Tennessee Bovine Spongiform Encephalopathy Investigation Final Report
October 10, 2023

Executive Summary

On May 18, 2023, the U.S. Department of Agriculture (USDA) announced a seventh case of bovine spongiform encephalopathy (BSE) in the United States. The first case, classical BSE, was detected in 2003 in a 6-year-old dairy cow imported from Canada. The other six cases, including this 2023 case, were atypical BSE. This seventh case was a nine-year-old black beef cow that had been sampled on May 15, 2023, as part of the USDA, Animal and Plant Health Inspection Service’s (APHIS) Ongoing BSE Surveillance Program. This animal was unable to rise after being shipped from a Tennessee livestock market to a slaughter establishment in South Carolina, where it was condemned during antemortem inspection. The carcass was disposed of in a South Carolina landfill per all Federal, State, and local regulations. The Tennessee Department of Agriculture was notified and established an Incident Command Post at their headquarters in Nashville, Tennessee.

An epidemiologic investigation was conducted per APHIS’s BSE Response Plan. Three progeny of the index animal were designated as at-risk cattle. Two were traced to slaughter and one was shipped under permit to the USDA’s Agricultural Research Service (ARS) for research purposes.

Fifteen birth cohorts were identified on four different Tennessee premises. Of these, seven were euthanized and incinerated while eight were officially identified and permanently quarantined to their premises until death or euthanasia when they will be disposed in accordance with the BSE Response Plan and all Federal, State, and local regulations. BSE was not detected in samples submitted from the seven that were incinerated.

Laboratory Findings

On May 16, 2023, the Athens Veterinary Diagnostic Laboratory in Georgia, a National Animal Health Laboratory Network laboratory, notified the National Veterinary Services Laboratories
(NVSL) of a non-negative BSE sample. On May 18, 2023, NVSL confirmed L-type atypical BSE by the western blot test. On May 20, 2023, NVSL confirmed that the DNA of the tissue attached to the ear tags from the cow matched the DNA of the obex sample submitted. Immunohistochemistry was found to be positive on May 22, 2023.

Disposal of Index (Positive) Case

The carcass of the index animal was rendered. The rendered material was disposed of on Wednesday, June 7, 2023, in a lined landfill. Representatives from USDA and the Food and Drug Administration witnessed the transportation of the material to the landfill and its subsequent disposal, as well as the cleaning and disinfection of the trailer.

Traceback Investigation

The index cow had been shipped from a Maury County, Tennessee, producer to the Tennessee livestock market on May 10, 2023, because her condition had deteriorated.

The cow had been purchased from a Bradley County, Tennessee, producer on June 15, 2020. The Bradley County producer had purchased her, along with 24 other bred heifers, on June 21, 2016, from a heifer development program through a Tennessee livestock market. Based on that information, her age was determined to be 9 years old.

According to records from the livestock market, the 25 head purchased came from five different premises, all within Tennessee.

Because it could not be immediately determined from which of the five premises the index cow had originated, all five premises plus the Maury County and Bradley County producers were placed under quarantine pending the location of any birth cohorts.

<table>
<thead>
<tr>
<th>2020-2023</th>
<th>Maury County Herd</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2020</td>
<td>Bradley County Herd</td>
</tr>
<tr>
<td>2015-2016</td>
<td>Heifer development program</td>
</tr>
</tbody>
</table>

Possible Birth Premises: Herd A, Herd B, Herd C, Herd D, Herd E.
At Risk Progeny

The index cow gave birth to a heifer calf on October 8, 2020, which sold at a Tennessee livestock market on August 23, 2021. The heifer had been purchased by a Kentucky dealer and it was confirmed through records that she had been processed through slaughter channels. This trace segment was closed.

The index cow had a steer calf on September 27, 2021, which sold to a feedlot in October 2022. The group this steer was housed with sold at a fat cattle auction and went to one of three slaughter plants for processing in early 2023. This trace segment was closed.

The index cow had a steer calf born on November 11, 2022, which was still on the premises, and placed under a monitoring agreement on June 12, 2023. The calf was subsequently purchased by ARS and was transported on a Veterinary Services Form 1-27, Permit for Movement of Animals, from the Maury County premises to ARS at Ames, Iowa, on June 23, 2023.

Birth Cohorts

The Maury County producer had four cows remaining on the premises from the 13 purchased from the Bradley County producer. These four cows were placed under monitoring agreements as possible birth cohorts. Under the agreements, the cows were officially identified and were required to remain under quarantine on the premises until they either died or the producer decided to have them euthanized. In either case, the owner is required to contact an APHIS or State regulatory official to observe the disposal process and submit samples for BSE testing. The other eight cows that were possible birth cohorts purchased from the Bradley County premises were traced to slaughter. This trace segment was closed.

The Bradley County producer had one remaining cow from the 25 he purchased in 2016 which was a potential birth cohort. A monitoring agreement was placed on the animal. Records for the additional 11 animals who were purchased with the BSE positive cow in 2016 and sold from the Bradley County premises were not available. This trace segment was closed.

The 25 heifers purchased by the Bradley County producer had been housed at a location that was leased by the Tennessee livestock market for raising heifers for sale. No animals remained at that premise that would have been birth cohorts of the BSE-positive cow. This trace segment was closed.

All involved premises were quarantined until tracing was completed.

Possible Birth Premises from Cows from the Heifer Development Program

Herd A had three cows which were placed under monitoring agreements as potential birth cohorts on June 10, 2023. The remainder of the herd was released from quarantine that same day.

Herd B was released from quarantine on June 26, 2023, due to having no birth cohorts remaining in his herd. The owner of the herd has passed away and his son had taken over the operation of the farm. No records of sales were available. This trace segment was closed.
Herd C had seven potential birth cohorts remaining on the farm. Three of the seven birth cohorts were euthanized and incinerated on July 12, 2023. The remaining four birth cohorts were euthanized and incinerated on July 18, 2023. BSE was not detected in any of the seven animals tested. No records were available for other animals that were potential birth cohorts that had left the farm prior to the detection of this case. This trace segment was closed.

Herd D and E had documentation that all heifers sold were freeze branded. As the BSE-positive cow did not have a freeze brand, it was determined that it did not originate from either of these herds. One herd was released from quarantine on June 26, 2023, and the second was released on June 30, 2023. These trace segments were closed.

**Summary**

After thorough investigation of the potential index premises and elimination of two of the five premises as possible index premises, we were unable to determine which of the remaining three premises was the index premises. All premises raised commercial black beef cattle. Official identification was not placed on the index animal until she resided on the 2016 premises. Therefore, the case was traced as a group, not as individual animals.