2016 NATIONAL BOVINE TB ERADICATION PROGRAM UPDATE

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE
VETERINARY SERVICES
OCTOBER 18, 2016
United States Tuberculosis Zone Status
Cattle and Bison

TB Status as of August, 2016
- TB Free
- Modified Accredited

All States are Modified Accredited for Captive Cervids
National TB Prevalence/Incidence 2016

- 5 new affected herds / 913,000 total US cattle herds
  = .000005 or .0005% or 5 : 1 million herds

- This is great, right? ...or is it?
  ...where are these few new cases coming from?
Percentage of U.S. Cattle Responding to the Skin Test, 1917 - 2016

- TB testing begins nationwide
- U.S. declared Modified Accredited Free

- 4.9% in 1917
- 0.46% in 1989

~1% today (expected fraction of false positives)
Affected Cattle and Cervid Herds, FY 1987-2016
Affected Herds, By State, FY 1998-2016

1139 herds - 61% beef, 29% dairy, 1% mixed, 8% captive cervid
169 herds – 48% beef, 39% dairy, 3% mixed, 10% captive cervid

*TB detected in 2007 or later for the first time in many years
How do we find bTB-affected herds? (FY 2003 to 2016)

Case findings (102 Total)

1) High Risk Area on-farm testing in MI/MN
   - 41

2) Epidemiologic tracing
   - 28

3) Slaughter trace back
   - 27

4) Routine on-farm testing outside MI/MN
   - 6
Hurdles to US TB Eradication

Annual introduction from Mexican feeders & “ropers”

Pockets of wildlife infection

Undetermined sources of infection (New WGSs?, human transmission?)

Undocumented movement of Mexican origin “ropers” from state to state

Non-uniform detection at slaughter plants

Poor animal ID/Traceability at slaughter

Changes in cattle production: larger herds, heifer raisers, recipient suppliers

Decreased regulatory budgets (Indemnity changes?)
Hot Topic 1: TB Indemnity Process not working

**Problem:** Specifically, we had an owner dispute the valuation of his 100 dairy reactors for weeks which essentially stopped the ongoing testing and removal of affected animals off his premises. 10,000 cow dairies and $25 M CCC requests each year? This is unacceptable.

**Response:** Veterinary Services acknowledges that the indemnity process isn’t working as it should and is in need of modernization and streamlining across commodities.

- We are looking to ask our state and industry partners to assist us in drafting improvements to the process.
- No timeline to offer at this point.
Hot Topic 1: TB Indemnity Process not working

**Response:** Veterinary Services acknowledges that indemnity isn’t working and is in need of modernization and streamlining across commodities

- A VS cross-commodity group has already been created and already developed recommendations for the VS Executive team which have been well received
- We need state and industry input now to get all perspectives
- Would like to put these recommendations into the new rule if possible
- All options are on the table at this point
Hot Topic 1: TB Indemnity Process not working

**Response:** Veterinary Services acknowledges that indemnity isn’t working and is in need of modernization and streamlining across commodities

- Exploring how to correlate with biosecurity?
- How to simplify & streamline process? Haggling?
- Should VS pay more than once in endemic areas?
- Eliminate FMV appraisals and go to flat rates?
- Allow states and industry to contribute to overall indemnity without reducing federal amount?
## FY 2015 Affected Herds

<table>
<thead>
<tr>
<th>State</th>
<th>County</th>
<th>Herd Type</th>
<th>Size</th>
<th>Disclosed By</th>
<th>Herd Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Bailey</td>
<td>Dairy</td>
<td>8,000</td>
<td>Slaughter</td>
<td>Depopulation</td>
</tr>
<tr>
<td>TX</td>
<td>Bailey</td>
<td>Dairy</td>
<td>11,300</td>
<td>Slaughter</td>
<td>Test and remove</td>
</tr>
<tr>
<td>TX</td>
<td>Lamb</td>
<td>Dairy</td>
<td>9,500</td>
<td>Slaughter</td>
<td>Test and remove</td>
</tr>
<tr>
<td>MI</td>
<td>Alpena</td>
<td>Dairy</td>
<td>450</td>
<td>Annual test</td>
<td>Depopulation</td>
</tr>
<tr>
<td>MI</td>
<td>Alcona</td>
<td>Mixed</td>
<td>9</td>
<td>Annual rest</td>
<td>Depopulation</td>
</tr>
</tbody>
</table>
### FY 2016 Affected Herds

<table>
<thead>
<tr>
<th>State</th>
<th>County</th>
<th>Herd Type</th>
<th>Size</th>
<th>Disclosed By</th>
<th>Herd Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI</td>
<td>Alpena</td>
<td>Beef</td>
<td>81</td>
<td>Annual test</td>
<td>State Depop</td>
</tr>
<tr>
<td>MI</td>
<td>Oscoda</td>
<td>Beef</td>
<td>180</td>
<td>Annual test</td>
<td>Test &amp; remove</td>
</tr>
<tr>
<td>IN</td>
<td>Franklin</td>
<td>Beef</td>
<td>49</td>
<td>Slaughter</td>
<td>Depopulation</td>
</tr>
<tr>
<td>MI</td>
<td>Alcona</td>
<td>Beef</td>
<td>65</td>
<td>Trace/Epi</td>
<td>Test &amp; remove</td>
</tr>
<tr>
<td>MI</td>
<td>Alcona</td>
<td>Beef</td>
<td>215</td>
<td>Movement</td>
<td>Pending</td>
</tr>
</tbody>
</table>
How do we look for TB at slaughter?

- **Total US cattle & calves (NASS 2016)**
  - 92 million head (up 3% from 2015)

- **Total US adult cattle and cattle herds**
  - 40 million adults and 913,000 herds (2012 NASS)

- **US Adult cull cattle**
  - Annual kill about 5-7 million head (3 M dairy cows & 2.5 M beef 2015)

- **US Fed cattle**
  - Total slaughter cattle = 29 million head (down 5% from 2014)
    - We slaughter roughly 23 million head annually
2016 US Cattle Demographics

Total US Cattle Herds 2016 (913,000 total herds)

Dairy herds = 4.8%
Beef herds = 95.2%
2016 US Cattle Demographics

Total US Cattle 2016
(92 million head)

- Adults: 40
- Heifers & Calves: 52

Adults
Heifers & Calves

11/9/2016
2016 US Cattle Demographics

Total US Adult Cattle 2016
(40 million head)

- Dairy cattle = 23%
- Beef cattle = 77%

Dairy Cattle: 9.3 million
Beef Cattle: 30.7 million
2016 US Cattle Demographics

Total US Adult Cattle 2016
(40 million head)

- Dairy Cattle: 28.2 million
- Beef Cattle: 2.5 million
- Beef Culls: 3 million
- Dairy Culls: 6.3 million

Annual Adult culls = ~5-7 million head
Annual Adult Dairy culls = ~3 million
Annual Adult Beef culls = ~2.5 million
Dairy cow cull rate = 32%
Beef cow cull rate = 8%
Total Adult cull rate = 15%

This is what we inspect every year in our Top 40 adult kill plants. These are legacy members of our national herd that we hope reflect disease status of our herds. ~15% cull rate.

1443 total cases including 53 in adult cattle; 394 cases in fed cattle including 300 cases (76%) in Mexican origin fed cattle
FY 2016 Slaughter Surveillance Cases

14 Histocompatible cases

10 Confirmed *M. bovis* cases

4 Not *M. bovis*

9 Fed cattle cases

1 Adult cattle case

1 CANADA

5 MX (NL, NAY, COA, 2 UNK)

1 IN (6 steers, new affected herd)

2 TX, 1 AZ/CA but no new affected herds
FY 2016 Slaughter Surveillance Cases
(ID/Lesion Correlation)

14
Histo-compatible cases

10
Confirmed *M. bovis* cases

1
Adult cattle case
- 1 ID/Lesion match

9
Fed cattle cases
- 1 ID/Lesion match, 2 no ID, 3 no match, 2 pending, 1 no tissue

4
Not *M. bovis* cases
Historical Slaughter ID/Lesion Correlation

<table>
<thead>
<tr>
<th>Year</th>
<th>Histo Comp Cases</th>
<th>No Match (wrong ID)</th>
<th>No Tissue</th>
<th>No ID</th>
<th>PCR (Neg) not M. bovis</th>
<th>Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016*</td>
<td>14</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2 (20%)</td>
</tr>
<tr>
<td>2015</td>
<td>12</td>
<td>0</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>2 (17%)</td>
</tr>
<tr>
<td>2014</td>
<td>16</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>5</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>2013</td>
<td>29</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>12 (41%)</td>
</tr>
<tr>
<td>2012</td>
<td>16</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3 (18%)</td>
</tr>
<tr>
<td>Totals</td>
<td>87</td>
<td>6 (7%)</td>
<td>21 (24%)</td>
<td>11 (13%)</td>
<td>19 (22%)</td>
<td>23 (26%)</td>
</tr>
</tbody>
</table>

*Two cases still pending ID/lesion matching
Topic 2: ID/Lesion correlation at slaughter

**Problem:** The rate of correct correlation between animal ID devices and corresponding histocompatible lesions is unacceptably low and needs to be addressed.

- For 50 years, VS collected blood and animal ID from 95% of adult cull cattle every year. This allowed for reconciliation of ID/lesion correlation problems.

- Now only about 28% of adult kills are blood sampled and ID’s collected in just 9 Top 40 plants. In addition, plants now throw ID away at the end of the day or the next day, making ID correlation mistakes very hard to reconcile.

- Each plant uses a different ID/lesion correlation system.
Response: Veterinary Services acknowledges that ID/lesion correlation is an ongoing problem and we are taking proactive steps to address the issue.

- FSIS should provide training & reemphasize importance of ID correlation to all plant/FSIS employees
- Have AIC’s survey all Top 40 adult kill plants and summarize best ID correlation practices and provide recommendations. Get ID and Tissue!!
- Recommend plants put gang-tag in ID bag at the time of ID removal or blood stick?
- Keep ID longer at plant or take pictures of ID string
TB Granuloma Submissions and Submission Rate, FY 2000 – August 31, 2016

Rate of submissions per 2,000 adult cattle slaughtered

Fiscal Year


Submissions

Rate


0 0.5 1 1.5 2 2.5 3 3.5 4

Rate of submissions per 2,000 adult cattle slaughtered

Submissions

0 2,000 4,000 6,000 8,000 10,000 12,000 14,000


0 1 2 3 4

Rate of submissions per 2,000 adult cattle slaughtered

Submissions

0 2,000 4,000 6,000 8,000 10,000 12,000 14,000
Granuloma Lesion Submission in “Top 40” Adult Cattle Slaughter Plants, FY 2016

- ≥1 lesion/2,000 adult cattle slaughtered (33)
- <1 lesion/2,000 adult cattle slaughtered (7)

TB Status as of August, 2016
- TB Free
- Modified Accredited

All States are Modified Accredited for Captive Cervids
Topic 3: Reduction in granuloma submissions

Problem: The numbers and rate of granuloma submissions from Top 40 plants has gone down dramatically over the last few years. VS wanted to document reasons for this decrease in submissions

- See 2016 Granuloma graph
Topic 3: Reduction in granuloma submissions

**Response:** TB granuloma submissions have dropped by almost 50% from several years ago but still easily meeting our minimum submission rate (1:2000). VS active investigated the possible reasons for this reduction by talking to VS, FSIS and plant employees

- HPAI hit in 2014 causing less AIC contact with plants
- FSIS may not be emphasizing this as much and instead emphasizing FDA residue related activities
- Large turnover of inspection employees
- FSIS employees were discouraged by delayed payment of VS award money in 2013. Eventually paid
Topic 3: Reduction in granuloma submissions

Response: TB granuloma submissions have dropped by almost 50% from several years ago but still easily meeting our minimum submission rate (1:2000). VS investigated the possible reasons for this reduction by talking to VS, FSIS and plant employees

- VS pays $50k in awards to individual inspectors and $150k for plant frequent submitter awards. Should we stop?
LIVE ANIMAL TESTING

Skin testing, cattle and bison
Gamma interferon testing
Cervid skin and serology testing
Caudal Fold Testing (CFT) in Cattle and Bison, FY 2006-2016

FY 2016 partial year through August 31, 2016; 46 States and one Territory reporting, n=644,399 CFT tests administered.
Source: Veterinary Services District Offices and SCS database
Caudal Fold Test Response Fraction by State, Cattle and Bison, FY 2016

n=644,399 CFT tests administered during October 1, 2016 – August 31, 2016. Missing state data = GA, NY, WI, VI  
Source: Veterinary Services District Offices and SCS database.
Topic 4: CFT Summary Response rates

**Problem:** National CFT response rate is too general and needs to be stratified by type of veterinarian and reason for test to make the results meaningful?

**Response:** Veterinary Services agrees that summary statistics of CFT response rates may not be the best way to report this important quality control standard.

- What specifically do people want to see?
- Report by private vs. state/fed vet, or by reason for test, or % tests by underperformers?
- Do we have the data to break it out further?
- USAHA may not be the forum for more detailed reporting?
Recent historical problems with Bovigam test and how VS plans to move forward
Bovine Interferon Gamma Tests, FY 2006-2016

Approved as supplemental test – either CCT or interferon gamma

Commercial test kit (Bovigam™) by ThermoFischer

Single tube of blood taken at CFT reading

Seven approved state labs: CA, CO, MI, NV, PA, TX, WA, and NVSL

Approved for use in cattle only

1FY 2016 thru 8/31/2016. Source: CA, CO, MI, NV, TX, WA and NVSL; does not include tests performed in PA.
Bovigam® Use in the US

- Approved in 2003 as supplemental test
- Primarily used as a substitute for the Comparative Cervical Test (CCT) in retesting caudal-fold test suspect cattle
- Sensitivity issue discovered in 2015 when testing a large, relatively high prevalence dairy.
  - Low potency in certain lots of CSL PPD packaged with Bovigam® kits.
- In August 2015, implemented replacement of US Bovigam® approved kit using CSL PPD with ROW ELISA and use of Lelystad PPD for US Bovigam® approved laboratories
Findings after 1 year of Lelystad PPD in Bovigam®

- High numbers of positive tests unrelated to bovine TB infection
- Decrease in use of Bovigam® arising from high number of positive tests
- Inconsistent results noted when used experimentally and in a known TB-infected dairy
- High OD readings of some tests required additional retesting for results
Positivity rate of Lelystad PPD in Bovigam®

- Using Lelystad PPD resulted in a four-fold increase in positive test results in uninfected cattle (decreased specificity), compared to tests performed using the former CSL Bovigam® kit
  - A total of 3.9% of cattle tested positive using the former CSL Bovigam® kit, compared to 16.7% using Lelystad PPD

- Bovine TB was not confirmed in any Bovigam® test positive animals.

<table>
<thead>
<tr>
<th>M. bovis PPD lot number and type</th>
<th>Negative</th>
<th>Positive</th>
<th>Total Tested</th>
<th>Percent Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>134520 (Lelystad)</td>
<td>428</td>
<td>78</td>
<td>506</td>
<td>15.4%</td>
</tr>
<tr>
<td>134520BG (Lelystad)</td>
<td>766</td>
<td>174</td>
<td>940</td>
<td>18.5%</td>
</tr>
<tr>
<td>143802BG (Lelystad)</td>
<td>2,984</td>
<td>586</td>
<td>3,570</td>
<td>16.4%</td>
</tr>
<tr>
<td>Lelystad, 3 lots combined</td>
<td>4,178</td>
<td>838</td>
<td>5016</td>
<td>16.7%</td>
</tr>
<tr>
<td>6330300101 (CSL)</td>
<td>4,227</td>
<td>170</td>
<td>4,397</td>
<td>3.9%</td>
</tr>
</tbody>
</table>
Bovigam® head to head comparison on cattle from Texas infected dairy (April 2016)

<table>
<thead>
<tr>
<th>NVSL, good sensitivity</th>
<th>Bovigam® at 0.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pos</td>
<td>40</td>
</tr>
<tr>
<td>Neg</td>
<td>2</td>
</tr>
<tr>
<td>Comp-</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Pos</td>
<td>31</td>
</tr>
<tr>
<td>Neg</td>
<td>157</td>
</tr>
<tr>
<td>Comp-</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>95%</td>
</tr>
<tr>
<td>Specificity</td>
<td>84%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>86%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2nd Lab, lower sensitivity</th>
<th>Bovigam® at 0.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pos</td>
<td>21</td>
</tr>
<tr>
<td>Neg</td>
<td>22</td>
</tr>
<tr>
<td>Comp-</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Pos</td>
<td>37</td>
</tr>
<tr>
<td>Neg</td>
<td>149</td>
</tr>
<tr>
<td>Comp-</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Se</td>
<td>49%</td>
</tr>
<tr>
<td>Sp</td>
<td>80%</td>
</tr>
<tr>
<td>Accuracy</td>
<td>74%</td>
</tr>
</tbody>
</table>

Receiver Operating Characteristic (ROC) curves of Bovigam test at 2 different laboratories on 230 cattle (43 compatible cases) from TX infected dairy.
Interferon gamma tests completed by month, FY 2015 and 2016

7,315 tests in FY 2015 and 5,331 in FY 2016 through 8/31/2016
VS Cattle Health/NVSL initiative to improve utilization and accuracy of Bovigam®

- Address stimulation portion of Bovigam® by substituting NVSL PPD for Lelystad PPD (September 1, 2016)
- Harmonize differences in testing protocol among approved laboratories
  - Panel of stimulated plasma samples sent to approved labs performing the Bovigam ROW ELISA using the standardized testing protocol
- Continued monitoring of test results
Next steps

• Conference calls and face to face meetings have occurred with ThermoFisher

• VS has requested that the company:
  • Make available consistent Lelystad PPD lots for US approved labs
  • Improve Bovigam® test specificity

• VS will reevaluate use of Lelystad PPDs in Bovigam® for TB program
CERVID TB TESTING 2016

Summary of Cervid TB testing
Serological TB testing of cervids was implemented in February 2013.

Testing is done using the DPP VetTB Assay:

- Approved species are elk, red deer, white-tailed deer, fallow deer, and reindeer
- All testing is performed at NVSL
Serological TB testing of cervids was implemented in February 2013

Testing is done using the DPP VetTB Assay

- Approved species are elk, red deer, white-tailed deer, fallow deer, and reindeer
- All testing is performed at NVSL
- DPP cut off for reindeer was raised to 500 from 200 in FY16
- This reduces #FPs and increases specificity
Cervid Serological TB Testing

- 10,750 cervids have been tested in FY 2016
- 5 animals with positive DPP test results have been necropsied in FY 2016
- In 4 necropsied animals, further laboratory tests and cultures for *M. bovis* have been negative
- The necropsy for the 5th animal showed no significant findings however the mycobacterial culture is pending
Cervid Serologic TB Testing, FY 2016
Testing With DPP as Primary and Secondary Test

<table>
<thead>
<tr>
<th>Species</th>
<th>No. DPP Tests for each species</th>
<th>No. (%) 1st DPP Positive</th>
<th>No.(%) 2nd DPP Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elk</td>
<td>1897</td>
<td>4 (.21%)</td>
<td>2 (.11%)</td>
</tr>
<tr>
<td>Red deer</td>
<td>81</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>White-tailed deer</td>
<td>8168</td>
<td>13 (.16%)</td>
<td>3 (.04%)</td>
</tr>
<tr>
<td>Fallow deer</td>
<td>456</td>
<td>2 (.44%)</td>
<td>0</td>
</tr>
<tr>
<td>Reindeer</td>
<td>148</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>10,750</strong></td>
<td><strong>.177%</strong></td>
<td><strong>.05%</strong></td>
</tr>
</tbody>
</table>

Note: All DPP results based on OD reader cut off points previously established. No DPP positive animals necropsied have cultured positive for *M. bovis.*
Cervid Serologic TB Testing, FY 2016
Testing With DPP as Primary and Secondary Test

<table>
<thead>
<tr>
<th>Species</th>
<th>No. of necropsies completed</th>
<th>No. of cultures with no growth completed</th>
<th>No. of cultures pending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elk</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Red deer</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>White-tailed deer</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Fallow deer</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reindeer</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>5</strong></td>
<td><strong>4</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>
The specificity of the first DPP test was 99.6%

The specificity with the second DPP test was 99.86%

No *M. bovis* was cultured from the 34 animals necropsied in 2015
TB Serum Bank

A repository of well-characterized serum samples for evaluation of developmental serological tests at the NVSL.

Samples collected in collaboration with Mexico, United Kingdom, and Canada

Includes

- 2792 serum samples from cattle (444 are from infected animals)
- 3584 samples from cervids (92 are from infected animals)

Samples are welcome, especially from TB test positive animals going to necropsy
Other Activities

TB slaughter surveillance awards were provided in FY 2016

- 28 granuloma submission awards including one affected herd award of $6,000.
- 4 special awards for assistance processing cattle from TB affected herds
- Frequent submitter team awards

Developing a bovine qualified accredited veterinarian (QAV) standard
2016 Collaborations with Mexico

Regular meetings of APHIS/VS and SAGARPA/SENASICA

In FY 2016, APHIS and SENASICA conducted 6 pre-certification reviews to the following:

• The Baja’s Region (Baja California & Baja California Sur)

• Tierra Caliente Region (Guerrero, Michoacan, State of Mexico),

• The Nayarit MA zone,

• The Huasteca Region (Veracruz, Hidalgo, San Luis Potosi, Puebla),

• The Centro-Occidente Region (Zacatecas, Aguascalientes, Jalisco, and San Luis Potosi),

• The Guanajuato AP zone.

Map courtesy of SAGARPA
2016 Collaborations with Mexico

In addition, APHIS conducted Tuberculosis reviews to the following:

- Chihuahua status zone for an upgrade from AP to MA status
- Nuevo Leon status zone for an official downgrade from MA to AP status
- Sinaloa status zone to keep AP status
- Durango status zone for an upgrade from AP to MA status (pending)
Topic 5: Status of TB/Brucellosis Rule

**Problem:** VS published the Combined TB/Brucellosis rule in December 2015. Since then, VS has received 135 pages of public comments regarding the proposed rule. VS takes these comments very seriously and wishes to address and respond to them in an official manner.

**Response:** VS has formed a working group that has already met to respond to the main concerns regarding the proposed rule.
**Topic 5: Status of TB/Brucellosis Rule**

**Response:** VS has formed a working group that has already met to respond to the main concerns regarding the proposed rule.

- **Examples of comments/concerns:**
  - VS should convene a state/industry meeting to discuss
  - Why combine the two disease rules? Keep them separate.
  - Animal Health Plans (AHPs) should not be public
  - States like prevalence based statuses
  - Trading partners might not like the new “consistent” status
  - New rule is not an eradication program anymore
  - Consistent status may violate OIE regulations
Topic 5: Status of TB/Brucellosis Rule

Response: VS has formed a working group that has already met to respond to the main concerns regarding the proposed rule.

- VS working group will also be meeting in October to address all of the public comments regarding the rule
- No timeline to offer at this point
- VS would like to move forward with a modified combined rule if possible
Questions?
Name of Speaker
Title
U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Veterinary Services
Phone number
Email address
M. Bovis isolate sequencing

WHOLE GENOME SEQUENCING
Causes of Reducing Granuloma Submissions?

- Still easily meeting our minimum submission rate (1:2000)
- FSIS 2015 Directive 6240.1 (No neoplasias/fungal granulomas)
- FSIS says that there are more duties at slaughter now than before with residue issues
- VS delayed award payments to FSIS inspectors one year which did not go unnoticed. Was eventually paid retrospectively
- Large variation in adults killed per year... can vary as much as 40%
- Large turnover of employees
- May have dropped on FSIS priority list but we can help prevent that
Using Whole Genome Sequencing (WGS) to understand *M. bovis* transmission in the U.S.

WGS performed on all *M. bovis* isolates from new cases
- Compared to > 1,500+ sequenced isolates
- Results provided to VS Field office and states to assist investigations

Archivedisolates and *M. bovis* isolates from other countries are being sequenced to enhance database for comparison

Project underway to evaluate 220 isolates representing domestic breeding herds
- Determine most closely related isolate for each herd
- Analysis to be completed in FY 2016
USAHA RESOLUTION 29 FROM 2013

Animal Identification Data
From TB Slaughter Surveillance Submissions
Animal Identification Submitted for TB Slaughter Surveillance

USAHA Resolution 29 from 2013
- Improve animal identification device collection and recording
- Report findings to USAHA

Accomplishments
- IT and SOP developed at NVSL
  - Created new database fields
  - Official ID defined as any with official shield
  - Personnel trained

Timeline
- Data entry began late April 2014
- Through September 30, 2015
Animal Identification Submitted for TB Slaughter Surveillance – Results

Time period: April 2014 – September 30, 2015

7,578 submissions

Type of ID collected
- Any official ID: 3,985 / 7,578 = 52.6%
- Unofficial ID only: 1,874 / 7,578 = 24.7%
- No ID: 1,719 / 7,578 = 22.7%

Approved as supplemental test – either CCT or interferon gamma

Commercial test kit (Bovigam™) by Prionics®

Single tube of blood taken at CFT reading

Seven approved state labs: CA, CO, MI, NV, PA, TX, WA, and NVSL

Approved for use in cattle only

Annual interferon gamma tests, FY 2006-2015

1 Provisional data for FY 2015, with incomplete data for some laboratories. Source: State laboratories and NVSL
Cattle tested by Bovigam, state of origin, FY 2015

7,786 tests including animals tested more than once.

5,765 tests in animals tested for routine purposes
- 5.7% positive (328)

2,201 tests in TB confirmed affected herds
- 18.4% positive (372)
- Includes repeat tests and testing using the defective kit lot

Number of tests

1 States with < 20 tests not shown: AR, FL, ID, KY, MN, NV, OR, PA, SD, WY;
Number of tests incomplete for some laboratories
Recent TB Case Detected at Slaughter in TX
Identification Devices Properly Collected But Do Not Match the Correct Carcass

DNA analysis indicates tissue left on tags does NOT match the tissue submitted with the sample.