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Political Economy of the U.S. Cattle and Beef Industry: Innovation Adoption and Implications for the Future

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Market innovation and investment are key elements contributing to the health and success of any industry. However, U.S. cattle and beef interests appear to be resisting some of the market innovations that are occurring in their industry. This includes resisting innovations designed to provide more information and transparency in the marketing chain, such as additional traceability provided by animal identification systems. This paper discusses how institutions supporting the U.S. cattle and beef industry may be failing the industry in terms of helping it adjust to new market conditions, including failing to help the industry foster market innovation. Recommendations are given relating to the first steps government and the land-grant system can take to change research and extension agendas relating to the beef industry.

Key words: competition in world beef markets, market innovation, U.S. beef industry

Introduction

Successful marketing is typically predicated on successful market development, and market development is typically driven by product or market innovation. Market development, led by product and market innovation, has been a key factor in developing the world's capacity to market and distribute food and fiber.

During the past 20–30 years, U.S.-led innovation in the livestock industry at the production level has included such important achievements as highly productive cross-breeding programs, genetic engineering, and integrated production practices, especially in the swine and poultry industries.[1] Historically, American firms have also developed many important innovations in processing and marketing. Examples from the beef industry include animal carcass disassembly plants, boxed beef, and more recently case-ready meat packaging and instrument grading. However, one could argue that relatively fewer innovations have been incorporated in the past two decades in processing and

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[1] Courvisanos (2006) describes innovation as "an idea from problem solving or opportunity identification that alters the current state of theoretical and practical knowledge, skills and artifacts in the production and delivery of economic activity" (p. 205). He also refers to technology as "any production and delivery processes that require a significant input of fixed capital investment" (p. 205).

marketing beef compared to the number of ground-breaking innovations at the production level.[2]

The adoption of appropriate technologies and innovations is a critical element in economic development because of the investment and economic activity it attracts (Courvisanos, 2006). Without new investment, industries tend to stagnate and even slowly die. This paper focuses primarily on the U.S. beef industry—how agricultural marketing innovations are either being embraced or resisted by the industry and how such practices might play into the future of the industry. While I focus on international trade issues and in what ways these issues are shaping the U.S. competitive advantage in world beef markets, the conclusions may also eventually encompass the domestic market.

Influence of International Beef Trade on the U.S. Beef Industry

Unnevehr (2004) describes the forces leading to global market integration and how these forces are driving markets toward standardizing expectations and requirements related to food quality and food safety across national boundaries. These forces include growth in world trade, especially in food and other agricultural products, and also innovation at the production level that is patented and offered by a limited number of firms worldwide (Unnevehr, 2004; Zilberman et al., 2004).

These same pressures are being exerted on U.S. cattle and beef industries. Total world beef trade is increasing and adding pressure for beef market integration in terms of quality and food safety requirements. But disagreements among trading partners about risk assessment (e.g., sound-science argument vs. precautionary principle), levels of required transparency and information (e.g., disputes about traceability and food labeling), approaches to risk management, and animal and plant health standards have led to significant trade frictions, also referred to as market fragmentation (Unnevehr, 2004; Bailey, Jones, and Dickinson, 2002).

Beef exports have become important to the U.S. beef industry only in the relatively recent past. International beef markets have frequently proven to be unpredictable for U.S. beef exporters due to differences of opinion with trading partners about the safety of certain production practices and also animal disease. Examples include the U.S. losing the EU export market over disagreements about hormone-treated beef and the more recent loss of the East Asian market as a result of a few U.S. cases of bovine spongiform encephalopathy (BSE, or mad-cow disease).

I believe it is safe to say that for the past 20 years world beef markets, at least from the American perspective, have been characterized by conflict or fragmentation relating to marketing issues. The U.S. and the EU are the key players in many of these conflicts. We have fought over issues relating to animal hormones, GMO-labeling, and traceability. While these are macro-level trade issues, they have also led to the development of an array of production process-based products that could be considered market innovations in a sense. But these market innovations have not been well received by the American beef industry in general. This is because these innovations are viewed by the

[2] The same argument could also be applied to other segments of the food industry. For example, the dairy industry has also continued to see innovation and efficiency improvements at the production level with relatively few innovations in processing and marketing.

American beef industry as adding unnecessary costs and as catering to non-science-based trade barriers designed as direct attacks against U.S. trade interests.

Like many of you, I grew up working on a farm. In my case, my family was involved in ranching in northern Utah. I have remained keenly interested in the beef industry, devoting most of my professional career to research and extension efforts relating to it. During my career, I have also developed some concerns about this industry. These concerns are not about whether the U.S. beef industry can continue to produce a product I personally enjoy consuming, but rather are related to the industry's focus on cost-cutting strategies instead of value-adding strategies, its apparent sluggishness in responding to changes in the international marketing environment, and the constant in-fighting occurring among the links in the beef marketing chain.

An emphasis on cutting costs has certainly been viewed as a viable strategy for both cattle producers and beef processors given the stiff domestic price competition faced by the industry from the poultry and swine industries during the past 20–30 years. American consumers have demonstrated they are quite willing to substitute away from beef based on price, but they have also exhibited a willingness to substitute based on characteristics such as product consistency, convenience, and variety. These characteristics are more prevalent among meats other than beef, especially poultry.[3]

Cattle producer concerns about beef packer buying power have persisted for at least 100 years. Those of us interested in price analysis have seen what I would consider to be basically the same study highlighting potential packer misdeeds, repeated again and again, with the only essential difference between the studies being various methodologies and/or data used by the researchers. Virtually all of these studies have come to the same conclusion—buyer market concentration results in a small degree of buyer market power but not one large enough to warrant the breakup of the packing industry. As a consequence, there has been a great deal of relatively unproductive activity and discussion (in my opinion), with little effect on actually improving marketing and marketing mechanisms for beef.

Some important questions facing the U.S. beef industry that are not directly related to buyer market power in the domestic marketing chain include the following: How effective will the U.S. beef industry be in addressing important marketing innovations in the future, especially those which are leading to market fragmentation? Why do marketing innovations sometimes seem so challenging to the U.S. beef industry? Why does the U.S. beef industry seem to adjust slowly to, or openly oppose, some of these changes, especially related to international marketing issues, rather than incorporating changing market conditions?

Examples of Market Fragmentation Affecting the U.S. Beef Industry

One example of how market fragmentation is hurting U.S. beef producers is the EU's trade ban on hormone-treated beef. This trade ban is one of the most contentious trade issues between the EU and the U.S. in terms of agricultural trade (Alfnes and Rickertsen, 2003; Charlier and Rainelli, 2002). The EU represents one of the world's largest beef markets. EU beef production and exports have declined since 1990 in the aftermath

[3] However, it should be noted that consumer expenditures on beef in the U.S. continue to remain larger than on any other meat species.

of its BSE and foot-and-mouth disease (FMD) crises, while imports have trended upward. Robertson (2007) reports EU imports of beef will reach 1 million MT within the next decade.[4]

Clemens and Babcock (2002) found that U.S. beef exporters are not competitive if they are forced to meet EU requirements relating to assurances and/or certifications that American beef has not been treated with hormones. Consequently, eliminating or reducing the EU's ban is a top priority for the U.S. However, the EU has maintained the ban despite the World Trade Organization's ruling in favor of the U.S. in this matter (e.g., Hill, 2001; Taylor, Walsh, and Lee, 2003; Alfnes and Rickertsen, 2003; Charlier and Rainelli, 2002).[5]

Based on numerous research studies reporting that Europeans prefer non-hormone-treated beef (e.g., Lusk, Roosen, and Fox, 2003; Alfnes and Rickertsen, 2003; Alfnes, 2004), considerable political support for the hormone ban exists in the EU. The end result of this disagreement or fragmentation is that U.S. beef producers are unable to export directly to a huge and growing market for beef (Thor et al., 2007).

Another example of a trade-related issue with which the U.S. beef industry has experienced extreme difficulty is the development and implementation of the National Animal Identification System (NAIS). Although the animal health community and most livestock organizations have strongly supported implementation of the NAIS, the system has faced significant opposition from the beef industry (Sumner and Pouliet, 2006; Bailey and Slade, 2004). Cattle producers consistently have based their opposition to the NAIS on the issues of confidentiality and potential liability. As a result, the process is now mired in political difficulty and a seemingly complacent attitude on the part of the industry to take the necessary steps to finally get the system implemented (Quaife, 2007).

Sumner and Pouliet (2006) argue that insurance could be used by producers or other members of the marketing chain to offset any risks associated with increased traceability. As reported by Buzby, Frenzen, and Rasco (2001), only about one-third of court cases involving foodborne illnesses are won by plaintiffs, and median awards are relatively small ($25,560 in 1998 dollars for their study sample). These findings suggest that the potential risks resulting from traceability may be smaller than sometimes implied by those opposing implementation of the NAIS. Moreover, costs for liability insurance might not be huge.

Innovation, Markets, and Marketing Institutions

Questions about how an industry chooses to either accept or resist market innovations have led me to attempt to understand the institutions and politics of the U.S. beef industry more fully. Neoclassical economic theory suggests that uncertainty in competitive markets is what drives entrepreneurs to find solutions and determine outcomes or, in other words, to develop and manage innovation (Courvisanos, 2006). Economic theory also suggests efficient markets will rapidly adjust by reflecting prices and price signals that incorporate new information and changing market conditions.

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[4] By contrast, U.S. beef exports to Japan, at their peak during the 1990s, were in the neighborhood of 600,000 MT annually.

[5] For clarification, the EU bans U.S. beef even if it claims to be hormone-free. The WTO ruling was that no scientific evidence supported that the use of hormones in cattle feed was detrimental to human health.

Finally, neoclassical theory states that over time, competitive market forces are expected to "whittle away" at any temporary competitive advantage. Consequently, monopoly power resulting from innovation is temporary and exists only until other firms (typically small ones) develop new innovations that diminish any existing market power.[6] Therefore, markets, when left unhindered, should solve the sorts of problems caused by innovations that have arisen in beef export markets. Markets for cattle and beef would not be expected to behave in the strictly neoclassical sense because a small number of large firms exist at each level of the market chain downstream from production.

I believe some insight provided by Stiglitz (1988) might help us better understand the behavior of firms and institutions in cases where market inefficiencies seem to exist. In his work explaining how institutions and peasant farmers in less developed countries (LDCs) interact, Stiglitz discusses the economic forces and the behavior of institutions which serve to make these farmers "[remain] poor but efficient." Specifically, Stiglitz argues that markets cannot fully explain why hard-working and efficient peasants in LDCs continue to suffer income disparities with perhaps less diligent workers in other parts of the world.

Some might be offended by my comparison of the U.S. beef industry to peasant farmers in the developing world. The institutions surrounding the U.S. beef industry are obviously sophisticated, and the capital formation surrounding these institutions is impressive. Consequently, the comparison is far from perfect because of differences between the U.S. beef industry and peasants in LDCs in terms of capital formation and access to information. Nevertheless, it may be instructive, at least in theory, to consider that institutions in both instances appear to fail to a degree in providing appropriate markets and in solving economic problems. The point is that institutional failure may be one of the primary problems being faced in both instances. For example, one could pose the question, "Are the institutions supporting the beef industry efficient in terms of protecting the industry's market share and in supporting the industry politically, but 'innovation poor' in relation to marketing?"

As Stiglitz (1988) explains, if one accepts that market participants (in his case peasants in LDCs) are rational and are free to act in their own self-interest, then it is usually assumed that the efficient market hypothesis and the Coase theorem will act in concert to drive inefficiencies from the market or from inefficient institutions associated with the market (p. 20). One could apply this same argument to industrial development in general. If so, it implies that if apparent inefficiencies related to innovation-led market development exist in institutions supporting an industry (in this case the U.S. beef industry), then markets will completely resolve the apparent problems if governments do not become involved. Further, if the seeming inefficiencies persist even in the absence of government intervention, then one need only dig deeper to understand the sound economic reason for the inefficiency.

Both Stiglitz (1988) and Courvisanos (2006) argue that the assumptions relating to conditions necessary for efficient markets are too restrictive in many cases to explain the behavior of firms and institutions. Neoclassical economic theory relating to market-driven innovation is based on the assumption of relatively small firms operating in the market and the emergence of new technology managed by entrepreneurs who are seeking out latent inefficiencies in the market which can be filled by these technologies.

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[6] Schumpeter (1942) refers to this as "creative destruction."

Obviously, firms within the U.S. beef industry are large and concentrated at all levels except cattle ranching. Further, information asymmetries exist between levels of the beef marketing chain because segments of the chain do not freely share information. For example, packers would typically not share with feedlot operators their marketing commitments to retail buyers, and cow/calf producers may not reveal to feedlot operators full information on handling or vaccination practices. Retailers probably do not fully reveal to meat purveyors their strategic plans for meat promotion. Finally, the system does not provide full transparency to consumers about where and how cattle were produced, processed, and marketed. Traceability is one potential way to improve information transfer and communication among different segments of the beef market. Stiglitz (1988) would argue that increasing information will improve efficiencies within the market.

Embedded Investment and Embedded Culture Within Institutions

Courvisanos (2006) contends that investment in past technologies embeds those technologies and may influence decisions to invest in new technologies.[7] Accordingly, in markets that do not fit the neoclassical definition of competitive, decisions regarding investment in technological innovation may be driven largely by existing firms rather than small entrepreneurs. Moreover, these firms may have incentives not to invest in, or even to discourage, new technologies as a means to ensure a return on past investments.[8]

Connected to this argument, Galbraith (1958) proposed an institutional rather than a market approach to explaining technological innovation—i.e., institutions manage innovations whereby they do not result purely from market opportunities that are exploited by entrepreneurs seeking to identify market disequilibria. This approach suggests that innovation is embedded in a firm's ability to free up resources to conduct R&D. This may lead to a corporate culture where constant minor improvements are being made to existing technology and where new, innovative technologies are adopted only after everything has been "squeezed out" of the existing system. This process is viewed as a method to preserve the value of existing investments in capital stock (Courvisanos, 2006).

Historical Underpinnings of Institutions Related to the U.S. Beef Industry

When one considers the conditions necessary for efficient markets, it becomes clear that market inefficiencies can and indeed would be expected to exist within firms and institutions. Stiglitz (1988) refers to this as the existence of effective but inefficient institutions (p. 21). He goes on to state, ". . . economic theory cannot explain many of the central aspects of institutions; to understand these we need a broader view, informed by sociological, psychological, and historical perspectives" (p. 21).

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[7] An example given by Courvisanos (2006) and Rip and Kemp (1998) is the continued investment in gas-driven automobile technology even in the face of global climate change.

[8] This seems to suggest that firms may focus on short-run returns rather than long-run returns, especially when the perceived risks of new investment are greater than existing investments.

I won't attempt to discuss sociological or psychological aspects related to the U.S. cattle industry. However, I believe historical perspectives can provide important insights about the U.S. cattle industry. The historical underpinnings of today's cattle industry may be found beginning with the large cattle drives of the 1880s, when cattle were trailed from the south-central United States to rail centers such as Dodge City, Kansas. The cattle were then transported by rail to urban centers like Chicago, where they were slaughtered and processed by companies such as Cudahy, Wilson, and Swift (Lesser, 1993). Next, carcasses were shipped to urban center butchers who prepared the meat to be sold to consumers. Today, boxed beef is usually shipped directly to retailers, who are then required to provide only a minimal amount of additional preparation before the beef can be served or sold to the final consumer.

This brief history provides the context for the development of institutions and relationships within the cattle industry which have important implications today. The U.S. cattle industry, its institutions, and associations grew up during the time of the robber barons. The common enemies of cattle producers during this time period were first the railroads, and then (especially) the packing industry (National Cattlemens Beef Association, 2007). The industry's institutions had as their political base cow/calf producers because cow/calf producers were the largest single industry group. The key element here is that self-protection against other segments of the marketing channel was the foundation for the formation of industry associations and related institutions. Historically, this has characterized market issues, particularly at the cow/calf producer level, as being concerns primarily about buyer market power rather than as vehicles for market development.

Close ties have existed between land-grant universities and producers relating to cost-cutting production practices, animal health, and commodity marketing because this focus is where political support from the livestock industry could be secured by land-grant institutions. Ties between land-grant universities and packers typically have not been close, and have been formed principally to provide information to producers about carcass quality and production practices related to carcass quality. Packers have relied mostly on MBA models of business management rather than colleges of agriculture at land-grant universities as their foundation for establishing business practices. Historically, packers determined the key to their success was managing resources such as capital and labor to keep costs low while placing less emphasis on marketing. The key exception to this statement relates to food safety issues, where packers have been very sensitive about consumer perceptions. Packers have probably paid limited attention to marketing, especially based on differentiated products, because meat quality is generally unknown prior to harvest and the genetic variability of beef quality has made traditional marketing through establishing product brand equity very difficult.

Packers, and consequently their related associations and institutions, have traditionally seen regulations resulting from political pressures from cattle producers, and later from consumers, as the primary threats to their industry. For example, muckraking publications such as *The Jungle*, published in 1906 by Upton Sinclair, led to passage of the U.S. Federal Meat Inspection Act and the Pure Food and Drug Act in that same year (Kastner, 2007).[9] Passage of these acts led to the formation, again in 1906, of the American Meat Packers Association (later called the American Meat Institute),

[9] More recently, publications such as *Fast Food Nation* have prompted increased concerns about the safety of the U.S. food supply, specifically for beef (Schlosser, 2001).

an organization formed originally to aid packers in adjusting to these new laws and inspections and which now has as its primary mission attempting to influence regulations relating to the meat packing industry and helping members deal with media issues (American Meat Institute, 2007).

Again, the key point of this part of the discussion is that the institutions in the U.S. beef marketing chain were established essentially in reaction to one another rather than as a means to foster larger markets, especially international markets. The institutions within the U.S. cattle and beef industry have over the years formed the political alliances necessary to maintain these positions in equilibrium. These alliances were established to counterbalance the potential threat posed by other institutions in the beef marketing chain. Hence, it is little wonder that cattle producers and packers continue to remain at odds with each other and seem to have difficulty working closely with each other in developing market opportunities, especially in international markets.

Strategic Position of the U.S. Beef Industry

In their book, *Blue Ocean Strategy*, Kim and Mauborgne (2005) provide a business model for identifying areas where firms achieve, or where they might achieve, monopoly power.[10] This is accomplished by acquiring uncontested market space (i.e., a "blue ocean" strategy) rather than continuing to go head-to-head in "bloody" competition with other competitors for a larger share of the same market (i.e., a "red ocean" strategy). My colleague, Terry Glover, has pointed out to me that the concept of developing the means to achieve monopoly is, of course, a rather old concept from economics going back as far as Schumpeter (1942) and Marshall (1920).[11]

Kim and Mauborgne (2005) suggest conducting a competitive analysis with what they term a "strategy canvas," and I apply this here to the international beef market (figure 1). The horizontal axis of the strategy canvas conveys the key points or factors on which the industry competes and/or in which the industry invests. The vertical axis measures the offering level buyers receive from exporters for each of the key points of competition and investment. For example, a low measure of the key point "Price" indicates a low price for meat sold by that particular exporter. A high measure for the key point "Animal Disease" would indicate significant problems with animal diseases which can disrupt exports from that country. The strategy canvas offers a head-to-head illustration of weak and strong points of firms or products, but also illustrates points where firms have little or no competition—in other words, a "blue ocean." Key points on which countries choose not to compete or invest are simply left blank on the strategy canvas. A weakness of the strategy canvas is that it provides a subjective picture of the competitors within an industry that is dependent on the perceptions of the person completing the analysis rather than objective measurement. This deficiency could be corrected in future studies by using more objective measurements of each point of competition. However, a set of objective measures would need to be developed and quantified to accomplish this.

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[10] Kim and Mauborgne (2005) refer to "uncontested market space" which, if achieved, would be equivalent to the economic definition of monopoly.

[11] The important role of designing strategies and/or the creation of innovation in markets to obtain monopoly power was described by Schumpeter (1942) and also Marshall (1920), who posited that markets lead to invention, then to innovation that yields economic rents, and then to decay, and then again to invention. As noted earlier, Schumpeter (1942) described this process as "creative destruction."

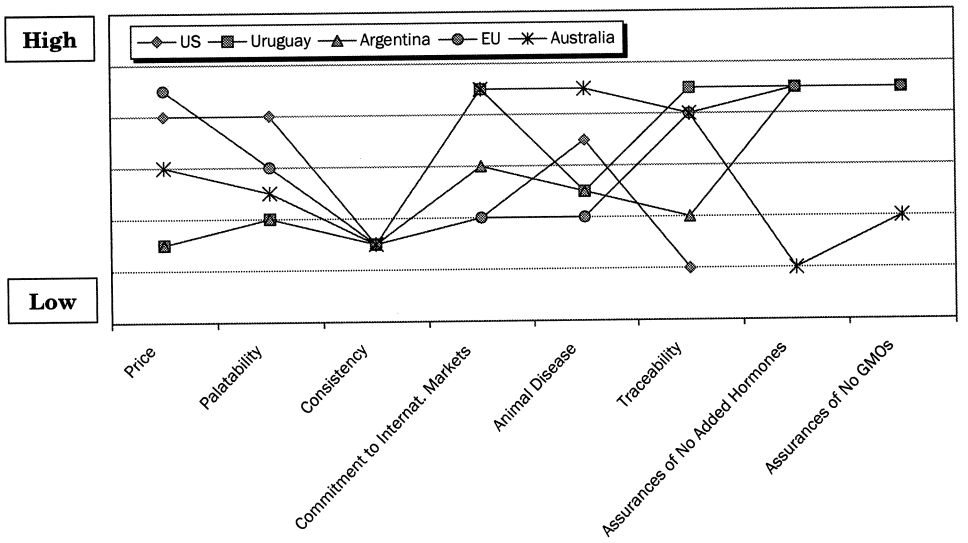

Figure 1. Strategy canvas for international beef trade

Figure 1 provides a strategy canvas for a few of the major beef exporting countries (U.S., Uruguay, Argentina, EU, and Australia). Because the beef systems in most of these countries choose to compete on all or almost all of the key points, Kim and Mauborgne (2005) would suggest that the world beef market is basically a classic product differentiation market. Specifically, competitors invest in all of the key points but emphasize some points over others. The exception to this is related to credence characteristics, which will be discussed later.

The U.S. can be seen as positioning itself as a high-quality ("Palatability"), high-price producer having a relatively low commitment to international marketing, a problem with animal disease (e.g., BSE) that might affect international marketing opportunities, a weak traceability system, and a system that does not compete based on credence characteristics (such as assurances about no added hormones and/or no GMOs).

Compared to the U.S., the EU is a high-priced but relatively low-quality producer. The EU's commitment to exports has been significantly weakened by its problems with BSE and FMD. However, the EU has a high degree of credibility relating to the credence characteristics.

Uruguay and Argentina are low-priced and relatively low-quality producers. Uruguay has a higher degree of commitment to beef exports and a better traceability system than Argentina (both Argentina and Uruguay have better traceability protocols than the U.S. at this point). Argentina and Uruguay have a clear advantage in the case of the credence characteristics compared to the U.S.

Australia is a mid-priced, mid-quality producer with a high degree of commitment to beef exports. It has a good traceability system but a relatively weak commitment to credence characteristics (although better than the U.S.).

The strategic implications suggested by figure 1 are clear. The U.S. is basing its international strategy on producing the high-quality product in terms of palatability. Threats to this position could come from several directions:

- First, some consumers might prefer a grass-fed product to a grain-fed product based on taste (palatability). Research has indicated that while a significant number of American consumers prefer the taste of grass-fed beef, most do not (Sitz et al., 2005; Umberger et al., 2002).[12] These findings imply grain-fed beef may provide an important competitive advantage to U.S. beef exporters over beef exporters from other countries.

- Second, consumer tastes may begin to gravitate to grass-fed beef over grain-fed beef based on environmental concerns. There is evidence to suggest markets for grass-fed and organic beef are growing, but these markets are still relatively small. On the other hand, beef exports from countries exporting primarily grass-fed beef are growing rapidly, and the U.S. beef industry has lost market share to these countries (Boland, Perez, and Fox, 2007; Thor et al., 2007). Brazil, Argentina, and Uruguay are expected to continue to capture market share in international markets for beef (Steiger, 2006). A big part of the gain in market share for South American countries is based on their ability to export to the EU. South American countries have also captured market share lost by the U.S. following its first BSE case in December 2003. Whether the cause is taste or unavailability of American beef, simply having a palatable, grain-fed product has not protected the U.S. from losing a large part of its share in international beef markets.

- Third, competitors may be able to improve palatability by increasing grain feeding. One notable example of this practice is the recent joint venture between Tyson, Cactus Feeders, and Cresud in Argentina. This joint venture is designed to provide grain-fed beef to domestic and export markets (Thor et al., 2007). If this strategy is successful, further investment will follow. The December 2003 U.S. BSE event was devastating for the U.S. beef industry in terms of trade because international markets were immediately lost and have proven difficult to win back following the resumption of U.S. beef exports. This event essentially opened the door for grass-fed beef exports—i.e., exports from countries such as Argentina and Uruguay increased dramatically after December 2003 (figure 2). It also potentially opened the door for grain-fed beef competitors who now are better established in the market to export to markets closed to the U.S., such as the EU. This suggests that, over time, U.S. market share in international markets may erode not only because of lower-cost grass-fed beef, but also because of increased competition from grain-feeding competitors.

- Fourth, consumer concerns about credence characteristics, upon which the U.S. is choosing largely not to compete, may begin to outweigh its advantage in terms of palatability. That is, products that are slightly less palatable may begin to be successfully differentiated from U.S. beef based on credence characteristics. An example might be Australian beef which is perhaps somewhat lower in palatability than U.S. beef, but is still acceptable to many consumers and is traceable.

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[12] Sitz et al. (2005) report that 19% of participants in a taste-test survey preferred Australian grass-fed beef to U.S. corn-fed beef. Umberger et al. (2002) found that 23% of participants in an experimental auction preferred Australian grass-fed beef to U.S. corn-fed beef.

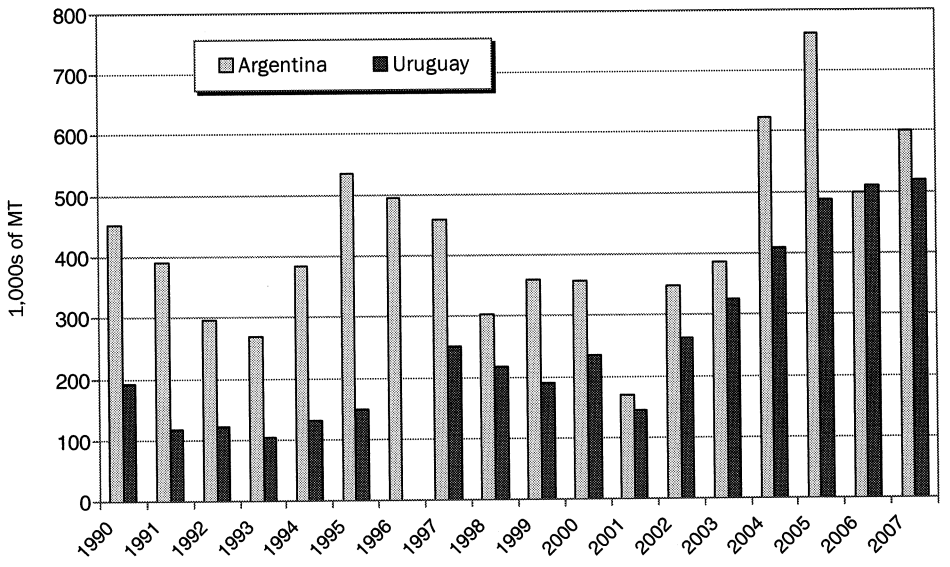

Figure 2. Beef and veal exports from Argentina and Uruguay, 1990–2007 (projected)

Conclusions and Future Directions

World trade in beef continues to expand at a time when U.S. beef exports are well below their pre-BSE levels. U.S. beef exports have been recovering slowly since December 2003, even at a time when the U.S. dollar is relatively weak. One reason for this slow recovery is that U.S. exporters face effective competitors in international trade. These competitors appear to be adopting new marketing innovations at a faster rate than U.S. exporters. Reasons for this may be the relatively small dependence on beef export markets in the U.S. compared to competitors such as Australia or Uruguay, and certainly Canada. It may also be a result of institutional snags that tend to focus on perceived buyer market power issues in the domestic U.S. market rather than on issues related to expanding international markets for U.S. beef.

One factor that may be aiding foreign competitors in increasing their market share is their efforts to differentiate their beef based on credence characteristics such as traceability and production practices. This comes at a time when the U.S. beef industry is finding it difficult to institute broad-based animal identification and other traceability-related systems. There is also evidence of plans by competitors to increase grain feeding (palatability).

The long-term implication of the perceived sluggishness of the U.S. beef industry in reacting to market innovations is not completely clear. One result might be a growing dependence by the U.S. industry on North American markets where the U.S. has transportation cost advantages over other competitors. Another might be a quick adoption (catch-up) phase by the U.S. industry to more closely conform to the new emerging standards and expectations for beef products in international markets. For example, there are a growing number of important success stories for U.S. beef companies that have successfully differentiated their product(s) based on quality characteristics and other marketing innovations (e.g., Oregon Country Natural Beef, 2007; Creekstone Farms, 2007).

The politics related to some issues, such as animal identification, are obviously complex, especially given that many different species are involved in the USDA effort and because some producer groups have been more supportive of the effort than others. The situation is also complicated by a lack of cooperation among different levels of the supply chain. At the same time, market-driven efforts are having limited success in addressing market innovations. However, systemwide efforts to address issues related to international marketing and marketing innovations appear to lack industry commitment.

If the U.S. beef industry believes international marketing is a fundamental part of its future marketing strategy, land-grant universities have an important role to play in defining the types of transitions that will be necessary to accomplish it. The land-grant system and USDA must take leading roles in directing research agendas away from an emphasis on trying to discover buyer market power to a focus on market development. This begins by calming fears about animal identification programs and traceability in general. Research dollars must focus on quality characteristics for beef and how international trade friction can be reduced. This approach includes taking a less intransigent stand relating to customer concerns about production process characteristics. It must also include education about world beef markets that will help the industry, especially producers, to understand competitive advantage and product differentiation strategies in world markets. These discussions have too often focused on comparing the strongest points of the U.S. system to the weakest points of other systems, resulting in reinforcing stereotypes and inaction on the part of the U.S. industry. In short, the discussion needs to begin to steer away from how we can make the world accept our beef products the way we want to produce them and more toward how we can competitively produce and market beef products consumers around the world want.

The land-grant system must also take a leading role in educating agricultural producers about how they would benefit from market innovation and development efforts. Producers often find it difficult to see precisely what direct benefits they will derive from efforts to improve the demand for U.S. beef, especially in international markets. Examples would include the opposition to mandatory beef check-offs for research and promotion. The reason for this is that producers often perceive themselves as not receiving their share of the rewards from any increase in beef sales or marketing margin. Consequently, extension economists and researchers should be doing more to explain how competition and demand drive prices, marketing margins, food processing costs, and the interface with government regulations. In general, the land-grant system needs to do a better job of helping agricultural producers understand the intricacies of how they fit within the marketing chain and how benefits and costs are shared within the marketing chain.

Taking a leading educational role will require a willingness to accept some criticism from groups which have accepted a defensive strategy. However, the land-grant system may be the only institution supporting the U.S. beef industry possessing enough credibility and independence to address these issues head on with unbiased information and a new direction. For example, extension is different from most government-sponsored organizations in that it is expected to play a leading role in change rather than simply supporting industry needs and initiatives. As argued by both Brester (2006) and Watts (1989), extension and university research should focus on delivering unbiased research and education rather than simply supporting the political agendas of agricultural producers or agribusiness firms.

There are a number of key examples of U.S. industries which have ignored foreign competition and product differentiation to their detriment, including the auto industry and the electronics industry. Failure to constantly improve and ignoring improvements made by competitors can be very costly. The U.S. beef industry has lost ground and will likely continue to lose ground in world beef markets if the industry and the institutions surrounding it continue to fight among themselves rather than uniting to answer and solve significant market development questions and issues.

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