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Brucellosis (*B abortus*)
Q1 (Oct-Dec 2020) updates
## Brucellosis affected herds under quarantine in Q1 (Oct-Dec 2020)

<table>
<thead>
<tr>
<th>Herd, State, Year</th>
<th>Date Detected</th>
<th>Method of Detection</th>
<th>Herd Type</th>
<th>Herd Management Status</th>
<th>Next Test Tentative Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY 20-5</td>
<td>September 2020</td>
<td>Diagnostic Testing</td>
<td>Bison</td>
<td>Test-and-Remove</td>
<td>December 2020</td>
</tr>
<tr>
<td>ID 20-1</td>
<td>January 2020</td>
<td>DSA Surveillance</td>
<td>Elk/Beef</td>
<td>Test-and-Remove</td>
<td>December 2020</td>
</tr>
<tr>
<td>WY 20-4</td>
<td>January 2020</td>
<td>DSA Surveillance</td>
<td>Bison</td>
<td>Test-and-Remove</td>
<td>TBD</td>
</tr>
<tr>
<td>MT 20-1</td>
<td>December 2019</td>
<td>DSA Surveillance</td>
<td>Livestock</td>
<td>Test-and-Remove</td>
<td>Fall 2021</td>
</tr>
<tr>
<td>MT 11</td>
<td>November 2010</td>
<td>DSA Surveillance</td>
<td>Livestock</td>
<td>Test-and-Remove</td>
<td>October 2020</td>
</tr>
</tbody>
</table>

1. Herds are named with the last 2 digits of the fiscal year and in order of occurrence within a state.
2. Current Montana state statute prevents public disclosure of herd type.
Affected herds are mapped to the center of their county.
Q1 (Oct-Dec 2020) Brucellosis Updates

- **MT 20-1**
  - Completed a negative whole herd test in October.

- **MT 11**
  - Completed the majority of its annual testing in November and December 2020, revealing a reactor and some suspects.

- **ID 20-1**
  - Completed a whole herd test with 1 reactor bull and 1 suspect cow.

- **WY 20-5**
  - NVSL confirmed B. abortus in a reactor bull detected in the October whole herd test.
  - Completed a negative whole herd test in December.

- **WY 20-4**
  - Completed its 3rd and final whole herd test with all negative results. Anticipate quarantine release in January 2021.
The orange line represents our annual 350,000 surveillance sample target to detect disease with 95% confidence at a 0.001 percent or higher prevalence.

One plant stopped sampling due to COVID restrictions in December.
Tuberculosis (*M. bovis*)

Q1 (Oct-Dec 2020) updates
Affected herds are mapped to the center of their county.
<table>
<thead>
<tr>
<th>Location</th>
<th>Date Detected</th>
<th>Method of Detection</th>
<th>Herd Type</th>
<th>Herd Management Status</th>
<th>Next Test Tentative Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI 21-80</td>
<td>November 2020</td>
<td>Movement Test</td>
<td>Beef</td>
<td>Test-and-Remove Phase</td>
<td>February 2021</td>
</tr>
<tr>
<td>MI 20-79</td>
<td>July 2020</td>
<td>Area Surveillance</td>
<td>Dairy</td>
<td>Test-and-Remove Phase</td>
<td>January 2021</td>
</tr>
<tr>
<td>MI 20-77</td>
<td>January 2020</td>
<td>Area Surveillance</td>
<td>Beef</td>
<td>Test-and-Remove Phase</td>
<td>February 2021</td>
</tr>
<tr>
<td>MI 19-75</td>
<td>April 2019</td>
<td>Area Surveillance</td>
<td>Beef</td>
<td>Depopulated</td>
<td>NA</td>
</tr>
<tr>
<td>WI 18</td>
<td>October 2018</td>
<td>Slaughter Trace</td>
<td>Dairy</td>
<td>Test-and-Remove Phase</td>
<td>January 2021</td>
</tr>
</tbody>
</table>

1. Herds are named with the last 2 digits of the fiscal year and in order of occurrence within a state during that fiscal year, with Michigan’s numbers being cumulative across years.
Affected herds are mapped to the center of their county.
MI 21-80
- Identified from a single CCT reactor on movement testing in October that was PCR positive.
- Initial Assessment test in December yielded 1 animal for indemnity; removal and results pending.

MI 20-79
- Whole genome sequencing (WGS) from 1 animal identified in 1<sup>st</sup> removal test was related to a 2017 strain in elk from the same county.
- Completed a negative whole herd test in October.

MI 20-77
- Culture and WGS from the 3<sup>rd</sup> herd removal test are pending.
- NVSL cultured *M. bovis* in November from samples in cattle removed during the depopulation of the breeding herd.
- 4<sup>th</sup> removal test yielded 2 animals for indemnity; removal and results pending.

WI 18
- No histocompatible animals identified from the October removal test and cultures were negative.
<table>
<thead>
<tr>
<th>Location</th>
<th>Date Detected</th>
<th>Method of Detection</th>
<th>Herd Type</th>
<th>Herd Management Status</th>
<th>Next Test Tentative Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM 21-1</td>
<td>October 2020</td>
<td>Assurance Test</td>
<td>Dairy</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>TX 21-1</td>
<td>October 2020</td>
<td>Slaughter Trace</td>
<td>Exhibition</td>
<td>Hold order with testing</td>
<td>TBD</td>
</tr>
<tr>
<td>TX 20-2</td>
<td>September 2020</td>
<td>Slaughter Trace</td>
<td>Beef</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>TX 20-1</td>
<td>January 2020</td>
<td>Slaughter Trace</td>
<td>Dairy</td>
<td>Test-and-Remove - Assurance Phase</td>
<td>December 2021</td>
</tr>
<tr>
<td>NM 19</td>
<td>May 2019</td>
<td>Slaughter Trace</td>
<td>Dairy</td>
<td>Test-and-Remove Phase</td>
<td>February 2021</td>
</tr>
<tr>
<td>TX 19-2</td>
<td>February 2019</td>
<td>Epi Investigation</td>
<td>Calf Raiser</td>
<td>Quarantine removed in October</td>
<td>NA</td>
</tr>
<tr>
<td>TX 19-1</td>
<td>February 2019</td>
<td>Epi Investigation</td>
<td>Dairy</td>
<td>Test-and-Remove Phase</td>
<td>January 2021</td>
</tr>
<tr>
<td>TX 15</td>
<td>June 2015</td>
<td>Slaughter Trace</td>
<td>Dairy</td>
<td>Test-and-Remove - Assurance Phase</td>
<td>November 2021</td>
</tr>
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</table>

1. Herds are named with the last 2 digits of the fiscal year and in order of occurrence within a state during that fiscal year, with Michigan’s numbers being cumulative across years.
Affected herds are mapped to the center of their county.
Q1 (Oct-Dec 2020) TB Updates (TX, NM)

• **TX 21-1**
  • Identified in October through tracing activities from 2 positive slaughter granulomas. Herd of exhibition animals is under hold order and herd management plan for exposed animals is in development. Epidemiologic investigation is ongoing.
  • Follow-up test in December yielded two CFT responders; necropsies pending.

• **TX 20-1**
  • 2\textsuperscript{nd} herd test completed in October without any histocompatible lesions and cultures are pending. Testing of epidemiologically linked Oklahoma herd is complete with culture results pending.
  • Quarantines were released in December for this herd and an epidemiologically linked Oklahoma herd after follow up testing was completed without any evidence of TB.

• **TX 19-2**
  • No evidence of TB on final test of exposed animals; hold order removed in October.
Q1 (Oct-Dec 2020) TB Updates continued (TX, NM)

- **TX 19-1**
  - 1 histocompatible animal was identified during the 4th removal test in October; cultures pending.
  - Quarantine release for exposed animals in an epidemiologically linked Colorado herd is pending retest of one CCT suspect animal.

- **TX 15**
  - Quarantine was released in December after the verification test was completed without any evidence of TB.

- **NM 21-1**
  - First Assurance test revealed 1 TB-infected animal and the herd was quarantined in October.
  - WGS results in November revealed the current strain’s genotype differs from the previous outbreak strain. Herd management plan is pending.

- **NM 19**
  - Culture results are pending from the 5th removal test in October; one non-histocompatible animal was culture positive with WGS similar to the herd strain.
  - One animal from the 6th removal test completed in November had histocompatible lesions; additional results are pending.
No bovine TB cases found through routine slaughter from Oct – Dec 2020
Tuberculosis \((M. \textit{bovis})\)

Terms and Definitions
Designation of Herds as “Quarantined”

- Affected herds are considered “quarantined” due to a formal quarantine order of the entire herd or informal hold order for subgroups of exposed animals.
- Herds under quarantine due to tracing investigations are generally excluded from this report due to the temporary nature of their restrictions.
- Quarantined herds are removed from this report once the quarantine or hold order is removed, typically after verification testing.
Methods of Detection of TB-Affected Herds

• **Area surveillance**: Surveillance in a defined area such as counties in or bordering the modified accredited zone in Michigan.

• **Assurance test**: Herds identified during the assurance testing phase of a test and remove herd plan.

• **Epi investigation**: Herds identified as part of epidemiologic investigations associated with TB-affected animals or TB-affected herds.

• **Movement test**: Herds identified through testing of animals for routine movements, e.g., export and interstate commerce.

• **Slaughter trace**: Herds identified as the source of animals with suspicious lesions during routine slaughter surveillance. Also called “6-35 traces”
Definitions and Acronyms

• **6-35 Trace**: Tracing of the source of a suspected or confirmed case of TB that was identified during slaughter surveillance and reported on a VS 6-35 form; known otherwise as a “slaughter trace.”

• **M. bovis**: *Mycobacterium bovis*, known as bovine or zoonotic tuberculosis

• **NGL**: No gross lesions on postmortem examination

• **NVSL**: National Veterinary Services Laboratories

• **PCR**: Polymerase Chain Reaction; A molecular biology method of assessing for presence of segments of generic material, i.e., DNA and RNA

• **WGS**: Whole Genome Sequencing of TB bacterial DNA; used to assess relatedness among TB bacterial strains