



# Bovine Spongiform Encephalopathy “Mad Cow Disease” Producers Guide

## What is Bovine Spongiform Encephalopathy?

Bovine Spongiform Encephalopathy (BSE) is a fatal neurological disease of cattle first recognized in the United Kingdom (UK) in 1986. BSE is a transmissible spongiform encephalopathy similar to scrapie in sheep and goats, chronic wasting disease in deer and elk, and spontaneous Creutzfeldt-Jakob disease (CJD) in humans.

The human disease variant (vCJD) was first diagnosed in 1996. Scientific evidence supports that vCJD is caused by the same agent that causes BSE, and that the disease agent may be transmitted through consumption of products contaminated with the infectious agent.

Six cases of BSE have been detected in the United States (U.S.): a dairy cow born in Canada but detected in Washington (December 2003), a beef cow in Texas (June 2005), a beef cow in Alabama (March 2006), a dairy cow in California (April 2012), a beef cow in Alabama (July 2017), and a beef cow in Florida (August 2018). All but the 2003 case have been atypical, not classical, BSE.

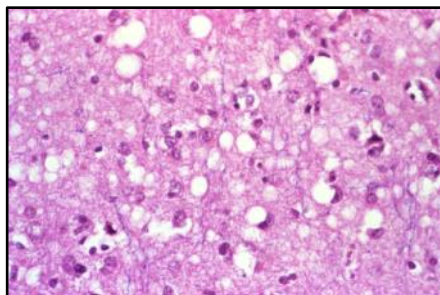
## Signs of BSE

BSE has an incubation period of 2 to 8 years. Signs begin with changes in temperament, such as nervousness or aggression. Cattle lose body condition despite continued appetite and become progressively uncoordinated. There is no treatment, and affected cattle die 2 weeks to 6 months after the first signs.

Cattle producers are the front line of defense in preventing BSE by ensuring that feed containing rendered mammalian tissues is not fed to ruminants.

## Spread of BSE

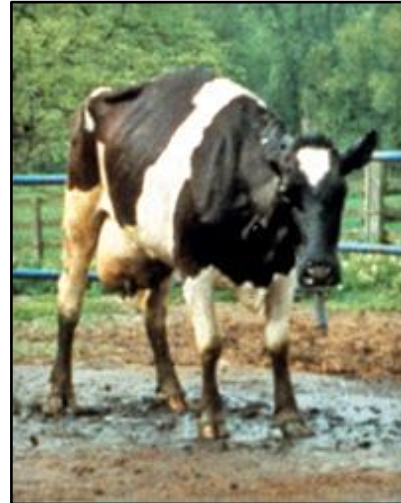
There are different strains of BSE: the classical (typical) strain that caused the UK outbreak, and 2 atypical strains that arise sporadically, usually in older animals. Typical BSE, and possibly atypical BSE, spreads among cattle principally through feed containing protein meal made from rendered ruminant tissues from infected animals. In 1997, the U.S. and Canada banned these products in ruminant feed to prevent BSE transmission.



Spongiform changes in the brain

## Cause of BSE

The agent causing BSE is an unusual transmissible agent known as a prion. It is a modified form of a normal protein that causes no detectable immune or inflammatory response. Prions are smaller than most viruses, and are very resistant to heat, ultraviolet light, radiation, and disinfectants.



Affected Cow

## Preventing the Entry of BSE

In July 1989, the United States Department of Agriculture (USDA) banned importation of live ruminants and most ruminant products from BSE-affected countries, and in December 2000, banned the importation of all rendered animal products from Europe, regardless of species.

## Surveillance in the United States

BSE surveillance began in 1990. It consists of examining brain tissue from cattle showing neurological signs and targeting samples of high-risk cattle. Approximately 40,000 animals are examined each year in the U.S. Due to the effective surveillance and mitigation measures in place in the U.S., the World Organization for Animal Health (OIE) categorized the U.S. as negligible BSE risk in 2013.



## 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 processing and control systems to ensure that such use does not cause contamination of ruminant feed during manufacture or transport. The FDA strengthened the 1997 rule in 2008 by prohibiting the use of the highest risk cattle tissues in all animal feed. High risk cattle materials include the brains and spinal cords from cattle 30 months of age and older the entire carcass of cattle not inspected and passed for human consumption (unless the carcasses are shown to be from cattle less than 30 months of age, or the brains and spinal cords have been removed), and tallow derived from any of these materials.

Feed manufacturers are required to label all feed that contains prohibited materials with this statement: **“Do not feed to cattle or other ruminants.”**



## Protecting Consumers

The following are prohibited from use in the FDA-regulated human food supply:

- Specified risk materials - the skull, brain, eyes, trigeminal ganglia, vertebral column, spinal cord, and dorsal root ganglia from cattle over 30 months old,
- The distal ileum of the small intestine and tonsils from all cattle,
- Non-ambulatory disabled cattle (downers),
- Any material from cattle not inspected and passed for human consumption, and
- Mechanically separated beef.

## What Should Producers Do?

- **Comply with the feed bans** - Do not feed products containing prohibited materials to ruminants. Be diligent that commodities do not contain any prohibited materials (e.g., salvage or distressed pet foods),
- **Keep copies of all feed records** - This includes invoices and labels, and these should be maintained and available for inspection for at least two years. Farm inspections help ensure prohibited materials are not being fed to ruminants. Regulatory action for non-compliance can be taken under the Federal Food, Drug, and Cosmetic Act,
- **Establish an individual animal identification plan for your herd,**
- **Maintain accurate records** - This is particularly important when animals enter and leave your herd,
- **Report cattle with neurological signs to your veterinarian,**
- **Humanely euthanize non-ambulatory cattle,** and
- **Dispose of carcasses appropriately** - This includes using a licensed renderer or other approved disposal options.



Please call the appropriate numbers listed below if you have knowledge of the illegal importation of animals or animal products, or the feeding of prohibited materials.

### Animal Health and Food Safety Services Animal Health Branch

Headquarters - (916) 900-5002  
Redding District - (530) 225-2140  
Modesto District - (209) 491-9350  
Tulare District - (559) 685-3500  
Ontario District - (909) 947-4462  
**USDA-APHIS-VS** - (916) 854-3950 or (877) 741-3690

### Inspection Services Feed, Fertilizer, and Livestock Drugs Regulatory Services

Headquarters - (916) 900-5022  
Fresno District - (559) 452-9687  
Ontario District - (909) 930-9689  
El Centro District - (760) 356-4673

For more information on BSE or the Animal Health Branch, please visit: [www.cdfa.ca.gov/ah](http://www.cdfa.ca.gov/ah)

