

# **The Strategic Marketing Institute Working Paper**

## **The Effects of BSE on the Cattle Market**

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## **Introduction**

On December 23, 2003, the U.S. Department of Agriculture (USDA) announced that a single dairy cow in Washington state had tested positive for Bovine Spongiform Encephalopathy (BSE). BSE is more commonly referred to as “Mad Cow Disease.” The cow was slaughtered on December 9, and was tested because it was a “downer”, unable to walk or move normally. BSE is a serious issue because it can be transmitted to humans who eat neural tissue, such as brain and spinal cord tissue (USDA, p. 1). The human version of the disease is known as variant Creutzfeldt-Jakob Disease (vCJD), and is always fatal.

The response to the finding has been quick and dramatic. Japan, South Korea and other beef importing countries have suspended their imports of U.S. beef. The beef processing plant has recalled some of the beef that it has processed and sent to market. The loss of foreign markets has put downward pressure on prices. Additional downward pressure on prices will occur if consumers substitute other meat products for beef as a result of fear generated by the discovery or if additional animals are determined to have the disease.

This paper will briefly discuss the epidemiology of BSE and vCJD. Analyze the possible effects on the beef market, and analyze some policy responses and implications. Particularly important will be the treatment of “downers”. The USDA has recently ended the practice of allowing downers to enter the human food supply.

## **The Epidemiology of BSE**

BSE is a member of a family of diseases known as transmissible spongiform encephalopathies (TSEs). TSEs attack the central nervous system of the infected

individual. Examples include BSE in cattle, vCJD in humans, scrapie in sheep, and Chronic Wasting Disease (CWD) in deer and elk. TSEs likely are caused by self replicating abnormal proteins known as prions. Prions are highly resistant to heat, ultraviolet light and other methods that normally kill viruses and bacteria (APHIS a, p.2).

The incubation period for BSE is quite long. As a result, most beef steers that enter the market are too young to have the disease. It occurs among older animals such as dairy cows and beef cows. Symptoms include: change in temperament, abnormal posture, loss of coordination and difficulty in movement (APHIS a, p. 2). It is believed that, the human variant of BSE, vCJD is passed on to humans through the consumption of infected neural tissue. The disease is not contagious, and is extremely rare.

The first confirmed case of BSE was in Great Britain in 1986. Since that time, more than 180,000 cases have been confirmed. The vast majority have been in Great Britain although there have been cases confirmed throughout Europe (APHIS a, p. 2). On May 20, 2003 a single cow tested positive for BSE in Canada. The U.S. outlawed the importation of Canadian ruminants and ruminant products from Canada from May through September (APHIS b, p. 1). The U.S. has placed a ban on cattle from Great Britain and other countries with BSE since 1989 (APHIS b, p. 3). In Fiscal Year 2003, the USDA tested 20,543 head of cattle for BSE (APHIS b, p. 1). The Washington cow is the first case in the U.S.

### **Economic Impacts**

Foreign response to the announcement has been quick. Currently, more than 30 countries have banned imports from the U.S. Japan, Hong Kong, Taiwan, Singapore, South Korea, Australia, Thailand, Malaysia and Russia banned imports from the U.S.

within 24 hours of the announcement (Ross, p. 1). Japan is the largest market for U.S. beef importing 1.4 billion dollars in 2003. South Korea is the second largest market importing 732 million dollars in 2003 (Milwaukee Journal-Sentinel, p. 1). The loss of these markets will put downward pressure on prices. The following table outlines the role of international trade in the U.S. beef market. The figures for 2003 and 2004 are estimates.

<b>Beef Production and Exports 2002-2004</b>			
<b>Year</b>	<b>Production (million lbs.)</b>	<b>Exports (million lbs.)</b>	<b>Exports as a Percent of Production</b>
2002	27,090	2,447	9.0
2003	26,397	2,445	9.3
2004	25,675	2,550	9.9

Source: Southard

Exports are an important market for the U.S. beef industry. From 2002 to 2004, exports as a percentage of production increased from 9.0 to 9.9 percent. The loss of these markets will put downward pressure on U.S. beef and cattle markets. Furthermore, if the Canadian experience provides a guide it may take months or years before U.S. beef products can be widely exported.

The domestic market is not likely to be impacted provided no additional animals are found with the disease. The demand for beef is very strong. The interest in low carbohydrate high protein diets (such as the Atkins Diet) has led to an increase in demand. Furthermore, through much of 2003, the supply of cattle was reduced as a result of the suspension of Canadian cattle imports. The reduction in supply coupled with an increase in demand has brought about very high cattle prices. The effects on the

Michigan cattle market will mirror the rest of the U.S. Foreign countries will ban all U.S. cattle no matter what their origin.

Cattle prices for choice fed steers in the Texas/Oklahoma panhandle were over 100 dollars a hundredweight (cwt.) in November of 2003. This is more than 30 dollars a cwt. above the average from 1998 to 2002 (Sparks, p. 25). It was expected that the price for cattle would decline during the winter spring and summer of 2004 bottoming out at approximately 72 dollars a cwt. in August of 2004 and increasing slightly thereafter (Sparks, p. 26). The anticipated prices for 2004 were still somewhat higher than the historical averages. The loss of foreign markets will reduce the price of beef and cattle, how much remains to be seen.

The initial impacts of the discovery of BSE in one cow have been dramatic on the futures market. The nearby futures price for live cattle declined from approximately 92 dollars a cwt. to less than 75 dollars since the discovery. This represents a decline in excess of 18 percent since December 23.

Cattle and beef prices could decline further if U.S. consumers lose faith in the safety of the beef supply. If additional cattle are found infected with BSE there is a good chance that this could happen. If U.S. consumers reduce their beef purchases, the cattle industry could be facing a catastrophe.

### **Policy Response and Implications**

The U.S. is facing its first case of BSE. It should be noted that out of the more than 100 million head of cattle in the U.S. only one animal has been found to be infected. The USDA is in the process of tracing the animal back to determine where it might have

contacted the disease. The cow was imported from Canada and its calves and other animals from the same farm are being traced back.

The USDA has also instituted a list of other policies designed to reduce human exposure to cattle that may have BSE and to reassure foreign countries that have stopped shipment of U.S. beef. Downer cattle are no longer allowed to enter the human food chain, additional neural tissues are also banned from the human food supply, and the USDA will also ban the practice of air injection stunning of animals to ensure that brain matter does not enter the meat supply.

The USDA needs to respond quickly and completely in order to maintain consumer confidence in the safety of the beef supply. The USDA will also have to meet conditions set by foreign nations in order to resume exports. This may include testing more animals, and instituting tighter controls over the feed supply.

## **Conclusion**

The U.S. has its first probable case of BSE a rare but always fatal disease in cattle. It is possible, although extremely rare, for this disease to be passed on to humans. As a result, the U.S. immediately lost access to several important foreign markets. The loss of foreign markets has put downward pressure on beef prices.

It is expected that U.S. consumers will continue to buy beef provided that no additional cases are found. Beef prices have been very high over the past few months and domestic demand remains strong. However, if additional cases are discovered, the beef industry will likely face a considerable decline in demand and a major reduction in beef prices. In order to assuage consumers, the USDA needs to respond quickly to ensure the safety of the beef supply.

## Sources

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