

The North American BSE Situation

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Abstract

The identification of BSE in North American cattle has dramatically affected the beef industry, from the feed manufacturers to producers to processors. Investigation of the two cases of BSE confirmed in 2003 have provided important clues as to the North American situation. Actions taken by both Canada and the US over the past 15 years provided a strong foundation on which to build additional measures to protect animal and public health. Public confidence in the food system and in the safety of beef remains high. Nevertheless, trade in beef and beef products has been affected strongly, as many of the major export markets have taken a precautionary approach. Following is a summary of the BSE investigation results in North America and the subsequent regulatory actions taken by Canada and the US to protect animal and public health. Relevant international trends affecting both the regulation of BSE and the trade in cattle and cattle products will be reviewed.

What the investigations revealed

The BSE cases in Alberta, Canada (May 2003) and Washington state (December 2003) bear some striking similarities: both cattle were born and raised through their early years in the western provinces of Saskatchewan and Alberta, Canada; both were presented for slaughter subsequent to difficulty standing; both were born prior to the implementation of the ruminant feed regulations by Canada and the US in 1997; and both consumed feeds containing meat and bone meal produced at a single rendering plant in northern Alberta. These facts provide solid evidence that the BSE agent was circulating in the cattle feed supply in North America, although the breadth of the distribution of the contaminated feed cannot be estimated at this time.

Tracing of herd mates of the affected cattle identified additional animals born and raised during the same time period (high risk cohorts) that most likely received the same contaminated feedstuffs. Euthanasia and testing of high risk cohorts for both the Canadian and US cases failed to detect any additional cases of BSE. While reassuring, these results cannot preclude the possibility that other exposed cattle were incubating the disease but were not close enough to clinical signs to be

detectable with available diagnostic tests.

The most plausible interpretation of the two investigations is that both of these cattle were exposed to small amounts of BSE agent in the feed prior to the enactment of the feeding regulations in 1997. The advanced ages of both of the cases suggest that they were exposed to a relatively small dose of BSE agent, and the accumulated BSE surveillance results in Canada and the US suggest that the prevalence of BSE is very low.

Regulatory actions subsequent to BSE identification in North America

Canada and the US responded rapidly to the BSE confirmations by prohibiting the incorporation into human food of those tissues that have been shown to accumulate the BSE agent in either naturally-occurring BSE cases or experimentally exposed BSE cases. These so-called "specified risk materials" bans follow international recommendations for protecting public health. The bans cover brain, spinal cord, trigeminal and dorsal root ganglia, and eye of cattle greater than 30 months old plus the distal ileum and the tonsil of all age cattle. Furthermore, new regulations were promulgated to prevent the use of mechanical de-boning procedures on skulls and vertebral columns of animals over 30 months of age that might lead to contamination of edible product with brain, spinal cord, or nerve ganglia.

Both Canada and the US invited international review teams to examine the results of the BSE case investigations and to comment on regulatory actions taken or planned. Both international reviews complimented the investigation process and the rapid actions implemented to protect public health. Both reviews encouraged enhanced surveillance and both recommended additional steps be taken to prevent further spread of BSE through the animal feed system, whether deliberately or accidentally.

Additional steps have been taken by both countries to intensify BSE surveillance, targeting those cattle subpopulations most likely to have been exposed to BSE. Both countries have substantially increased the numbers of animals to be tested. The US has implemented a surveillance blitz aimed at testing as many of the high risk population as possible, with an expectation of at

least 200,000 animals being tested over the next 12-18 months. Both intensified surveillance programs utilize very sensitive, rapid screening tests, followed by the highly specific immunohistochemistry examination. Between June 1 and August 1, 2004 the USA has tested 28,254 cattle, all of which were negative for BSE.

Current BSE issues

While the most important public health protections have been implemented in both the US and Canada, and enhanced surveillance is underway in both countries, a number of issues continue to attract attention of the cattle industry, regulators, consumer organizations and trading partners: additional measures to protect cattle; surveillance strategies; and international trade restrictions.

Decisions on additional measures to protect cattle from BSE continue to be debated. Risk analyses by the Harvard University Center for Risk Analysis suggest that the existing feed controls and regulatory initiatives are sufficient to prevent amplification of the BSE agent in the cattle feed chain. Nevertheless, the potential exists for some further exposure of cattle to BSE agent if BSE affected cattle or specified risk materials are rendered and the resulting rendered animal protein fed to pigs or poultry. Inadvertent or intentional misfeeding of feeds designated for other species may result in cattle exposure to restricted protein products potentially contaminated with BSE. Current North American regulations do not preclude all avenues for cross-contamination during feed manufacturing and transportation. Debates on the merits of SRM bans for all animal feeds hinge on assessment of the benefits of removal of potentially infected materials early in the feed chain, thereby minimizing the potential risk presented by misfeeding.

The implementation and interpretation of surveillance results also garners significant debate. The reporting of two "inconclusives" based on a single reaction to a rapid screening test has highlighted the difficulties of large scale surveillance programs and the resulting risk communication challenges. The current surveillance system combines rapid and inexpensive screening tests with labor intensive and slow confirmatory tests in an attempt to minimize disruption in the beef industry while rapidly expanding sample numbers. Finally, the overall goals of the surveillance program are under scrutiny. Some groups see surveillance as an adjunct to public health protection while others see testing as a necessary cost for regaining export trade.

International trade issues represent the third of the high visibility issues continuing to garner media attention and high level negotiations. The World Animal Health Organization, known by its French acronym OIE, continues to revise their recommendations regarding the safe trade in cattle and cattle products relative to BSE. They have issued strongly worded statements chastising countries around the world for implementing politically motivated trade restrictions that were not in line with current science. The most recent international meeting of the OIE included a strong recommendation that evaluation of countries for BSE move toward a risk-based categorization rather than a disease absence or presence. Markets are gradually reopening around the world as countries become more comfortable that BSE risk can be effectively managed while continuing to trade in animal products.

Additional resources to follow the BSE situation

Global situation

World BSE situation

http://www.oie.int/eng/info/en_esbmonde.htm

Canada

BSE investigation homepage – Canadian Food Inspection Agency

<http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/bseesbindexe.shtml>

International Review report – Canada

<http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/internate.shtml>

USA

BSE homepage

http://cofcs66.aphis.usda.gov/lpa/issues/bse/bse_geninfo.html

International Review report – US

http://www.aphis.usda.gov/lpa/issues/bse/US_BSE_Report.pdf

Results from BSE intensified surveillance

http://www.aphis.usda.gov/lpa/issues/bse_testing/test_results.html