

Market Effects of Searching for Mad Cows

by

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Mad cow disease was first discovered in Europe, followed by Japan, and more recently in North America. The disease has distressed the cattle industry in Europe, Japan and Canada but not so much in the United States. At present, the U.S. does relatively little searching for mad cows and any decision to increase testing presents an interesting tradeoff.

Bovine Spongiform Encephalopathy (BSE)—“mad cow” disease—is a brain infection that kills cows. This disease has become so well known that a rock and roll band has capitalized on the name recognition value and the band calls itself the “Mad Cow Disease Rock Band.” Almost 200,000 mad cow cases (the disease, not the band) have been reported in over 20 countries worldwide since the late 1980s, with the vast majority of these cases in Europe.

North America was considered BSE-free until Canada and the United States each discovered a single case last year, immediately creating a scare among domestic consumers and the cattle industry. U.S. cattle futures prices plummeted in the few weeks following the U.S. discovery of BSE, with nearby futures prices falling by more than 15 percent. The futures market may have initially reflected the fear that the U.S. industry would suffer large economic losses because of reduced domestic beef sales and exports. As it turns out, the overall economic impact on U.S. beef producers has been much smaller than what the initial futures market sell-off predicted.

Consumers in North America have not turned away from beef, because they may well recognize that the risk to them from a BSE-related death is close to zero and that BSE is largely a European problem. If a human eats BSE-infected beef, there is a rare chance of catching a fatal human form of the disease called variant Creutzfeldt-Jacob Disease (vCJD). According to the British government, less than 200 UK residents have died of vCJD since the disease was first identified. However, vCJD has a very long incubation period of up to 30 years.

Unlike in the United States, a single BSE discovery has been very costly to the Canadian cattle industry. The purpose of this article is to offer a brief explanation as to why the economic impact on the U.S. cattle industry was much less severe compared to the situation in Canada. The basic reason is that the U.S. is a large net importer of live cattle and beef, whereas

Canada is a large net exporter of beef and cattle. Both countries have lost exports, but the U.S. (exportable) beef has been redirected to domestic markets, displacing imports. Since BSE was reported in North America, the Canadian market has had surplus beef and the U.S. has experienced tight supplies. In addition to discussing the North American situation, we also review the experiences with mad cow in Japan and the European Union (EU), where the market was severely disrupted due to BSE.

After the mad cow discovery in the U.S. last year, about fifteen countries, including key importers such as Japan and Mexico, imposed a ban on imports of U.S. cattle and beef products. Mexico has since lifted the ban but Japan has not, and negotiations to lift the ban are focused on U.S. testing regulations. Japan wants all U.S. slaughtered animals to be tested, but the U.S. government rejects this idea as being too unscientific and too costly. If the U.S. started testing every animal, Japan may resume imports. However, with increased testing there is always the chance that another animal will test positive for BSE and Japan would then possibly close the border again.

The U.S. government continues to search for “mad cows” and, as a result, more U.S. cattle are now being tested. However, the U.S., Australia and Canada conduct minimal testing compared to the other nations listed in Table 1.

European Union and Japan

Mad cow disease was first discovered in the United Kingdom (UK) in 1986, and the British government initially asserted that humans were not at risk from eating beef infected with BSE. This turned out to be a foolish and incorrect message to send to consumers given the widespread nature of the disease in the UK. The government then backtracked and quickly introduced strict policies regarding feed use and testing for BSE. The incidence of the disease did not decline quickly, however. Since the 1986 discovery, over 180,000 cases of mad cow have been reported in

Table 1. International Testing for Mad Cow Disease: 2002

	U.S.	Australia	France	Italy	Germany	Canada	UK	Japan
Slaughtered (×1 million)	35.74	9.23	5.78	4.34	4.27	3.46	2.28	1.30
Tested (×1,000)	19.99	1.78	3,145	718	2,967	3.30	355	1,300
% tested	0.06%	0.02%	54.5%	16.55%	69.4%	0.10%	15.5%	100%
Cases of mad cow in 2002	0	0	239	38	106	0	1,144	2

Source: McNeil Jr., Donald G. "Doubling tests for mad cow doesn't quiet program critics." New York Times 9 Feb. 2004: A8.

Japan banned the use of meat-and-bone meal in cattle feed. It also quickly introduced a system of full testing of all cattle slaughtered in that country—all cattle that are killed before entering the food supply are now tested for BSE in Japan (see Table 1).

the UK. The number of reported cases in the UK is now on the decline and last year the UK reported "only" 612 cases.

In addition to the UK, the entire EU has been hit hard by BSE because animal products were regularly used in cattle feed in the EU prior to the discovery of BSE. The height of the epidemic occurred in 1992 when annual UK cases peaked at 37,280. From 1989 to 2003, France reported over 900 cases and recent research suggests that many more French cattle may have been infected in the 1980s and 1990s.

Both domestic sales and exports of UK beef fell sharply in the early 1990s because many countries banned trade in UK beef. Previously, the UK had developed a large export trade in beef and live cattle that was worth about \$800 million per year. In the first year of the epidemic, the total estimated economic loss due to BSE in the UK was about \$980 million. At the height of the crisis in 1996, beef consumption fell by one-fifth in the UK. In 1999 the EU finally lifted its internal ban on trade in UK beef, which alleviated the situation somewhat for British farmers.

In 2001, Japan announced its first case of BSE—in fact, the first case of BSE outside of Europe. Since then, Japan has discovered a total of 13 cases of BSE, including four cases so far in 2004. Japan was the largest importer of beef in the world when BSE was first discovered there. About 66 percent of the beef sold in Japan was imported mostly from Australia (49 percent trade share) and the U.S. (46 percent trade share). Immediately following the mad cow discovery, beef consumption in Japan dropped by about 60 percent and, as a result, Japan's beef imports fell by 30 percent in 2002, relative to 2001. By mid-2002, Japan's beef consumption recovered to within 10-15 percent of its pre-BSE levels.

North America

In the spring of 2003, Canada reported its first case of a BSE-infected cow from a farm in Alberta. At the time, Canadian regulations regarding downer cattle were stricter than in the U.S.; otherwise this case may not have been detected. Downer cows are injured or sick cows that cannot walk. A Canadian inspector removed the downed animal from the rest of the herd, so that it would not be used for human consumption. Subsequent tests on that animal showed positive signs of BSE. The cow's age suggested that it contracted BSE before the 1997 ban on the use of animal products in feed.

The case of BSE in Canada had a large negative impact on that nation's \$7 billion per year cattle and beef industry. After the confirmed case, many countries, including the U.S., imposed an import ban on Canadian beef. Canada's cattle industry is very dependent on exports, as about 50 percent of its beef was exported at the time, mostly to the U.S. Canada also exported about 1.7 million head of live cattle in 2002. According to Statistics Canada, farm cash receipts for cattle were 34 percent lower in 2003 than in 2002, even though more cattle were slaughtered in 2003. In 2003, beef and beef product exports from Canada fell by more than 48 percent from the previous year.

Cattle slaughtered at a relatively young age can be carriers of BSE, but typically the disease has not yet taken hold of the animal and therefore they are less likely to be infectious. As a result, in the fall of 2003 the U.S. and Mexico reopened the border for imports of Canadian boneless beef products from cattle less than 30 months of age. However, the U.S. border remains closed to live cattle imports from Canada.

After the mad cow discovery in the U.S., several countries banned imports of U.S. beef. At the time, the U.S. was the second largest beef exporter (after

Australia) and was exporting over 1.1 million metric tons of beef, worth about \$3.3 billion. Japan was the most important market for U.S. exports. The Japanese government has been urging 100 percent testing of all cattle slaughtered in the U.S., before Japan will agree to reopen its border to U.S. beef. However, recently Japan has indicated that it might begin importing beef from younger cattle slaughtered in the U.S.

While consumers in Europe and Japan may have lost their appetite for beef, U.S. domestic consumer demand for beef has remained strong, as in Canada. On a per capita basis, North American consumers eat as much or more beef as they did before the reported cases of BSE in 2003. On the trade side, the impact of the Japanese import ban on the overall U.S. industry has been muted by the fact that U.S. beef imports also fell dramatically because of restrictions on Canadian beef and cattle trade. The upshot is that beef prices have remained relatively high in the U.S. market.

Discussion

Countries that remain BSE-free (such as Australia, New Zealand, Brazil, Argentina and Uruguay) are now exporting more beef because of the presence of BSE in other exporting countries. Australia and Brazil have increased their BSE-free promotion efforts in Japan in an attempt to increase their market share in that country. In 2003, Brazil took Australia's title as the world's largest beef exporter. Brazil exported 1.35 million metric tons even though it was excluded from some major import markets due to foot and mouth disease.

Given Europe and Japan's serious BSE epidemics and the Japanese position on testing, should the U.S. adopt stricter beef testing regulations? When Europe and Japan adopted stricter testing procedures, new cases of BSE were discovered. So if the USDA increases the testing of cattle, more cases of BSE in the U.S. will likely emerge. The data in Table 1 suggest that if you search for mad cows you will probably find them. But the number of undiscovered BSE cases in the U.S. is probably very small compared to the situation in Europe, given the limited use of animal products in U.S. cattle feed in past years. The U.S. government faces an interesting trade-off. If testing is not expanded, there is a small risk of cases going undetected and this presents a marketing problem. However, if testing is expanded, a few additional cases of BSE could appear and this also presents a marketing problem.

When the first case of BSE occurred in the United States, analysts believed that this incident would have a

serious impact on the U.S. domestic beef market. Based on market reactions in Europe and Japan, a possible outcome in the U.S. would have been an excess supply of beef and lower domestic prices. So far, the overall market impact of BSE in the United States has been minimal. However, certain U.S. processors and exporters (selling to Japan for example) have suffered some economic losses.

While it is difficult to speculate about the long-term effects of BSE, the history of other food safety scares and impacts on consumer demand in the U.S. has shown these scares to be rather short-lived. Once media coverage of a food scare dies down, consumer demand picks up quickly. This is consistent with the mad cow scare in the U.S. Furthermore, U.S. beef producers are being sheltered by the restrictions on Canadian imports and they would like to continue to keep out Canadian cattle as long as the Japanese market is off limits for U.S. exporters.

The authors recommend the following sources for further information:

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