

CHAPTER 2



# Prevention and Preparedness

APHIS-VS is focused on protecting the Nation’s animal health and facilitating safe agricultural trade. This chapter highlights VS programs and activities aimed at disease prevention and preparedness. These include efforts to ensure safe imports and exports, provide accredited veterinarians to conduct regulatory functions, and plan and prepare for emergencies. In addition, the chapter provides updates on the National Veterinary Stockpile (NVS) and VS information technology and data systems.

## Trade Imports and Exports

The APHIS animal health mission includes ensuring the safe import of animals, animal products, and biologics, as well as certifying animals, animal products, and veterinary biologics for export. In fiscal year (FY) 2008, the value of U.S. imports of live animals and animal products remained steady at \$10.4 billion, while the value of U.S. exports of live animals and animal products increased by almost 50 percent to \$16.6 billion, due to a weakened U.S. dollar value.

### Imports

APHIS conducts regulatory oversight for the importation of millions of head of livestock including

cattle, swine, horses, live poultry, hatching eggs, and commercial birds. Millions of koi and goldfish were also successfully imported. APHIS also conducts regulatory oversight for germplasm imports.

In FY 2008, APHIS processed a total of 9,011 import permit applications for animal products, organisms and vectors, and select agents, resulting in 8,869 permits issued. More than three-fourths, or 77 percent, of the permits issued were for animal products and 19 percent were for organisms and vectors.

APHIS recognizes that animal health risks associated with the importation of animals and animal products may be tied to climatic, geographical, and biological factors that are not always defined by national political boundaries. This approach is consistent with U.S. obligations under international trade agreements. To help ensure that U.S. standards for regulating imports and assessing the disease risk within defined regions are transparent and applied on a consistent and scientific basis, APHIS conducts import risk analyses that evaluate the animal health status of countries and/or regions requesting approval to import animals and/or animal products into the United States. During FY 2008, APHIS’ animal health status evaluations of imports to the United States included the diseases and countries or regions listed in table 2.1.

**TABLE 2.1: Animal health status evaluations on imports in FY 2008**

Disease	Country/region
Bovine tuberculosis (TB)	Canada, Mexico
Brucellosis	Canada—elk and bison
Classical swine fever (CSF)	European Union—swine semen; Estonia; Slovenia
Foot-and-mouth disease (FMD)	Argentina; Brazil; Slovakia; Slovenia; South Africa; United Kingdom; Uruguay—sheep meat
Highly pathogenic avian influenza (HPAI), subtype H5N1	Denmark, France
Screwworm	Panama
Swine vesicular disease (SVD)	Estonia, Slovakia, Slovenia

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As an example, the APHIS analyses of the status of highly pathogenic avian influenza H5N1 (HPAI H5N1) in Denmark and France relied on several sources of information including the Danish Veterinary and Food Administration, the Ministère de L'Agriculture et de La Pêche, Direction Générale de L'Alimentation, the European Commission, and reports to the World Organization for Animal Health (OIE). APHIS analyses list the following critical factors in evaluating import risk:

- Freedom from HPAI H5N1 for at least 3 months as the result of effective control measures undertaken within a competent veterinary infrastructure;
- Status of HPAI H5N1 as a notifiable disease;
- Ongoing disease awareness programs;
- Investigation of all notified or suspect occurrences; existence of effective surveillance programs for HPAI H5N1 supporting detection and investigation of outbreaks;
- Adequate and effective diagnostic and laboratory capabilities;
- Appropriate eradication and control measures and movement restrictions preventing further spread of disease; and
- Procedures used for repopulation of affected premises, which include monitoring to demonstrate that HPAI H5N1 was eradicated.

The analyses pointed out that APHIS considered the presence of HPAI H5N1 in wild birds to present the highest risk for the reintroduction of HPAI H5N1 into either country, but that extensive surveillance in wild birds and domestic poultry in the countries since eradication indicated that it has not been reintroduced.

APHIS concluded as a result of these evaluations that Denmark and France were able to effectively control and eradicate HPAI H5N1 from their domestic poultry population and the authorities had adequate control measures in place to rapidly identify, control, and eradicate the disease if it were reintroduced in either wild birds or domestic poultry. Based on the results of the assessments, APHIS did not identify any additional risk factors that would indicate that domestic poultry in Denmark or France would

continue to be affected with HPAI H5N1. As a result, the analyses determined that the likelihood of introducing HPAI H5N1 into the United States through the import of live birds or poultry products from either Denmark or France was low.

### Exports

Similarly, during 2008, APHIS issued point-of-origin certificates for the export of millions of head of live animals including cattle, goats, sheep, swine, live poultry, fish (mollusks, and crustaceans), and zoo animals, as well as germplasm. Approximately 111,448 animal product health certificates were issued for U.S. exports in FY 2008.

APHIS developed extensive information packages and/or responded to questionnaires from various countries in an effort to maintain or reopen export markets or expand market access for U.S. goods. The issues and countries included appear in table 2.2.

APHIS also successfully addressed market barriers to U.S. exports in 19 countries in FY 2008 based on domestic regionalization activities. These activities included providing detailed technical information and data that enabled many of our trading partners to accept the animal health status of the United States and lift restrictions imposed because of specific animal diseases. Of the 19 countries provided with information on domestic regionalization, 18 involved questions about U.S. exports of poultry and poultry products, and 1 country involved questions about the U.S. beef market.

In the January 2008 domestic regionalization report describing the eradication of H5N2 subtype low pathogenicity avian influenza (LPAI) from live bird markets (LBMs) in four counties in New York, information provided to U.S. trading partners was similar to that considered in the import analyses described above. The report describes veterinary infrastructure, disease status, disease control programs, movement controls, poultry demographics, and surveillance for the four counties involved. Detailed information on the U.S. live bird marketing system, laboratory diagnosis of avian influenza (AI) in the United States, and the U.S. animal health emergency response system is also included.

**TABLE 2.2: Animal health status evaluations on exports in FY 2008**

Disease/issue	Country/region
Avian influenza (AI)	Albania, Argentina, Bolivia, Brazil, Chile, China, Cuba, Ecuador, European Union, Guatemala, Hong Kong, Indonesia, Japan, Libya, Mexico, Peru, Philippines, Singapore, Sri Lanka, Taiwan
Bovine and swine embryos and semen collection centers	Chile, European Union
Bovine spongiform encephalopathy (BSE)	Brazil, Ukraine, Pakistan
Cattle identification and tracking system	Macao, Ukraine
Contagious equine metritis (CEM)	Brazil
Equine piroplasmiasis	Canada
Malignant catarrhal fever (MCF)-wildebeest	Chile, Hong Kong
Poultry health, inspection, and certification system	Argentina, Chile
Pseudorabies	Chile, Mexico
Rabies	Taiwan
Scrapie	Jamaica
Veterinary infrastructure	Ukraine
West Nile virus	Dominican Republic, Korea

The report concluded that all related incidents in LBMs were eradicated in accordance with the LPAI prevention and control program standards. The affected LBMs were closed, all birds were depopulated, and all premises were cleaned and disinfected. All subsequent environmental testing revealed negative AI results. The testing also noted that birds sold at the LBMs are consumed by the local population and do not enter the commercial poultry marketing channels that supply U.S. exports. Provision of this information addresses Japanese concerns about U.S. poultry and poultry product exports.

Finally, APHIS further contributed to enhancing U.S. trade by successfully negotiating 136 new or revised sanitary regulation protocols in FY 2008 for the export of live animals, embryos, and semen. These protocols specify the health requirements that U.S. exports must meet in order to enter foreign markets.

## National Veterinary Accreditation Program

Although many countries allow only government-employed veterinarians to conduct regulatory functions, the United States uses a network that includes private practitioners to carry out these

tasks. The National Veterinary Accreditation Program (NVAP) authorizes veterinarians to perform regulatory functions on behalf of APHIS in a manner consistent with international trade and animal health safeguarding requirements. Approximately 80 percent of veterinarians in the United States are accredited through this voluntary program.

Accredited veterinarians identify and inspect animals, collect specimens, vaccinate livestock, and prepare point-of-origin health certificates for interstate movement and export. APHIS grants national accreditation to private veterinary practitioners only after they have met specific eligibility and training requirements.

Accredited veterinarians provide the first line of surveillance for reportable domestic and foreign animal diseases. When large-scale animal disease or other emergency events occur, accredited veterinarians are often enlisted to help APHIS and State veterinary regulators in containment and eradication efforts.

While NVAP staff at APHIS headquarters direct policy issues at the national level, the 41 VS area offices throughout the Nation oversee veterinarians' authorized activities and process most NVAP documentation. To become accredited, a veterinarian must be licensed or otherwise legally able to practice (via reciprocity or other agreement with State

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licensing officials) in the State in which they wish to perform regulatory activities. When an accredited veterinarian wants to perform regulatory activities in additional States, authorization to do so must be acquired through that State's VS area office.

### **2008 National Veterinary Accreditation Program Highlights**

NVAP is awaiting publication of a final rule that will:

- Establish two accreditation categories in place of the current single category (Category 1 includes companion animals such as cats and dogs while Category 2 is all animals);
- Add requirements for supplemental training and accreditation renewal; and,
- Offer “program certifications,” which will enable accredited veterinarians to administer additional regulatory duties requiring specific knowledge, such as aquaculture medicine or Johne's disease.

The changes are intended to support APHIS' animal health safeguarding initiatives, involve accredited veterinarians in integrated surveillance activities, and make NVAP provisions more uniform and consistent. The changes will increase the level of training and skill of accredited veterinarians in the areas of disease prevention and preparedness for animal health emergencies in the United States. A plan to enact the amended regulation has been developed; implementation will depend on information technology (IT) capabilities and funding levels. VS and Iowa State University are developing several Web-based educational modules to satisfy the educational requirements for accreditation renewal, as well as modules that will serve as initial accreditation training, a formal prerequisite to apply for accreditation.

## **Emergency Planning and Preparedness**

Animal health emergencies (AHEs) have a major impact on the Nation's agricultural infrastructure, animal and public health, food safety, economy, and export markets. AHEs can include foreign animal

disease (FAD) incursions, natural disasters, emerging disease incidents, and agroterrorism. APHIS is the lead Federal agency for preventing or mitigating AHEs in the United States.

VS' National Center for Animal Health Emergency Management (NCAHEM) leads the effort in preparing for and responding effectively to animal disease-related national emergencies. NCAHEM develops strategies and policies for effective incident management and coordination of incident responses. During an emergency, NCAHEM is responsible for deploying critical veterinary supplies and personal protective equipment from the National Veterinary Stockpile (NVS) to responders within 24 hours.

NCAHEM creates and facilitates partnerships among Federal, State, tribal, local, and international entities to continually improve the approach to emergency management. NCAHEM's strategic approach aligns tactics with the four pillars: preparedness and communication, surveillance and detection, response and containment, and recovery and continuity of business for animal agriculture operations.

### **2008 National Center for Animal Health Emergency Management Highlights**

NCAHEM and VS' Centers for Epidemiology and Animal Health worked with egg industry representatives, university officials, and State animal health officials to develop a continuity-of-business preparedness and response planning initiative for egg industry facilities in a control zone (quarantine zone). The plan addresses factors such as biosecurity, epidemiology, and surveillance that would have to be considered during an HPAI incident or outbreak. In the outbreak, Federal and State officials would use information—provided voluntarily by producers and held in a database at Iowa State University—to quickly determine if shell eggs and liquid egg products may be allowed to resume movement into market channels without compromising the safety of animal or human health. The protocols developed with the egg industry will serve as a model for similar biosecurity plans for other commodities.

## Response Planning Update

In 2008, NCAHEM revised national response plans and objectives for HPAI and foot-and-mouth disease (FMD). The revised plan, called the Foreign Animal Disease Preparedness and Response Plan, is more specific and comprehensive than previous plans and clearly outlines the responsibilities and actions for officials responding to an FAD. In addition, the plans incorporate the principles and applied systems of the National Response Framework, the National Incident Management System, and the National Animal Health Emergency Management System.

While the United States has been free of FMD since 1929, the disease is still found in about two-thirds of the world. An FMD outbreak in the United States would have serious economic consequences, including lost trade and costs directly associated with the eradication effort (depopulation, indemnity, carcass disposal, and cleaning/disinfection). There would also be direct and indirect costs related to lost production, unemployment, and losses in related businesses.

Eight specific FMD outbreak simulation exercises have been performed since 1998. In 2008, APHIS met with the Texas Animal Health Commission to review progress made on issues identified in the 2007 Palo Duro FMD exercise held in Texas. A New England FMD exercise was held in November 2008. The States of Maine, New Hampshire, and Vermont participated in this regional exercise.

Simulation models are useful for analyzing effects of mitigation strategies (vaccination, movement controls, etc.), planning for resource needs (stockpiling), and developing response exercises. The Joint Modeling Operations Center (JMOC) is an ongoing collaboration between APHIS and the Department of Homeland Security to enhance interagency analysis of foreign animal disease scenarios, including the use of simulations and animal disease spread models to explore response strategies and countermeasure requirements.

## National Veterinary Stockpile

The NVS was established as part of Homeland Security Presidential Directive–9 (HSPD–9), which

was issued in February 2004. HSPD–9 reflects concerns that terrorists could release catastrophic animal disease agents in multiple locations. The NVS mission is to deliver critical veterinary supplies nationwide within 24 hours.

## 2008 National Veterinary Stockpile Highlights

In 2008, NVS:

- Hired a full-time liaison to help States, tribes, and territories plan, train, and conduct health-related test exercises;
- Acquired carbon dioxide carts and foaming equipment for depopulating poultry;
- Refined the deployment of its all-hazards commercial response contractors to help States that lack personnel with depopulating, disposing, and decontaminating efforts;
- Established distribution facilities on each coast to minimize deployment time; and
- Developed plans for rapidly transporting vaccine antigen concentrate from the North American FMD Vaccine Bank to overseas processors, and for the return of vaccine to domestic vaccination teams.

## National Response Preparedness Exercises

NCAHEM tests national response preparedness by coordinating and participating in stakeholder exercises for FMD, HPAI, and radiologic leaks. Throughout FY 2008, VS participated in 133 animal health-related test exercises with stakeholders in various States (table 2.3).

**TABLE 2.3: Animal health-related test exercises with stakeholders**

Highly pathogenic avian influenza (HPAI)	87
Foot-and-mouth disease (FMD)	16
Natural or manmade/chemical, biological, radiological/nuclear, and explosive	29
Glanders	1
<b>Total</b>	<b>133</b>

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Deployment drills were held with Louisiana, California, and South Carolina. During the drills, participants learned about the NVS program, its capabilities, deployment of supplies, and recovery processes and procedures. Attendees also initiated a request for NVS assistance, which resulted in an NVS deployment and allowed State participants to prepare to receive and store NVS assets, and exercise each State's Incident Command System.

### **Surge Capacity During an Animal Health Emergency**

In 2000, APHIS created the National Animal Health Emergency Response Corps (NAHERC) to provide a volunteer reserve of veterinary professionals to assist Federal or State responders during an AHE. During 2008, NAHERC staff attended veterinary and animal health conferences, seminars, and professional training sessions to publicize the program and recruit veterinary medical officers (VMOs) and animal health technicians (AHTs) to the NAHERC. As of December 2008, NAHERC had received 1,054 applications through the USAJOBS Web site. Since 2000, a total of 671 applicants—285 VMOs and 386 AHTs—have qualified for the program. The Iowa State University Center for Food Security and Public Health recently developed Internet training modules for the program. Also, a standard operating procedure manual was written to guide NAHERC finance, administration, operation, and planning functions during an emergency.

### **Depopulation, Disposal, and Decontamination Collaboration**

In 2008, NCAHEM participated in a number of work groups, especially those involving depopulation, disposal, and decontamination (3D) planning and discussion.

**International Working Group**—As chair of the Destruction, Disposal, and Decontamination Technical Working Group for Australia, Canada, New Zealand, and the United States, APHIS is developing information on recent, ongoing, and planned 3D research in each country. This will help identify research gaps that member countries can then prioritize and address collaboratively.

**National Security Working Group**—Representatives from APHIS and the Environmental Protection Agency co-chair the Foreign Animal Disease Threats Subcommittee Decontamination and Disposal Working Group. In its role, APHIS identifies, prioritizes, and coordinates implementation of research related to animal disease decontamination and disposal in collaboration with other Federal agencies.

**Online Emergency Management Tools**—With input from members of the APHIS Carcass Disposal Working Group, APHIS has developed an Emergency Management Tools Web site, including a carcass disposal decision tree, which assists disposal officers in determining the most appropriate disposal methods. Other tools include several online training modules detailing methods for composting, onsite burial and treatment, secure transport, offsite burial and treatment, and cleaning and disinfection.

**Interagency Depopulation Working Group**—APHIS is assembling an interagency/stakeholder working group to develop mass depopulation guidelines to minimize animal stress while controlling disease. Stakeholders include veterinary and animal health organizations; industry; academia; animal health emergency responders; Federal, State, and local governments; and subject matter experts on animal welfare and mass depopulation.

## **Information Technology Roadmap**

In 2009, the Office of the VS Chief Information Officer will begin implementation of a 3-year IT Roadmap. The IT Roadmap identifies five priority initiatives: governance; security; data acquisition and exchange; software and services delivery; and modernization of legacy systems. Objectives within each initiative have been identified and scoped with task and resource requirements. VS will begin building the IT tools and data repositories that are needed to acquire, aggregate, and share data using standardized terminology and messaging.

In 2009, VS will initiate a discovery and analysis project to guide the decision of whether to buy a commercial “off-the-shelf” software product or

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build an in-house software application to modernize the legacy systems. A discovery and analysis project will also be used to identify an enterprise reporting system. VS will begin the process of moving national databases from agency-owned and -managed servers to USDA enterprise data centers. Finally, VS will continue to use and enforce state-of-the-art security models to assure that access to data is authorized and that data are secure and confidential.