain from the consumer, it is the producer that has the most to lose if nothing is done. The middlemen tend to be margin operators, and they are not always inclined to worry about the long-term well being of the industry as long as they can extract an operating margin that covers their costs and yields some acceptable return on investment. For decades, producers and producer groups were prone to point to the packer or even the retailer and say, "It is not our job to do product development work--they should be doing it." As a point of fact, "they" didn't do it. That is at least partly because beef was a generic commodity product with no labeling and little or no product differentiation. It is very difficult for a business firm at the packing level, for example, to justify $250 million or even $500 million to start and complete the process of rolling out a new product offering and try to get it introduced so that it will be widely accepted when there is no brand identification involved and no brand allegiance at the consumer level. The result is that, in the presence of an increasingly heterogeneous product offering in terms of consistency, quality, and in convenience in preparation, the industry drifted for years with no one in the system willing to make the needed investments.

There was early talk at the original National Livestock and Meat Board in Chicago when the Board was located there and the National Cattlemen's Association (NCA) that was representing producers and producer groups. Indeed, a demand strategy conference was started at the summer meeting of the NCA in Charleston, South Carolina in the late 1980s.

Figure 5. Demonstration of the Various Profit Centers in the Beef Industry



By the early 1990s, however, there was considerable grumbling among the elected leaders in the NCA about the cost of the demand strategies conference and growing complaints that the conferences were taking too much time away from their valuable committee work. The elected industry leadership was not willing to accept that the beef product was running into major trouble and that producers and producer groups needed to face up to the realization that they needed to try to make sure that needed product development work did, in fact, happen.

Glancing ahead without getting into detail of what logically comes later, it was when contracts, captive supplies, and vertical alliances with their various price grids started to show up in the mid-1990s that things started to change. It is impossible to generate a product line in beef or pork that will go into a discriminating market like Japan unless you have significant quality control. It is impossible to grow and build the domestic market for consumers who have dollars in their pockets but want a consistent, high-quality eating experience and want convenience in preparation unless you make some progressive changes in what you are offering that same consumer.

With a still heterogeneous offering of beef products, the way to start identifying some different market segments and doing things like aging or in other ways enhancing tenderness was to get involved in non-price means of coordination. Contracts, captive supplies, vertical alliances, and occasionally even vertical integration came on line. It was against this backdrop of growing realization of how desperate the situation had become that changes were finally starting to occur as we came into the latter half of the 1990s. It is important that we recognize that these non-price means of coordination were ways to accomplish the aligning of the functions along the supply chain in such a fashion that a predictable product matching consumer preferences would come out at the top. That coordination is what the failed pricing mechanism was not accomplishing.

Turns in Beef Demand

If we look at the beef demand index on a quarterly basis (Table 1), there is growing and accumulating evidence that something has, in fact, changed. The fourth quarter index level for the year 2001 is 15.46 percent above the 100 level assigned to the fourth quarter of 1997. If that level of improvement in demand can be sustained for several years, there is a very high prospect that more consistent profitability can be restored to the beef sector. A 10 percent improvement in consumer demand, assuming anything approaching reasonable behavior and reactions in terms of middlemen's operating margins, adds $5.00-8.00 per hundredweight to a $70 fed cattle market and probably adds $10-15 per hundredweight to the weaned calf. Cattle-Fax estimated that improved demand added $40 to $50 per head to fed cattle in 1999, and another $35 to $40 in 2000.[4] If this improvement can continue, we will see $80 fed cattle markets again in the near future.

There appears to be two primary catalysts for the positive change. First, there has been a significant and growing change in the product offering in the domestic market. Very large packer/processors that just a few years back were oriented to being the low-cost commodity operator have turned to a merchandising mode and are looking to expand margins on value-enhanced product. Once those investments in cooking technology and in modernized packaging technology are made, they are not easily reversed, and they will not go away in the short run. There is, therefore, reason to expect this resurgence to continue. The investment dollars have to be coming from for-profit, private firms because if all of the industry's check-off dollars were spent on product development, there would still not be nearly enough money to make much progress. What has happened is a program of product development work with the

new National Cattlemen's Beef Association and the Cattlemen's Beef Board serving as catalysts for product development. Check-off dollars have been moved into efforts to bring together the right for-profit firms and to facilitate cooperation up and down the supply chain. It is significant, for example, when a steak sandwich goes on the menu of every Dairy Queen outlet in the United States, and this is one of a number of success stories for this program.

I see a changing product offering, one moving more toward consistency, quality control (even if it means reformulating the consumer product), and convenience in preparation as one of the factors in the change in beef demand. Since this move is still in its infancy, and it is certainly expected to grow, I expect the domestic component of demand growth coming from an improved and modernized product offering to be a significant factor for years to come. Modern consumers have money in their pockets to spend if the product is right, and every economist who has ever looked at consumer behavior understands that the income elasticity for convenience is very high.

Table 1. Quarterly Beef Index for 1980-2001

	Quarter 1		**Quarter 2**		**Quarter 3**		**Quarter 4**	
Year	***1980=100***	***1997=100***	***1980=100***	***1997=100***	***1980=100***	***1997=100***	***1980=100***	***1997=100***
1980	100	202.8719	100	179.9934	100	190.5221	100	201.609
1981	93.74988	190.1922	92.90148	167.2166	101.8138	193.9779	88.69112	178.8093
1982	83.41986	169.2355	90.39086	162.6976	93.253	177.6676	84.88101	171.1277
1983	82.85526	168.0901	90.18853	162.3334	90.9415	173.2637	81.00816	163.3197
1984	82.05223	166.4609	85.92873	154.6661	82.80115	157.7545	81.02885	163.3614
1985	76.30916	154.8099	85.23209	153.4122	82.90996	157.9618	73.10532	147.3869
1986	72.05904	146.1876	81.64863	146.9622	81.41323	155.1102	71.49042	144.1311
1987	66.91679	135.7554	73.81453	132.8613	74.09044	141.1587	66.82913	134.7335
1988	67.02789	135.9808	73.97573	133.1514	72.44845	138.0303	64.77995	130.6022
1989	63.2419	128.3001	69.34434	124.8153	66.52813	126.7508	64.19675	129.4264
1990	60.92563	123.601	69.90953	125.8326	65.57541	124.9357	62.93019	126.8729
1991	60.38459	122.5034	67.83538	122.0992	64.85114	123.5558	58.53338	118.0085
1992	57.57119	116.7958	63.74106	114.7297	60.96577	116.1533	56.7405	114.3939
1993	56.15307	113.9188	61.74775	111.1419	60.53451	115.3316	55.94812	112.7964
1994	54.99929	111.5781	60.1328	108.2351	57.59109	109.7238	54.31535	109.5046
1995	53.25004	108.0294	58.61526	105.5036	58.30027	111.0749	53.63333	108.1296
1996	53.47108	108.4778	58.08509	104.5493	53.77013	102.444	51.7067	104.2453
1997	49.29218	100	55.55758	100	52.48734	100	49.60097	100
1998	48.9202	99.24535	54.11852	97.40978	52.5777	100.1722	50.15056	101.108
1999	48.88672	99.17744	56.4942	101.6859	54.66578	104.1504	52.78435	106.418
2000	52.17043	105.8392	58.1876	104.7339	57.60904	109.758	52.70459	106.2572
2001	53.71918	108.9811	61.1292	110.0285	59.32156	113.021	57.27094	115.4633

Updated using per-capita consumption and retail beef price data from the Livestock Marketing Information Center website (http://lmic1.co.nrcs.usda.gov/), updated on February 20, 2002.

The second big factor in the resurgence in beef demand is the export market. Trade that involves imports of some cattle and considerable volumes of primarily processed beef is always controversial among some producers and producer groups. But the other side of the "trade equation" is the high-quality exports, which have grown to the equivalent of nearly 10 percent of domestic production. Recent analysis that was conducted for the Cattlemen's Beef Board suggests that export activity during the 1990s, when the analysis is conducted in the presence of imported product as well, has had a significant and positive impact on the domestic industry. Prices are higher and the industry is bigger than would be the case had we not seen the growth in export activity reflecting growing export demand during the 1990s. There are several published references to this work on the World Wide Web at www.aaec.vt.edu/rilp. These export activities are encouraged by the U.S. Meat Export Federation, which is partly supported by check-off dollars.

Any progress that has been made in beef demand is thus built primarily on the investment dollar of the for-profit firm. This is true in both the

domestic and export markets. There is a related issue that is becoming an increasing concern of analysts who recognize the importance of these investment dollars. The recent, current, and growing tendency to try to regulate the concentrated marketplace, ostensibly to protect the economic position and well being of producers, may become a factor in determining whether or not those investment flows will continue and will grow. It is useful, then, to take a look at what is involved in this growing clamor for regulation of the marketplace in the meats.

Legislating Solutions to Economic Problems

It was within the public arena in the mid-1980s that the Justice Department allowed the last round of mergers and acquisitions that pushed the 4-firm concentration ratio in the fed cattle activity from around 40 percent up toward the current 80-81 percent. At the time, representatives of the Justice Department referenced the importance of economies of size and the ability of large firms to keep costs down and to, therefore, generate a solution that was of benefit to consumers. Not much attention was paid to issues that are now of growing concern, issues like market access and an opportunity to produce with anything approaching an independent, entrepreneurial attitude in an increasingly controlled supply chain. Out of this arena have come various efforts to control and regulate the marketplace, presumably to improve the situation for producers. Those efforts have had varying degrees of success and may generate varying and even unpredictable implications.

As the trends toward contracts, captive supplies, and vertical alliances grew coming out of the 1980s and into the 1990s, some producers and producer groups became increasingly concerned about implications at the producer level. Arguably, the most visible of the requests for rulemaking that would regulate how buyers and sellers can do business in the livestock sector is the Western Organization of Resource Council's petition that was submitted to the Secretary of Agriculture in 1996. A lengthy and rather exhaustive set of proposed regulations was included, and the primary challenge was to contract arrangements as those arrangements developed between seller and buyers representing the larger beef packers. The petition proposed that any contract be barred unless it has a specific base price included in the contract that has been determined in an open and competitive marketplace. Although it is not immediately clear as to what an "open and competitive marketplace" would require, there would presumably be some way to discover a price within a price discovery mechanism that everyone had access to and would be widely visible to the publics on all sides of these issues. It remains to be seen as to whether or not anything like this will evolve, but in the meantime, contracts and captive supplies and the percentage of cattle moving through vertical alliances, where no price discovery is involved at the live animal level, continue to grow.

This is a controversial and often emotional issue, and there is no attempt to prescribe solutions here. In a paper written during 1999, this issue was dealt with in more detail, and that paper, "White Paper on Status, Conflicts, Issues, Opportunities, and Needs in the U.S. Beef Industry," is available on the web at www.aaec.vt.edu/rilp.[5] Some of the mechanisms for scheduling cattle through processing facilities and some of the formula price arrangements do appear to have perverse incentives. An example is the type of contract that prices the cattle placed on a formula, where the base price in the formula is tied to the cash market in which the buying packer is active or to weekly averages, weekly highs, or some such measure of prices paid by the packer. The incentives are wrong in this type of system. There are ways to accomplish the scheduling, which appears to have substantial ability to reduce processing costs, without getting into such arrangements. Basis contracts, for example, could accomplish the same "scheduling" with the pricing decision left in the hands of the cattle owner, or marketing agreements with no base price needs could be used.

Strenuous efforts to block long used and apparently widely accepted ways of doing business between buyer and seller in the livestock business could have several unintended and negative consequences. First and most widely recognized, and now documented, is the cost-reducing impact of the ability to schedule cattle through a slaughtering and fabricating facility. The research by Anderson and Trapp indicates that even a modest reduction in the daily variability of cattle moving through the plant can reduce costs of slaughtering and fabricating by $10 per head.[6] These cost savings actually exceed the average per-head profit margins at the packing level estimated by some industry analysts

for the entire decade of the 1990s. Anything that blocks the ability of the packer to work with sellers and schedule cattle through their facilities could impose a significant cost on the industry in general, and on sellers in particular, if these scheduling opportunities were outlawed. The unintended and unexpected ramifications of proposed legislation to regulate this marketplace need to be identified and brought more thoroughly into the discussion of any legislative moves that would be good for the industry longer term.

A second possible cost or unanticipated consequence might be the reluctance of the large packers/processors to make investments in new product or new market developments in an industry in which how they operate is increasingly constrained and controlled. Packers, for example, are heavily involved in many of the producer-initiated vertical alliances. The intent of the producers in these alliances is often to circumvent the failed pricing system and find a way to be compensated, albeit not by a visible price, for the value in their cattle. Packer ownership is often involved here, and another widely suggested control that Congress is encouraged to legislate is one prohibiting packer ownership of slaughter livestock.

Such legislative efforts may put the future of vertical alliances in doubt. The large processing firms are low margin operators and tend to yield a low investment compared to the rest of the food industry. Stock prices for the publicly traded operations languish and struggle. The large firms are not likely to be anxious to continue investing multiple billions of dollars in product and market development in an environment where how they operate, how they buy, and how they try to achieve coordinated activity and quality control are controlled by legislative actions and market regulations.

Characterizing the Current Situation

What we see as we move into the new millennium is the possibility of a significant change in a longstanding demand problem. Three years of observation do not make a trend, but if the attention to quality control and modernization of the product offering that started to evolve in recent years in both domestic and international markets continue, there can be a longer-term trend in growth in beef demand.

We also see increasing recognition that the historical and traditional pricing system has failed. The fallout has been ominous to the sector as it drifted for the better part of two decades without any economic incentive to ensure alignment between production and consumption. There is growing recognition that if the pricing system has any chance to compete as a coordinative mechanism with the increasingly pervasive non-price means like contracts and vertical alliances, then something has to be done about the quality grades. A product attribute like tenderness that is not identified in a grading process cannot have a price signal attached to it. It is clearly the case, then, that the consumer has no way to communicate to producers how important they consider tenderness to be and to stimulate the producer to change. Research done by Kansas State University scientists indicates, in a carefully designed experiment, that consumers will pay significantly for guaranteed tenderness.[7]

It would appear that there is no reasonable chance for a comeback of the price controlled and price coordinated system unless USDA policies that preclude changes in quality grades are changed. One of the most important policy moves that could come out of Washington, therefore, is the willingness to modernize the grading system and initiate changes in grades without requiring a consensus for change from the industry. With the perverted incentives that exist in the industry with many producers selling low-quality cattle at prices above their value, it is hard to imagine why the industry would bang on the doors of the Agricultural Marketing Services in the USDA and demand a change in the grades. Much more progressive and forward-looking leadership is going to be needed if the grades changes are to be effected. If they are not changed, then we can anticipate the continuation of a current phenomenon: friction between the opponents and proponents of non-price means of vertical coordination such as contracts, captive supplies, and vertical alliances.

Caught up in and paralleling all this is the increasing tendency to clamor for legislative controls and legislative solutions for economic problems. The mandatory price reporting legislation that was passed in the 2000 session is an example of legislation that is intended to improve things at the producer level, but it is also legislation that may have innumerable unintended consequences. If you recognize that a very large percentage of cattle prices, beef prices, meat prices, etc., were already

being reported under the voluntary system, then the only way that price levels paid to producers are going to be changed by more exhaustive and more extensive reporting is if there were, in fact, significant "deals" in the prior system that were not being reported. A widely quoted example is a buyer of cattle saying, "I will pay you $.25 more for this pen of cattle if you will not report it," or a buyer of a load of meat saying, "I will bid this up $1.50, but I don't want this to be reported (because it might raise the entire price level)." There is much talk about these things, but it is difficult to imagine how and why such covert strategies could have been operated without them becoming widely known. But there has to be some source of added value coming from the required price reporting to give any net improvement to producers. There *will* be significant added costs in the system.

With the extensive data management and reporting requirements imposed on packers and processors, costs will go up in the middle of the system. The packers/processors will, other things equal, have to extract a larger operating margin to cover those increased costs. This is really no different than what happens over time when their energy, packaging, or labor costs go up. The price spreads reported by the USDA have continued to trend up across the years and will continue to do so. Middlemen will try to compensate for rising input prices by extracting a larger margin, and this new reporting requirement will be a cost increase and it will earn the same response. Hopefully the improvement in the pricing process with better and more frequent prices being reported at several levels will compensate, will improve price discovery, and will give some benefits to help offset the problems associated with the added costs.

The current situation, then, is one that is full of change, full of controversy, and full of well-intended efforts to correct perceived ills in the system. Good research and good analysis need to be employed in looking at policy changes and in proposed legislative moves to regulate the marketplace.

Looking Ahead

The outlook for the beef sector can be quite positive. The long-standing declines in demand are finally being addressed. Whether the current and much improved scenario will be stretched into the future may well depend on within-industry reactions to some often-controversial topics.

A prescription for a healthy and potentially profitable beef industry in the future will require

- Further improvement in production efficiency and in keeping production costs down. There is too much variation in costs of production to be healthy for the industry.
- Either improvement in the chances for the price-based system to be effective in prompting vertical coordination and quality control or continued growth in vertical alliances and effective contracting arrangements. A reasonable degree of vertical coordination and quality control must be achieved, or there will be no effective alignment with consumer demand and the fledging growth in beef demand will not be continued. It is important that this be broadly understood and that market regulations not be extended to such a level that, in a continued absence of grade changes and effective price-driven coordination, the non-price means of coordination and quality control will be blocked. If that occurs, the threat of a return to a growing divergence between what is produced and what consumers want will loom large.
- Continued investments in new product and new market development from the large for-profit processors. Those investments have started, and they are the important base on which the demand picture is being turned from very negative to positive in both domestic and export markets. Regulation of buying and selling processes to include such as bans on packer ownership of cattle (which might threaten vertical alliances) or bans on all contract buying arrangements might threaten this flow of investments.
- A broader and more open perspective on trade. A significant part of the demand improvement from 1998 to date can be traced to export growth. Efforts to close off imports with the intent of protecting the U.S. industry from competing supplies of meat are not only short sighted but might prompt retaliation by important buyers of U.S. beef like Mexico and Canada. Both rank well behind Japan as buyers, but both Mexico and Canada are in the top four buying countries.
- Continued support for the check off program and a willingness to move more dollars from mass advertising to product development and demand-enhancing work. The check off related program

is serving as a catalyst to new product development. The program cannot replace the private sector investments, but it has helped prompt those investments and is therefore very important.

- Pricing of fed cattle on an individual carcass merit basis. The pricing on averages is bad and blocks any effective price discovery. Cattle moving through alliances and via contracts with price grids are designed to get around this problem. If the price-driven system is to have any chance to compete, it must move to technology to detail value and move to pricing on an individual head or carcass basis. (This will be difficult because the current system involves a massive transfer of wealth from the sellers of the high-quality cattle to the sellers of the low-quality cattle in the current "on averages" pricing system.)
- Elected leadership of state and national cattlemen's associations must hire well-trained and competent professional staff and listen to them. Elected (state association) leaders who were publicly berating the large processors for exploiting producers during 1997 and 1998 "in the presence of record high beef demand" are a threat to the future of the industry. Producer groups with a particular agenda can expect much of their rhetoric to be overlooked, but when the President of a state cattlemen's association says things about demand, his or her position tends to lend a degree of credibility. Such elected leaders have a responsibility to understand what is actually happening in the marketplace and not talk about "record high demand" when the industry was still in a 20-year sustained decrease in demand.

Overall, the key will be to remember that the industry is providing a consumer product and that the only dollars financing the various players along the supply chain are the consumers' dollars. Keeping the need to be always "consumer driven" in mind will help ensure the industry has a positive and healthy future because it will apply the right orientation to all programs and policies. The system in its entirety is healthier from an economic viewpoint when all participants have a decent chance to make profits and all are pulling together toward a common goal of serving the consumer.

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[1] The results of this research can be found at http://www.agecon.ksu.edu/.

[2] See "Measures of Changes in Demand for Beef, Pork, and Chicken, 1975-2000" at the Research Institute on Livestock Pricing website: www.aaec.vt.edu/rilp.

[3] For access to the beef quality audits, contact Rich Otley at rotley@beef.org or Chuck Lambert at clambert@beef.org.

[4] *Cattle Fax*, Long-Term Outlook, December 10, 2001 and December 8, 2000.

[5] See "White Paper on Status, Conflicts, Issues, Opportunities, and Needs in the U.S. Beef Industry," at the Research Institute on Livestock Pricing website: www.aaec.vt.edu/rilp.

[6] See "Estimated Value of Non-Price Vertical Coordination in the Fed Cattle Market," by John D. Anderson and James N. Trapp under "Publications" at www.aaec.vt.edu/rilp.

[7] See "Will Consumers Pay for Guaranteed Tender Steak?" by Lusk, Fox, Schroeder, Mintert, and Koohmaraie at www.aaec.vt.edu/rilp.