



Bovine Spongiform Encephalopathy North America

Bovine spongiform encephalopathy (BSE) is a progressive neurological disorder of cattle that results from infection by an unusual transmissible agent called a prion, which damages the central nervous system in cattle. There is strong evidence that a new human form of spongiform encephalopathy, variant Creutzfeldt-Jakob disease (vCJD), is caused by consuming food contaminated with BSE. As of July 2017, BSE surveillance has identified 25 cases in North America: 5 in the United States (U.S.) and 20 in Canada. Of the 5 cases identified in the U.S., one cow was born in Canada and of the 20 identified in Canada, one was imported from the United Kingdom (UK). Due to the effective surveillance and mitigation measures in the U.S., the World Organization for Animal Health (OIE) categorized the U.S. as negligible BSE risk in 2013.

Strains of Bovine Spongiform Encephalopathy

Evidence suggests there are different strains of BSE; the classical (typical) strain responsible for the outbreak in the UK and two atypical strains.

- **Classical Bovine Spongiform Encephalopathy** - Responsible for most BSE cases in Canada and the U.K. outbreak. This strain has been spread through BSE-contaminated feed and is causally linked to vCJD in people. Typical BSE has not been identified in U.S. born cattle.
- **Atypical Bovine Spongiform Encephalopathy** - These strains appear as sporadic disease, usually in older cattle, and may occur spontaneously. Cases of vCJD have not been linked to atypical BSE strains.



Feed Bans

In 1997, the Food and Drug Administration (FDA) published a regulation that prohibits the use of most mammalian protein in the manufacture of animal feeds given to ruminant animals, such as cows, sheep, and goats. The rule does not prohibit the use of mammalian protein as an ingredient in feed for non-ruminants, but requires systems to ensure that such use does not cause contamination of ruminant feed. The FDA strengthened the 1997 rule in 2008 by prohibiting the use of the highest risk cattle tissues in all animal feed.

What Should Producers Do?

- **Comply with the feed bans** - Do not feed products containing prohibited materials to ruminants (e.g., salvage or distressed pet foods),
- **Keep copies of all feed records** - This includes invoices and labels. Maintain and have available for inspection for at least two years,
- **Establish an individual animal identification plan for your herd,**
- **Report cattle with neurological signs to your veterinarian, and**
- **Humanely euthanize non-ambulatory cattle and dispose of carcasses appropriately.**

BSE Cases in North America by Year and Location

| Year | Province/State | Type | Age (Years) | Strain |
|---------------|-------------------------|-----------------------|-------------|-----------|
| Canada | | | | |
| 1993 | Alberta ¹ | Beef cow | 6 | Classical |
| 2003 | Alberta | Angus cow | 6-8 | Classical |
| 2004 | Alberta | Holstein cow | 8 | Classical |
| 2005 | Alberta | Charolais cow | 6 | Classical |
| 2006 | Alberta | Holstein-Hereford cow | 6 | Classical |
| 2006 | British Columbia | Holstein cow | 6 | Classical |
| 2006 | Manitoba | Beef cow | 15 | |
| 2006 | Alberta | Dairy cow | 4 | Classical |
| 2006 | Alberta | Beef cow | 8-10 | |
| 2007 | Alberta | Bull | 6 | Classical |
| 2007 | British Columbia | Dairy cow | 5 | Classical |
| 2007 | Alberta | Beef cow | 13 | Atypical |
| 2008 | Alberta | Dairy cow | 6 | Classical |
| 2008 | British Columbia | Holstein cow | 5 | Classical |
| 2008 | Alberta | Beef cow | 6 | Classical |
| 2008 | British Columbia | Dairy cow | 7 | Classical |
| 2009 | Alberta | Dairy cow | 7 | Classical |
| 2010 | Alberta | Angus cow | 6 | Classical |
| 2011 | Alberta | Dairy cow | 6 | Classical |
| 2015 | Alberta | Beef cow | 6 | Classical |
| U.S. | | | | |
| 2003 | Washington ² | Dairy cow | 6 | Classical |
| 2005 | Texas | Beef cow | 12 | Atypical |
| 2006 | Alabama | Beef cow | 10 | Atypical |
| 2012 | California | Dairy cow | 10 | Atypical |
| 2017 | Alabama | Beef cow | 11 | Atypical |
| 2018 | Florida | Beef cow | Mature | Atypical |

¹ Animal was imported from the United Kingdom

² Animal was born in Alberta, Canada

For more information on BSE or the Animal Health Branch, please visit: www.cdffa.ca.gov/ah.



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BSE Cases as of August 2018 (n=26) in North America by Year and Country Detected

