

## **A Case of Bovine Spongiform Encephalopathy (BSE) in the United States**

### **Executive Summary**

On December 23, 2003, the U.S. Department of Agriculture (USDA) announced a presumptive positive case of BSE in a Holstein cow slaughtered in the State of Washington. The infected cow entered the United States on September 4, 2001, as part of a shipment of 81 animals from the source herd in Canada. Of these 81 animals, 25 were considered to be higher risk as defined by the Office International des Epizooties (OIE): animals born on a known source premises within 12 months of an affected animal, either before or after.

Counting the index animal, USDA has definitively accounted for 14 of the 25 animals considered to be higher risk. In total, USDA has accounted for 29 of the 81 cattle in the initial shipment, plus 7 additional animals also dispersed from the birth herd. The number of animals found is consistent with the number expected after analysis of regional culling rates. Since the epidemiological investigation was yielding little additional information, USDA concluded active investigation and culling activities on February 9, 2004.

A total of 255 cattle have been depopulated from 10 premises on which one or more source herd animals were found. This number includes the 35 animals definitively identified as originating from the source herd (aside from the index cow), as well as any other cattle on those 10 premises that could possibly be from the Canadian source herd. Out of an abundance of caution, all 255 animals were depopulated and tested for BSE; all of the animals tested negative. Because there is a small probability that BSE can be transmitted maternally, the two live offspring of the infected cow were also euthanized. A third had died at birth in October 2001. All carcasses were properly disposed of in accordance with Federal, State and local regulations.

In conjunction with USDA's investigation, the U.S. Department of Health and Human Services' Food and Drug Administration (FDA) conducted an extensive feed investigation. By December 27, 2003, FDA had located all potentially-infectious product rendered from the BSE-positive cow in Washington State. This product was disposed of in a landfill in accordance with Federal, State and local regulations.

### **Emergence of a Single Case of BSE**

The index cow had difficulty giving birth to a bull calf on November 29, 2003, and was subsequently sent to slaughter. On December 9, 2003, the animal was observed to be non-ambulatory (a "downer" animal). Accordingly, as part of USDA's targeted BSE surveillance program, brain samples were taken from the animal and sent to USDA's National Veterinary Services Laboratories (NVSL) in Ames, Iowa, for testing. After NVSL's presumptive positive finding, samples were hand-carried to the OIE reference laboratory in Weybridge, England, for final confirmatory testing according to international animal health requirements. On the morning of December 25, 2003, the OIE reference laboratory confirmed USDA's diagnosis of BSE.

Even before the confirmation from Weybridge, the presumptive positive result at NVSL triggered an epidemiological investigation by Federal and State officials. Immediately,

USDA's Animal and Plant Health Inspection Service (APHIS) activated its Emergency Operations Center (EOC) in Riverdale, Maryland, and representatives from APHIS' Transmissible Spongiform Encephalopathy Working Group as well as emergency response leaders were mobilized to begin an aggressive investigation.

The positive cow was traced from the slaughter plant back to a 4,000 cow dairy herd near Mabton, Washington. This herd (the index premises) was placed under quarantine on December 23, 2003, to prevent further complications to traceback and traceforward investigations. In Washington State, USDA and State officials mobilized an Area Command Office in Olympia and an Incident Command Post in Yakima. Both offices worked in close contact with the APHIS National Coordinating Group at the EOC.

### **Investigative Details Regarding the BSE-Positive Cow**

The cow, known to be approximately 6 years and 8 months old at slaughter, was purchased into the Mabton herd in October 2001. The cow was culled from the herd due to paralysis resulting from calving complications. She had given birth to two live offspring in the United States. A bull calf born November 29, 2003, was sold to a calf-raising facility in Sunnyside, Washington, and the other calf, a yearling heifer, was known to be present in the Mabton herd.

### **Tracing Back the BSE-Positive Cow**

On January 6, 2003, Dr. Ron DeHaven, USDA's Chief Veterinary Officer, and Dr. Brian Evans, Canada's Chief Veterinary Officer, held a joint press conference to announce that DNA evidence indicated—with a high degree of certainty—that the BSE-positive cow found in Washington State originated from a dairy farm in Calmar, Alberta, Canada. The DNA evidence is based on comparative testing of DNA from the brain of the positive cow with DNA from semen of her sire and with blood from the heifer calf born from the BSE-positive cow on the index farm. The test results were independently confirmed by both U.S. and Canadian animal health laboratories. Breeding records for the heifer calf confirmed that the animal was born from the cow bearing the tag number found on the BSE-positive cow at slaughter and found in the records on the farm in Alberta. This DNA information, coupled with information obtained from the owner of the index farm in Mabton, Canadian officials, and import records, adds certainty to the accuracy of the traceback to Alberta.

Other elements of this investigation continued in both the United States and Canada, and provided additional information. U.S. and Canadian officials are actively communicating as they continue a feed investigation. While it is clear that the BSE-positive cow originated in Canada, U.S. and Canadian officials are cooperating fully to address the issue.

### **Details Regarding Cohorts**

On December 31, 2003, USDA determined that a Canadian health certificate, signed on August 30, 2001, listed 82 eartag numbers from cattle that were part of the source herd dispersal in Calmar, Alberta, Canada. One of those eartag numbers matched the number on the BSE-positive cow. It has been confirmed that 81 of those 82 animals crossed the border into the United States on September 4, 2001, through the port of Oroville, Washington. Of these 81 animals, 25 were considered to be higher risk as defined by the OIE: animals born on a known source premises within 12 months of an affected animal, either before or after.

Overall, task force members performed 189 investigations, including 51 complete herd inventories totaling over 75,000 cattle, in an effort to find any cattle that may have entered the United States from the source herd in Alberta. Counting the index animal, USDA has now definitively accounted for 14 of the 25 animals considered to be higher risk. In total, USDA has accounted for 29 of the 81 cattle that entered on September 4, 2001: 1 was the index cow from Mabton; 9 were on the index premises near Mabton; 3 animals were located on a nearby premises in Mattawa, Washington; 1 was on a premises in Quincy, Washington; 3 were on a dairy in Tenino, Washington; 6 were on a dairy in Connell, Washington; 1 was on a dairy in Moxee, Washington; 1 was on a dairy in Othello, Washington; 3 were on a dairy in Burley, Idaho; and 1 was on a second dairy (not the index premises) in Mabton, Washington.

In addition to those 81 cattle, another 17 heifers were sold at the source herd dispersal in Calmar, Alberta. Although the total number of those 17 that entered the United States is not known, 7 have now been located: three were on a dairy in Quincy, Washington; one was on a dairy in Boardman, Oregon; one was on a dairy in Othello, Washington; one was on a dairy in Burley, Idaho; and one was on a second dairy (not the index premises) in Mabton, Washington. The animal on the second Mabton premises was actually an earlier offspring of the index cow born in December 2000 in Alberta. A chart diagramming the source herd animal movements can be found at the end of this document (page 5).

A total of 255 cattle have been depopulated from 10 premises where one or more source herd animals were found. This total includes the 35 animals definitively identified as originating from the source herd (aside from the index cow), as well as any other cattle on those 10 premises that could possibly be from the Canadian source herd. None of the 255 cattle tested positive for BSE. The carcasses of the euthanized animals were held until the test results were returned; after receiving the negative results, the carcasses were disposed of in a landfill in accordance with all Federal, State and local regulations.

### **Actions Taken on the U.S. Offspring of the BSE-Positive Cow**

After it was determined that the bull calf delivered by the positive cow in late November 2003 was sold to a calf-raising facility in Sunnyside, Washington, State officials immediately quarantined that premises. Identification of animals was incomplete, so APHIS determined that, out of an abundance of caution, all animals on the premises should be euthanized. On January 6, 2004, APHIS personnel gathered the animals from the Sunnyside premises and transferred them to a slaughter facility in Wilbur, Washington. All 449 animals were humanely euthanized. The remains of those animals were delivered to a landfill on January 8, 2004. The yearling heifer in the Mabton herd that was definitively identified to be the offspring of the BSE-positive cow, along with 130 other cattle from the Mabton herd with known or potential risk for having been infected with the BSE agent in Canada, have been euthanized.

### **Collaboration with the Food and Drug Administration (FDA) Feed Investigation**

On December 27, 2003, FDA announced that its investigators and inspectors from the States of Washington and Oregon had located all potentially-infectious product rendered from the BSE-positive cow in Washington. The rendering plants that processed all the non-edible material from the BSE cow placed a voluntary hold on all potentially infectious product.

The rendering firms, located in Washington and Oregon, assisted and cooperated fully with the FDA's investigation. This product has been disposed of in a landfill in accordance with Federal, State and local regulations. FDA also reported that the feeding and feed mixing practices related to the Mabton index premises were in full compliance with all mammalian protein restrictions and other regulations.

### **Conclusion**

This investigation demonstrates that the affected animal was not indigenous (not born in the United States) and that her exposure to the causative agent of BSE occurred in Canada. As provided in the OIE Code (Article 2.3.13.4), her progeny born in the previous 2 years (the heifer calf in 2002 and bull calf in 2003) were identified and destroyed.

# U.S. Index BSE Case

## Life History and Herd Cohorts

