

Bovine Tuberculosis and Brucellosis Surveillance Results
Monthly Reports, Federal Fiscal Year (FY) 2015
July 1–31, 2015

New Information – Bovine Tuberculosis (TB)

- Bovine TB was confirmed in a small Michigan cattle herd located in the Modified Accredited zone (MA) in Alcona county, Michigan. Two skin test positive cattle were detected during an annual herd test. These animals had gross lesions that were compatible for mycobacteriosis and PCR positive for *Mycobacterium tuberculosis* complex. Culture is pending. This is the 62nd TB-infected herd found in Michigan since 1998.
- No new TB cases were detected through slaughter surveillance in July.

Update of Previously Reported Information

- The emergency indemnity funding request is still pending approval by the Office of Management and Budget.
- Bovine TB was confirmed in a Texas feedlot and heifer raiser, when six comparative cervical tuberculin skin test positive replacement heifers from the feedlot were found to be compatible for mycobacteriosis by histology. The feedlot and two dairies under the same ownership were tested after TB was confirmed in six TB-infected Holstein steers that traced back to the feedlot. The infected steers were detected by slaughter surveillance during December 2014 and January, April, and May 2015. The feedlot serves as a replacement heifer and steer raiser for the dairies. Caudal fold positive animals from the dairies are scheduled for diagnostic necropsy in August.
- Thirty-two caudal fold tuberculin skin test (CFT)-positive animals from the TB-infected Michigan dairy were necropsied in July. The dairy is located in the MA zone. Of these, 16 were lesioned and tissues from 14 were compatible for mycobacteriosis by histology (culture is pending). The remaining CFT-positive animals will be necropsied in August. Removal of these animals was delayed due to the lack of Federal indemnity funds. This herd was detected during an annual whole herd test (WHT). The decision whether to use test and remove herd management or depopulation to eliminate infection from the herd is pending. This is the 61st TB-infected herd found in Michigan since 1998.
- The first Texas dairy quarantined in October 2014 was administered its third whole-herd test in July. The estimated prevalence of TB based on gross lesions found was 5.9 percent, based on necropsy results of reactors from the second WHT. Emergency funds have been requested for depopulation.
- Officials have detected a total of three infected cows from the second quarantined Texas dairy. During the third whole-herd test, over 11,000 cows were injected, with 27 responders identified and awaiting postmortem exam.
- *Mycobacterium intermedium* was isolated from tissues from a suspect case in a beef steer from a Nebraska feedlot and slaughtered in Texas in May; therefore, bovine TB infection was not confirmed. Tissues were compatible for mycobacteriosis and PCR was negative for *M. tuberculosis* complex and *M. avium*. Official animal identification was not presented to the National Veterinary Services Laboratories (NVSL).
- There have been a total of nine TB cases in fed cattle during FY 2015. Of these, six were Holstein steers from Texas, and three were from Mexico. Tissues were compatible for mycobacteriosis and PCR was positive for *M. tuberculosis* complex for all cases. *Mycobacterium bovis* has been isolated for eight cases. Culture was not possible for one case

in which only formalin fixed tissues were submitted.

Table 1. Bovine TB cases found through routine slaughter inspection, FY 2015.^a

Laboratory Status	New TB Cases July 1-31, 2015		Cumulative TB Cases October 1, 2014 – July 31, 2015		
	Fed cattle	Adult cattle	Fed cattle	Adult cattle	Total
<i>M. bovis</i> cases, confirmed ^b	0	0	9	1	10
PCR pending	0	0	0	0	0
PCR negative, culture pending	0	0	0	0	0

^a Animals detected through routine slaughter inspection. Animals sent to slaughter with a 1-27 permit, “Permit for Movement of Restricted Animals” are not included.

^b Confirmed by PCR testing and/or culture.

Table 2. Livestock herds confirmed infected with bovine TB, FY 2015, including test-and-remove managed herds under quarantine and carried forward from previous fiscal years.

State	Federal Fiscal Year Detected	Method of Detection	Herd Type	Herd Management Plan	Closest Isolates by WGS (Number of SNP Differences) ^a	Wildlife Surveillance Planned?	Approximate Number of Animal Traces	States With Traced Cattle
MI ^b	2008	Surveillance	Cervid	Test and removal	MI	Ongoing	None	None
MI ^b	2008	Surveillance	Cervid	Test and removal	MI	Ongoing	None	None
TX	2015	Slaughter	Dairy	Pending	2004 TX (16), 2007 NM dairies (15), 2011 AZ roping steer from CHI (25)	Pending	Pending	Pending
TX	2015	Epidemiology	Dairy	Test and remove	Same as above	Pending	Pending	Pending
MI	2015	Area Testing	Dairy	Pending	Pending	Ongoing	368	Pending
TX	2015	Slaughter	Dairy ^c	Pending	Pending	Pending	Pending	Pending
MI	2015	Area Testing	Mixed	Pending	Pending	Ongoing	None	Pending

^aWGS = whole genome sequencing, SNP = single nucleotide polymorphisms; () = number of SNP differences to the most recent common ancestor compared to other isolates in the National Veterinary Services Laboratories database.

^bTwo herds detected in previous fiscal years are included.

^cTB confirmed in a feedlot that is one of three premises under the same ownership. TB test positive animals are awaiting diagnostic necropsy on the remaining two premises.

Brucellosis - Herds Remaining under Quarantine and Test-and-Remove Procedures or Awaiting Assurance Test Results

FY 2015

Montana

- Affected beef herd: On November 8, 2014, one reactor (an 8-year-old cow) was detected during testing of a group of 171 head in a Madison County commercial cow-calf beef herd. The herd had a Designated Surveillance Area (DSA) herd plan in place, as a portion of the herd grazes within the DSA. On November 12th, the reactor's seropositive status was confirmed and the herd was placed under verbal quarantine and milk samples submitted for culture. Milk samples were found negative for *Brucella*. Tissues were collected on November 19th and NVSL reported *Brucella abortus* biovar 1 isolation on December 3rd. Entire-herd testing was completed December 10th, and among 2338 head tested no additional seropositive animals were found. An Affected Herd Plan was put in place December 11th. All the DSA adjacent herds have been identified and have tested negative. Whole-herd test post-removal of the reactor was completed in January 2015 and all animals were negative. Post-calving whole herd test completed and all animals were brucellosis test negative. Quarantine has been released and an assurance test is scheduled for this fall. Traces are pending. All non-DSA adjacent herds (27) have been identified and all tested negative.

Updates: None

- Affected beef herd: On October 23, 2014, one reactor (a 3-year-old cow) was detected during testing of a group of 262 head in a Park/Carbon County commercial cow-calf beef herd. The reactor animal was part of a cohort that grazes seasonally in the DSA and was tested when leaving the DSA, per State law. The herd was placed under verbal quarantine October 25th. An Affected Herd Plan has been finalized. On October 31st, the reactor's seropositive status was confirmed, and the milk samples submitted to NVSL for culture on November 12th were found negative for *Brucella* spp. On December 4th, tissues were collected and submitted to NVSL. On December 12th, NVSL reported isolation of *B. abortus* biovar 1. Whole-herd testing was completed December 18th, and no additional seropositive animals were found. All the Park County adjacent herds have been tested and are negative. Whole-herd test post-removal of the reactor was completed in January 2015 and all animals were negative. Whole-herd test was completed on March 11th and all animals were negative. Quarantine was lifted March 16, 2015. Assurance test is tentatively scheduled for fall 2015. Traces are pending. All Carbon County adjacent herds (4) have tested negative.

Updates: None

FY 2013

Montana

- Affected beef herd: On September 5, 2013, a single brucellosis reactor (2-year-old female) was detected on a DSA brucellosis pre-slaughter test of 42 head in Madison County. *B.*

abortus biovar 1 was confirmed September 25, 2013. A herd brucellosis test (1116 head) detected one reactor and one suspect. The tissues were submitted, but no *B. abortus* isolation was made from either animal. DSA herd and affected herd plans are in place.

Epidemiological work has determined the exposure occurred sometime in the spring of 2013. Nine adjacent herds have tested brucellosis negative. A whole-herd test conducted on January 8, 2014 was negative. No *Brucella* was isolated from tissues submitted from the suspect cow, detected on January test, or its fetus. There were no trace-in animals identified. Twenty of 22 trace-out epidemiological investigations, covering 467 cattle in nine States, have been completed. The post-calving whole-herd test in late March was negative and the quarantine for the herd was lifted in late March. The fall assurance testing was completed in October; all cattle tested negative. Awaiting disposition of final two traces.

Updates: None

FY 2012

Idaho

- Affected privately owned bison herd: A privately owned bison herd (268 head), assembled and located in the DSA in 2010, was brucellosis tested to meet Idaho's DSA requirements. Quarantine and movement controls are in place. An updated affected herd management plan is pending owner's signature. All trace-out and trace-in epidemiological investigations associated with this herd have been completed and closed. A whole-herd brucellosis test was conducted on December 4-5, 2013, and all animals were negative. A herd test was completed on November 2014 and all 278 animals were tested negative. This was the second negative complete whole-herd test. On December 15-16, 2014, 214 bull and heifer calves (2014 calves) were tested, all with negative results. The next herd test is scheduled for fall 2015.

Updates: None

FY 2011

Montana

- Affected privately owned bison herd: A brucellosis-affected privately owned bison herd was detected in Gallatin County in November 2010. This herd was detected as part of Montana's DSA herd management plan testing. This herd is under quarantine with movement controls and an affected herd management plan in place. All trace-out and trace-in epidemiological investigations associated with this herd have been completed and closed. The fall 2013 test detected 13 seropositive (*B. abortus* biovar 1 isolated) animals out of 4050 head of bison tested. Annual fall testing began October 20, 2014, and was completed November 21, 2014. At the conclusion of the annual fall testing, 16 reactors and 3 suspects had been identified.

Updates: None

Wyoming

- Affected bison herd: A brucellosis-affected privately-owned bison herd inside the Wyoming DSA (Park County) was disclosed in November 2010. This herd consists of two groups – the Main herd and the Preferred herd. The Preferred herd has undergone four negative brucellosis tests and was released from quarantine in late January 2012. Preferred herd was bled early October- all negative. The Main herd remains under quarantine with movement controls and an affected herd management plan in place.

In fall 2013 herd brucellosis testing of Main herd, all 462 cows and calves tested negative. Bulls will be tested in the spring/summer of 2014. Main herd (293 adult cows plus the 2014 calves) were bled October 26, 2014 – all negative. All trace-out and trace-in epidemiological investigations associated with this herd have been completed and closed. Nineteen bulls from the Main herd tested negative on July 10, 2014. One yearling heifer in the replacement heifer group tested positive on November 9, 2014. Breeding bulls will be bled in spring 2015, coinciding with their breeding soundness examinations. Cows with 2014 calves tested negative on the fall herd test. The heifer group was tested late March, revealing one suspect that was retested April 15, 2015. Retest serology results were in the suspect range and the animal was classified as a suspect. Wyoming Veterinary Diagnostic Laboratory culture results of the suspect heifer are negative.

Updates: June whole herd test results – all animals were negative. Next whole herd test of the females is planned for fall 2015 and testing of the bulls is tentatively planned for January 2016. The test of 20 herd bulls on July 14, 2015, showed all negative results. The next whole herd test for females is scheduled for fall 2015 and, if negative, would be the 3rd negative test for this portion of the herd.

Table 3: Livestock herds confirmed as brucellosis affected, FY 2011-2015.

State/ FY	Method of Detection	Herd Type	Affected Herd Management Plan	Genotyping Descriptive Results	Wildlife Surveillance Planned	Animals Being Traced	States Receiving Traced Cattle/Bison
MT 2015	DSA Herd Plan Test	Beef	Quarantine with test & remove	Most closely related to 2 elk isolates (2009 – 2010)	Yes	Pending	Traces are pending
MT 2015	DSA Herd Plan Test	Beef	Quarantine with test & remove	Closest common ancestor – wild bison (1985)	Yes	Pending	Traces are pending
MT 2013	DSA Required pre-slaughter testing	Beef	Quarantine with test & remove	Common ancestor with wild elk from the same area	Yes	424	0 trace-in States 9 trace-out States: 20 of 22 traces completed (MN-1, ND-1; open) (CA-1, CO-1, IA-1, KS- 1, MN-1, MT-12, SD-1, NE-2; closed)

ID 2012	DSA required test	Bison	Quarantine with test & remove	Similar to ID elk isolates	No	349	All trace-ins closed. All trace-outs closed.
MT 2011	DSA herd management plan testing	Bison	Quarantine with test & remove	Exact match to a 2009 MT elk isolate	Yes	7510	All trace-ins closed. All trace-outs closed.
WY 2011	Pre-sale test on farm	Bison	Main herd remains under quarantine with test & remove.	Similar to 2007 & 2010 WY elk & 2010-2011 cattle isolates.	Yes	870	All trace-ins closed. All trace-outs closed.