



United States Department of Agriculture



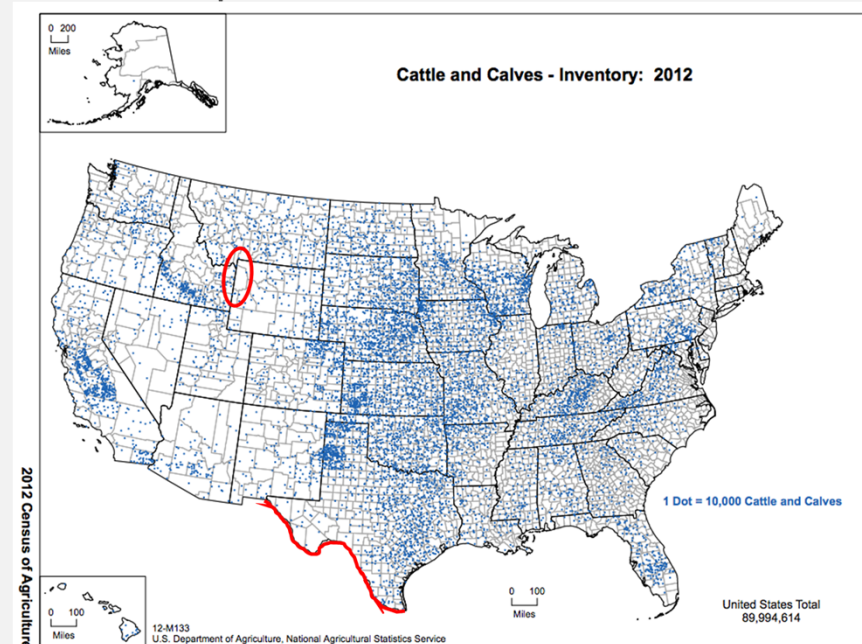
NATIONAL BRUCELLOSIS SURVEILLANCE UPDATE

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OCTOBER 2018

Where is brucellosis found in the US?

In the United States:

- Brucellosis is now a geographic disease
- Almost exclusively in the GYA area...and perhaps at TX/MX border.
- GYA regs emphasize herd plans & movement prevention out of DSAs
- Annual herd incidence/prevalence in the US = .0002% or 2 case per million herds **exclusively in GYA**
- No infected dairies since 1998 and no affected herds outside GYA since around 2011 and counting...
- All 50 states considered free



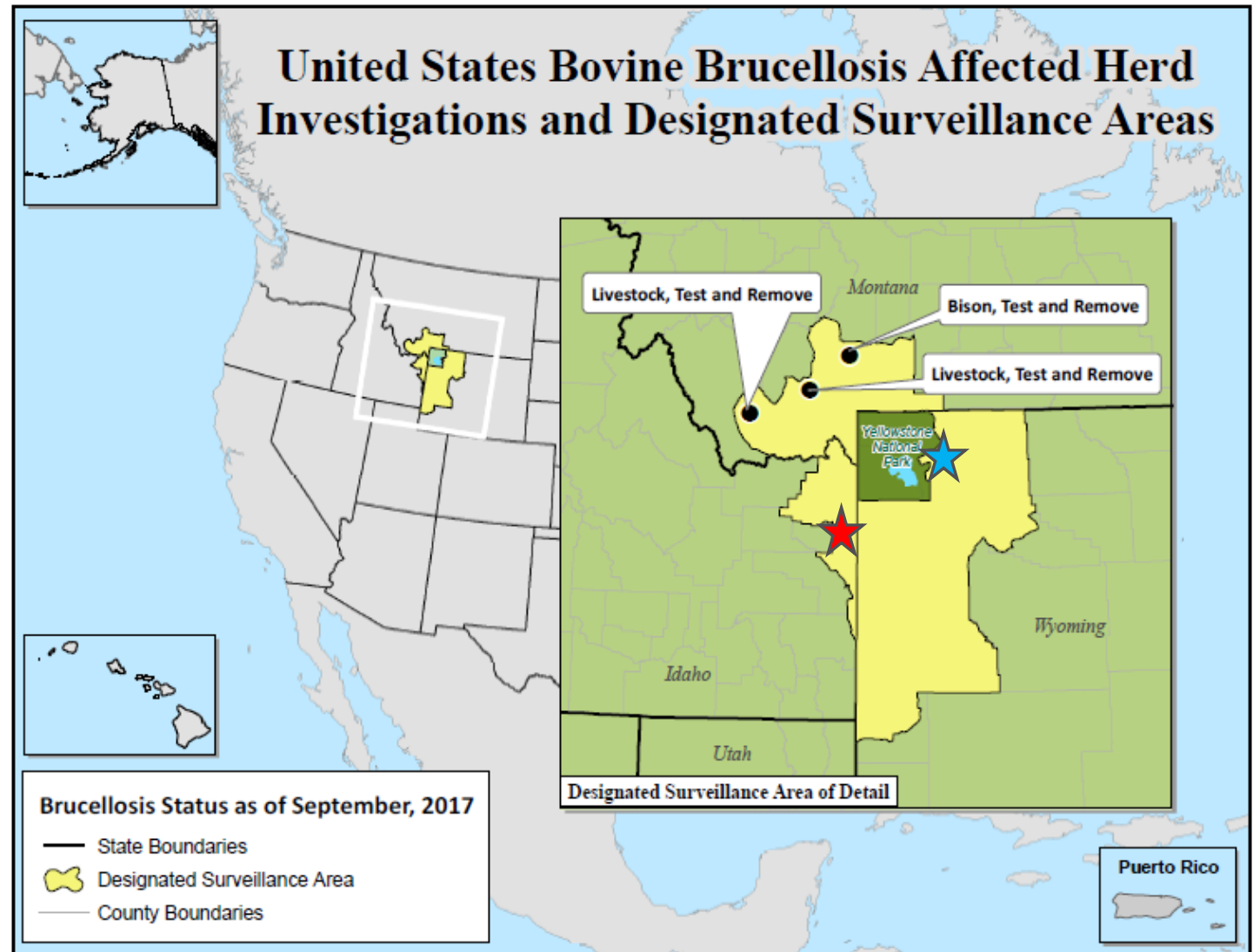
GYA Nidus

DSAs began – 2010
Allows states to manage by BMP while entire state is declared Free

Enhanced surveillance in high risk areas
State-managed, APHIS oversight

17 affected herds in the 3 GYA states since 2010 = **2/year**

Approx. 24,000 herds in 3 GYA states and 1,100 herds in 3 DSAs



FY18 Brucellosis Affected Herds

November 2017

On 10 Nov 2017, sample submitted to NVSL from Teton county, Idaho DSA beef herd annual certification test.

- Results = FPA – 103 Delta mP, CF – 2+@1:320.
- Three year old cow who was the only reactor out of 500 animals in WHT.
- Culture positive on 30 Nov 2017. Quarantined and under herd-plan and test and remove protocol

FY 19 - October 2018

A partial herd test of a Cody, WY beef herd in the DSA revealed one brucellosis reactor bull out of 100 head tested at Wyoming Veterinary Diagnostic Lab.

- NVSL results = FPA – 162 Delta mP, CF – 4+@ 1:640. Two more reactors found on remainder of herd testing.
- Culture results pending. Herd is under quarantine. 4-5 adjacent herds. Herd located on the south fork of the Shoshone River



2018 Brucellosis Surveillance Program Numbers

- **Market Cattle Identification (MCI) Surveillance:**

- ~ **1,967,236** head of cattle tested
National surveillance facilities

- ~ **219,940** GYA cattle tested

Current plants chosen by geographic footprint, GYA coverage, & ability to collect

- **Certified Herds = 308**

- **Vaccination**

- ~ **4,672,282** OCV

- ~ **21,145** AV



Source: SCS/annual state reporting

2018 Slaughter Surveillance (thru Aug 2017)

State Plant	% to collect	Est. Samples	# collected (%)	Testable samples	# missing & invalid	% missing & invalid
CA	100%	180,000	110,705 (62%)	109,420	1285	1.16%
CO 1*	100%	20,000	16,882 (84%)	16,240	642	3.80%
CO 2*	100%	6,000	4,355 (73%)	4,157	198	4.55%
FL Central**	33%	0	0 (0%)	0	0	0%
ID	100%	400,000	300,128 (75%)	296,310	3,818	1.27%
MN***	33%	138,000	102,158 (24%)	98,496	3,662	3.58%
NE	100%	410,000	430,477 (105%)	422,578	7,899	1.83%
PA	100%	115,000	102,444 (89%)	95,281	7,163	6.99%
TX 1	100%	480,000	467,462 (97%)	466,134	1,328	0.28%
TX 2	100%	360,000	318,293 (88%)	317,801	492	0.15%
UT	100%	75,000	58,173 (78%)	58,090	83	0.14%
WI	100%	110,000	87,888 (80%)	82,729	5,159	5.87%
Totals		2,294,000	1,998,965(87%)	1,967,236	31,729	1.61%

- Bison plant. ** FL plant no longer in business and not collecting samples.
- *** Stopped collecting June 2018



National Slaughter Testing Responder Rate

- The average US slaughter responder rate (BAPA+ and FPA +) is roughly .01% or 10 per 100,000 samples or a specificity of around 99.99%. (Belfrage & Camacho)
- Historically the KY Lab consistently runs lower than TX Lab. Why?
- Texas Slaughter surveillance 2018 = 117 FPA+ / 850,319 (thru August) = **14 per 100,000 samples**
- KY Slaughter surveillance 2018 = 18 FPA+ / 953,330 (thru September) = **1.8 per 100,000 samples**
- Significant variations away from 10 responders per 100,000 will trigger further investigation
- 2018 US slaughter responder rate = **7.5 per 100,000 samples**



FY 2018 Brucellosis Lab Numbers

State Lab	Testable samples	# FPA non-negatives (>10mP)	# FPA cases per 100,000	Test Regimen Specificity
KY Lab	953,330	18	1.8	99.998%
TX Lab	850,319	117	14	99.986%
Totals	1,803,649	135	7.5	99.992%
Total 2018 Trace Investigations		~75	To multiple states	



	Slaughter Testable samples	GYA Samples*	Fiscal Year Total	Official Calhhood Vaccination	Adult Vaccination	Certified Herds
2016	1,554,989	162,166	1,717,155	3,955,575	127,348	914
2017	1,849,194	275,720	2,124,924	4,045,827	25,687	403
2018	1,967,236	247,440	2,214,676	4,672,282	21,145	308

*Projected for Sep. 2018, end of fiscal year

Note: Vaccination numbers reported by states; Not reporting: AL, CA, WI, VI



Sample Size Calculations for surveillance

USDA-APHIS Analysis

Cannon & Roe 2001

To detect 1:100,000 prevalence at 95% confidence
assuming a protocol Se of 83%

= 350,000 brucellosis samples

Total US Brucellosis samples:

2018: 2.21 million samples tested

> 6 times above our detection standard

**After proposed reduction, ~650,000 samples plus
GYA live animal tests**



In Summary



2018 US Brucellosis Herd Prevalence =

0.0001% or 1 case per 1 million herds nationally

2018 Prevalence within the DSA of 3 GYA States =

- ID DSA – 250 herds with 35,000 head of cattle
- WY DSA – 570 herds with 90,000 head of cattle
- MT DSA – 282 herds with 73,000 head of cattle

= 1 case ÷ 1,102 DSA herds = **0.9 cases per 1000 herds, or**

= 1 case ÷ 198,000 DSA cattle = **0.5 cases per 100,000 head of cattle**

- More than adequate surveillance to make disease freedom claims
- Additional surveillance in high-risk areas for early detection of spillover events



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Questions?



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