U.S. Beef in the International Market

Paul Clayton

Introduction

The international meat market plays an integral role in the total economics and value of beef in the United States. In many cases several cuts of the beef animal that are not readily consumed in the U.S. are consumed in foreign countries. In turn, this demand from "non-consumed U.S. items" creates additional value for the beef industry. The international markets are steadily growing and have demographics very similar to the U.S. domestic consumer market. In many of the international markets the consumers live in very large cosmopolitan cities and are seeking products that are convenient, nutritious, safe, tasty and a good value.

International Market Priorities

The beef industry has adopted the following priorities to guide USMEF in international market development efforts. These priorities encompass the scope of the beef industry's efforts in the international markets.

Total Carcass Utilization
Trade Support
Buyer Education and Loyalty
Market Presence
Product Image
Market Access

Total Carcass utilization is a key component for the international markets. Many of the items that are not consumed in the U.S. are consumed in international markets. Expanding the number and type of beef products that are available in the international market is needed for further growth in these markets. Scientists and product development engineers are encouraged to identify and develop new products for the intentional trade. One example of where new product utilization is needed internationally is in identifying new uses for the raw materials that are currently being used in Meat and Bone Meal (MBM). The value of MBM may be less and less valuable over the next few years and the U.S. beef industry should identify international outlets for this raw material. Finding alternative uses for large bones, feet and sculls other than meat and bone meal would minimize the amount of MBM produced and possibly maintain or improve the value this product contributes to the beef industry.

The USMEF, USDA and NCBA provide extensive Market Assistance and Market Access for exporters in the form of technical support and providing mechanisms for exporters to connect with importers. These industry and government groups also assist in developing country requirements and assisting in the negotiations of quotas and tariffs. In addition, USMEF enhances buyer education and loyalty by providing programs in international markets on the type, utilization and availability of U.S. beef products. Extensive promotion programs in many countries are conducted to provide a U.S. market presence followed with product image programs that position U.S. products in regard to food safety, health, nutrition, quality and animal diseases.

To satisfy growing consumer demand for beef worldwide, many countries must supplement their domestic production with imports. Figure 1 shows that global beef exports have increased from about 5.1 million MT in 1996 to about 5.7 million MT in 2000. The U.S. and Australia were the largest exporters during this time period. Most recently, Canada and Brazil have also expanded their international presence. With global exports on the rise, obviously global imports are also increasing. Figure 2 shows that the U.S. is a major importer, primarily to help satisfy the demands of ground beef in the fast food sector. U.S. meat companies are also importing carcasses for further processing. Japan is the second largest beef importer in the world with U.S. and Australia accounting for nearly 95% of its total beef imports. Mexico has also become a substantial importer of beef, primarily from the U.S.

Figure 3 shows the growth in U.S. beef and beef variety meat exports from 1990 through 2006. From 1990 to 2000, the annual export growth rate was at 9.5%. USMEF anticipates further growth from 2001 to 2006 to be approximately 7.9% annually. Japan, Mexico and Korea are the U.S. beef industry's largest international customers. These three markets account for nearly 75% of the U.S.' entire export volume and 80% of exports on a value basis.

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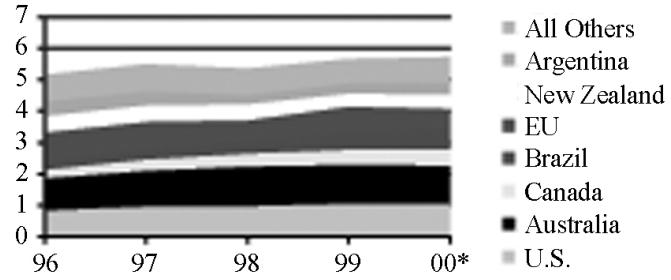


FIGURE 1. *Global Beef Exports*
(Million MT - CWE)
Source: United States Department of Agriculture, Foreign Agriculture Service, Dairy, Livestock and Poultry Division. 2001.

The following are the factors driving growth in U.S. red meat exports.

Rising Per Capita Incomes
Growing Middle Class
Changes in Diet
Declining Self-sufficiency in Leading Import Markets
Expanding Market Access
USMEF/Industry Marketing Initiatives

More foreign countries are becoming financially stronger. These consumers are more health conscious and are seeking healthy (less fat and sodium) and more convenient foods. Many foreign countries are also seeing a decline in agriculture. There are fewer but larger farms and the farm lands are being absorbed into urban areas.

In the past five years, worldwide consumption increased from about 45.5 million MT to more than 48 million MT. This is an increase of more than 5%. Much of this growth can be attributed to a consumption-oriented middle class that is emerging worldwide. China and Mexico are good examples of this scenario. The greater prosperity of this emerging middle class is creating increased demand for a greater variety of higher quality food products. This is most true with protein foods and specifically animal proteins such as beef. In recent months, the issues surrounding bovine spongiform encephalopathy (BSE) and Foot and Mouth Disease have caused more variation in attitudes of consumers toward animal proteins.

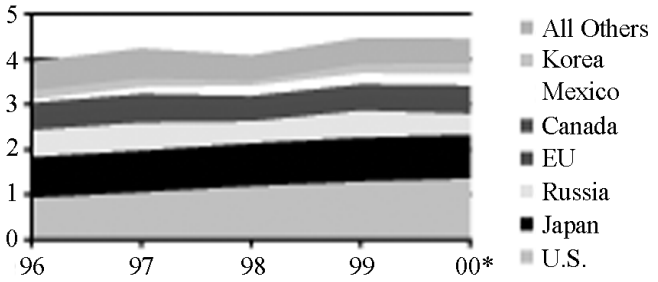


FIGURE 2. *Global Beef Imports*
Million MT - CWE)
Source: United States Department of Agriculture, Foreign Agriculture Service, Dairy, Livestock and Poultry Division. 2001.

U.S. exports of beef and beef variety meats exceeded 1.2 million MT in 2000 and were valued at nearly $3.6 billion. These exports accounted for nearly 13% of total U.S. production as compared to just 8% in 1994. U.S. exports also accounted for more than 24% of the world's beef trade in 2000. This is an increase of 17% since 1994. Clearly, the U.S. beef industry is rapidly becoming the supplier of choice around the world.

Key developments in 2000 that helped to fuel this growth included:

Continued expansion of U.S. market share in Japan. Currently the U.S. share of imports to Japan is 48%. The U.S. surpassed Australia in 1996 and continues to be the market leader.

The U.S. has experienced explosive growth in exports to Korea, HK/China, Taiwan, the ASEAN region and Central and South America. Exports in 2000 to each of these markets were up more than 35% as compared to 1999.

The Quick Serve Restaurant (QSR) industry is a large and growing sector in the international market place. Sourcing raw materials is the largest hurdle this industry encounters. The QSR industry generally tries to source most of the raw materials locally and subsequently process the finished products within the specific market country. However, due to many of the animal health issues in many foreign countries, these raw material supplies are inconsistent in their availability and have high variability in quality. The future trend for the QSR industry is to export U.S. products for their international market needs.

International Market Overview

The international beef market has many similarities to the U.S. beef market. The majority of imported U.S. beef is consumed in large cosmopolitan cities where consumers are seeking products that are convenient, tasty, healthy, safe, nutritious, and a good value. Most of the markets are commodity based. However, as disposable income increases we see more of the market migrating to a more branded market (See Figure 4). In a branded market, many of the items are more closely meeting the consumers' expectations in regard to the convenience, taste, nutrition and safety. In many of these cases the consumer is finding greater value. Ultimately, in some markets there is a trend to particle marketing, where the product is presented to meet a specific need or use. More specifically, there is this tendency in Japan where a certain product has a specific use depending upon the cuisine. U.S. meat science research and technology is vital to these initiatives. The international trade is seeking information on the specifications and technical parameters of the products and how the product can be utilized in various manufacturing processes or cuisines.

In several of the markets worldwide, there is considerable variation in the degree of detail in the product specifications. Starting in Mexico, which is a large, growing market, many

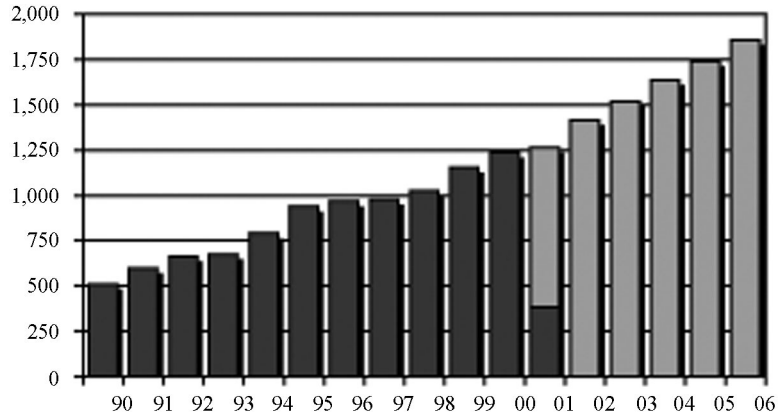


FIGURE 3. *Growth in U.S. Beef & Beef Variety Meat Exports, 1990–2006.*
Thousand MT
Source: U.S. Meat Export Federation. 2000.

markets are very similar to U.S. markets with similar cuts, packaging, and product presentation. The Mexican market is basically commodity based, but there is a trend toward some branded products (Angus programs) and processed meat brand names. In wet markets in Russia, on the other hand, there is very little detail in product specification, and they are very basic commodity markets. The consumer asks for the product and the butcher cuts the piece directly from the carcass. In this selection process, there is only minimal criteria or detail to a specification. There is no regard for quality parameters such as grading or cut identification. Ironically, this is where most of the upscale trade occurs in Russia. The consumers feel this product is fresher and safer. The product has a "home-grown" image where the consumer perceives great care was taken to producing and presenting the product. In other Russian locations, the markets look very similar to a deli market. The product is cut from the carcass, frozen and displayed in refrigerated case. The Russian consumer will basically boil the product and use it over several meals. The consumer is not concerned with any specific use because it will not be used in a large variety of cuisines. The Russian processed meat sector has a large variety of branded products including conventional sausages and canned meats.

In Asia, we see similar marketing through a wet market. Pieces of meat are removed from the carcass and sold with little detail to any specification. Many times these are the markets that merchandize large amounts of variety meats. There are also large supermarkets and hypermarts throughout Asia in which the criteria detail to specification is much greater. Many of these markets closely resemble U.S. supermarkets. Throughout Asia there is a growing trend for more branded and consumer-ready products. Specifically, in Taiwan and China there are wet markets and large supermarkets that merchandise many meat products with detailed specifications and brand names. For example, the beef short rib is a very common item that is exported from the U.S. specifically into Asia. This product has a very detailed specification and very specific use throughout Asia. Markets in Japan move large volumes of products that tend to be very specific in use in a variety of cuisines. U.S. beef in Japan may be used in conven-

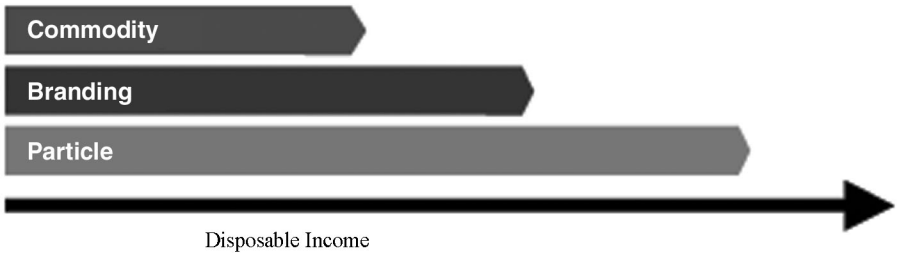


FIGURE 4*. Consumer Product Focus*

tional Japanese cuisine, Chinese, Korean and other Asian cuisine, fast food restaurants and western style steak houses. In many of these markets, the attention to criteria and detail of the specification is very high. The meat color, marbling, packaging and presentation are very important and extensive in these markets. A Japanese consumer may shop every three to four days, whereas in the U.S. most consumers shop every seven to ten days. Most Japanese do not "stock up" on food items, and they tend to have very little storage space in their homes. Many of the products in Japan are designed for the consumer to prepare soon after purchasing. The consumers are seeking items that are very convenient and can be utilized in a variety of specific cuisines.

In light of the different product criteria existing in the internationals markets, the U.S. scientific and research community needs to be aware of the opportunity for new products and product trends in these markets. New technology such as the NCBA Muscle Profile Technology may be very beneficial to the international markets as it may be a vehicle to identify new items that fit an international need. In addition, teaching current and new technology of U.S. products and utilization of U.S. products in a specific country's cuisine is very critical. Much of the technical information from the members and programs of AMSA are used in these trainings.

Food Safety in the International Beef Market

These are the key food safety issues for the internationals markets:

Microbiology
Residues
Foreign Material
Genetically Modified Organisms (GMO)
Animal Identification / Trace-back

In many cases, the U.S. is far advanced in food safety management and regulatory control as compared to other countries. Although some competing countries claim to have better food safety management programs, they lack a significant scientific basis to their programs. Most countries are very well informed about HACCP and understand the verification process. The U.S. food safety research agenda is also of great interest to international governments and to some extent international consumers. This agenda is vital for market access and it pertains to the World Trade Organization (WTO), World Health Organization (WHO), and CODEX.

From an international perspective the European Union (EU) has a high degree of influence over the world food safety regulatory process. Unfortunately, Europe tends to keep food safety in the political arena. Political parties such as the Green Party, poor science, and over zealous media influence many of the food safety issues. Likewise, the decision making process in the EU is slow and cumbersome because there are so many interested parties (EU Member Countries). Recently, there has been worldwide attention on the EU due to BSE and the Foot and Mouth Disease crisis. In turn, this has affected the entire international market and brought about great consumer concerns relative to the safety of their foods. The worldwide impact from all these issues can be summarized as the following:

Increased short-term market volatility worldwide.
Some erosion of confidence in EU food safety system
Need for continued market development
Maintain integrity of U.S. meat

Due to this impact, large European-based food retailers and to some extent the operators of the European quick service restaurant industry have taken their own initiative and developed the Global Food Safety Initiative. This European industry initiative will set food standards for the European food industry above the EU regulatory process. The following quote from the Economist (Economist, March 3, 2001) best summarizes the current condition in the EU.

> *"If there is a wider lesson (to be learned), it is not that Europe should close its doors, both on the world and on modern times. It is that the best course is to buy food from those who are really best at producing it, who are most technologically advanced at keeping it safe, and who, quite simply, produce the best food. Food cannot be cheap, local, green, safe and varied, all at the same time."*

Pathogenic microbiology is a large food safety concern throughout the world. The international marketplace is most concerned with *E. Coli* O157:H7, *Listeria* and antibiotic-resistant bacteria. *E. Coli* O157:H7 is the largest growing concern in the international marketplace. The growth in attention to *E. Coli* O157:H7 is primarily due to the U.S. media and USDA FSIS keeping the bacteria as a headline item. During the year 2000, there was a USDA FSIS recall for ground beef nearly each week, and this information was broadcast throughout the world (United States Department of Agriculture, Food Safety and Inspection Service, 2000). Even though ground beef is not a large export item, international consumers began to question the safety of U.S. products after seeing these headlines. The scientific community should continue moving forward with new research to combat this pathogen. Processors and producers need to continue using the improvements in food safety technology. Collectively, the industry must develop a very positive message that will minimize the adverse media coverage. U.S. packers and processors must be commended for engaging many of the multiple hurdle technologies. The various combinations of washing, vacuuming, use of organic acids (other pH adjusters) and thermal pasteurization have been successful in reducing bacterial pathogens. Packers and processors must assure all consumers there is a uniform and consistent application of the technologies and the processes are verified.

Listeria and *salmonella* are also growing concerns in the international markets. As there is more media attention on these organisms domestically, the international markets will have greater concerns. Most foreign countries have very few surveillance or diagnostic capabilities to measure the organisms in food or human, food-borne illness cases. Subsequently, much of the international attention to food safety and food-borne illness is through the domestic media channels. Antibiotic-resistant bacteria are also a large concern to the scientific community and some consumers in the EU and Asia,

primarily Japan. At present, antibiotic-resistant bacteria is considered a poultry issue. However, the red meat and livestock scientific community needs to continue efforts in researching and preventing the occurrence of antibiotic resistant bacteria in red meat products.

The use of cold pasteurization (Electronic Pasteurization or Irradiation) has a very low acceptance in international markets. Many countries may use the technology in various applications such as in the pasteurization of spices, and sprout retardation in potatoes. The scientific community must provide better communication on the efficacy, product quality and product safety of this technology. At present the consumer education process is basically non-existent for this technology in many foreign countries.

Chemical residues are large concerns of all consumers. Hormones, dioxin, and farm chemicals are specific concerns in the international markets. Much of this concern is driven by the EU political food safety agenda. In an appeal to the WTO ruling (June 1999) that the U.S. hormone ban was illegal, the EU committed to conducting a series of seventeen technical studies that would describe the dangers of using hormonal implants in meat animals. Of the seventeen papers only eleven were published. Of the eleven published papers all of the information agreed with previous research. It is unknown what the results of the six other studies indicate. However, because they were not published, the findings would indicate these studies did not benefit the EU political agenda. The EU is also moving to declare Estradial 17b as a carcinogen in red meats. However, the EU commission is not regarding other foods or pharmaceuticals that contain Estradial 17b as carcinogenic. There are many examples in other countries where new standards are developed, and the scientific evidence is highly variable. The U.S. scientific community must continue to develop communication tools to describe the safety of U.S. products. This message should reinforce the concept that when specific compounds are used to improve productivity or assist in animal health, there is judicious use and responsible application of the approved compounds.

It is interesting that foreign material is one of the most common Critical Control Points (CCP) in a HACCP program for meat production. The control of foreign material is usually detection and subsequent removal of the foreign particle. The foreign materials of greatest concern internationally are buckshot and injection needles. Currently there is very little prevention of this specific hazard. The practice of detection and removal of the hazard is very confusing to international customers. The U.S. prides itself as being the leader in the HACCP concept but nearly ignores the process of improving foreign material elimination and prevention. The scientific community needs to keep elimination, detection and prevention methods of foreign material high on the research agenda. The industry should be commended for the efforts to reduce and control injection lesions; the same concept should be used to minimize foreign material. It is encouraging to see that some of the animal businesses have begun developing and distributing a 100 percent detectable injection needle.

Genetically Modified Organisms (GMO) have various perceptions throughout the world. In general, there is the belief there is not sufficient scientific evidence to show that GMO's are safe. For meat products, there is some perceived belief that the transgene used in a crop and subsequently fed to an animal will pass through to the meat. The scientific and research community must develop methods to better communicate and provide understanding of the scientific evidence. Many countries are currently evaluating labeling regulations for foodstuffs that contain GMO's and for animal proteins derived from animals fed GMO's.

Animal Identification, Trace-back and Process Verification

Most recently due to Food Safety, BSE, and Foot and Mouth Disease, consumer concerns have elevated the need to verify product wholesomeness through the entire production and processing sectors. This is a paramount issue worldwide. Unfortunately, within the U.S. there is considerable debate within the livestock sector on the need, value and methodology to address these issues. The debate is focused on two issues. The first is that animal ID and trace-back will be used by various sectors, consumers (consumer groups) and the regulatory agencies to unjustly pass liability to the livestock sector that has no control over a specific liability. The other concern is process verification in which specific production standards are developed and verified in livestock and meat production. This concept is more closely aligned with consumer concerns. Most consumers do not really care where the animal was raised. They are more concerned on the conditions and treatments the animal experienced during its production. Furthermore, consumers need to be assured the subsequent meat product was processed in a sanitary and wholesome manner. Consumers want proof and assurance that all the applications for raising the livestock and processing the meat had judicious use and responsible application. They care that the animal was treated humanely, the animals were fed approved feeds, proper medical treatment was given to the animals and there were no violative residues. During processing, consumers care that the product was processed in a safe and hygienic manner and that there is no (or little) risk of food-borne pathogens. Most of all, consumers want to be assured (proof) that all of these things have occurred, and there is a process to verify these processes. In Japan, for example, some meat cases have a presentation showing the farm and the farmer that raised the product displayed at the store. This process shows the consumer who is directly responsible for producing the meat product. It provides an image of warranting or guaranteeing the product and lets the consumers know someone stands behind the products. The EU uses a passport system which includes: individual animal tagging, farm record keeping, "Passports" or an affidavit that is passed along with the animal and meat, and Cattle Tracing System (CTS), which is a government computerized registry of cattle. In the U.S., the Non-Hormone Treated Cattle and several other USDA AMS programs are the only third-party (U.S. government) certified programs in existence. The components of the Non-Hormone Treated Cattle program include individual animal tagging, farm

record keeping, employee training, a signed affidavit, and no hormones administered. The EU and U.S. programs are very similar because the U.S. program is required for export to the EU. In all of these examples, the producers' affidavit is the key component because it defines responsibility. Currently, there are less than one percent of U.S. cattle in the Non-Hormone Treated Cattle program. By July 2002, all Canadian cattle will have an electronic ID that is registered with the Canadian government. This program is currently only a registration and not a process verification program.

Live Animal Issues

The following are the current key live animal issues worldwide.

Animal Welfare

Foot and Mouth Disease

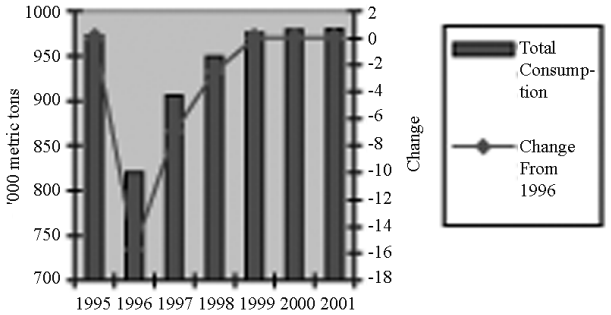
Bovine Spongiform Encephalopathy/Transmissible Spongiform Encephalopathy (BSE/TSE)

Live animal issues are large concerns to consumers. Part of this awareness is due to the extensive coverage by the media of the BSE and FMD situation in Europe. The BSE and FMD disease status in Europe excluded them from many of their traditional export markets and provided the U.S. with the opportunity to export to those countries. However, the international economics and prices for beef have weakened due to less consumer demand. There is a degree of fear and uncertainty of the safety of meat products in the consumer's mind. The drivers for animal ID /trace-back and process verification become even greater due to these issues.

The focus on animal welfare in the international markets is same as the focus in the U.S. market. The animal activist groups are using the quick service restaurant sector as a vehicle to convey their messages. This creates questions in minds of some consumers and may have an affect on meat demand.

The live animal disease of Foot and Mouth Disease (FMD) and BSE / TSE were a major focal point for world animal agriculture the past few months. The efforts by the U.S. livestock industry and the U.S. government to prevent and control FMD from entering the U.S. were viewed in the international markets as excellent. The international markets and governments regard the U.S. procedures to control the spread of animal diseases to be outstanding and this has subsequently provided an opportunity for greater demand of U.S. meat products.

BSE/TSE is beginning to spread into other parts of Europe and possibly Asia because the UK exported infected meat and bone meal as an animal feed to these countries. Effective August 1, 2001 all animal protein is banned for use as an animal feed in the EU. The result of the BSE crisis in Europe has caused a reduction in beef consumption and value in Europe and an increased international market opportunity for U.S. beef. Figure 5 shows the consumption of beef in the UK over the past seven years. In 1996, the BSE crisis was at its high, and there was the greatest reduction in beef consumption. Over the next five years the level of beef consumption nearly recovered in the UK. This is a typical curve that is seen in most food safety crises relative to consumer consumption patterns. Usually after a certain time period, the consumers forget or become forgiving and the consumption patterns recover. However, in Figure 6 beef prices in the EU have continued to decline. This is not solely due to the BSE issues. FMD, GMO and activities of the Green Party have also contributed to the lower beef prices.

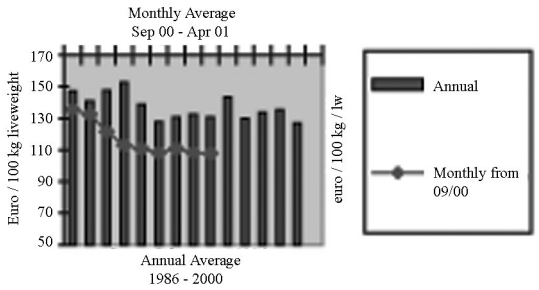


Source: U.S. Meat Export Federation. 2000.

FIGURE 5. *UK Beef Consumption.*

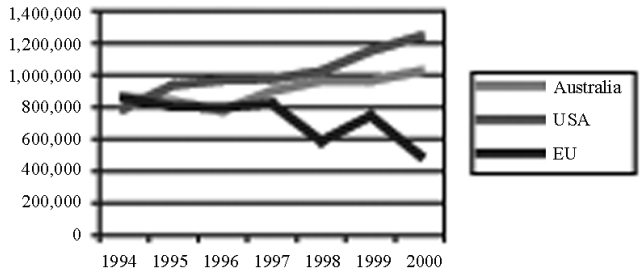
The net effect of the live animal issues shows that exports from the EU are drastically declining, as many of the EU countries cannot export beef. This allows greater export opportunity from other countries. In Figure 7, the data shows that over the past seven years EU exports have been readily declining and the U.S. and Australia have captured market share. Figure 8 shows the key markets the U.S. and Australia are capturing due to the crisis in Europe. These include the Middle East and Russia. South America may also become a competitor for these markets; however, they need to control animal disease issues in their countries to maintain a competitive status.

In light of these opportunities, the U.S. must strengthen its position and procedures on BSE prevention. The U.S. is ranked as Class 2 in EU Geographical Risk Assessment (unlikely, but a BSE risk cannot be excluded). (Geographical BSE-Risk: Assessment Report for USA, 2000). This is based on the fact the U.S. imported European cattle prior to 1990, fed MBM, utilized continuous cooking rendering, and did not practice Specific Risk Material removal. Most recently Australia (Vu, 2001) also conducted a risk assessment and classified the U.S. at



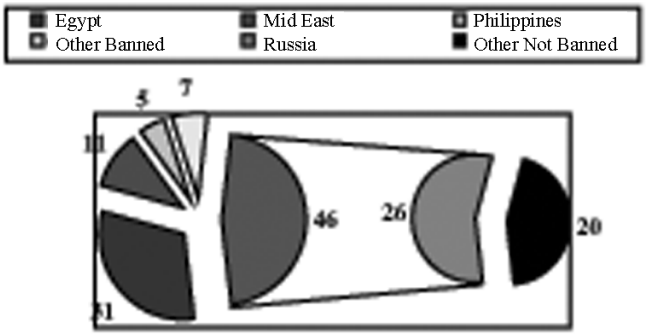
Source: U.S. Meat Export Federation. 2000.

FIGURE 6. *EU Beef Prices*



Source: U.S. Meat Export Federation. 2000.

FIGURE 7. *EU Export Decline.*



Source: U.S. Meat Export Federation. 2001.

FIGURE 8*. Market Opportunities.*

similar level. It is ironic that two foreign countries have classified the U.S. relative to potential risk of BSE, but the U.S. does not have sufficient scientific information or a risk assessment of its own to refute or agree with this classification. USDA FSIS has requested a risk assessment performed by Harvard University. Unfortunately, the results of this study have not been released at this time. The scientific and research communities need to continue to understand this disease and begin developing enhanced methods of diagnostics and control of the disease. The results of these developments need to be clearly communicated to domestic and international scientific and regulatory authorities.

International Beef Market Challenges

Managing food safety issues should be the primary concern of the U.S. meat industry. Producers, processors, trade organizations and the scientific community must work collectively to continue development and incorporation of new technologies to prevent food-borne pathogens, foreign materials, and chemical residues. This group must further the efforts to control the basic food safety hazards (microbiologic, chemical, and physical). This group also must continue to enhance current programs and provide greater communication to all consumers regarding animal diseases such as Foot and Mouth Disease and BSE /TSE. Consumers will continue to demand assurance that all the applications of animal care, feed, and compound use for raising livestock and processing the meat have judicious use and responsible application. Process verification will become a more important tool for the industry to address food safety, animal welfare and other production issues.

There is increasing global competition from Argentina, Australia and Canada for beef. For the U.S. to maintain their competitive status, the beef industry must continue to identify and develop new products that meet consumer demands. The U.S. beef industry must continue to manage and work through non-tariff barriers and continue to pressure the EU regarding the EU hormone ban and work with other countries to recognize the USDA FSIS inspection system. Through these continuous efforts, the U.S. can continue to be the largest supplier of beef to the world.

References

Anonymous. 2001. "They're Animals Againz." The Economist. March 3, 2001.

Vu, Tina. 2001. "Australia Tightens Beef Import Controls Over BSE Fears." At http://www.meatingplace.com.html. July 23, 2001

Geographical BSE-Risk: Assessment Report for USA, 2000. European Commission Scientific Steering Committee 2000. At http://eoropa.eu.int/comm/food/fs/sc/ssc/ouotcome_en.html. May 5, 2000.

United States Department of Agriculture, Food Safety and Inspection Service. 2000. Meat and Poultry Product Recalls: *News Release Archives. At http://www.fsis.usda.gov/oa/news/arecalls.htm#2000. January 29, 2001.*

United States Department of Agriculture, Foreign Agriculture Service, Dairy, Livestock and Poultry Division. 2001. "Livestock and Poultry: World Markets and Trade". Circular Series DL&P. 1-01. March 2001.

U.S. Meat Export Federation. 2001. "USMEF Point of View: BSE Bans of EU Beef- Impacts and Opportunity". At http://www.usmef.org/commentary/news/POV_BSE_032701.htm. May 15, 2001.

U.S. Meat Export Federation. 2000. U.S. Meat Export Federation Strategic Market Profiles. November 2000.