# Cattle Identification and Traceability:

## Implications for United States Beef Exports

September 2011

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Animal identification (ID) and traceability systems have rapidly developed around the world. Major beef export countries have created animal traceability systems to better protect animal health and to enhance export market growth. Increasingly, beef importing countries are also adopting animal traceability systems for their domestic production, and such systems are evolving as requirements for access to these markets. International animal health, food safety, and world trade associations have all widely recognized the value of effective animal traceability systems. The United States significantly lags in the adoption of emerging world standards for cattle ID and traceability. As such, the United States faces new challenges to maintain and expand beef exports. This fact sheet summarizes developments in global cattle ID and traceability with a focus on assessing the strategic position of the United States relative to major competitors.[1]

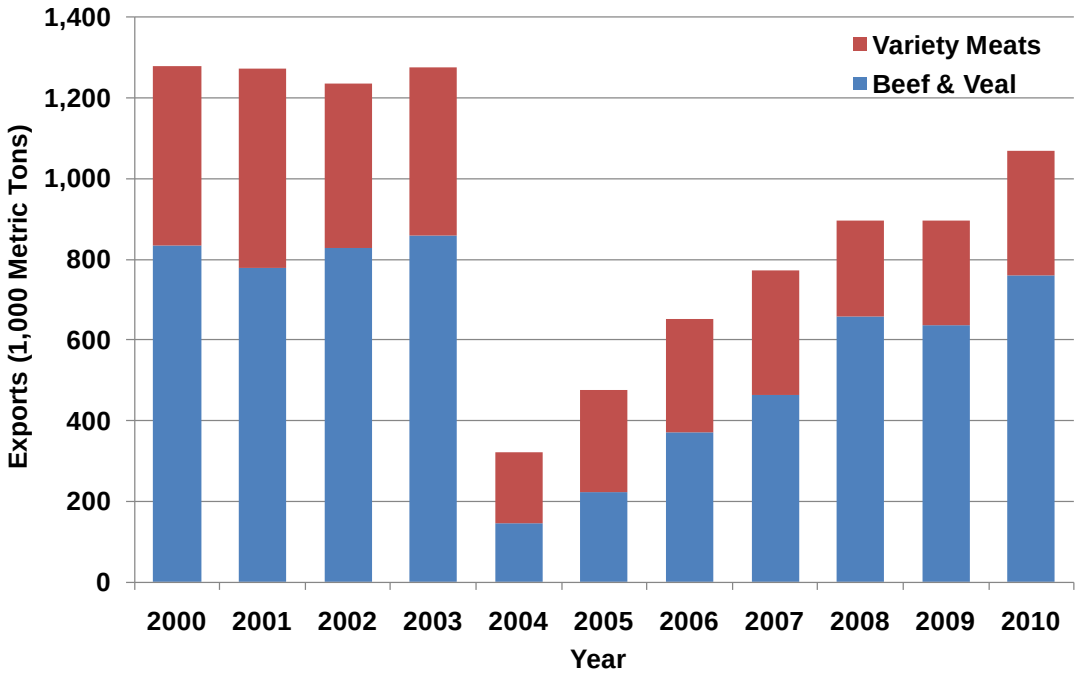
**US Beef Exports**

Beef trade represents a substantial value proposition for the United States with over $3.5 billion in beef and veal exports in 2010. However, maintaining international market access for beef exports is challenging. For example, the United States exported about $3.14 billion of beef and veal products in 2003, but this declined rapidly to only $550 million in 2004 following the discovery of a single U.S. cow infected with bovine spongiform encephalopathy (BSE). The BSE discovery closed most export markets to U.S. beef for at least part of 2004. Seven years later, the recovery of these markets remains incomplete. Kansas State University agricultural economists estimated U.S. beef industry losses caused by the export restrictions were $3.2 billion to $4.7 billion in 2004 alone.

[1] Additional related information including the full report of a broader study is available at *http://www.agmanager.info/livestock/marketing/AnimalID/default.asp*

U.S. beef, veal, and beef variety meat exports have been an important component of overall beef demand. During the early 2000s, beef exports (including veal and variety meats) exceeded 1.2 million metric tons annually (figure 1). Beef exports (excluding variety meats) averaged about 9-10% of total beef production during the early part of the decade. However, following the first U.S. BSE infected cow discovery in December 2003, beef and beef variety meat exports dramatically declined to about one-quarter of their pre-BSE level in 2004. Since then, recovery of beef exports has been slow and stalled during the 2009 global economic recession. By 2010, seven years after the BSE discovery, total U.S. exports of beef and variety meats were at approximately 83% of their pre-BSE level.

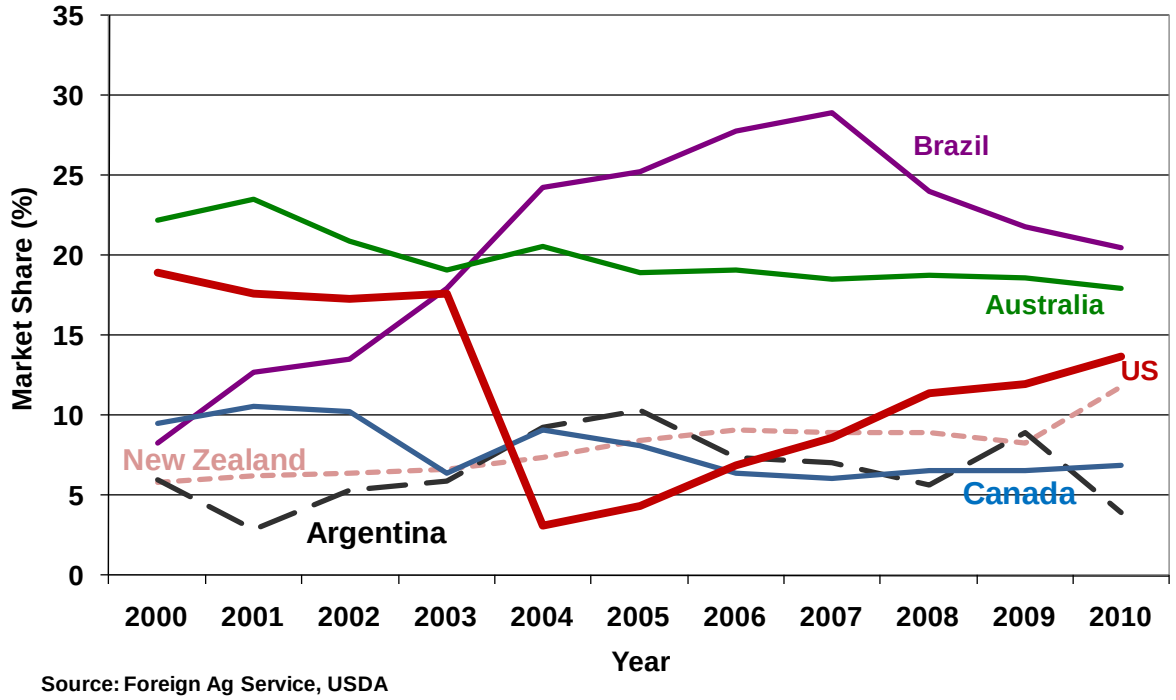
**Figure 1. US Exports of Beef & Veal and Beef Variety Meats, 2000-2010.**




Source: Department of Commerce, U.S. Census Bureau, Foreign Trade Statistics (FATUS)

Export market shares of major competing countries illustrate how the United States has fared relative to other major beef exporters. As is shown in figure 2, following the first U.S. BSE case in December 2003, the U.S. share of world beef exports declined from 17% to 3% in 2004. Most export markets for U.S. beef closed in early 2004. Furthermore, recovery from this major market access loss has been slow with the United States acquiring a 14% market share in 2010. Other major exporters also face specific market access problems because of BSE (e.g., Canada) or because of FMD (e.g., Brazil and Argentina).

**Figure 2. Market Shares of Selected Leading World Beef Exporters, 2000-2010**




Source: Foreign Ag Service, USDA

The United States faces a number of restrictions relative to specific importing country requirements including animal age requirements, required country-specific USDA Export Verification (EV) programs, traceability requirements, required affidavits that beef is not from cattle imported into the United States directly for slaughter from Mexico or Canada, or non-hormone treated cattle (NHTC) requirements. The myriad of restrictions across countries are even more critical for meat products that are produced in the United States but generally not consumed domestically. For example, more than 35% of beef variety meats, 75% of beef livers, and more than 50% of beef tongue production is exported. As such, when exports are curtailed, impacts are large because many beef products that are mostly exported have much lower value in the domestic market.

**Cattle Traceability**

Beef exports are driven by a large number of interrelated factors. Important determinants include: 1) export country beef prices, 2) competing export country beef prices, 3) import country beef prices, 4) exchange rates, 5) sanitary and phytosanitary conditions affecting trade, 6) consumer preferences in importing countries, 7) trade barriers, and 8) political relations. Because several factors affect trade, isolating the impact of animal and meat traceability is difficult. One way to assess the impact is by considering various trade scenarios. Cattle traceability, or lack thereof, could have a large effect on trade because it could impact market access to particular export destinations. An effective cattle traceability program would likely re-open closed markets more quickly. Cattle traceability is also likely to help the United States retain market access to a particular import country in the event of either a food-safety or animal disease occurrence. Similarly, if an import country imposes traceability as a necessary condition for beef imports, only products that are traceable would have access.

A number of countries are at various stages of adopting animal traceability systems. Furthermore, adoption is dynamic such that the current status is changing quickly. Table 1 provides a summary of cattle ID systems in major beef export and import countries as of June 2011. While most major exporters have developed mandatory national cattle identification, traceability to ranch of origin, animal movement tracking, and cattle age verification systems, the United States has not. Of the world's eight largest exporters, six have adopted mandatory cattle animal identification and traceability systems. Motivations for launching and building upon animal ID and traceability programs frequently reference animal health management, export market access, food safety assurances, and producer profitability.

Improved supply chain coordination, animal biosecurity, and enhanced producer management opportunities are frequently noted as secondary benefits realized through animal ID programs. If the United States continues with its current animal ID program strategy, it will remain difficult to manage animal disease events and to demonstrate the same level of participation in, and intensity of, animal traceability offered by major competing export countries.

Meat importing countries are adopting animal traceability systems similar to those of major exporters. Animal disease control and food safety assurances highlight the main goals of these systems. Consumers in European and Asian markets are increasingly requiring animal traceability, access to animal movement records, and producer identification as a means for developing trust in food safety assurances. Consequently, these countries will likely continue to add traceability requirements on their international suppliers. Access to these markets will increasingly depend upon demonstrated individual animal traceability. Furthermore, assuring animal age, either through traceability or dentition, is essential for access to many major importers especially for countries such as the United States and Canada who have OIE controlled BSE status.

Information was collected regarding the status of market access requirements to illustrate the U.S. competitive position relative to major competing exporters and important importing countries. Table 2 summarizes trade requirements for selected major export and import countries. The United States, Canada, and Brazil share the same BSE status of *controlled risk* in OIE (World Animal Health Organization) classification whereas Australia, New Zealand, and Argentina enjoy *negligible risk*.

Several important observations arise from the review of trade status summarized in table 2. The United States faces an array of trade restrictions related to animal age and export verification requirements to many key export market destinations. Most of these restrictions surfaced following the BSE discovery in the United States cattle herd in late 2003. In contrast, Australia and New Zealand face no restrictions on beef exports to important US export customers. Brazil and Argentina face some restrictions because of FMD, but also have no restrictions related to animal age verification.

**Table 1. Summary of Cattle Traceability Systems in Selected Major Export and Import Countries as of June 2011**

| Country | Launch Date | Mandatory | National Individual Animal ID | Trace to Ranch Origin | Animal Movement Tracking | Animal Age Verification | Motivation |
|---|---|---|---|---|---|---|---|
| **Major Exporters** | | | | | | | |
| Brazil | 2002 | For export animals, unclear for rest | Yes | Yes | Yes | Yes | Control FMD and Market access to EU |
| Australia | 1999 mandate 2005 | Yes | Yes | Yes | Yes | Tag Issue Date | Market access, food safety, animal disease |
| **United States** | 2013 | Cattle crossing state lines only | No | No | No | No | Control diseases for animals crossing states |
| New Zealand | 2006 | Yes begin in 2011 | Yes | Yes | Yes to begin in 2012 | Yes | Market access and animal health (TB) |
| Canada | 2002 | Yes | Yes | Yes | Yes to begin 2011 | Voluntary | Market access accelerated with BSE |
| Argentina | 2007 | Yes for young animals | Yes | Yes | Yes | Yes | Control FMD and market access |
| Uruguay | 2006 mandatory | Yes | Yes | Yes | Yes | Yes | Control FMD and market access |
| **Selected Major Importers** | | | | | | | |
| Japan | 2003 | Yes | Yes | Yes | Yes | Yes | Response to BSE discovery to restore consumer confidence |
| European Union | 1997 current law 2000 | Yes | Yes | Yes | Yes | Yes | Animal health and BSE response |
| Mexico | 2003 | No | Yes | Yes | Yes | Yes | Animal health, census, traceability |
| South Korea | 2004 updated 2009 | Yes | Yes | Yes | Yes | Yes | Consumer food safety assurance and animal health |

**Table 2. Comparison of Export Country Market Access to Selected Import Countries as of June 2011.**

| | OIE | OIE | Dominant | Import Country Sanitary and Phytosanitary Restrictions on Beef Imports | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Export Country | BSE Status | FMD Status | Cattle Finishing | Japan | China | South Korea | Taiwan | Hong Kong | Europe (EU-27) | Russia | Canada | Mexico |
| US | Controlled | Free | Grain | <21 mo, EV Required | Restricted | <30 mo, EV Required | <30 mo, EV Required, | <30 mo, EV Required, Traceable to farm of origin | NHTC Required | <30 mo, EV Required | No Restrictions | < 30 mo, EV Required |
| Canada | Controlled | Free | Grain | Age verfication CCIA | Boneless, <30 mo, full traceability | <30 mo | <30 mo | No Restrictions | < 30 mo, NHTC Required | <30 mo, or boneless 30 mo + | | <30 mo |
| Australia | Negligble | Free | Grass | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions |
| New Zealand | Negligble | Free | Grass | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions | No Restrictions |
| Brazil | Contolled | Mixed / Vaccinate | Grass | FMD Restrictions | No Restrictions | Restricted | Restricted | No Restrictions | Inspection, Traceability | No Restrictions | FMD Restrictions | FMD Restrictions |
| Argentina | Negligble | Mixed / Vaccinate | Grass | FMD Restrictions | Restricted | Restricted | Restricted | No Restrictions | Inspection, Traceability | No Restrictions | FMD Restrictions | Restricted |

Sources:

USDA, FSIS, Export Requirements for Meat and Poultry Products: Available at http://www.fsis.usda.gov/regulations/index_of_import_requirements_by_country/index.asp#meat&poultry

Canadian Food Inspection Agency, Special Requirements by Export Markets, Index of Export Markets. Available at:

USDA, FAS, Global Agricultural Trade System Online. Available at: http://www.fas.usda.gov/gats/ExpressQuery1.aspx

Global Trade Atlas, data provided by Erin Daley, USMEF.

Thanks to Kevin Smith UMSEF for assistance with import country status data collection

Requirements for US beef exports to major importers are complicated by varying market access requirements. For example, maximum age requirements are common but vary, country-specific export verification programs are often required, different requirements and definitions exist across countries relative to specified risk material (SRM), some programs require tracing to farm of origin, and EU requires non-hormone treated cattle (NHTC) verification. The myriad of age and source verification requirements for U.S. beef export market access has been mostly met by the use of voluntary USDA age and source certification and related export verification programs. However, only about 10% of fed cattle slaughtered in the United States currently are being produced under a USDA age and source verified program. The varied market access requirements make sorting beef products a challenge that would be easier met with animal identification and traceability. Certainly, Australia and New Zealand have comparative advantages of having less cumbersome export market access requirements.

Relative to the other major exporters in table 2, the U.S. animal identification system is the least developed. Therefore, export market access restrictions based on ID and traceability requirements will place the U.S. beef industry at a competitive disadvantage. Additionally, if the United States suffers an animal disease outbreak, the lack of traceability could again contribute to a long-term disruption in U.S. beef exports, at tremendous costs to the United States industry.

**Conclusions**

The world has recognized significant value in animal identification (ID) and traceability systems. Concerns for animal and human health, as well as food safety assurances, have motivated efforts to adopt animal ID systems. The most widely recognized international animal health, food safety, and trade organizations have endorsed animal ID programs as essential components of food animal production and meat product trade. In response, major beef exporters and importers have developed mandatory animal ID and traceability systems. The United States lags many major export market competitors and important beef import countries in developing and, especially, employing cattle ID and traceability. A decision by the United States to not maintain the same mandatory ID and traceability standards for cattle compared to major beef exporters and importers is an interesting phenomenon. The consequences of this decision are somewhat

uncertain. However, the decision does come with increased risk of market disruption as voluntary systems in the United States have very low adoption rates (about 10%).

Falling behind world standards for cattle ID could place the United States at risk of losing market share to major competitors over time. Furthermore, market access to certain importers might be constrained in the absence of advanced cattle ID and traceability systems. If a catastrophic event were to occur in the U.S. livestock industry that threatened animal or human health or food safety, the magnitude and duration of economic impacts of the event will be contingent on the United States' ability to contain, mitigate, and eliminate the problem. This process is much more difficult without a widely–adopted, effective animal ID and traceability system.