

The Cost of Meeting Consumer Demand

John D. Lawrence

Iowa Beef Center, Iowa State University, Ames, IA 50011

The beef industry has experienced a roller coaster ride on emotions and market prices much of which has been driven by animal disease and resulting trade restrictions. Examples include: discovery of BSE in Japan on September 10, 2001, avian influenza blocking poultry exports to Russia in March 2002, discovery of BSE in Canada in May 2003, and finally, discovery of BSE on US soil in December 2003. Underlying all these shocks were basis supply and demand fundamentals. In late 2001 and 2002, while demand was improved from 1998, the supply of market ready cattle and carcass weights were large and growing. In 2003, inventories and carcass weights were low and declining. The price impacts were quite different in the two years.

This simple analysis is typical of how we economists and the industry in general talk about “the market”. We treat it as a commodity and a single beef market. Yet, the market for beef as well as most other food products is changing from a commodity to a fragmented market of differentiated products. While prices for these products will likely be highly correlated because there are many close substitutes, they are not homogenous. The move to more diverse products is to address a changing and more diverse consumer that buys products from a rapidly consolidating but highly competitive retail sector. Consumers, retailers, processors, and society in general are placing more demands on food and people, companies, and industries that produce it. Put another way, the demand *for* beef is increasing, but so are the demands *on* beef. These demands are expressing themselves in both more regulations and requirements on food producers and processors. Part of this stems from the maturing of agriculture. We have traditionally operated on a “trust me” basis but we are now entering a “prove it” world.

I have been asked to discuss the cost of meeting consumer demands which is a tall task since they are evolving daily. I will attempt to address the question of cost in a round-about manner, and in the end hopefully help producers better understand the question and how it may apply in their own operation. We will start with a discussion on the consumer’s willingness to pay for specific product attributes. Next, we will look at the changes in the retail sector, increased branded products, and the implications on producers. Then we will discuss process verification and quality management systems as methods to assure the consumer of the traits they want and cover the liabilities of doing so. Finally, we will discuss the cost of not meeting consumer demands.

Consumer Willingness to Pay

The focus of my paper is supposed to be on the cost of meeting consumer demand, but it is important to first define demand and where possible quantify it. More to the point, if consumers really want something, then they should be willing to pay for it. Producers of beef typically think about differentiating beef based on taste and quality. While, Lusk reported that consumers were willing to pay a premium for a “guaranteed tender” steak, most consumers, retailers, and processors, tend to focus more on what have been called “credence” attributes. *These are characteristics that consumers cannot discern even after the consumption of the product.* Examples include content attributes such as affect physical properties of product (nutrient value) and process attributes that doesn’t affect product, but refers to how it is produced or processed (organic, free range, country of origin, fair-trade).

Several studies have looked at the consumer’s willingness-to-pay for special attributes. These include: non-hormone treated, grass-fed vs. corn-fed, local production vs. unknown source, US produced vs. unknown source, organic vs. conventional and other similar comparisons. For example, Feuz and Umberger found that consumers in Chicago and San Francisco will pay an average of \$1.61 per pound more for a domestic grain fed steak compared to an Argentine, grass-fed steak. This result confirms that on average (or if you only have one commodity) US grain fed beef is the right one. However, 23% of the participants preferred the Argentine steak and were willing to pay an average of \$1.36 per pound more for their preferences. Thus, with multiple products targeted to the correct consumer there is additional money to be had. In a survey based study regarding mandatory country of origin labeling, Loureiro and Umberger found that the premium for US Certified Steak is 38.3% (\$1.53/lb), while the premium for US Certified Hamburger is 58.3% (\$0.70/lb).

What is often not known is whether the premium will cover the cost to produce the challenger. Clearly blanket statements or recommendations are not appropriate because the costs differ with the conditions. It is also important to recognize that the cost to produce the live animal with these special traits is only part of the costs. Segregating the product through the supply chain to get to the consumer willing to pay the premium is also costly. The commodity market may have increasing minimum requirements to participate, but it provides for low cost processing and distribution. The more specific the product attributes, and

the more choices consumers have, the more difficult and costly the product will be to market.

Because many of these attributes cannot be detected by a grader, they have to be verified during the process. One of the challenges to differentiating products this way is how to establish market creditability of the product and producers. Thus we are seeing more interest in objective validation of quality claims through third party verification. USDA recently had an open comment period regarding labeling claims and how to define them. There is growing interest in protecting consumers from fraudulent claims, but before USDA or others can verify a claim it must be defined.

Rapid Retail Reorganization

The retail food sector is changing and consolidating rapidly due in large part to the entry of Wal-Mart and European food retailers in the US market. Recent estimates indicate that the ten largest grocery chains have approximately half of the market (Table 1). The consolidation is not limited to the US. Australia has three grocers with a 70% share, the UK has four firms with 70%, and Chile has four firms with 66%. Wal-Mart is the largest food retailer in the US and the World and Sam's Club (owned by Wal-Mart) is currently sixth in the US, and the two combine for over 17% of US grocery sales. Wal-Mart has been successful at least in part because they effectively manage data and information to assure "just-in-time" inventory control and sharing sales information directly with suppliers. Other retailers have followed an adoption of electronic supply chain management between retailers and suppliers that is increasing rapidly and is improving.

| | Billion \$ | Share |
|------------|------------|-------|
| Wal-Mart | 103.2 | 13% |
| Kroger | 53.6 | 7% |
| Costco | 41.7 | 5% |
| Albertsons | 36.2 | 5% |
| Safeway | 33.6 | 4% |
| Sam's Club | 33.5 | 4% |
| Ahold | 26.9 | 3% |
| Super Valu | 20.3 | 3% |
| Publix | 16.7 | 2% |
| Loblaw | 16.2 | 2% |
| Other | 393.1 | 51% |
| Total | 775 | 100% |

Source: Supermarket News

It is also important to note that the seventh (Ahold) and eleventh (Delhaize) largest US food retailers are European companies. When you look at the world's 10 largest food

retailers two of the top three and four of the top ten are European companies that also operate in the US. The European model of food retailing is clearly different than that of the US and highlights the difference between a commodity market and a product market. In the US, consumers have trusted the government on food safety and food production issues. On these measures all food is alike, a commodity, it is safe and wholesome. For a variety of reasons consumers elsewhere in the world have less faith in their government on these matters and retailers have often filled the void. European retailers are referred to as "Chain Captains". They are the Captain of their supply chain and are the ones looking out for the consumer.

The United Kingdom following BSE is probably the clearest example of retailers "protecting" consumers for a profit. Competing retailers or their suppliers would have separate quality assurance schemes that begin beyond where US BQA programs end. The requirements and costs to the producers are significant. The schemes included product use, feed restrictions, animal welfare, and worker health and safety among others. The farms also had to have a third party audit to be in compliance and be eligible to sell. It was not uncommon for a farm to require one audit for crops, a separate one for hogs, and a third one for cattle. If they wanted to sell cattle to two different packers they may require different audits and paper work. Farm organizations were starting to develop their own whole-farm audit system that was more practical and cost effective as an answer to the multiple schemes coming at them from above.

While the on-farm implications of multiple supply chains and audits sounds outlandish, the retail consumer receives variety and has choices on which differentiated product they buy. Five years ago a consumer chose between beef, pork, and poultry, or perhaps they chose on retail store over another because of a reputation of their beef compared to a competing store. In the UK, consumers may have three or more choices of rib eye steaks based on whose quality assurance scheme produced the product.

Our beef industry is beginning to see more branded products where a company is staking their reputation and brand equity on each piece of meat they sell. How long before reputation and liability costs force companies do their due diligence before they put their name on it. These concerns result from moving from an anonymous piece of commodity beef to a branded beef item with the name and customer satisfaction phone number on the label. Thus, if consumers won't pay for the requirements, maybe the retailer will. Or, given the concentration and market power retailers are amassing, it may become a condition of sale.

An issue that is gaining interest particularly in the poultry and pork industries is animal welfare. McDonalds and other restaurant chains have established standards for animal handling in packing and in some cases production. Some of their competitors have similar requirements. The Food Marketing Institute and the National Council of Chain Restaurants in conjunction with industry organizations has

developed guidelines on animal welfare, and have started on farm audits for poultry and swine. Beef may not be far behind. The March issue of *Drovers* identified 54 beef supply chains and vertical coordination programs. Of these 16 were listed as “natural”, 23 as preconditioned, and 34 as source verified. With all due respect to each of these programs, do these terms mean the same thing in every case and who provides the oversight?

Quality Management Systems

Thornburgh and Lawrence remind us that traditionally industry organizations or government agencies have established grades or standards to address differing attributes in commodities. They constitute the range of particular attribute a commodity can have and still receive a stated grade; for example, the minimum amount of marbling for a beef carcass to grade Choice, the maximum amount of foreign material for grain to grade No. 1, or how much chicken is necessary for soup to be called chicken soup. While grades and standards have improved commodity markets, a different approach may be needed in value-added non-commodity agriculture. First, grades and standards create commodities by establishing a minimum requirement for a specific grade and then all commodities of that grade are interchangeable. The strategy becomes how to produce a product that is the same as everyone else’s at the lowest cost rather than how to differentiate a product that has a higher value. Second, grades and standards rely upon grading of the product and ignore the process. Some attributes cannot be measured by either visual inspection (e.g., natural beef) or by chemical analysis (e.g., BST in milk). Many beef programs to date have relied upon grading and inspection, i.e., CAB has used hide color and USDA grades. No prior information is needed if the determining factor can be observed and evaluated. Of the 40 USDA “certified” beef programs, 22 are Angus and only four are process verified and require more than visual observation. (Programs are listed at <http://www.ams.usda.gov/lsg/certprog/speccomp.pdf>). While USDA is looking for more detail in the descriptor of a label, producers are also looking for a level of integrity on programs with cattle they are buying, i.e., source verification or validation of vaccination programs. Keep in mind that Lusk’s research said consumers would pay for a *guaranteed tender* steak, not an “I think-so” or an “It was tender until you cooked it” steak. Establishing new grades and tolerance levels for traits or relying on testing and inspection to sort into the new grades only establishes a new set of commodities, not a new future for agriculture.

The USDA Process Verified program provides this type of validation that occurs in other industries daily. Quality management systems (QMS) are well established to provide the buyer confidence that the seller is delivering what was promised. These go by different names, but ISO 9000 is the most widely known international standard. Automotive, aerospace, and medical manufactures have further refined

the ISO standards for their industry. Agriculture is beginning to move in a similar direction. The process verification program offered by the USDA is built on an ISO frame, but is customized to agriculture and does as the name implies, it verifies the process. Quality management systems are a means of requiring discipline and reproducibility in a production process. Discipline and documentation have not been mainstays of traditionally independent minded agriculture. Quality management systems force operators to document what and how processes are done, then prove through records and audit that the process, however described, is consistent. QMS does not require specific or high quality standards, just that standards are met. QMS are also a convenient framework under which to introduce environmental and/or safety standards.

Another feature of QMS systems in other industries is that firms that adopt them have lower costs and more profits because they improve management. The operations are more efficient, there is less wasted material and motion, and there are fewer accidents, and fewer mistakes or out-of-spec products. Many will argue that agriculture is different since production is a biological process subject to weather and disease or that operations are smaller and tend to have few or if any employees. However, agriculture does deal with tight margins, can’t afford mistakes, and it now has higher expectations from buyers and society so the principles of QMS can be beneficial to beef producers. I think that most producers can appreciate practical animal handling guidelines and facilities that are less stressful on the animal and the people working to improve safety and profits. Another example is animal identification for management purposes. Most producers use ID systems within an operation, but pass little information to the previous or next owner. The proposed USAIP will provide the infrastructure to make information transfer practical. There are two studies of quality management systems, one in Europe and the second in Australia and New Zealand reported at www.iowabeefcenter.org.

The Cost of Not Meeting Consumer Demand

It may be futile to talk about the cost of meeting consumer demands if the consumer is willing to switch to a product that does meet his or her demand. Likewise, if a processor or retailer makes one or more of these demands a condition of sale, then they become a market access issue. Simply put, do you get a higher price for doing the “extra stuff”? Yes, because the price for not doing it is less and there are fewer buyers for product that doesn’t meet the new specifications. As we have seen in the pork industry and to a lesser extent in beef, if one company requires something, the others are not far behind. The challenge is to make sure that the requirement is important and not simply window dressing. Important issues that are not addressed will cause consumers to choose a competitor. Ten years ago that

meant switching from beef to chicken. Today it may be switching from Bob's beef to Brenda's beef, or at a minimum some calves are acceptable to one feedlot but not another.

Before you panic about market access, refer to Table 1 and the list of retailers. There are companies on the list that will continue to sell commodity beef and a lot of it. There is a significant market share of consumers that are only interested in safe affordable beef with minimal concerns beyond taste and tenderness. Commodity beef with some increased minimums will continue to be the largest share of the US beef industry. However, I do believe that we will continue to see growth in more differentiated beef products and higher standard of proof that "trust-me" to back the claims.

If the increased requirements become the new minimum standard then the industry continues to operate as a commodity, but one with higher minimum and higher costs. Increasing requirements to meet consumer demands may result in more work and perhaps more out of pocket expense. If you approach it as a commodity and try to do the minimum required to meet the new specification then expect an increase in cost. However, if the added requirement helps define it as a different product then the added costs can be at least partially recovered in a price

difference or cost reduction. If you see the requirement as a need for more management rather than more labor, expect to receive dividends from better overall management of the operation.

References

- Feuz, Dillon M. and Umberger, Wendy J. "U.S. Consumer Willingness-to-Pay for Flavor in Beef Steaks: An Experimental Economics Approach." *Cornhusker Economics* March 21, 2001.
- Hurburgh, Charles R. and Lawrence, John D. "The Need for Quality Management Systems in Agriculture." *Resource: Engineering and Technology for a Sustainable World*. September 2003, p. 29.
- Loureiro, Maria L. and Umberger, Wendy J. "Consumer Response to the Country -of-Origin Labeling Program in the Context of Heterogeneous Preferences." Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Montreal, Canada, July 27-30,2003
- Lusk, Jason. "Branded Beef: Is It "What's for Dinner?" *Choices*, Second Quarter 2001.