

Bovine Tuberculosis and Brucellosis Surveillance Results
Monthly Reports, Federal Fiscal Year (FY) 2015
November 1–30, 2014

New Information – Bovine Tuberculosis (TB)

- A new case in a steer slaughtered in Texas was detected in November. Tissues were compatible for mycobacteriosis by histology and PCR was positive for *Mycobacterium tuberculosis* complex. Culture and genotyping are pending. The animal came from a lot of Mexican-origin cattle, but did not have official Mexican animal identification present at the time of slaughter.

Update of Previously Reported Information

- Whole-herd testing has been completed for a quarantined Texas dairy that was the source of two confirmed infected animals. The index case was found through slaughter surveillance. TB has been confirmed in a second cow sent to slaughter under permit directly from the dairy. Whole genome sequencing on both isolates indicates they are identical. The closest isolates in the NVSL database share an estimated 50-year-old common ancestor, and are from infected dairies in Texas (2004) and New Mexico (2007). Confirmation of infection in the herd by removing caudal fold tuberculin skin test (CFT) positive animals is pending, as these animals have not yet been removed from the herd for necropsy and laboratory testing. The Food Safety Inspection Service employee named on the laboratory submission form is eligible for both a TB case and affected herd award.
- Additional TB-infected animals have been found in a Michigan feedlot that is epidemiologically linked to the 2013 TB-affected dairy in Saginaw County, Michigan. Bovine TB had been detected in six Holstein steers from this feedlot during March through June 2014, and the feedlot has remained under quarantined since that time. A total of 24 of 70 (34 percent) finished Holstein steers slaughtered in September had lesions consistent with TB. Of these, 23 were compatible for mycobacteriosis by histology and all 24 were culture positive. The remaining exposed animals on the premises that had comingled with the infected animals were TB tested and 46 of 199 (23 percent) CFT responders were indemnified with federal funds and euthanized and necropsied at the Michigan Veterinary Diagnostic Laboratory. Of these, 34 animals were lesioned at necropsy, and 35 were found to be compatible by histology. Cultures are pending. The remaining 153 test-negative animals were sent to slaughter on a VS 1-27. Two animals were sampled but were not found to be mycobacteriosis compatible by histology.
- The quarantine was released in November on the TB-affected North Dakota dairy that was found to be infected in November 2013.

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

Laboratory Status	New TB Cases November 1-30, 2014		Cumulative TB Cases October 1 - November 30, 2014		
	Fed cattle	Adult cattle	Fed cattle	Adult cattle	Total
<i>M. bovis</i> cases, confirmed ^b	1	0	1	1	2
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 tuberculosis, federal fiscal year (FY) 2014, 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
ND ^b	2014	Herd test triggered by dairy worker diagnosed with TB	Dairy	Test and removal	2014 Human (0); 2012 MX ^c steer (9)	Ongoing	22	IA, MN, MT, NE, SD
TX ^d	2015	Slaughter	Dairy	Pending	2004 TX (15) and 2007 NM dairies (14)	Pending	Pending	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.

^bThree herds detected in previous fiscal years are included.

^cMX = Mexico

^dConfirmation of infection in the herd by removing caudal fold tuberculin skin test positive animals is pending, as these animals have not yet been removed from the herd for necropsy and laboratory testing.

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

FY 2014

Montana:

- Affected beef herd: On September 2, 2013, one reactor (7-month-old bull) was detected on a herd (560 head) Certified Brucellosis-Free herd recertification test in a beef herd in Park County. *Brucella abortus* biovar 1 was confirmed on October 11, 2013. This herd had been a Certified Brucellosis-Free herd since 2009. Designated surveillance area (DSA) and affected herd plans are in place. First post-reactor removal herd brucellosis test was conducted in November 2013, and all animals (556) were brucellosis negative. Four adjacent herds have tested brucellosis negative. There are 9 trace-outs covering 42 cattle in 6 States. The Montana trace-in epidemiological investigation is closed. The post-calving whole-herd test in late March was negative and the quarantine for the herd was lifted in late March. Seven of nine trace-out epidemiological investigations are completed. The fall assurance testing was completed in October; all cattle 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. Twelve of 22 trace-out epidemiological investigations, covering 467 cattle in 9 States, have been completed. Twelve of 22 trace-out epidemiological investigations are 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.

Updates: None

FY 2012

Idaho:

- Affected beef herd: A cattle herd (65 head) was traced from a slaughter blood sample collected in California. This herd was outside of the Idaho's DSA; the DSA has been expanded since detection of this herd. 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 herd had its second negative whole herd test on October 11, 2013. A post-calving whole herd brucellosis test of 86 head performed on April 28, 2014 was negative for all animals. Next herd test is fall 2014 followed by a post-calving herd test in spring 2015 which will include the heifers born in spring 2013. Herd will remain under quarantine until heifers born in 2013 have calved and tested negative at post-calving test, tentatively scheduled for spring 2015. All

2014 heifer calves were bled mid-October and all tested negative.

Updates: The balance of the herd will be bled early December. All retained 2013 heifers will be tested after calving in spring 2015.

- 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. This was the first negative whole-herd test.

Updates: Herd test completed on November 17 and 18, 2014; all 278 animals negative. This is the second negative complete whole herd test.

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.

Updates: Annual fall testing began October 20, 2014 and was completed November 21, 2014. As of October 31, 2014, ten brucellosis reactors have been identified from this testing.

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.

Updates: One yearling heifer in the replacement heifer group tested positive November 9, 2014. Breeding bulls will be bled spring 2015 coinciding with their breeding soundness examinations.

Table 3: Livestock herds confirmed brucellosis affected in FY 2014, 2013, 2012 and 2011

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 2014	Certified Brucellosis- Free Herd Recertification Test	Beef	Quarantine with test & remove	Clusters with other isolates recovered from area wildlife & livestock	Yes	43	One trace-in State: MT (closed) 6 trace-out States: 7 of 9 traces completed CA - 1 MN - 2 closed MT - 3 (2 closed) NE-1 closed SD-1 closed TX-1
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: 12 of 22 traces completed CA - 1 CO - 1 IA - 1 closed KS - 1 closed MN - 2 (1 closed) MT - 12 (6 closed) NE - 2 closed ND-1 SD - 1 closed
ID 2012	MCI trace	Beef	Quarantine with test & remove	Similar to 2006 & 2010 ID cattle isolates	Yes	48	One trace-in State: ID, 3 herds All trace-ins closed. 4 trace-out States: TX, UT, ID, & NM. All trace-outs closed.
ID 2012	DSA required test	Bison	Quarantine with test & remove	Similar to ID elk isolates	No	349	5 trace-in States: ND, SD, MT, OK, ID. All trace-ins closed. One trace-out State: ID (closed)
MT 2011	DSA herd management plan testing	Bison	Quarantine with test & remove	Exact match to a 2009 MT elk isolate	Yes	7510	3 trace-in States: NM, NE & MT All trace-ins closed. 5 trace-out States: MT, NE, WY, KS & ID All trace-outs closed.
WY 2011	Pre-sale test on farm	Bison	Main herd remains under quarantine with test & remove. Preferred herd released from quarantine.	Similar to 2007 & 2010 WY elk & 2010-2011 cattle isolates.	Yes	870	1 trace-in State: SD (closed) 4 trace-out States: MT, WY, CO & NV All trace-outs closed.