

Chapter 1 – Significant Animal Health Events in 2009

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) works in a variety of ways to protect and improve the health, quality, and marketability of our Nation's animals, animal products, and veterinary biologics. One way APHIS carries out this mission is by coordinating the response to disease outbreaks and other epidemiological and animal health events that occur in the United States. This chapter documents several important events from 2009. Included are reports on bovine tuberculosis (TB), cattle fever tick, equine piroplasmiasis (EP), contagious equine metritis (CEM), the H1N1 influenza virus pandemic, very virulent infectious bursal disease (vvIBD), and vesicular stomatitis.

Additionally, this chapter describes APHIS' efforts to identify, control, and eradicate foreign animal diseases (FADs) and diminish their impact.

Bovine Tuberculosis

APHIS initiated a TB task force in fiscal year (FY) 2008 to assist the California Department of Food and Agriculture in responding to a TB outbreak in a large central California dairy herd. The work of the task force continued through February 2009, to assist with the epidemiological case development and on-farm herd testing of 246 herds and approximately 377,000 head of cattle. One affected dairy herd in California was identified in FY 2009 during continuing epidemiological investigations of affected dairy herds identified during FY 2008. This herd is under a test-and-remove plan. An additional 24 herds containing nearly 20,000 cattle have been tested subsequently as part of the epidemiological investigation of the affected dairy discovered during FY 2009.

Molecular epidemiology conducted on four affected dairy herds recently identified in California has revealed three different DNA types, indicating three different outbreaks. The strain of *Mycobacterium bovis* identified during a 2003 outbreak has not been found in any of the recent detections, indicating that the current outbreaks are not related to the 2003 outbreak.

TB-affected Herds Identified in FY 2009

In FY 2009, 12 TB-affected herds were identified in the United States: 3 beef herds, 2 dairy herds, and 7 captive cervid herds. While the total number of TB-affected herds identified in FY 2009 is comparable to the 11 herds identified during FY 2008, the identification of 7 TB-affected captive cervid herds is unprecedented. Only four affected captive cervid herds were identified between FY 1998 and FY 2008. Of the TB-affected herds found during FY 2009, two beef herds and five captive cervid herds were depopulated with Federal indemnity. Two captive cervid

herds in Michigan identified as “shooter” herds were not depopulated. These herds are in an area where TB is endemic; they pose no risk of disease spread because no live animals leave the facilities.

Two dairy herds (Texas and California) and one beef herd (Nebraska) detected in FY 2009 were not depopulated and are under test-and-remove herd plans. Additionally, three dairies (two in California and one in Michigan) continued under test-and-remove herd plans from previous years. One California herd was released from quarantine during FY 2009, and the remaining five herds continue to undergo regular testing. Michigan herd plans also include requirements for mitigating the risk of infection from wildlife.

TB Public Meetings and Concept Paper

The cooperative State-Federal-industry effort to eradicate bovine TB from the United States has made significant progress, markedly decreasing the prevalence of the disease. However, the goal of eradication remains elusive as animal health officials continue to detect TB sporadically in U.S. livestock herds. Several challenges continue to hinder efforts to eradicate the disease:

- Infected cattle imported from other countries
- Infected wildlife as a reservoir
- Changes in the dairy and beef cattle industries
- Limitations of available diagnostic tests
- Inability to trace some infected animals identified at slaughter to a herd
- Outdated regulations
- Antiquated approaches to disease control
- Flat or decreasing Federal budgets

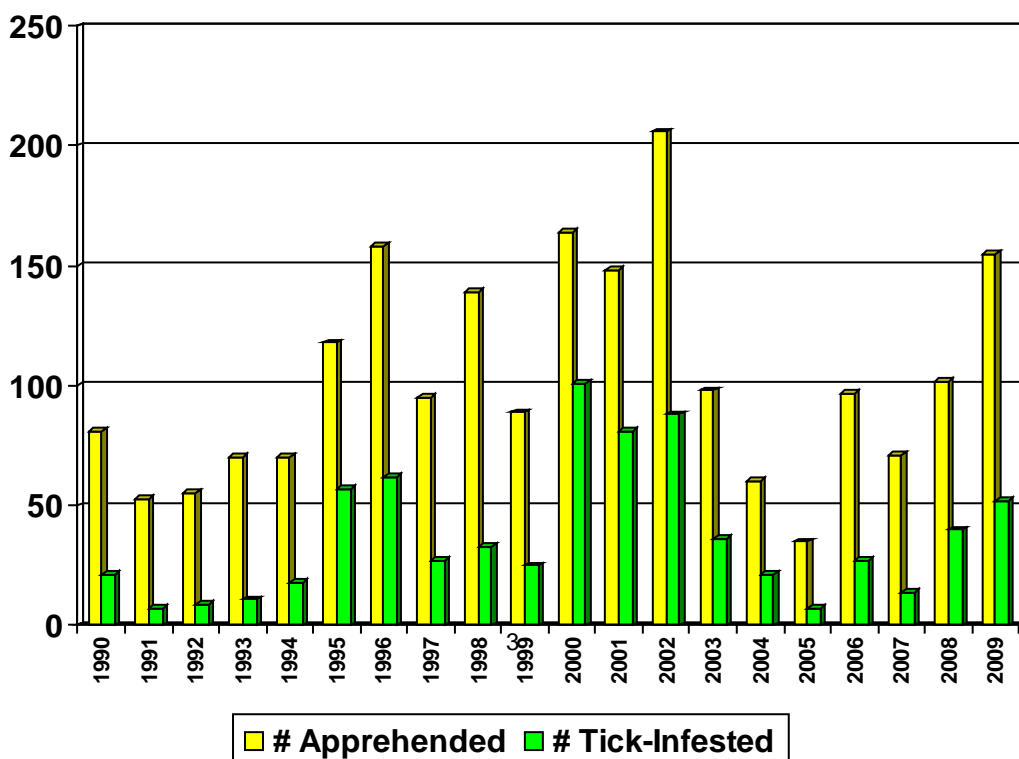
These factors demand a new approach to managing bovine TB. APHIS held a series of public meetings for external and internal stakeholders in 2009 to provide opportunities for stakeholders to discuss challenges and new approaches for TB eradication and control. Summaries of these public meetings are posted on the APHIS Web site at www.aphis.usda.gov/newsroom/hot_issues/bovine_tuberculosis/tb_ls.shtml. Based on input received from these meetings, APHIS developed a concept paper titled, “A New Approach for Managing Bovine Tuberculosis: Veterinary Services’ Proposed Action Plan.” This document presents APHIS’ current thinking about changes being considered for the TB program. The concept paper was published October 5 in the *Federal Register* and comments were accepted through December 4. For more information on bovine TB issues, see Chapter 3.

Cattle Fever Tick

The Cattle Fever Tick Eradication Program (CFTEP) was created in 1906 to eliminate bovine babesiosis—a severe and often fatal cattle disease—from the U.S. cattle population. The cattle tick, *Rhipicephalus (Boophilus) annulatus*, and the tropical cattle tick, *R. (B.) microplus*, are carriers of protozoan parasites (*Babesia bigemina* and *B. bovis*) that cause babesiosis. The ticks are well established in Mexico, and a permanent 500-mile quarantine zone along the Texas-Mexico border was established in 1938 to effectively maintain the Nation’s status as free from babesiosis and cattle fever ticks. The disease and the ticks were officially eradicated from the continental United States in 1943, with the exception of a narrow, permanent quarantine “buffer” zone (i.e., systematic zone) in south Texas that follows the Rio Grande River.

The CFTEP is a cooperative program between APHIS and the Texas Animal Health Commission (TAHC). APHIS maintains the permanent quarantine zone through surveillance and tick control activities. USDA’s mounted patrol inspectors, known as “tick riders,” patrol designated sections along the Rio Grande to intercept tick-carrying wildlife and stray and smuggled Mexican-origin livestock. Intercepted animals must be quarantined, inspected, and treated. From 1990 to 2009, approximately 52 percent of intercepted cattle were tick infested. During FY 2009, APHIS horseback river patrols along the U.S.-Mexico border apprehended 155 Mexican livestock compared to 102 in FY 2008, a 131 percent increase (figure 1.1). Of the 133 cattle apprehended, 52 were infested with fever ticks. A single red deer was also apprehended and found to be infested with fever ticks. None of the 22 apprehended equids were infested.

Figure 1.1: Annual number of apprehended stray and smuggled livestock, including tick-infested animals, 1990–2009



The second highest recorded number of tick outbreaks in both the permanent quarantine and free areas of south Texas occurred during FY 2009, when there were 146 newly identified fever tick-infested premises. This compares to a total of 132 in 2008, and an all-time record of 170 in 1973 (figure 1.2). The high number of outbreaks has precipitated the addition of approximately 1 million acres included in three temporary “blanket” quarantine areas outside of the permanent quarantined area in Maverick, Dimmit, Webb, Zapata, Jim Hogg, Starr, and Hidalgo Counties (figure 1.3). In April 2009, TAHC and APHIS released approximately 255 premises or 304,507 acres (approximately 49 percent) from the temporary blanket quarantine area for portions of Dimmitt, Maverick, and Webb Counties. However, in July 2009, TAHC issued an additional temporary blanket quarantine for portions of Starr and Hidalgo Counties, that included approximately 152,716 acres. Premises and livestock within these temporary quarantined areas must be systematically inspected and treated (including captive and free-ranging deer populations) and the movement of all livestock must be controlled.

Figure 1.2: Annual number of cattle fever tick infested premises in Texas, 1959–2009

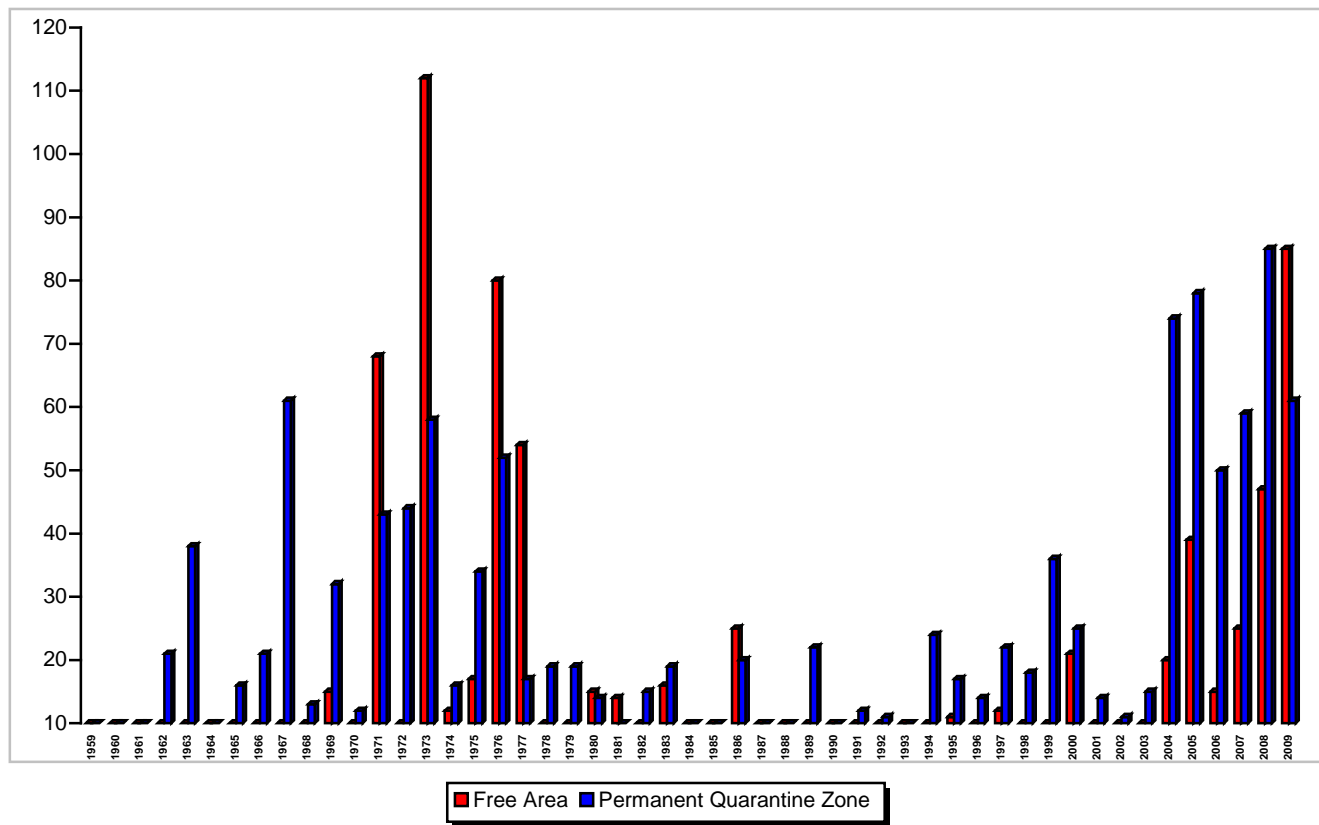
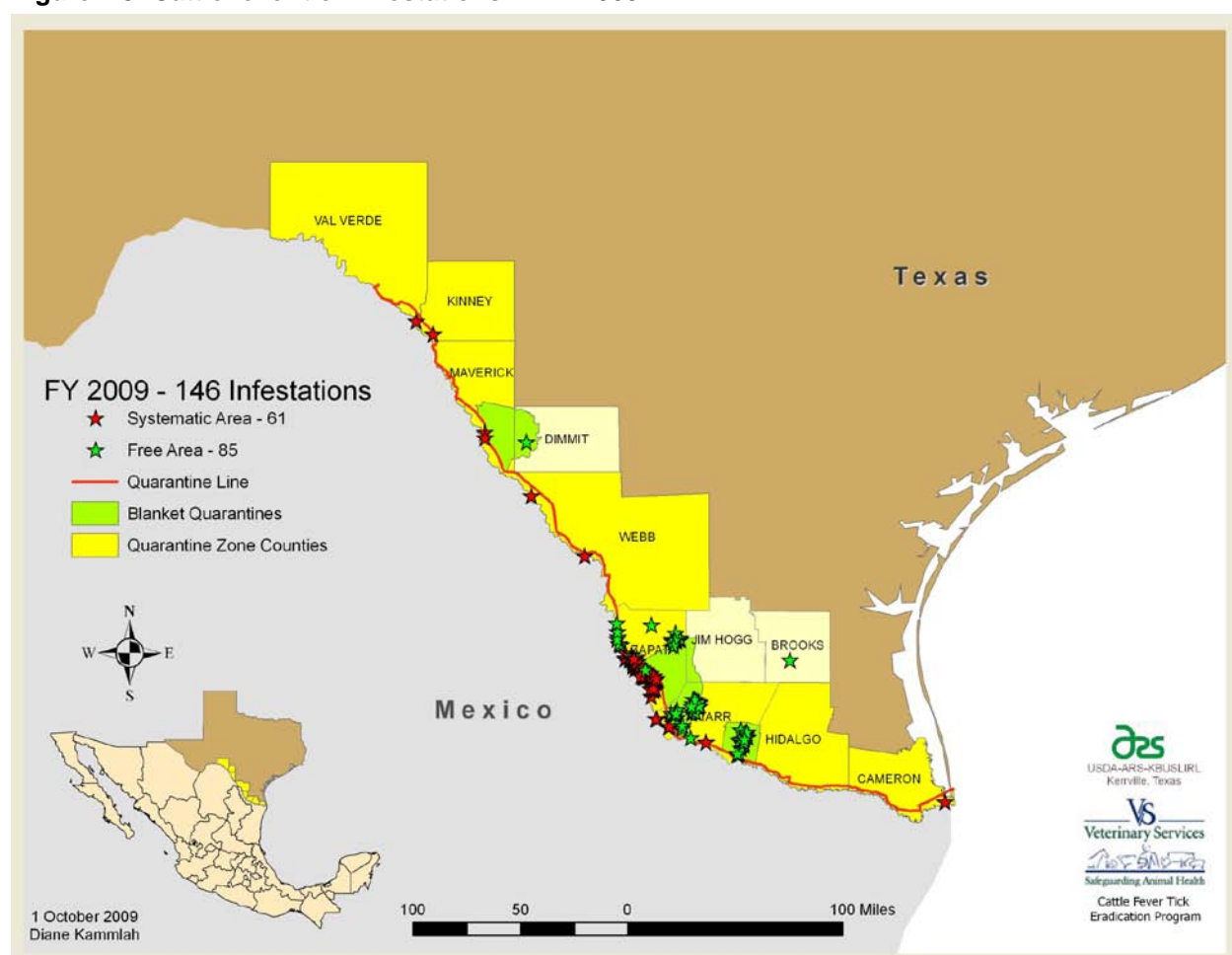


Figure 1.3: Cattle fever tick infestations in FY 2009



Factors causing the increase in tick outbreaks include a greater abundance of white-tailed deer and other wildlife along the border, increased commingling of livestock with tick-bearing wildlife, and unrestrained movement of white-tailed deer and exotic wildlife.

The CFTEP received an increase in appropriated FY 2009 funding to purchase additional equipment, such as portable dipping vats and scratching chutes, to help address the more recent tick outbreak situation in Starr and Hidalgo Counties. Additionally, emergency funding was provided to the program during FY 2009. This funding has allowed APHIS to address the continuing emergency situation in Texas through an enhanced eradication plan, which includes some of the mitigation measures outlined in the National Strategic Plan. These proactive measures include conducting surveillance and treatments at south Texas livestock sale barns, working with the State of Texas to acquire and evaluate an anti-tick vaccine, and purchasing

additional pesticides for treating both cattle and deer on quarantined and adjacent premises inside the permanent quarantine zone and within the three temporary blanket quarantine areas.

Contagious Equine Metritis

CEM is a transmissible, exotic, venereal disease of horses caused by the bacterium *Taylorella equigenitalis*. It is a highly contagious disease, but also one that is difficult to detect and control. When coupled with the fact that mares can be bred only during certain seasons, CEM infections can have a devastating effect on equine reproductive efficiency.

On December 15, 2008, the State of Kentucky confirmed that a Quarter horse stallion on a central Kentucky premises was positive for the bacterium that causes CEM. Since this finding, State and Federal officials have been conducting a comprehensive epidemiological investigation to trace all potentially exposed animals. By the end of 2009, 22 stallions and 5 mares had been confirmed positive for *T. equigenitalis* by USDA's National Veterinary Services Laboratories (NVSL), and the epidemiological investigation revealed links to 965 exposed horses in 48 States. State, Federal, and industry dollars jointly funded an effort to return the United States to CEM-free status, which existed prior to this incident. Exposed horses were tested for the bacterium, and positive horses were tested and treated through a multistep process that, for stallions, can take several months to complete. By December 2009, 92 percent of the horses involved were known to be free of the bacterium. None of the positive horses were definitively identified as the source of the outbreak, and the investigation continued into 2010. In 2009, estimated losses included \$12.9 million for additional export testing requirements and an unknown amount in lost opportunity costs for breeding horse owners.

Tool for the Assessment of Intervention Options

The Tool for the Assessment of Intervention Options (TAIO) is a decision support tool that was used to assess various response options to the CEM outbreak. Developed by an interdisciplinary team at APHIS' Centers for Epidemiology and Animal Health, TAIO's purpose is to help evaluate and compare the relative value of alternative response options to a disease event. TAIO was used to assess the cost effectiveness and scientific validity of APHIS, State, and industry efforts to eradicate the CEM outbreak during 2008 and 2009.

For the CEM outbreak assessment, TAIO was modified to allow consideration of different surveillance alternatives. A stochastic simulation model was developed and implemented within TAIO to account for differences in the detection capability of each surveillance approach. Data from the CEM outbreak investigation, scientific literature, and expert opinions were used to determine the model's epidemiological, logistic, and economic parameters. Epidemiological factors and the logistic feasibility of each option under consideration were combined with

economic information to produce a weighted benefit to cost ratio. The model allowed for measuring the uncertainty around each input parameter in the assessment and the contribution of this uncertainty to the overall uncertainty in the final results.

To consistently assess the CEM response options, demonstration of disease freedom was chosen as the benchmark of success. This benchmark was evaluated in terms of each option's likelihood to lead to eradication and provide sufficient evidence to demonstrate disease freedom. Recommendations from the TAIIO assessment were accepted by APHIS management and used in formulating the response to the CEM outbreak.

Equine Piroplasmosis

EP is a disease of horses and other equids caused by infection with the blood-borne parasites *B. caballi* and/or *Theileria (Babesia) equi*. The disease agent is commonly transmitted through tick vectors. However, transfer of whole blood or blood products from infected to susceptible equids may transmit the disease agent, as may improperly disinfected needles or surgical instruments. Clinical signs of acute EP infection are nonspecific and may include fever, anemia, jaundice, anorexia, colic, or hemoglobinuria; some horses may exhibit no clinical signs at all. Horses that survive the acute phase of infection usually become chronic carriers of the disease and may serve as a potential source of infection to other horses by tick vectors or mechanical transmission of blood or blood products. EP is not currently considered endemic in the United States (except in Puerto Rico and the U.S. Virgin Islands); however, isolated outbreaks of the disease have occurred infrequently.

Missouri

In June 2009, a Quarter horse gelding from Missouri was presented to a veterinary teaching hospital with clinical signs of EP and was confirmed as infected with EP caused by *T. equi*. The horse was a former sanctioned racehorse that had been run in unsanctioned "bush track" races since 2007. Traceback to the horse's stable-of-origin in Missouri led to the identification of six additional *T. equi*-positive bush track Quarter horse racehorses being boarded at the facility. An additional trace-out bush track racehorse that had recently left the Missouri facility was located in Kansas and tested positive, bringing the number of *T. equi*-positive horses found during the investigation to eight.

The seven positive horses located at the Missouri premises were quarantined, individually identified with microchips, and securely locked in their stalls. However, when State and Federal officials arrived to euthanize the positive horses, two of the horses had been illegally removed from the premises by force and were missing. The remaining five positive horses on the premises were humanely euthanized. When State and Federal officials attempted to relocate the positive

trace-out in Kansas (the eighth positive horse), the horse and its owner were also missing and could not be located. The investigation by law enforcement into the whereabouts of the three missing piroplasmosis-positive horses is ongoing.

The additional 56 horses being boarded at the Missouri premises were tested multiple times for *T. equi* and *B. caballi* over a 30-day surveillance period and were determined to be negative. When the surveillance period was completed, the Missouri premises was released from quarantine on July 9, 2009. Eleven other horses that had recently left the Missouri premises prior to identification of the positives tested piroplasmosis negative. No ticks were found on any of the horses being investigated.

The Southeast Cooperative Wildlife Disease Study conducted a complete tick survey of the Missouri premises that included tick drags and wildlife capture techniques. Over a 7-day period, only four ticks were collected from the premises, none of which were competent vectors for EP.

It was determined that the most likely cause of EP infection on the premises was not by natural tick vectors, but rather by unsanitary management practices, such as the use of shared needles or transfusion of horses with infected blood or blood products—practices known to occur in the illegal bush-track racing industry.

Texas

In October 2009, a 7-year-old Quarter horse mare in south Texas was presented to a local veterinary hospital with clinical signs of EP and was subsequently confirmed as infected with *T. equi*. The index mare's home premises was an 825,000-acre ranch in south Texas with four distinct divisions covering six counties. Testing of the 360 horses on the ranch identified 288 *T. equi*-positive horses with infection present on all 4 ranch divisions.

Traceback and testing of all horses sold from the index ranch in Texas from 2004 to 2009 identified 67 additional EP-positive horses located on premises in 14 States, including Texas. At least one positive trace-out was identified as having left the index premises in 2004, indicating that infection had been present on the index ranch in Texas since at least that time. Testing of epidemiologically linked and exposed horses is ongoing. As of February 2010, more than 1,700 horses had been tested as part of the outbreak, with approximately 370 *T. equi*-positive horses identified. All positive horses identified are under strict quarantine in their respective States, with control measures in place to mitigate further spread of infection between horses.

The current epidemiological investigation indicates spread of the disease on the index ranch in Texas only by natural tick transmission. Extensive tick surveys on the index premises in Texas and transmission studies are ongoing. However, a transmission study involving live *Amblyomma*

cajennense ticks from the index ranch proved that species is capable of efficient *T. equi* transmission. *A. cajennense* ticks are known to be established in the United States only in south Texas.

New Mexico

In response to the EP outbreaks in Missouri and Texas, the State of New Mexico began an active *T. equi* surveillance program in November 2009 for all horses racing on sanctioned New Mexico racetracks. In December 2009, three *T. equi*-positive horses were identified; they were being tested to race at a track in southern New Mexico near the U.S.-Mexico border. The active surveillance program in New Mexico racehorses continued, and as of February 1, 2010, 15 confirmed *T. equi*-positive Quarter horse racehorses have been identified from the nearly 4,000 horses tested in New Mexico. Most of these horses are being surrendered by their owners for voluntary euthanasia, although strict quarantine is being offered. Some racing commissions in other States are considering an active EP surveillance program.

Seroprevalence of Equine Piroplasmosis Disease Agents in the United States

APHIS conducted an EP serosurvey to address a resolution from the United States Animal Health Association's (USAHA) Infectious Diseases of Horses Committee (IDOHC). The goal of the serosurvey was to report a national seroprevalence of antibodies to *B. equi* and *B. caballi* among U.S. equids. The serosurvey was funded by APHIS, with significant contributions from members of the USAHA IDOHC EP subcommittee.

For the survey, 35 National Animal Health Laboratory Network (NAHLN) laboratories located in 34 States contributed serum samples from equids being tested for equine infectious anemia (EIA). No link to the identification of contributing laboratories or sampled horses was provided when results of testing were reported; therefore, no traceback to the source of the sera is possible. The serosurvey was designed to allow for expansion of the test results to estimate and report the national prevalence of antibodies to *B. equi* and *B. caballi* in U.S. equids. A total of 15,300 samples were tested at NVSL. The survey results indicate that there are likely horses in the United States that are truly seropositive for *B. caballi* or *B. equi*, but at a very low prevalence. The prevalence reported is the estimated median true serologic positive prevalence based on the inclusion of the test characteristics into the analytical method. The estimate for the adjusted, weighted median for seroprevalence for *B. caballi* from this survey is 0.054 percent (54 horses per 100,000; 95 percent prediction interval 0.002–0.21 percent). The estimate for the adjusted, weighted median for the seroprevalence for *B. equi* for this survey is 0.007 percent (7 horses per 100,000; 95 percent prediction interval 0.0003–0.036 percent).

H1N1 Influenza Pandemic

In April 2009, a human influenza outbreak was reported in the United States and Mexico. Enhanced public health surveillance identified a growing number of cases in the United States, Mexico, and around the world. By June, the increasing number of countries reporting cases led the World Health Organization (WHO) to raise the pandemic alert to level 6. The virus, first dubbed “swine flu” by the public media and officially named “Novel (H1N1) 2009” by U.S. officials, was referred to as “Pandemic (H1N1) 2009” by WHO.

Preliminary genetic characterization of the influenza virus identified it as a swine influenza A (H1N1) virus with six of the eight virus genes being similar to swine influenza viruses (SIVs) that have circulated among North American pigs since 1999. However, the virus was also found to contain two genes—coding for the neuraminidase (NA) and matrix (M) proteins—which were similar to corresponding genes of SIVs of the Eurasian lineage. This particular genetic combination of SIV segments had not been recognized previously among influenza isolates in the United States, or elsewhere based on analyses of influenza genomic sequences available on GenBank¹.

The developing pandemic resulted in major negative impacts on the U.S. swine industry. More than 30 countries imposed full or partial bans on U.S. pork or pork products. Confusion over the difference between the endemic H1N1 viruses typically found in U.S. swine and the 2009 H1N1 virus complicated the public’s understanding and concerns about the pandemic virus. The pork industry was further impacted by the discovery of the 2009 H1N1 virus in pigs at a Canadian swine production facility.

SIV is endemic in most swine populations around the world. However, the concern that pigs might play a role in transmission of the pandemic virus (or other novel strains of swine influenza) to humans precipitated an international push by animal health and public health officials to accelerate influenza surveillance activities in swine.

U.S. Animal Health Response

In July 2008, APHIS and the USDA’s Agricultural Research Service (ARS) entered into cooperative agreements with the Centers for Disease Control and Prevention (CDC) to initiate an SIV surveillance pilot project. The project was designed to study the incidence and distribution

¹ GenBank is the National Institutes of Health genetic sequence database, an annotated collection of all publicly available DNA sequences. Human health and animal health officials actively tracking the 2009 pandemic H1N1 virus are submitting Influenza A virus sequences from human and animals affected by this strain to GenBank.

of SIV subtypes in swine populations, look for novel influenza isolates, and collect data and isolates to better understand the epidemiology and ecology of SIV in swine and documented human SIV infections. The pilot surveillance plan, developed with industry input, was being implemented when the human pandemic influenza outbreak occurred. APHIS rapidly accelerated the pilot surveillance plan into the National Swine Influenza Surveillance Plan and developed response guidance for local, State, and Federal animal health officials.

Through interagency cooperation, CDC quickly shared human H1N1 virus isolates with USDA. This enabled NVSL to rapidly develop a 2009 novel H1N1 strain-specific diagnostic polymerase chain reaction (PCR) assay and design diagnostic laboratory testing algorithms that allowed differentiation of endemic swine influenza subtypes from the pandemic subtype. ARS used the human isolates to study the virus in pigs, providing important information about clinical characteristics of the virus in swine, the safety of pork from infected or recovered pigs, and preliminary data on the efficacy of current swine influenza vaccines for the pandemic subtype. The APHIS Centers for Veterinary Biologics subsequently shared seed stock virus with swine vaccine manufacturers to facilitate the development of strain-specific swine vaccines.

Since swine influenza is not a regulated animal disease in the United States, the National Swine Influenza Surveillance Plan relies solely on voluntary surveillance sample submissions by swine producers and veterinarians. Although producers and veterinarians recognize the importance of swine influenza surveillance, concerns about the impact of SIV-positive results on individual producers and the pork industry as a whole have hindered surveillance sample submissions. At the close of 2009, the human influenza pandemic was ongoing. Swine influenza surveillance continues to move forward, and USDA is working to address industry concerns and increase sample submissions for SIV surveillance in pigs. Animal health and public health officials continue to monitor the progress of the virus.

The virus has been identified in several swine herds and turkey flocks in the United States through surveillance and influenza research efforts. Internationally, the virus has been found in swine and turkey flocks in at least 15 countries and has been documented in numerous other mammalian species, including pet cats, dogs, and ferrets.

Very Virulent Infectious Bursal Disease

Infectious bursal disease (IBD) is a highly contagious disease of immature poultry, generally 3 to 6 weeks of age. IBD was first identified in the United States in 1962 and now occurs worldwide. The disease is caused by infectious bursal disease virus (IBDV), which targets the bursa of Fabricius and secondary lymphoid tissues, damaging their ability to produce mature lymphocytes. There are two serotypes, but only serotype 1 is known to cause clinical disease.

Several pathotypes of serotype 1 are known to occur, including classical, classical variants, subclinical, and very virulent. The very virulent IBDV (vvIBDV) pathotype was first described in Europe in the late 1980s. The vvIBDV has been isolated from a variety of poultry and wild birds; however, clinical disease occurs only in chickens.

A distinguishing feature of vvIBDV is the high mortality rates it causes in flocks relative to classical strains. Flock mortality for vvIBDV is generally in excess of 30 percent and is affected by various factors, including the type and route of vaccination and the age and breed of the birds. Classical IBDV strains, in contrast, are typically associated with 1 to 30 percent flock mortality. Chickens infected with vvIBDV exhibit clinical signs including depression, watery diarrhea, anorexia, ruffled feathers, trembling, and severe prostration. All IBDV serotype 1 strains cause immunosuppression, leading to susceptibility to concurrent secondary infections. There is no treatment for IBDV; therefore, vaccination of breeding hens and chicks and on-farm biosecurity measures are the primary means of prevention and control. While classical strains of IBDV are common in the United States, vvIBDV had not been isolated from poultry in the United States prior to late 2008.

In December 2008, layer pullets from two neighboring ranches in northern California were submitted to the California Animal Health and Food Safety laboratory for diagnostic examination due to spiking mortality rates (up to 34 percent) in selected houses on each ranch. Mortality rates reportedly returned to normal approximately 1 week later. IBDV was identified on virus isolation, and genetic sequencing performed by Ohio State University was compatible with vvIBDV. The serologic titers from the submissions on both ranches indicated that the affected birds were unprotected by vaccination despite routine IBDV vaccination performed on both ranches. It was determined that a problem in the route of vaccine administration, the persistence of maternal antibodies in the affected houses, or both led to the clinical signs and mortality spikes.

In 2009, three additional vvIBD-infected flocks were identified in northern California. These flocks were in close geographic proximity and had epidemiological links to the two infected flocks identified in December 2008. All of the affected premises are being managed through heightened biosecurity, stringent cleaning and disinfection practices, and ongoing surveillance testing. The epidemiological investigation into the source of the outbreak is ongoing.

Vesicular Stomatitis

Vesicular stomatitis is a disease that primarily affects cattle, horses, and swine and occasionally sheep and goats. Humans can be exposed to the virus when handling affected animals, but rarely become infected.

In affected livestock, vesicular stomatitis causes blisterlike lesions in the mouth and on the dental pad, tongue, lips, nostrils, hooves, and teats. Animals usually recover within 2 weeks. While vesicular stomatitis can cause economic losses to livestock producers, it is a particularly important disease because its outward signs are similar to—although generally less severe than—those of foot-and-mouth disease (FMD), a FAD of cloven-hoofed animals that was eradicated from the United States in 1929. The clinical signs of vesicular stomatitis are also similar to those of swine vesicular disease, another FAD. The only way to distinguish among these diseases is through laboratory testing.

The mechanisms by which vesicular stomatitis spreads are not fully known; insect vectors, mechanical transmission, and movement of animals likely play a role. Once introduced into a herd, the disease apparently moves from animal to animal by contact or exposure to saliva or fluid from ruptured lesions.

Historically, outbreaks of vesicular stomatitis in domestic livestock have occurred in the southwestern United States during warm months, particularly along waterways. However, outbreaks are sporadic and relatively unpredictable. The most recent outbreaks were recorded in 2004, 2005, and 2006. No vesicular stomatitis cases were reported in 2007 or 2008.

Regulatory controls of vesicular stomatitis include State quarantine of affected premises and control of animal movement from affected areas. Insect control and separation of affected animals also help prevent further spread on affected premises. Since vesicular stomatitis occurs unpredictably, accredited and regulatory veterinarians and producers strive to detect the disease quickly, quarantine the affected premises and animals, and prevent further spread.

In 2009, two States reported cases of vesicular stomatitis—Texas and New Mexico. In Texas, three horses on two premises in Starr County were affected. New Mexico had four affected horses on three premises. Two of the premises were located in DeBaca County, and one premises was located in Valencia County. The first case in Texas was reported in June 2009 with subsequent cases reported in both Texas and New Mexico throughout June. The most recent case in 2009 was identified in New Mexico in mid-July. No livestock species other than horses were identified as affected in the 2009 outbreak. The lesions on all affected animals were healed, and all quarantines were released by mid-August 2009.

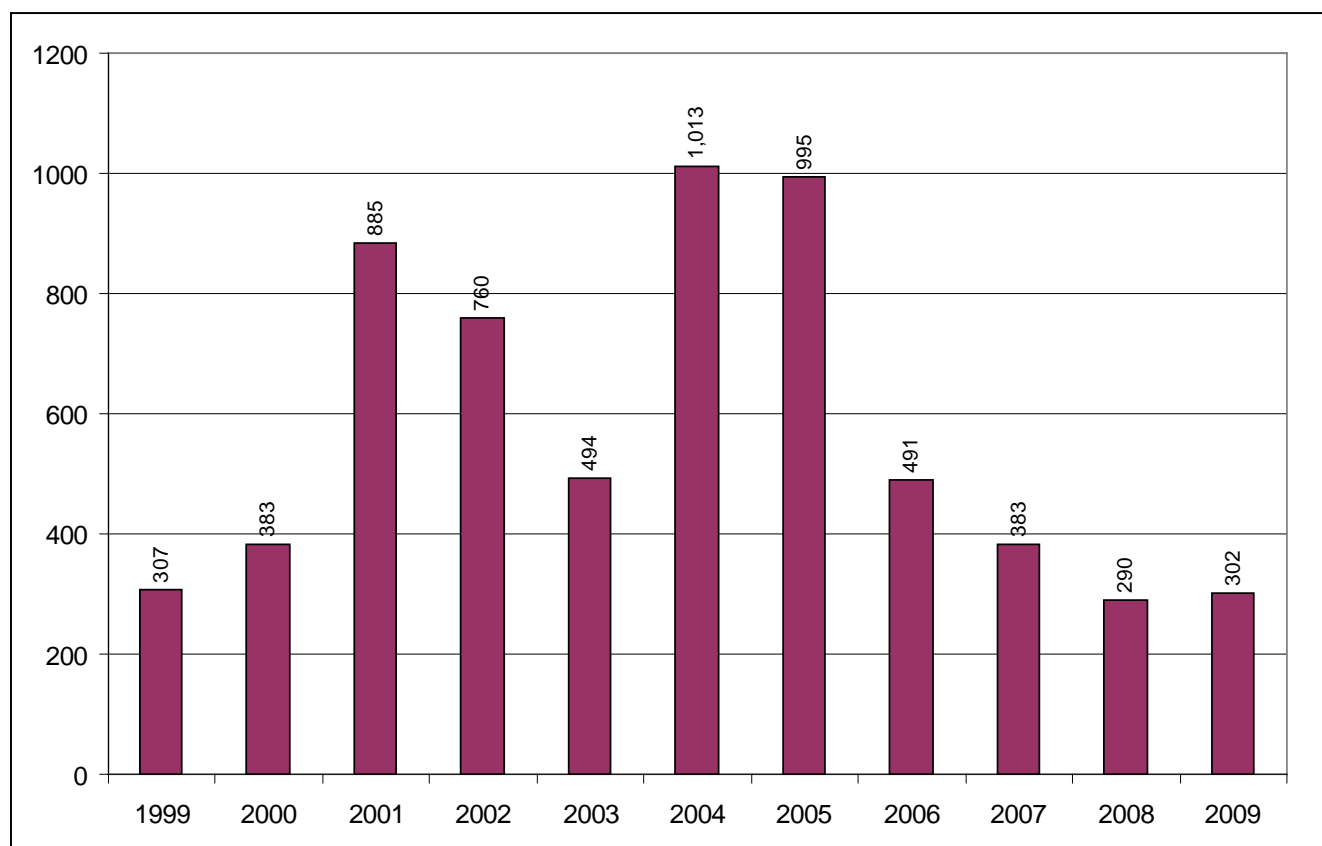
Foreign Animal Disease Surveillance and Investigations

A FAD is defined as a transmissible livestock or poultry disease that is believed to be absent from the United States and its territories and that has a potential for significant U.S. animal health and economic impacts. APHIS works with State animal health officials and accredited private veterinary professionals to identify, control, and eradicate such animal diseases and

diminish their impact. Efforts to detect FAD events in the United States include surveillance conducted as a component of disease-specific monitoring or eradication programs; reporting by producers and private veterinarians; and field investigations conducted by Federal, State, and private accredited veterinarians. Additional detection efforts include State diagnostic laboratory surveillance conducted by diagnosticians when routine cases yield test results considered suspicious for FADs. Such results are reported to Federal and State animal health authorities for further investigation. The NAHLN was developed to screen samples for FADs.

From calendar year (CY) 1999 through CY 2009, the number of FAD investigations per year ranged from a low of 290 in 2008 to a high of 1,013 in 2004 (figure 1.4). The high number of investigations in both 2004 and 2005 (995 investigations) reflects the occurrence of a widespread vesicular stomatitis outbreak.

Figure 1.4: Number of FAD investigations by year, 1999–2009



Of the 302 investigations conducted in 2009, 7 resulted in confirmed FAD findings. Two of the investigations were positive for EP, and five of the investigations were positive for vesicular stomatitis virus (VSV), New Jersey strain.

The EP investigations continued in 2009 after the initial index premises was identified in Florida in 2008. In 2009, two index premises were identified; one in Texas and the other in Missouri. Tracing and surveillance activities associated with the Texas investigations are continuing in 2010. The VSV index case was a single horse on a premises in Starr County, Texas. Two horses at a second premises in Starr County tested positive a few days later. Investigations at three premises in New Mexico involved four horses. In all these FAD cases, early identification and quick response minimized further spread of disease.

In 2009, vesicular conditions (blisterlike lesions) of the muzzle and feet were the most common complaint investigated. There were 178 vesicular complaints; of these, 108 were in equids (horses, donkeys, and mules), 36 in bovids (cattle and bison), 16 in goats, 10 in sheep, 3 in pigs, 4 in camelids, and one in a pudu (a South American deer species). Concern about vesicular

lesions in ruminants, camelids, captive cervids, and swine would include not only vesicular stomatitis, but also FMD, a highly contagious viral infection that affects primarily cloven-hoofed domestic and wild animals. If FMD were to enter the United States and spread throughout the country, it would have a severe economic impact. In equids, the only FAD concern resulting from vesicular conditions is vesicular stomatitis. None of the vesicular complaints identified in 2009 were positive for FMD.