



BSE (Bovine Spongiform Encephalopathy, or Mad Cow Disease)

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Additional Case of BSE Detected in Canada: On May 2, 2007, the 11 th case of BSE in a Canadian-born bovine was identified by the Canadian Food Inspection Agency (CFIA). The eleven cases include one in a Canadian-born bovine identified in the United States in 2003 (see bar graph below). Preliminary information indicates that this most recent BSE case occurred in a mature dairy cow from British Columbia born in 2001, about 4 years after the [1997 Canadian feed ban](#).

For more information about BSE in Canada, see the [Canada Food Inspection Agency \(CFIA\)](#) website.

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About BSE

BSE (bovine spongiform encephalopathy) is a progressive neurological disorder of cattle that results from infection by an unusual transmissible agent called a prion. The nature of the transmissible agent is not well understood. Currently, the most accepted theory is that the agent is a modified form of a normal protein known as prion protein. For reasons that are not yet understood, the normal prion protein changes into a pathogenic (harmful) form that then damages the central nervous system of cattle.



Beef cattle grazing. (Image courtesy USDA)

Research indicates that the first probable infections of BSE in cows occurred during the 1970's with two cases of BSE being identified in 1986. BSE possibly originated as a result of feeding cattle meat-and-bone meal that contained scrapie-infected sheep products. Scrapie is a prion disease of sheep. There is strong evidence and general agreement that the outbreak was then amplified and spread throughout the United Kingdom cattle industry by feeding rendered, prion-infected, bovine meat-and-bone meal to young calves.

The BSE epidemic in the United Kingdom peaked in January 1993 at almost 1,000 new cases per week. Through the end of 2005 more than 184,000 cases of BSE had been confirmed in the United Kingdom alone in more than 35,000 herds.

There exists strong epidemiologic and laboratory evidence for a causal association between a new human prion disease called variant Creutzfeldt-Jakob disease (vCJD) that was first reported from the United Kingdom in 1996 and the BSE outbreak in cattle. The interval between the most likely period for the initial extended exposure of the population to potentially BSE-contaminated food (1984-1986)

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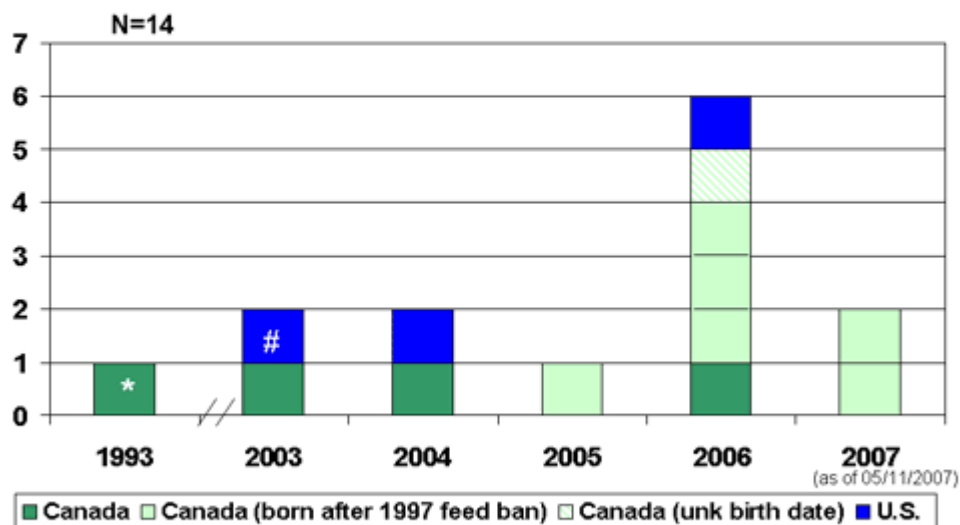
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and the onset of initial variant CJD cases (1994-1996) is consistent with known incubation periods for the human forms of prion disease.

Overview of BSE in North America

BSE Cases in North America, by Year and Country of Death, 1993-2007



* Cow imported from the UK into Canada

Cow imported from Canada into US

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As of May 2007, fourteen cases of BSE have been identified in North America. Of these fourteen cases, three were identified in the U.S. and eleven in Canada. Of the three cases identified in the U.S., one was born in Canada; of the 11 cases identified in Canada, one was imported from the United Kingdom. The proportion of Canadian-born BSE cases identified by Canadian authorities through the testing of animals in Canada, 2003-April 2007 (10 cases among approximately 160,000 animals tested) is presently statistically significantly higher (26 fold higher) than the proportion of U.S.-born BSE cases identified by U.S. authorities through the testing of animals in the U.S. during the comparable period (2 cases among more than 875,000 animals tested).

Six of the eleven BSE cases in Canadian-born cattle were known to have been born after the implementation of the [1997 Canadian feed ban](#); five of these six were born more than eighteen months afterwards. One of the eleven Canadian-born BSE cases was reported in an animal that was born either before or shortly after implementation of the 1997 feed ban.

The BSE strain that is responsible for most of the BSE cases in Canada is the same strain linked to the outbreak in the United Kingdom. This strain has not yet been identified in any U.S.-born bovine. Both of the U.S.-born BSE cases and one Canadian-born BSE case were 10 years of age or older and all three of these older cases were linked to an atypical BSE strain known as the H-strain.

One (9%) of the 11 Canadian-born BSE cases and 2 (100%) of the U.S.-born BSE cases occurred in animals that were known to be at least ten years of age. These significantly different ($P < .05$) proportions correlate with the observed BSE strain differences in the two countries because, to date, only the older cattle have the atypical H strain.

The Canadian Food Inspection Agency (CFIA) is enhancing Canadian feed controls to more effectively prevent and quickly eliminate BSE from Canada. CFIA's new feed control regulations will ban most proteins, including potentially BSE infectious tissues known as "specified risk materials" (SRM) from all animal feeds, pet foods, and fertilizers, not just from cattle feed as required by the ban instituted in 1997. The 1997 feed ban in Canada was similar to the feed ban instituted in the United States that same year. As recently reported by CFIA, removing SRM from the entire animal feed system addresses risks associated with the potential contamination of cattle feed during production,

distribution, storage, and use. Applying the same measure to pet food and fertilizer materials addresses the possible exposure of cattle and other susceptible animals to these products. This enhanced Canadian feed ban is scheduled to come into effect on July 12, 2007. CFIA expects that with this new ban, BSE should be eliminated from the Canadian cattle herd by about the year 2017.

For more information about BSE in the United States, see the [Animal and Plant Health Inspection Service, USDA BSE site](#).

For more information about BSE in Canada, see the [Canada Food Inspection Agency \(CFIA\) website](#).

For regularly updated numbers of reported BSE cases worldwide, see the [Office International Des Epizooties \(OIE\) BSE website](#).

BSE Cases Identified in the U.S.

The first known case of BSE in the United States was identified in December 2003. On December 23, 2003, the U.S. Department of Agriculture (USDA) announced a presumptive diagnosis of BSE in an adult Holstein cow from Washington State. This diagnosis was confirmed by an international reference laboratory in Weybridge, England, on December 25. Preliminary trace-back based on an ear-tag identification number suggested that the BSE-infected cow was imported into the United States from Canada in August 2001. The preliminary trace-back identification of the animal was later confirmed by genetic testing.

On June 24, 2005, the U.S. Department of Agriculture announced receipt of final results from The Veterinary Laboratories Agency in Weybridge, England, confirming BSE in a cow that had conflicting test results in 2004. This cow was from Texas and represented the first endemic case of BSE in the United States.

On March 13, 2006, the U.S. Department of Agriculture (USDA) announced the confirmation of bovine spongiform encephalopathy (BSE) in a cow in Alabama. The newly confirmed case was identified in a non-ambulatory (downer) cow on a farm in Alabama. The animal was euthanized by a local veterinarian and buried on the farm. The age of the cow was estimated by examination of the dentition as 10-years-old. It had no ear tags or distinctive marks; the herd of origin could not be identified despite an intense investigation (see [Alabama BSE Investigation, Final Epidemiology Report, May 2006](#)).

For more information about BSE in the United States, see the [Animal and Plant Health Inspection Service, USDA BSE site](#).

For information about BSE in Canada, see the [Canada Food Inspection Agency \(CFIA\) website](#).

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See Also:

[Risk to travelers of acquiring vCJD which has been linked to BSE-infected cows](#)

On vCJD site

[Epidemiology of vCJD and BSE](#)

On vCJD site

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