

National Brucellosis Slaughter Surveillance Plan

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Background

Brucellosis surveillance at slaughter establishments has remained essentially the same for more than 20 years despite evidence of the absence of brucellosis in many States. In fiscal year 2010, approximately 5.45 million blood samples were collected at slaughter establishments across the United States. This collection was done to meet the brucellosis program's requirement of sampling 95 percent of cattle 2 years of age and older. Slaughter surveillance at that level significantly contributed to decreasing the incidence of brucellosis in our national herds. However, testing at that level is no longer necessary. Except for the Greater Yellowstone Area (GYA), the United States is free of brucellosis.

According to the Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS) 2009 evaluation (Proposed Changes in Surveillance for Brucellosis in Domestic Cattle in the United States), collecting 2.9 million blood samples at slaughter establishments would provide 95 percent confidence that brucellosis would be detected if as few as one infected animal per one million animals (0.0001 percent) were in the combined national beef and dairy cattle population. This number is significantly less than the number of samples currently collected.

The brucellosis program, through an interim rule published on December 27, 2010, reduced the level of sampling at slaughter in States or areas that have been Class Free for 5 or more years and do not have *Brucella abortus* in wildlife. VS designed the national slaughter surveillance plan to meet the new brucellosis slaughter surveillance requirement. It will increase the efficiency of the program by reducing sample collection to the new levels and by consolidating the testing laboratories.

National Plan

The surveillance plan incorporates recommendations from the 2009 evaluation and information from the brucellosis slaughter surveillance working group. The goal of the plan is to represent the Nation's cattle population and to show our trading partners that the United States is free of brucellosis, except for the GYA where a wildlife reservoir exists. The plan allows for collecting samples at 15 slaughter establishments that:

- Provide the highest probability of detecting the disease in low-risk areas
- Maintain geographical representation
- Minimize disruption of slaughter establishment operations

We considered options for collecting a reduced percentage of samples at all establishments. Some of these options would have provided adequate geographical representation, but implementing them would increase collection costs or disrupt slaughter establishment operations. However, in one case, we did make an exception to collecting 100 percent of the samples. VS

has a cooperative agreement with a State's Department of Agriculture and could reduce the collection level of samples by 50 percent.

In the new plan, sampling will continue at current levels at 13 of the top 40 slaughter establishments in addition to two bison establishments that are not in the top 40. Sampling will stop at all remaining establishments. The 15 establishments selected are located in 13 States and represent all regions of the United States. In addition, they represent a wide range with respect to volume (60,000 to 400,000 samples tested per year). The two bison-only slaughter establishments will service the GYA.

Two Texas establishments are included as part of the national brucellosis slaughter surveillance plan. However, all Texas establishments will continue to be required to collect slaughter samples until Texas has been Class Free for 5 years. After Texas is Class Free for 5 years, only the two selected establishments would continue sample collections.

In the Eastern Region, the six establishments selected are located in six States. Samples from four of these six establishments will go to the Kentucky Regional Laboratory. Samples from two establishments will go to the Florida Department of Agriculture, Live Oak Laboratory.

In the Western Region, the nine establishments selected are located in seven States. Samples from these slaughter establishments will be shipped to four laboratories:

- APHIS VS Kansas Regional Laboratory
- University of California, Tulare Animal Health and Food Safety Laboratory
- Texas Animal Health Commission, State-Federal Laboratory Division
- Utah State University, Veterinary Diagnostic Laboratory or Central Branch Veterinary Diagnostic Laboratory

The map below shows the States where the slaughter establishments are located.

VS considered several objectives and criteria in our selection of the slaughter establishments for national brucellosis surveillance.

- Our first objective was to have high confidence in detecting as few as one infected animal per million cattle in the States that have been free of the disease for 5 or more years. Criteria for achieving this confidence include representation of the Nation's cattle population both geographically and by production type (beef, dairy, fed cattle). The catchment area of individual establishments is not precisely known, and destinations of marketed animals vary from year to year. However, VS epidemiologists identified the general movements by region. VS then designed the sampling plan to select cattle that were not biased by geographical origin or animal type.
- The second objective was to simplify the sampling process. This included sampling all cattle within selected establishments, minimizing sample preparation and shipping costs, and maximizing collection resources by selecting establishments from the 40 highest volume establishments in the United States.
- When these criteria were met, we considered whether the establishments received animals from the GYA and from States that have been free for less than 5 years. These two areas have greater exposure potential than other areas. Therefore, receiving slaughter samples from these areas was also a factor. While the national surveillance plan includes cattle slaughtered from these areas, a separate surveillance plan for high-risk States (discussed below) is recommended.
- When these criteria were met, we considered the cost per sample in the selection process.

Laboratory Selection

VS used slightly different criteria for selecting the laboratories for each region. In the Eastern Region, we chose the Kentucky Regional Laboratory based on cost per sample to VS. Florida's Live Oak Laboratory was included to provide additional capacity if needed during the transition due to a low cost per sample and location. Under the plan, four of the six selected slaughter establishments will continue to submit samples to their current laboratory. The other two establishments will redirect their samples to the Kentucky Regional Laboratory.

In the Western Region, VS considered, among other things, the location of the laboratory, cost per sample, and current volume of testing. All establishments will continue to ship samples to their current laboratory, with the exception of the Washington and Colorado establishments, where samples will be redirected to the Kansas Regional Laboratory. The GYA laboratories will continue to be included in the slaughter surveillance plan because surveillance will be ongoing in the high-risk area.

Surveillance Plan for High-Risk States

In accordance with the brucellosis interim rule published on December 27, 2010, States that have not been Class Free for 5 or more years, or that have *B. abortus* in wildlife, must conduct the

same level of surveillance testing as in the past. Therefore, testing at all slaughter establishments in Texas and the GYA States should be continued until these States meet the requirements of the interim rule. Approximately 655,000 cattle are sampled annually at 23 Texas establishments and are not included in the national surveillance plan. Further, 17 establishments in Idaho and Montana (that sample approximately 14,000 cattle) are not included in the national surveillance plan. These establishments should be included as part of a separate surveillance plan that could be adjusted as the disease is eradicated or controlled in these areas. Any additional surveillance activities that need to be conducted to ensure adequate surveillance in these States should be determined on a State-by-State basis.