BRUCELLOSIS SLAUGHTER SURVEILLANCE REDUCTION DISCUSSION

USAHA
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Brucellosis Affected Cattle/Bison Herds, FY 1997-2018*

*New affected herds as of 2/1/2018
Brucellosis Affected Cattle/Bison Herds by State, FY 1997-2018*

*New affected herds as of 2/1/2018
**Current: Disease Freedom**
- 2012 First slaughter Surveillance Reduction
- 9 Representative Cattle plants, 2 Bison
- 11 million cattle sampled since reduction
- No cases outside GYA

**Historic: Eradication**
- 95% of all cull cows sampled (5-7 M head annually) at Top 40 plants
- Millions of cows sampled since the 1980’s
- 2009 All States Declared Free

**Concentrated slaughter surveillance over time**
every year 91% of the samples collected & tested have low surveillance value (non-GYA cows)

Source: Annual reported slaughter sampling by plant, FY2017; APHIS-VS
2018 Proposed Reduction:
Discontinue sampling at:
Nebraska
Texas
Pennsylvania
Wisconsin

Maintain sampling at:
Idaho
California
Utah

Save $1 million cost while maintaining OIE surveillance benchmarks

Source: Annual reported slaughter sampling by plant, FY2017; APHIS-VS
### Brucellosis Surveillance Facts

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Slaughter Samples Tested Annually</th>
<th>Percentage of Those Samples from the GYA</th>
<th>Amount Spent per GYA-Cow in Cooperative Agreement Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1.7 mil</td>
<td>8.5%</td>
<td>$1.15 mil</td>
</tr>
</tbody>
</table>

- **2009**: Year all 50 states declared free.
- **1.7 mil**: Number of slaughter samples tested annually.
- **8.5%**: Percentage of those samples from the GYA.
- **$1.15 mil**: Approximate VS cost to collect & test samples annually.

<table>
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<tr>
<th>Number of Herds Detected Outside of DSA in Last 7+ Years</th>
<th>Affected U.S. Herd Incidence on an Annual Basis</th>
<th>Amount Per Sample to Collect &amp; Test Outside GYA</th>
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<td>0</td>
<td>.00002%</td>
<td>$0.79</td>
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- **0**: Number of herds detected outside of DSA in last 7+ years.
- **.00002%**: Affected U.S. herd incidence on an annual basis.
- **$0.46**: Amount spent per GYA-cow in cooperative agreement dollars.
- **$0.79**: Amount per sample to collect & test outside GYA.
So what are your fears/concerns after this reduction in national slaughter surveillance?

Discuss –
• How will we detect it?
• Undetected spread?
• Cost and disruption of trace investigations?
• Producer backlash if it gets out?
• Cost of another state/national eradication?

But –
• National prevalence is near zero % outside GYA
• Disease can show clinical signs
• We have a good diagnostic test
• Can only spread during certain times of production cycle
After proposed slaughter reductions, how worried are you about Brucellosis in your state?

- Impose FPT in your state?
- Impose “area testing” at MX border or state borders?
- Impose mandatory pre-import testing?
- Impose mandatory “state funded” blood sampling at all custom and inspected slaughter plants in your state?
- Impose statewide change of ownership testing?
- Impose pre-slaughter testing before movement off the farm?
- Impose state-funded BRT testing?
- Impose statewide brucellosis vaccination?
- Impose mandatory reporting and abortion screening of all abortion events?
So what do we do now?

Two key advantages we still have are:

- Herd clinical signs – abortions/stillbirths/poor reproduction
- Good, cheap, available diagnostic tests
- We need to maximize these advantages at the state level
- Support from USDA cooperative agreements?

At the state level:

Without national slaughter surveillance, detection will depend on

- Producer and veterinary education and awareness of disease
- State veterinary infrastructure/policy to test all reported abortion events
USDA feels confident about disease freedom from brucellosis on a national level:

- Last states to find a case outside of GYA were TX (2011) and LA (2010)
- 7 years of surveillance (1.8 M cattle tested each year) without a single escape or detection outside of GYA.
- Since first slaughter reduction > 11 M cull cows tested nationwide with no cases!
- Only two sources of B. abortus infection remaining in the US are 1) GYA and 2) Mexican border
- Very unlikely that undetected B. abortus exists today outside of GYA: 1) dramatic herd clinical signs and transmissibility of the disease in naïve cattle and 2) passage of time since last US case 3) robust national slaughter surveillance to date.
- But what if it gets out?
But what if brucellosis escapes the GYA?

- Moves undetected out of GYA via summer grazing pastures
- Missed at ‘change of ownership’ testing out of DSA
- Missed at pre-movement testing out of the DSA
- Missed at commuter herd movement out of DSA
- Intentional bypass of state laws (illegal movement)
- Latent heifer syndrome
- Missed by moving 12-18 mo. Heifers without a test
- Physical migration of wildlife or cattle out of DSA?
How will a new brucellosis case get detected outside of the GYA after surveillance reduction?

I think it will depend on the 1) type of herd and 2) management quality:

- Herds that pay attention to reproduction status may detect it sooner
- Herds with higher quality management and veterinary support may detect cases sooner
- Dairy herds should detect it fairly quickly due to herd clinical signs
- Purebred breeders and cow-calf operations should detect it fairly quickly
Based on cattle demographics, brucellosis is most likely to show up in a beef herd!

... But not all beef herds are the same...

Beef herds can vary based on quality of management and veterinary support.
Brucellosis detection by herd type

So how will a herd get detected?
How will a new brucellosis case get detected?

1. Beef herds – 95% of all US herds
   - Clinical signs: increased open cows, increased abortions, stillbirths, weak calves result in a herd test. Better the management, sooner detected.
   - Testing:
     - Passive pre-movement testing for shows or sales or crossing state lines.
     - Herd Certification test or local FPT regulations might detect it.
     - Pre-purchase test
     - Human diagnostic testing
   - Time: Might take ~4-6 months to a year until late-gestation dams start to abort or found to be open. The sooner clinical signs seen, assume sooner detected.
   - Consequence: Spread and infection based on time to detection. Purebred breeders and show herds with lots of sales and movements could spread the disease but may detect it sooner. Herds in high density cattle areas could increase consequence of outbreak.
   - Bottom line: Most likely herd type infected based on demographics. Wide variation in management quality and spread. States must have a robust abortion screening infrastructure and producer/veterinary education program.

Source: Ahola Land & Cattle Co.
How will a new brucellosis case get detected?

2. Dairy herds – 5% of all US herds.
   - **Clinical signs:** increased number of open cows, increased abortions, stillbirths, weak calves, decreased milk production result in a herd test. Importance of reproduction should lead to quicker detection.
   - **Testing:** State funded BRT testing?
     - State Pasteurized Milk Ordinance (PMO) testing?
     - State raw milk surveillance testing?
     - Passive pre-movement testing for shows or sales or crossing state lines.
     - Herd Certification test or local FPT regulations might detect it.
     - Human diagnostic testing
   - **Time:** Might take ~3 months to a year until late gestation dams start to abort or found to be open. State funded quarterly BRT might pick it up sooner.
   - **Consequence:** Test and remove (indemnity) costs, adjacent herd and trace herd testing/indemnity costs. Easy clean up with BRT. Raw milk public health spread. Purebred breeders and show herds with lots of sales and movements could spread the disease. Rapid within herd spread due to close confinement. Herds in high density cattle areas could increase consequence of outbreak.
How will a new brucellosis case get detected?

2. Feedlot –
   • **Clinical signs:** May be no/few clinical signs due to low likelihood of pregnancy and limited time on premises. Most premises may be terminal which is good
   • **Testing:** Limited testing
   • **Time:** Unclear how it might be detected
   • **Consequence:** Tremendous variation in commingling depending upon size of feedlot. Terminal nature of feedlots may diminish risk but associated operations could be at risk.
   • **Bottom line:** Probably lower risk than beef or dairy herds... but it depends.
How will a new brucellosis case get detected?

2. Backgrounding/Heifer raiser –
   - **Clinical signs:** Few clinical signs in these young animals. Heifer syndrome could pose a risk for these herds.
   - **Testing:** Pre-movement testing or interstate movement. Undetectable if latent heifer syndrome
   - **Time:** Unclear how it might be detected since not a typical place for late-term heifers. Possible detection on pre-movement exit test to new herd.
   - **Consequence:** High risk due to commingling and then movement to multiple herds. Could spread animals across state lines or to multiple instate herds.
   - **Bottom line:** It depends... could be disastrous... depends if heifer aborts on property. Trace investigations could be a nightmare. Probably lower risk than beef or dairy herds due to young animals... but could be disastrous if infected with latent heifer calves.
How will a new brucellosis case get detected?

2. **Hobby farms –**
   - **Clinical signs:** Few clinical signs if no breeding or breeding season or lack of attention to reproduction.
   - **Testing:** Pre-movement testing or interstate movement. Undetectable if latent heifer syndrome
   - **Time:** Unclear how it might be detected since no clear reproductive standards may exist. Possible detection on pre-movement test to new herd.
   - **Consequence:** Variable risk due to adjacent exposure and length of time on farm. No demand to raise a calf. Primary concern is length of time without detection and exposure to neighbors or sales to markets/neighbors.
   - **Bottom line:** Length of time to detection might pose a serious risk to surrounding herds... so could be disastrous if infected animals are sold or in a high density area.
Some CHC recommendations for future brucellosis surveillance

• NVSL could provide free culture to any state submitting abortion/stillbirth related samples?
• Local diagnostic labs should request a blood sample from the dam of any aborted/stillbirth sample that is being investigated?
• Diagnostic testing could be funded by cooperative agreements?
• Provide training for private and accredited veterinarians on reduction in national slaughter surveillance...
• ... and importance of testing any herd with suspicious clinical signs.
• Maintain test requirements for shows and sales where cattle commingle?
• State funded BRTs to monitor dairies?
Questions?

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Brucellosis escape to a Beef herd

So how will this herd get detected?

- Exposure to adjacent farms
- Movement to other farms
- Exposure of people
- Within herd spread and clinical signs
  - Abortions
  - Stillbirths
  - Open cows

No brucellosis slaughter surveillance
Brucellosis escape to dairy herd

GYA affected Herd

Movement out of State

Dairy Herd

State funded BRT

Sent to slaughter/necropsy

No brucellosis slaughter surveillance

Exposure to adjacent farms

Movement to other farms

Exposure of people

Within herd spread and clinical signs

- Abortions
- Stillbirths
- Open cows
- Poor milk production

So how will this herd get detected?