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Food Chain Disruptions and Trade: The Case of North American Animal and Meat Trade

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Food Chain Disruptions and Trade: The Case of North American Animal and Meat Trade

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Background

Since the mid-1980s, the pace of North American food market integration has rapidly accelerated. The North American distribution system is characterized by a well integrated, efficient, and low-cost supply chain designed to deliver foods and agricultural products just-in-time across the continent. Spurred by CUSTA and NAFTA, agricultural trade and investment in North America have surpassed many expectations. The future of this system in its present form, however, has been challenged by the threat of agro-terrorism and recent animal disease outbreaks (ADO). This paper reviews developments in food market integration and their importance to the U.S. food system. Impacts on trade, prices, and the market integration will be discussed.

Despite the discovery of bovine spongiform encephalopathy (BSE) in the United Kingdom in 1986, the integration of the North American market moved forward. The European Commission reported that BSE caused beef consumption to fall by 27 percent and prices by 50 percent (October-December 2001). Lloyd et al. found that the majority of the price decline in the United Kingdome was borne by producers. The European experience, however, led to important changes in animal feeding in 1997 that ultimately strengthened the integrity of the North American beef cattle complex as a supplier of safe, high quality products.

In May 2003, things changed. The discovery of BSE, first in Alberta, Canada and then in December 2003 in the state of Washington, resulted in market closures worldwide for U.S. and Canadian cattle and beef. These events also called into question the effectiveness of international and domestic animal disease protocols. In 2004, the United States and Canada also experienced outbreaks of high pathogenic avian influenza (HPAI). How consumers, policy makers, and regulatory authorities respond to these, and subsequent events will shape the future and degree of market integration in North America.

Implications of Food Chain Disruptions

Grain trade among NAFTA countries has doubled as a share of total North American grain trade, reaching 18 percent in 2002, but falling to 16 percent in 2004. (figures 1 and 2)

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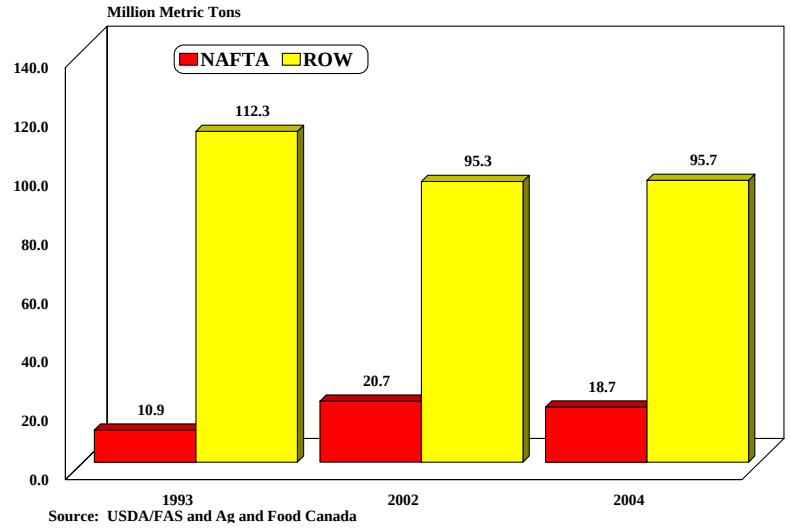
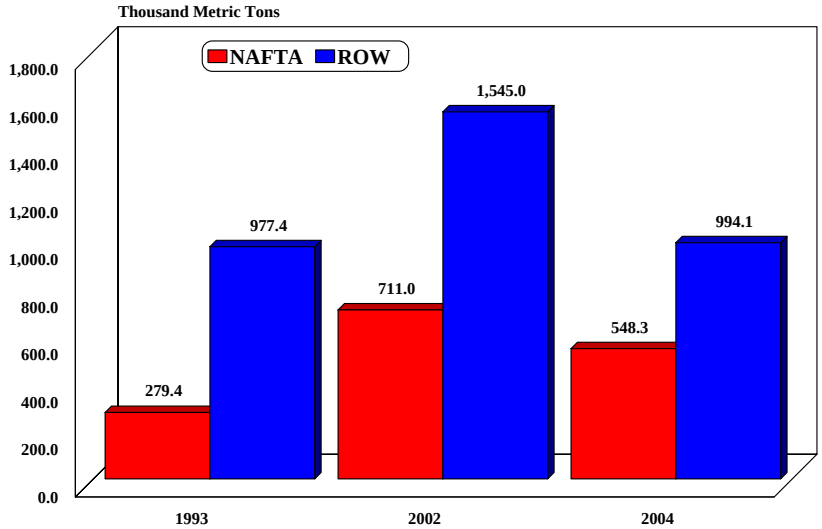
Growth in intra-NAFTA beef trade has been less pronounced, but is relatively more important, growing from 17 percent in 1993 to 26 percent in 2002. The NAFTA beef trade hare for 2004 increased to 36 percent, but is skewed due to the discovery of BSE in Canada and the United States.

Figure 1. Intra-NAFTA and NAFTA Grain Trade with ROW



Source: USDA/FAS and Ag and Food Canada

Figure 2. Intra-NAFTA and ROW Beef Trade



Source: USDA/FAS and CanFax

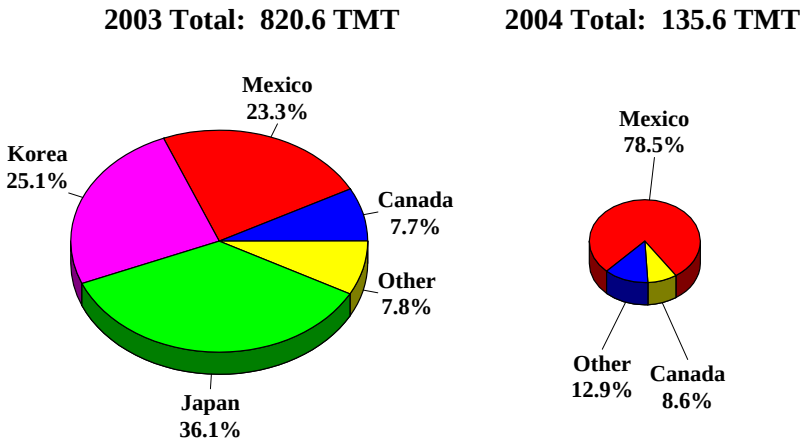
Cattle and beef have become one of the most highly traded sectors in the North American market. An average of 821,000 Mexican cattle come to U.S. pastures and feedlots each year since 1970, while Canada normally ships more than one million head of fed cattle for slaughter each year since 1989. About 99 percent of all cattle imported by the United States come from

Canada and Mexico and 98 percent of all U.S. cattle exports go to those same countries. In addition, more than $2.2 billion in beef and beef products are traded among NAFTA partners annually, representing one-third of all U.S. beef exports. BSE drastically altered most of these relationships.

Japan, South Korea, Mexico and Canada accounted for 90 percent of U.S. beef exports before BSE and exports represented 9.6 percent of U.S. beef production. The immediate impact of BSE in the United States was a 20 percent drop in live cattle prices over a four-day period, coupled with a 17 percent decline in feeder cattle prices. Prices rebounded, however, and set a record high during the summer of 2004. Rapid price recovery was attributed to quick action by USDA to reassure consumers that the U.S. meat supply was safe, low beef supplies because the U.S. was at a low point in the cattle cycle, prohibitions on importing Canadian cattle, and an upswing in domestic consumer demand for meat.

Canada and Mexico reopened their borders to U.S. boneless beef from cattle less than 30 months of age. The United States allows boneless beef from Canada and is expected to reopen the market to live cattle on March 7, 2005, pending the outcome of an injunction filed to stop the implementation of this regulation. While U.S. beef exports have resumed, they are only 17 percent of pre-BSE levels and will not likely recover until Japan and South Korea reopen their markets. (figure 3)

Figure 3. U.S. Beef Exports, 2003 and 2004

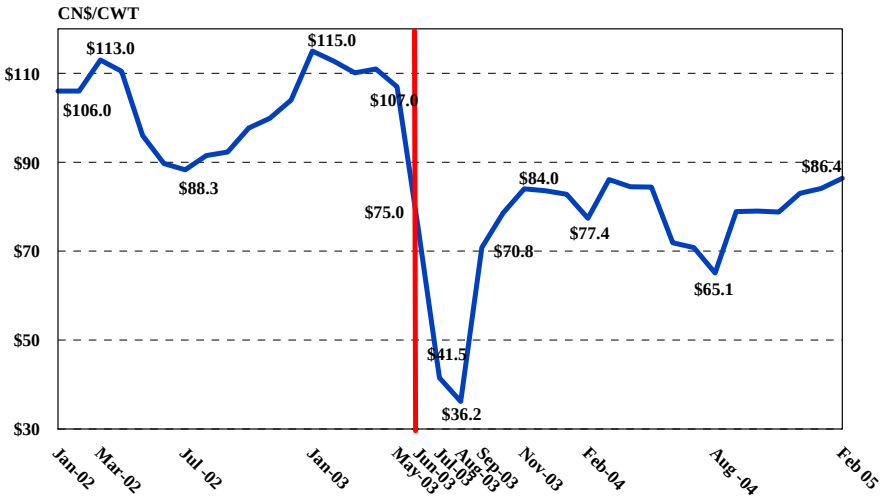


Source: U.S. Trade Internet System, www.fas.usda.gov/ustrade

Trade Issues and Implications

Short run industry response to BSE was to concentrate trade and resources within the North American food chain. Although Canadian steer prices initially fell 65 percent after the Canadian BSE case in May 2003, they have since recovered most of their value, reaching the mid $80s (Canadian) in February 2005. (figure 4) Prices also appear to be exhibiting more normal seasonal patterns as well. Price recovery stems from two major market factors. First, consumers did not panic when BSE was found and continued to purchase beef. Second, as soon as the U.S. market was reopened to Canadian beef, meat packers specialized in the export of boneless beef from cattle less than 30 months of age in order to comply with U.S. regulations, thereby increasing the demand for cattle. This switch away from bone-in beef may have been as important as consumer confidence in the food chain. Some Canadian feed yards did not survive the event and as fewer cattle were fed, U.S. corn exports to Canada declined. The value of mature Canadian cows fell by 75 percent and are struggling to recover. Canadian hog exports to the U.S. market are also at record levels, but the composition has changed from market hogs to feeder pigs to be finished in the United States. This trend began in the mid 1990s, but accelerated after 1999. It appears less related to ADOs than to limited finishing capacity in Canada.

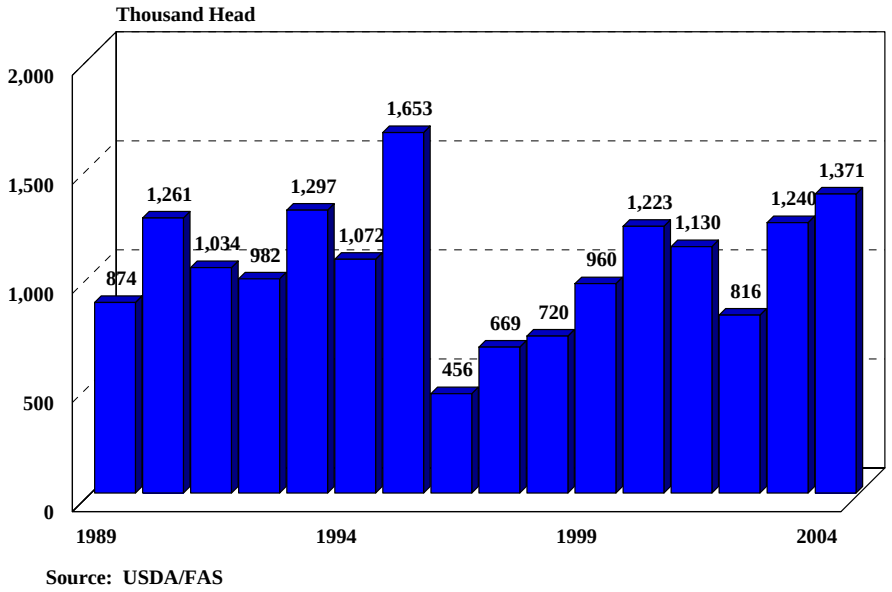
Figure 4. Alberta, Canada Direct Sale Steer Prices, Mid-month Mid-point, Jan 02 - Feb 05



Source: Alberta Agriculture, Food and Rural Development, www.agric.gov.ab.ca

U.S. beef exports fell from 820 thousand metric tons (tmt) in 2003 to a mere 136 tmt in 2004. Export prospects for 2005 are not much better, as companies wait for Japan to reopen its market to U.S. beef. Cattle prices did decline in late 2003 and early 2004, but soon recovered their value and set a record in the summer. Stronger U.S. demand, limited domestic beef supplies, and lower imports of Canadian cattle helped support prices. While beef imports were lower in 2003 due to less Canadian product, U.S. imports of beef rose in 2004, with Uruguay setting a record for shipments to the United States. Larger supplies of beef also arrived from Australia and New Zealand. The huge majority of this beef is frozen, boneless, and about 90 percent lean. It is used to blend with U.S. beef in order to obtain an 80 percent lean product used for ground meat in groceries and fast food businesses. U.S. imports of Mexican cattle also rose in 2004, reaching 1.37 million head. (figure 5) Imports of Canadian cattle were banned and were expected to resume in March 2005; however, litigation by a number of parties has delayed entry.

Figure 5. U.S. Imports of Live Cattle from Mexico, 1989 - 2004



Source: USDA/FAS

Over the long run it is less clear what may happen and much depends on whether the U.S. market for Canadian cattle opens as expected and the resumption of U.S. beef sales to Japan and South Korea. What is clear, however, is that Canadian feedlot placements are up 22 percent over 2003 and January 2005 placements are 254 percent greater than the same time last year. Should this positive trend continue, expect U.S. corn exports to rebound and U.S. imports of

Canadian beef to increase. It also appears that Canadian hog exports are set to continue, unless U.S. antidumping or countervail action slows them. More hogs will likely mean less Canadian pork, a trend that appears to have started in 2003.

In the United States, the cattle herd may be set to rebuild. Should that occur, less imports of beef from Uruguay are likely, especially since it appears higher valued that imported beef from Canada, Australia, or New Zealand. Australia has also responded to market opportunities in Japan in the absence of U.S. beef. About 60 percent of Australian beef exports went to Japan in 2004, accounting for 47 percent of Japan's beef imports. Australian feedlots are expected to reach 77 percent of capacity in late 2004, with a growing share of the beef destined for Japan over the next two years (USDA, FAS, GAIN Report). U.S. exports of pork and poultry likely will outpace beef during 2005, especially if Japan and South Korea do not open by summer. The U.S. beef industry is set to respond, however, and will attempt to regain lost market share in both countries. Reliance on a larger number of export markets may emerge as a viable long run strategy as exports resume. Spreading market risk across more countries appears to be one way to somewhat mitigate the negative impacts of ADOs.

Mexico appears to be in a cattle herd-rebuilding phase. As always, capital and interest rates will retard achievement of expected gains in herd replacement, especially for smaller ranchers. As long as U.S. cattle prices remain strong, Mexico will respond with increased exports of feeder calves, possibly exceeding 1.0 million head in 2005. It is also likely that some groups in Mexico are considering an expansion of feedlots and packing plants to avoid ADO issues in the future. Whether or not this will occur depends on capital availability, interest rates, access to low cost feed grains, and the availability and cost of water.

Food Chain Event Management

Contingency planning and training have become more important components of business operations in a post-September 11 and post-BSE environment. New bioterrorism regulations are being implemented to allow the U.S. Food and Drug Administration to better assess cargo risk and respond to potential problems if warranted. Many USDA inspectors are now part of the Department of Homeland Security, presenting a new, but different image at U.S. borders.

Businesses are identifying alternate routes of transportation should an event occur. Ports, warehouses, and business sites are beginning to designate areas where contaminated or

hazardous cargo can be located to isolate it from other shipments and to minimize the threat of widespread contamination. Together, these actions increase the safety of the U.S. food chain.

Alternative modes of transportation are being evaluated by importers and exporters to reduce delays if a food chain event closes major thoroughfares or roadways. While the transit time may be longer than normal, these contingency plans increase the likelihood that the integrity of the food chain will be maintained.

The time may be right to seriously consider Food Chain Event Gaming, similar to computer simulated military exercises. This activity would bring together key U.S. government agencies, their counterparts in Canada and Mexico, and members of the business community who manage and maintain the North American food chain. One key activity would be to simulate a major food chain event, such as contamination of a food shipment and evaluate existing contingency plans to manage the event. A critique by agencies and business would result in management improvements, ensuring all parties of their ability to mitigate future food chain disruptions.

Summary

For beef, U.S exports have been quite concentrated over the last decade, with four countries accounting for 90 percent of U.S. beef (Japan, S. Korea, Mexico, and Canada). The degree of dependence on trade is an obvious and important variable in determining just how much of an impact ADO or other food chain events will have on trade. Finally, maintaining consumer confidence in science and the integrity of the North American food chain is absolutely critical.

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Selected References

Lloyd, T., S.McCorriston, C.W. Morgan, and A.J. Rayner. "The Impact of Food Scares on Beef and Inter-Related Meat Markets." American Agricultural Economics Association, Annual Meeting, selected paper, Chicago, IL, August 5-8, 2001.

GAIN Report, FAS, USDA, AS 5003, February 2, 2005.

GAIN Report, FAS, USDA, MX 5011, January 27, 2005.

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