

Bovine Tuberculosis and Brucellosis Surveillance Results
Monthly Reports, Federal Fiscal Year (FY) 2016
June 1-30, 2016

New Information – Bovine Tuberculosis (TB)

- An *M. tuberculosis* complex PCR suspect, histocompatible slaughter case was detected in a steer from a feedlot in Texas. The DNA retrieved from the official identification provided with the sample did not match the DNA of the lesion.
- A new TB-infected herd was detected in Indiana as a result of the epidemiological investigation of six TB-infected steers identified by routine a Food Safety and Inspection Service inspection in May 2016. This herd has been depopulated.

Update of Previously Reported Information

- Trace-outs from the small Michigan menagerie herd (consisting of a few steers, goats, pigs, and chickens) located in the Modified Accredited (MA) zone have been completed. There were no out-of-State traces associated with this herd and only one source trace to a premises that tested negative. The herd was detected in May 2015 on an annual whole-herd test (WHT) and was depopulated in August 2015. This is the 62nd TB-infected herd found in Michigan since 1998.
- The State of Michigan paid indemnity to depopulate the adult animals from the Michigan beef herd located in the MA zone. One additional infected animal was found. The feeders remain on the test and remove protocol. The herd was detected in December on an annual WHT. This is the 63rd TB-infected herd found in Michigan since 1998.
- The infected Michigan beef herd located in the MAZ detected during an annual WHT is being managed under a test and removal herd plan. The first removal test found an additional animal with lesions. This is the 64th TB-infected herd found in Michigan since 1998.
- One new TB-infected herd was detected in a Michigan beef herd located in the MA zone through the epidemiological investigation performed on herd #64. This is the 65th TB-infected herd found in Michigan since 1998. Whole genome sequencing found the isolates from herds #64 and #65 were not closely related.
- Depopulation was completed on March 31, 2016, for the first Texas dairy quarantined in October 2014. The initial estimate within herd prevalence was 5.9 percent, with a herd size of over 10,000 cattle. Evidence of TB was found in 171 depopulated cattle over 6 months of age.
- The second Texas dairy, quarantined in October 2014, completed three whole-herd removal tests without evidence of TB. A total of three TB-infected cattle were associated with this herd on initial testing. A quarantine releasing test was completed in December and the dairy was released from quarantine on January 13, 2016. It will be retested on five yearly assurance tests.
- Two Texas organic dairies and the associated Texas feedlot and heifer raiser were quarantined on April 8, 2015. A total of 56 lesioned cattle have been removed from the dairy of approximately 11,000 cattle. In a WHT in March, 168 caudal-fold test positives were found and 134 continue awaiting slaughter and postmortem examination. The owner did not accept indemnity values presented, and steps to resolve perceived value disparity continue.
- A Holstein steer was found through routine slaughter in Arizona in January. The epidemiological investigation had mistakenly identified that the steer as originating from Arizona. It is now clear that the steer was fed in California. Lack of specific identification information on the steer has led to multiple potential consignors in California. Investigation of its origin continue.
- The beef steer found through routine slaughter in Texas was compatible for mycobacteriosis and was PCR and culture positive at National Veterinary Services Laboratories (NVSL). The isolate recovered from this steer groups closely with other Mexican isolate, sharing a common ancestor with dairy isolates recovered from cattle in Jalisco and Hidalgo.
- Six PCR and culture positive beef steers were detected at slaughter in Pennsylvania and traced back to a herd in Indiana. Three separate isolates were recovered from the steers that are closely related to the 2009 Indiana cervid herd.

Table 1. Bovine TB cases found through routine slaughter inspection, FY 2016.^a

Laboratory Status	New TB Cases June 1-30, 2016		Cumulative TB Cases October 1, 2015-June 30, 2016		
	Fed cattle	Adult cattle	Fed cattle	Adult cattle	Total
<i>M. bovis</i> cases, confirmed ^b	1	0	12	0	12
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 2016, 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	Permanent quarantine	MI	Ongoing	None	None
MI ^b	2008	Surveillance	Cervid	Permanent quarantine	MI	Ongoing	None	None
TX	2015	Slaughter	Dairy	Depopulation	2004 TX (16), 2007 NM dairies (15), 2011 AZ roping steer from CHI (25)	Small survey completed with no evidence of TB	None	None
TX	2015	Epidemiology	Dairy	Test and remove	Same as above	Not indicated	68	MI
TX	2015	Slaughter	Dairy ^c	Test and remove	1997 MX (8)	Small survey completed with no evidence of TB	4,150	AZ, CA, CO, MI, MO, MN, NM, IN, TX
MI	2015	Area Testing	Mixed	Depopulation	Common ancestor with MI free ranging deer (1 SNP)	Ongoing	1 source	None
MI	2016	Area Testing	Beef	State funded Depopulation of adults (*feeders will be fed to slaughter)	Similar to isolates from herd #54 (Alpena Dairy) and opossums on that premises.	Ongoing	2 source, 4 traceouts	None
MI	2016	Area Testing	Beef	Test and Remove	Common ancestor with MI free-ranging deer (3). Does not match any previously	Ongoing	Pending	Pending IL

					identified livestock WGS.			
MI	2016	Epidemiological Investigation	Beef	Test and Remove	Common ancestor with MI free-ranging deer (6). Same common ancestor with previous infection on this premises in 2003 (#27)	Ongoing	9 source, 2 traceouts	None
IN	2016	Slaughter	Beef	Depopulation	2009 Cervid (1)	Underway	2 traceouts	None

^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 hunt facility herds detected in previous fiscal years under permanent quarantine are included.

^cThis herd consists of two sister dairies and their associated common heifer raising/feedlot facility.

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

FY 2016

Wyoming

- Affected beef herd: Testing of a portion of a Park County (DSA) commercial cow-calf beef herd on October 28, 2015, revealed one reactor (an 4-year-old cow). The herd of 515 adults was placed under quarantine. Tissues from this cow cultured positive for *B. abortus* on November 19, 2015. Testing of the balance of the herd in early December revealed no non-negative animals. All the adjacent/contact herds have been identified and have begun to be tested. The cow originated from Montana (non-DSA) and was shipped to this ranch in November 2013. The herd has completed its second negative WHT. An epidemiologically separate management unit of this producer (NorthUnit) will have an assurance test in the spring or next fall. All traces have been completed with no other positive animals found.
Updates: Next whole herd test is scheduled for week of July 11-15

- Affected beef herd: On November 9-11, 2015, testing of a portion of a Sublette County (DSA) commercial cow-calf beef herd revealed five reactor cows. The herd of 717 cattle was placed under quarantine on November 17, 2015. Tissues from several of these reactors cows cultured positive for *B. abortus* as reported on December 9, 2015. Testing of the balance of the herd in early December revealed six more reactor animals. All seven adjacent/contact herds have been identified and have begun to be tested. All traces have been completed with no other positive animals found. The first negative whole herd test was completed in January 2016. The second whole herd test on March 14-15 revealed two more reactors. The whole herd test conducted May 21-22 revealed two more reactors.
Updates: Testing will resume in the fall after the herd returns from summer pasture

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 DSA herd plan in place, as a portion of the herd grazes within the DSA. Whole herd testing of 2,338 head was completed December 10, 2015, and 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 WHT completed and all animals were brucellosis test negative. Quarantine has been released. All non-DSA adjacent herds (27) have been identified and all tested negative. Assurance testing was completed in January 2016 with all animals testing negative. Traces are pending.

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 is in place. On October 31, 2014, the reactor's seropositive status was confirmed, and milk samples submitted to NVSL for culture on November 12th were found negative for *Brucella* spp. On December 4th, tissues from the reactor animal were collected and submitted to NVSL, which reported isolation of *B. abortus* biovar 1 on December 12, 2014. Whole-herd testing was completed December 18, 2014, 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. WHT was completed March 11, 2015, and all animals were negative. Quarantine was lifted March 16, 2015. Traces are pending. All Carbon County adjacent herds (4) have tested negative. Assurance test was completed in October 2015 and all animals tested negative. Traces are pending.

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 2014 was negative and the quarantine for the herd was lifted in late March 2014. The fall assurance testing was completed in October 2014; all cattle tested negative. Awaiting disposition of final two traces.

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 three suspects had been identified. Fall testing in 2015 concluded November 6th with a final count of two suspects and six reactors identified out of 3262 head tested. Next test will be fall 2016.

Updates: None

Table 3: Livestock herds confirmed as brucellosis affected, FY 2011-2016.

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
WY 2016	DSA Herd Plan Test	Beef	Quarantine with test & remove	Most closely related to non- feedground elk	Undetermined	Pending	Traces have been completed
WY 2016	DSA Herd Plan Test	Beef	Quarantine with test & remove	Most closely related to NER & Franz elk feedgrounds and 2004 Teton County beef herd isolates	Undetermined	Pending	Traces have been completed
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 (CA-1, MN-1; open)
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.