

# Mad Cow Disease Facts

Oregon Health Services, 12/30/03

- Bovine spongiform encephalopathy (BSE), commonly called “Mad Cow” disease, is a progressive, degenerative, disease affecting the central nervous system of adult cattle and is always fatal.
- The first U.S. case of BSE has been identified in a single Holstein cow in Washington State and was announced by the United States Department of Agriculture (USDA) on Dec. 23.
- Even though the risk to human health is considered minimal based on current evidence, the USDA is taking a cautious approach and tracing backwards and forwards to determine where the infection may have come from and where the meat products have gone.
- The diseased cow was from a farm in Mabton, Wash., about 40 miles southeast of Yakima.
- It was slaughtered Dec. 9 at Vern's Moses Lake Meats in Moses Lake, Wash.
- At that time, brain, spinal cord and lymph tissue ("specified risk material") was removed and forwarded to USDA's National Veterinary Services Laboratory in Ames, Iowa for BSE testing because the cow was not walking. However, because the cow's inability to walk was believed to be due to a birthing injury and not a neurological disorder, the cow was forwarded for meat processing.
- From there, the cow was deboned at Midway Meats in Centralia, Wash., and muscle meat from the cow was sent Dec. 12 to Willamette Valley Meat Co., in Portland, and Interstate Meat Distribution in Clackamas.
- The products from these two processing plants were distributed to 42 locations. The vast majority of products—at least 80 percent—were distributed to stores in Oregon and Washington.
- On Dec. 23, the Food Safety and Inspection Service of the USDA issued a Class II recall of all 20 animals that were slaughtered and shipped along with the BSE-positive cow, which involved slightly more than 10,000 pounds of meat.
- A Class II recall is generally defined as a potential health hazard situation where there is a *remote* probability of adverse health consequences from eating the food. The USDA says they took this action out of “an abundance of caution.”

- According to Reuters, three major supermarket chains, including Fred Meyer, Safeway and Albertsons, have voluntarily removed beef products from Willamette Valley Meat Co. and Interstate Meat Distribution from their shelves and have asked customers to return Interstate Meat ground beef patties and other products sold from about Dec. 15 through Dec. 23. The Safeway recall includes 69 pounds of fresh beef hearts from Willamette Valley Meat Co. The Safeway action is directed at 19 stores in Oregon and Washington.
- Fred Meyer is asking customers at 75 different stores in Oregon, southern Washington, Idaho and Utah to return Interstate Meat pre-packaged fresh ground beef patties with approximately one pound of 85% lean (15% fat) ground beef and a sell-by date of December 25, 2003.
- Albertsons Inc. said it removed several beef products from about 140 of its stores in Washington, Oregon, and Idaho. It asked that customers who bought several different varieties of ground beef, also from Interstate Meats, return the items.
- According to the USDA, Willamette Valley Meat Co. also received beef trimmings, which were sold to some three dozen small, mom-and-pop Asian and Mexican facilities in Washington, Oregon, California and Nevada. Willamette Valley Meat Co. says it has notified all of its customers of the recall, and is directing callers with questions to the USDA.
- Consumers who may have purchased some of this meat are advised to contact the store where they made the purchase and ask if the meat they bought on particular days is subject to the recall.
- The FDA says its investigators and inspectors from the states of Washington and Oregon have located all of the non-meat products rendered from the BSE-infected cow. The rendering plants that processed all the non-edible material from the BSE cow have placed a voluntary hold on all of the potentially-infectious product, and none has been distributed commercially.
- The Mabton farm is currently quarantined and the USDA has initiated a comprehensive epidemiological investigation working with state, public health, and industry counterparts to determine the source of the disease.
- The USDA believes the cow was born in Canada in April of 1997, making her approximately six and a half years old at the time of slaughter.
- The USDA will use DNA testing to help confirm the age and origin of the cow. Samples being submitted for DNA testing include tissues from the BSE-positive cow and samples from any calves from that animal. In addition, in Canada, there may still be some semen available from what is believed to be the sire of the infected cow.

- Samples of the BSE cow were taken at slaughter as part of USDA's targeted BSE surveillance system because the animal was non-ambulatory (a so-called "downer").
- Positive results were obtained by both histology (a visual examination of brain tissue via microscope) and immunohistochemistry (which detects prions through a staining technique).
- Prions are the misshapen protein cells thought to cause BSE.
- Test results were returned on Dec. 22 and retested on Dec 23. Samples from the cow were also sent to Central Veterinary Laboratory in Weybridge, England and confirmed on Dec. 25.
- Since 1990 the USDA has had an aggressive surveillance program in place to ensure detection and a swift response in the event of the introduction of BSE in this country.
- In the last year, this program has tested 20,526 head of cattle for BSE, which is triple the level of the previous year of 2002.
- According to the USDA, the discovery of this suspected case is a result of this aggressive surveillance program and is a clear indication that the surveillance and detection program is working.
- BSE is a notifiable disease, and there are more than 250 Federal and State regulatory veterinarians specially trained to diagnose foreign animal diseases, including BSE.
- The surveillance samples include field cases of cattle exhibiting signs of neurologic disease, cattle condemned at slaughter for neurologic reasons, rabies-negative cattle submitted to public health laboratories, and neurologic cases submitted to veterinary diagnostic laboratories and teaching hospitals.
- Sampling of cattle that are nonambulatory ("downer cattle"/fallen stock) has been practiced since 1993, and the USDA has also begun to sample adult cattle dying on farms.
- As of September 30, 2003, more than 57,000 brains had been examined for BSE and similar diseases.
- On Dec. 30, 2003, the USDA announced it will be taking these additional steps to protect the U.S. food supply from BSE:
  1. Effectively immediately, USDA will ban all downer cattle from the human food chain.

2. USDA Food Safety and Inspection Service inspectors will no longer mark cattle tested for BSE as “inspected and passed” until confirmation is received that the animals have, in fact, tested negative for BSE.
  3. USDA will enhance its regulations by declaring as specified risk materials skull, brain, trigeminal ganglia, eyes, vertebral column, spinal cord and dorsal root ganglia of cattle over 30 months of age and the small intestine of cattle of all ages, thus prohibiting their use in the human food supply.
  4. FSIS will require federally inspected establishments that slaughter cattle to develop, implement, and maintain procedures to remove, segregate, and dispose of these specified risk materials so that they cannot possibly enter the food chain.
  5. FSIS will expand its existing prohibition on labeling spinal cord as meat when extracted using Advanced Meat Recovery (AMR) systems to include dorsal root ganglia and clusters of nerve cells connected to the spinal cord along the vertebrae column. AMR is an industrial technology that removes muscle tissue from the bone of beef carcasses under high pressure without incorporating bone material when operated properly.
  6. To ensure that portions of the brain are not dislocated into the tissues of the carcass as a consequence of humanely stunning cattle during the slaughter process, FSIS is issuing a regulation to ban the practice of air-injection stunning.
  7. USDA will prohibit use of mechanically separated meat in human food.
- BSE surfaced in Britain in 1986 and spread through countries in Europe and Asia. A single, isolated case of mad cow disease was diagnosed in Canada in May 2003.
  - The BSE epidemic in the United Kingdom reached its peak incidence in January 1993 at almost 1,000 new cases per week.
  - The outbreak may have resulted from the feeding of scrapie-containing sheep meat-and-bone meal to cattle. There is strong evidence and general agreement that the outbreak was amplified by feeding rendered bovine meat-and-bone meal to young calves.
  - Worldwide there have been more than 187,000 cases since the disease was first diagnosed in 1986 in Great Britain.
  - BSE has had a substantial impact on the livestock industry in the United Kingdom.
  - The disease has also been confirmed in native-born cattle in Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Luxembourg, Liechtenstein, the Netherlands, Northern Ireland, Poland, Portugal, Slovakia, Slovenia, Spain and

Switzerland. However, more than 95% of all BSE cases have occurred in the United Kingdom.

- BSE belongs to the family of diseases known as the transmissible spongiform encephalopathies (TSEs). These diseases are caused by a transmissible agent, which is yet to be fully characterized. They share the following common characteristics:
  1. A prolonged incubation period of months or years
  2. A progressive debilitating neurological illness which is always fatal
  3. When examined by electron microscopy, detergent-treated extracts of brain tissue from animals or humans affected by these diseases reveal the presence of scrapie associated fibrils (SAF)
  4. Pathological changes appear to be confined to the CNS and include vacuolation, and astrocytosis
  5. The transmissible agent elicits no detectable specific immune response in the host, which has inhibited the development of a preclinical live animal diagnostic test to date.
- Federal and state agencies have also taken a series of actions to prevent the introduction of BSE into the US food supply.
- For example, there are firm restrictions on the importation of live ruminants and ruminant products including meat, meat-and-bone meal, offal, and glands from countries where BSE was known to exist and from countries thought to be at high risk for BSE.
- In addition, the FDA prevents the feeding of supplements derived from potentially infectious tissues from cattle and other ruminants because this kind of feeding practice is believed to have started and amplified the outbreak of BSE in the United Kingdom.
- The USDA is continuing to work with the FDA as they conduct animal feed investigations. However, they now believe the BSE cow may have been infected before the ban on feeding ruminant supplements went into effect in August of 1997.
- Questions about local impacts should be referred to the Oregon Department of Agriculture at (503) 986-4550.
- Additional information is available on the U.S. Department of Agriculture Web site at: <http://www.aphis.usda.gov/lpa/issues/bse/bse.html> or by calling toll-free, 1-866-4USDA-COM.