

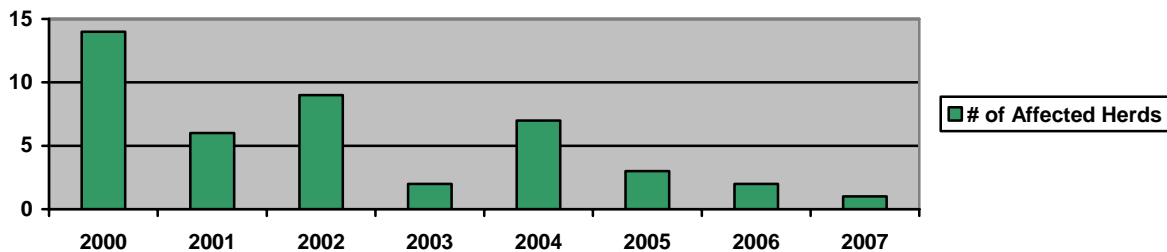
**STATUS REPORT – FISCAL YEAR 2007**  
**COOPERATIVE STATE-FEDERAL BRUCELLOSIS ERADICATION PROGRAM**

Debbi A. Donch – National Brucellosis Epidemiologist and National Program Manager  
Arnold A. Gertonson – GYA Brucellosis Activities Coordinator  
Jack C. Rhyan – Senior Staff Veterinarian – Wildlife

Fiscal Year (FY) 2007 exemplified the “tail of the dragon,” a maxim often used to describe the steadily declining prevalence of brucellosis affected cattle herds in the final years of eradication efforts. A single brucellosis affected cattle herd was disclosed in a Brucellosis Class Free state while no new brucellosis affected cattle herds were disclosed in the single Brucellosis Class A state. With final eradication imminent, maintaining effective and efficient surveillance is a program priority. FY 2007 program activities have focused on developing effective brucellosis surveillance and assessing ways to restructure the nation’s Brucellosis laboratory system for greater efficiency. Additional program activities continued to focus on furthering cooperative efforts to develop concepts to eliminate brucellosis from the Greater Yellowstone Area.

One new brucellosis affected cattle herd was disclosed in FY 2007. This compares to two new brucellosis affected cattle herds disclosed in FY 2006, three new brucellosis affected cattle herds disclosed in FY 2005, seven new brucellosis affected cattle herds disclosed in FY 2004, two new brucellosis affected cattle herds disclosed in FY 2003, nine new brucellosis affected cattle herds in FY 2002, six in FY 2001, and fourteen in FY 2000. The FY 2007 brucellosis affected cattle herd was disclosed in May 2007 in the state of Montana, a state which has been classified as Brucellosis Class Free since June 3, 1985. The affected herd was depopulated with indemnity. Montana successfully completed the herd depopulation and epidemiologic investigation, including all required testing, within sixty days, thereby maintaining Class Free State classification.

**"The Dragon's Tail"**



The single brucellosis affected cattle herd disclosed in the state of Montana in mid-May 2007 was disclosed on a test of animals intended for interstate movement. One reactor titered animal was identified and traced to the herd of origin. The herd of origin was tested, disclosing six additional reactor animals. Bacteriologic culture results on the initial reactor animal revealed *Brucella abortus* Biovar 1. The herd of origin was held under quarantine and depopulated with indemnity in mid-July 2007, meeting the sixty day depopulation requirement for a Class Free State to maintain class free status. In addition, all adjacent herds, potential source herds, contact herds, and area herds were tested and placed on herd plans within the required sixty day period to maintain class state status. Approximately 3200 head of cattle in approximately 25 herds were tested as part of this brucellosis affected herd epidemiological investigation. No additional brucellosis affected herds were disclosed.

Throughout 2007, Texas maintained diligent brucellosis surveillance activities while conducting an in-house review of previous brucellosis affected herd investigations and high-risk areas. First-point testing has been a key component of brucellosis surveillance activities in Texas. Upon completing their self-

assessment, Texas formally submitted application to advance to Class Free State status in June 2007. A pre-Class Free review conducted in Texas the week of July 29<sup>th</sup> to August 4<sup>th</sup>, 2007 evaluated Texas's brucellosis program to confirm that all requirements to advance to Class Free State status have been met. Regulatory activities to advance Texas to Class Free State status were initiated and in progress as FY 2007 came to an end.

A Brucellosis Surveillance Planning Working Group was convened in FY 2007 and tasked with drafting a proposed future brucellosis surveillance plan based on the findings and recommendations of the National Surveillance Unit evaluation of current bovine brucellosis program surveillance activities conducted in FY 2006. The Brucellosis Surveillance Planning Working Group is composed of eighteen members, including four state veterinarians. In drafting a proposed plan, the working group focused on reducing redundancies in surveillance testing and addressing imbalances in surveillance in lower risk states, while maintaining effective and cost efficient surveillance. The working group held discussions with key industry partners and members of the National Assembly to better understand impacts and concerns relative to changes in brucellosis surveillance activities. A draft of a proposed surveillance plan was presented to the Veterinary Services Management Team and is being presented for further discussion during this year's USAHA Committee on Brucellosis meeting.

A Brucellosis Laboratory Restructuring Committee, consisting of state and federal animal health officials and laboratory personnel, was convened in FY 2007. This Committee was tasked with drafting a proposal for a regional brucellosis laboratory concept for brucellosis surveillance testing. The objectives are to increase the cost effectiveness of brucellosis surveillance testing while maintaining testing effectiveness and timely reporting of test results. The Committee sent a questionnaire to the eighty-two laboratories currently approved to conduct serological testing for brucellosis to garner information on testing capacity, cost of testing, and laboratory funding. Assessing and comparing this information has proved to be a complex endeavor. Laboratories have been a key component of the national brucellosis eradication program. The Committee continues to work to develop a set of criteria for selection of regional brucellosis laboratories that will meet the needs of all states and maintain the integrity of the national brucellosis surveillance program.

The Brucellosis program delivered two annual training courses in FY 2007 – the Basic Brucellosis Epidemiology course and the Designated Brucellosis Epidemiologist (DBE) Refresher training course. The Basic Brucellosis Epidemiology course, held in March 2007 in Austin, Texas, was attended by thirty-five state and federal veterinary medical officers and animal health technicians and four state and federal animal health officials from Mexico. The Basic Brucellosis Epidemiology course is a three-day training event, with instructor-led lectures, facilitated discussions, practical exercises, and laboratory demonstrations. The purpose of the course is to provide training in the principles of the brucellosis eradication program, including the organism, the disease as it occurs in various species of animals, and detailed epidemiological considerations necessary to effect the efficient and rapid eradication of brucellosis. The Designated Brucellosis Epidemiologist Refresher training, held in May 2007 in Bozeman, Montana, was attended by fifty-five state and federal veterinary medical officers. This training partnered with fourteen experts from state and federal wildlife agencies and focused on brucellosis in wildlife and brucellosis in the Greater Yellowstone Area (GYA).

### **Brucellosis in the Greater Yellowstone Area (GYA):**

A Greater Yellowstone Interagency Brucellosis Committee (GYIBC) Memorandum of Understanding (MOU) draft, agreed to by the United States Departments of Agriculture and the Interior has been forwarded to the Governors of Idaho, Montana and Idaho for their signatures.

The Grand Teton National Park (GTNP)/National Elk Refuge Bison (NER) Elk Management Plan and Environmental Impact Statement (EIS) final report and Record of Decision has been issued. The plan is

to reduce the number of bison from approximately 1,200 to 500 head and to reduce the number of elk to approximately 5,000 head.

The Interagency Bison Management Plan (IBMP) cooperating agencies made several adaptive management changes for 2007. These include strategic hazing in Zone 2 on public lands, increased tolerance of bison bulls in Zone 2 during certain times of the year, bison hunting in Zone 2, and a clarification of the 3,000 bison population number as a management trigger rather than a Yellowstone National Park (YNP) population objective or target. Adaptive management changes for operations in the IBMP can be made with the concurrence of all of the IBMP cooperating agencies. Montana issued 140 bison hunt permits last year, resulting in 31 bison successfully taken during the hunt. The Nez Perce tribe also successfully hunted six bison. Montana will issue 40 bison hunt permits in a drawing this year (2007) and 40 bison hunt permits will be issued to Native American tribes.

APHIS VS personnel assisted Interagency Bison Management Plan (IBMP) bison management operations. Hazing operations (37) of 3916 bison were performed during this past year. Capture operations resulted in the capture of approximately 60 bison on the west side of the park. These bison were hauled to the north side of park and released into YNP.

The Greater Yellowstone Area (GYA) states (Idaho, Montana, and Wyoming) are continuing, in consultation with APHIS/VS, with development and implementation of individual livestock herd and individual elk herd unit plans to mitigate potential transmission of brucellosis from elk or bison to cattle. Idaho completed and implemented herd plans in 2006. Montana has completed its survey of livestock herds in the GYA and is performing a risk analysis of the individual livestock herds to determine management actions for inclusion in the individual livestock herd plans. Montana is also reviewing its elk herd unit plans. Wyoming has a larger number of livestock herds and elk units in the area of concern. Wyoming is currently surveying livestock herd owners and developing individual livestock herd plans in the area of concern. Wyoming has completed individual elk herd plans for the seven elk herd units of concern. Wyoming is also continuing statewide elk herd brucellosis surveillance using hunter collected blood samples.

Wyoming is continuing a five year elk brucellosis test and removal of brucellosis seropositive elk pilot project at its Muddy Creek feedground. This project was initiated in 2006. Data gathered from this project will be evaluated to determine if test and removal will significantly reduce brucellosis seroprevalence in those elk herds.

The study of fluorescent polarization assay (FPA) and BAPA brucellosis tests to determine their suitability for brucellosis testing elk sera is ongoing. Three state laboratories are working with NVSL to determine repeatability of test results. The study is expected to be completed in 2007.

APHIS VS personnel attended Wyoming Brucellosis Coordination Team, GYIBC, IBMP, USAHA regional and national meetings, state and local meetings of ranchers, and meetings of other stakeholders to provide technical assistance and to make presentations when requested.

Veterinary Services continued activities and involvement in several projects aimed at assessing potential effective brucella control strategies for affected wildlife populations. These on-going developmental projects include the following studies:

- **Bison Quarantine Feasibility Study (BQFS):** There are currently thirty-seven two and three-year-old cows and eight males in Phase II of the BQFS. Phase II of this study will evaluate the likelihood that latent disease expression will be demonstrated during the first pregnancy. Phase I animals that remained test negative, advanced into Phase II quarantine protocols and were bred. The goal of the Phase II quarantine protocols is to determine if and how latent brucellosis infection is expressed during the stress of pregnancy. To date, no animals in this study have seroconverted in 2007. Many two-and-three-year-old females in the study are in early pregnancy. If latent infection does not become evident at parturition, some cows and their calves should be eligible for soft release (release

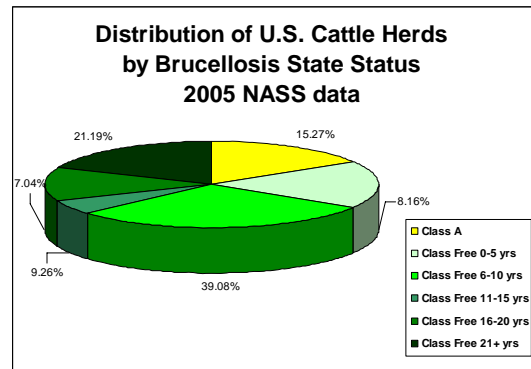
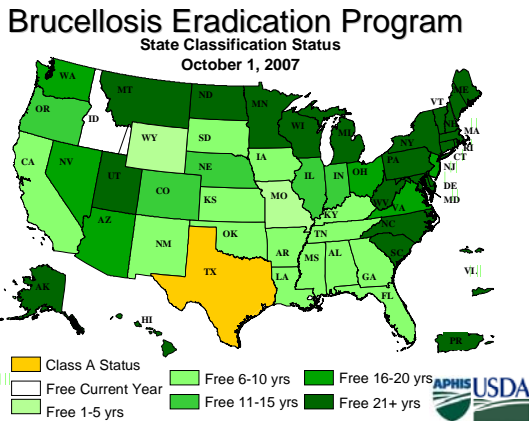
into fenced pasture for continued surveillance at the sight of intended full release) next fall/winter. A new cohort of calves is anticipated this winter (Phase III).

- Brucellosis vaccine in elk: In a study last year, elk received engineered RB51 by injection and oral administration. No abortions were seen in these elk and there was less tissue colonization than controls on challenge with Strain 2308. A further study focusing on an oral prime and an oral boost in elk will begin this winter (2007).
- Development of non-lethal methods to eradicate brucellosis from GYA wildlife:
  - Gonacon™, a GnRH immunocontraceptive vaccine, has shown efficacy in bison for three years following a single administration of this vaccine. Immunocontraceptive studies are ongoing in elk. So far, results appear to be similar as those observed in the bison.
  - Studies on rifampin treatment of brucellosis are ongoing in cattle, goats, and mice.
- Serologic differentiation of brucellosis and infection with *Yersinia enterocolitica* strain 0:9 in elk: A study to determine if infection with *Yersinia* can reliably be differentiated from infection with *Brucella abortus* by western blot and ELISA tests is on-going.

**Brucellosis Program Surveillance Activities:**

[The following surveillance statistics for the cattle brucellosis eradication program is based on data available as of October 15, 2007. Normal data reporting time allowances for states to gather and submit monthly data preclude ascertainment of all data for FY 2007.]

Fiscal Year (FY) 2007 began with 48 States and three Territories classified at Brucellosis Class Free state status and two states classified at Brucellosis Class A state status. FY 2007 ended with 49 States and three Territories classified at Brucellosis Class Free State status. The two states classified as Class A at the beginning of FY 2007 were Texas and Idaho. After successfully completing all program regulatory requirements, Idaho successfully regained Class Free State status July 23, 2007. Idaho had initially attained Class Free State status in February 1991, however pursuant to the disclosure of two brucellosis affected herds in November of 2005, Idaho’s status was downgraded to Class A State status in January 2006. The state of Texas achieved Brucellosis Class A classification in August 1994. The last brucellosis affected herd in Texas was disclosed in August 2005, placed under hold order and subjected to the required herd testing protocol. The final negative herd test was conducted in September 2006. During the first half of FY 2007, Texas conducted additional epidemiological evaluations in high-risk areas before submitting application for Class Free state status.



Cattle inventories in the U.S. at the end of FY 2007 are distributed as follows: 14.52% of all cattle and 15.27% of all cattle herds are located in the Brucellosis Class A state; 8.35% of all cattle and 8.16% of all cattle herds are located in states that have held Brucellosis Class Free status of five years or less; 40.23% of all cattle and 39.08% of all cattle herds are located in states that have held Brucellosis Class Free status for six to ten years; 13.26% of all cattle and 9.26% of all cattle herds are located in states that have held Brucellosis Class Free status for eleven to fifteen years; 5.70% of all cattle and 7.04% of all cattle herds are located in states that have held Brucellosis Class Free status for sixteen to twenty years; and 17.94% of all cattle and 21.19% of all cattle herds are located in states that have held Brucellosis Class Free status for more than twenty years.

The national herd prevalence rate for bovine brucellosis was 0.0001% in FY 2007. One brucellosis affected cattle herd was disclosed in FY 2007. This herd was disclosed on a herd test of animals intended for interstate movement. Per the Brucellosis Emergency Action Plan (BEAP) recommendation, the brucellosis affected herd was depopulated with indemnity and a thorough epidemiologic investigation was completed disclosing no additional brucellosis affected herds. In addition, trace exposed test negative cattle were depopulated and indemnified as well.

Maintaining Brucellosis state status focuses on continual surveillance activities. Two primary surveillance activities are conducted for bovine brucellosis, Market Cattle Identification (MCI) testing and Brucellosis Milk Surveillance Testing (BMST). During FY 2007, APHIS tested approximately 7.995 million head of cattle under the MCI surveillance program. Brucellosis program standards require testing of a minimum of 95% of all test-eligible slaughter cattle. In FY 2007, approximately 96.40% of all test-eligible slaughter cattle were tested. First-point testing at livestock markets is required in Brucellosis Class A states. Several Brucellosis Class Free states continue to conduct first-point testing at markets to facilitate interstate movement of cattle and enhance surveillance activities. Brucellosis program standards require a minimum of 90% successful traceback of all MCI reactor cattle and a minimum of 95% successful case closure. In FY 2007, approximately 97.87% of all MCI reactors were successfully traced and investigated resulting in successful case closures. Approximately 835,200 additional head of cattle were tested on farms or ranches during FY 2007, bringing the total cattle tested for brucellosis in FY 2007 to approximately 8.831 million head. BMST surveillance is conducted in all commercial dairies – a minimum of two times per year in Class Free states and a minimum of four times per year in Class A States. Suspicious BMSTs are followed up with an epidemiologic investigation. Herd inventory data reported on individual state annual reports reveals there were approximately 62,500 dairy operations in the U.S in FY 2007. Approximately 142,700 BMSTs were conducted in FY 2007; approximately 126 of those BMSTs yielded suspicious results after repeat screening (repetitive BRT and/or HIRT). All suspicious BMSTs in FY 2007 were confirmed negative by subsequent epidemiologic investigations and additional herd testing.

There were approximately 4.212 million calves vaccinated for brucellosis in FY 2007. The national calfhood vaccination policy recommends proper calfhood vaccination in high risk herds and areas and whole herd adult vaccination when appropriate in high risk herds and areas. Elimination of mandatory vaccination in all states is also recommended.

Brucellosis program activities during FY 2007 demonstrate continued commitment by all states to achieve and maintain final eradication of brucellosis from the United States domestic cattle, bison, and swine herds. Diligent effective surveillance and judicious affected herd management continue to be critical program activities. As final eradication nears, focused, efficient, and effective surveillance is paramount to the integrity of a national brucellosis-free classification for the United States.

DAD/JR/AG