Welcome to Module 3: Overview of Foreign Animal, USDA Program, and Reportable Diseases. This module was developed as supplemental training for the USDA-APHIS National Veterinary Accreditation Program (NVAP) by the Center for Food Security and Public Health at the College of Veterinary Medicine, Iowa State University. The content for this module was finalized in November 2011. Presenters: As designed, slide completion time ranges from 30 to 90 seconds each, such that the entire presentation can be completed in 60 minutes.

We have a new tablet method for allowing accredited veterinarians to sign in for AAST. This method will replace the paper sign in. In order to ensure the AV gets credit for each module they must ensure they sign in for all sessions delivered. So if they sit through 4 modules of AAST they must sign in using the iPad 4 times.

In order for the key pad to display the participants must first tap the first field on the screen (first name field). This will display the key pad. The participant must then either tap the stylus pen or their finger into each subsequent field on the screen.

However if they have not entered the data the way it is entered into our database they will get a No Match Found message. The should attempt to re-enter the data two more times and then pass the tablet to the next participant. They must see the instructor after the presentation to ensure they do get credit for the module they have taken. Certain reasons their name is not displayed include: Their name is not entered correctly - James vs Jim, McDonald vs Mcdonald vs Mc Donald etc.
Welcome to the Overview of Foreign Animal, USDA Program, and Reportable Diseases module. As an accredited veterinarian, awareness and understanding of these diseases is important to the health and well-being of animals and the public. Upon completion, you should be able to:

- Define foreign animal, USDA Program and reportable diseases
- Describe the safeguards that help prevent FADs from entering the U.S.
- Outline the steps in a foreign animal disease investigation
- List the USDA programs for controlling or eradicating diseases in various species of livestock and poultry
- Recognize the additional training opportunities available to accredited veterinarians
- Report foreign animal and reportable diseases
- Locate additional resources and learning opportunities

There are state, national and international reportable diseases, some of which are foreign animal diseases while others are USDA Program Diseases. Reportable diseases may also be zoonotic. To understand the differences and similarities, each is defined in the following slides.
Module 3: Overview of Foreign Animal USDA Program and Reportable Diseases

Foreign Animal Diseases (FADs) include diseases or pests of terrestrial or aquatic animals not known to exist in the United States or its territories that may involve livestock, poultry, wildlife, or other animals. (Source: USDA-APHIS-VS) Transboundary animal diseases are defined as those that are of significant economic, trade and/or food security importance for a considerable number of countries; which can easily spread to other countries and reach epidemic proportions; and where control/management including exclusion, requires cooperation between several countries. (Source: United Nations Food and Agricultural Organization)

Programs have been established jointly among federal-state-industry stakeholders to control and/or eradicate specific diseases or pests of livestock and poultry. Diseases may be designated as USDA Program Diseases because they are serious zoonotic diseases, are economically important, or are of concern to the livestock, poultry, or aquaculture industries. Some examples include bovine tuberculosis, trichinosis in swine, chronic wasting disease (CWD) in cervids, and equine infectious anemia (EIA). More details will be provided under the USDA Program Disease section of this module.

While all foreign animal diseases and USDA Program Diseases must immediately be reported to the Assistant Director (AD) AND the State Animal Health Official (SAHO), States may have other diseases of interest that they are monitoring and that are reportable at the State level. Zoonotic diseases may need to be reported to the State Health or Public Health department as well as the Centers for Disease Control and Prevention (CDC). Finally, some reportable diseases are bioterrorism disease agents and may be reportable to Federal and/or State Animal Health Officials (SAHO). There are resources available to learn more about the various diseases cited as examples in this module and they are provided at the end of each section.

Next we will review the consequences of the accidental or intentional introduction of foreign animal, USDA Program and reportable diseases.
Some FADs, such as African horse sickness, peste des petits ruminants, or Nairobi sheep disease, are highly fatal. Others, such as epizootic lymphangitis and foot-and-mouth disease, kill few animals but cause considerable disease, discomfort, and production losses. Scrapie, a USDA Program Disease affecting sheep and goats, causes severe neurological disease leading to discomfort and death for all animals affected. As a result of the USDA National Scrapie Eradication Program, the U.S. should be at or near zero prevalence by 2017.

Human health can be negatively impacted from the introduction of zoonotic diseases. In 2003, Monkeypox virus, a zoonotic FAD, entered the U.S. in a shipment of exotic animals, spread to pet prairie dogs, and subsequently infected humans. Monkeypox virus can be fatal to humans, but fortunately no one died in this outbreak. People infected with the virus only developed a mild, self-limiting flu-like illness and a vesicular rash. In 1947, more than 6,000 cases of human brucellosis (4.4 cases/100,000 population) were reported in the U.S. As a result of the USDA brucellosis eradication program, fewer than 0.5 cases per 100,000 people are now seen each year (mostly B. melitensis). Photo: Vesicular lesions on the hand of a person exposed to Monkeypox virus during the 2003 outbreak.

The consequences to the economy from these diseases can be severe. Should a FAD, USDA Program Disease, or reportable disease be detected in the U.S., the economic impact will likely be felt by a variety of groups including producers (loss of markets, animals), affiliated industries (meat and milk processors, trucking companies may not have as much product to haul due to control efforts), and non-affiliated industries (tourism, sporting events often halt due to control efforts). Depending on the disease, consumer buying patterns may change, potentially having a negative impact on domestic and international markets. Before pseudorabies was eradicated from the U.S., the annual cost to pork producers was approximately $21 million dollars to control disease outbreaks, conduct diagnostic serology, and vaccinate for prevention and control. Source: USDA-APHIS Pseudorabies (Aujeszky’s Disease) and Its Eradication, October 2008. Photo: As part of the pseudorabies eradication program, accredited veterinarians were integral in collecting blood samples to conduct diagnostic serology.
International trade: When internationally important diseases are reported in a country, other nations may quickly ban the importation of susceptible species and related animal products from that country. In 2003, bovine spongiform encephalopathy (BSE) was detected in a single imported cow in the state of Washington. As a result, many U.S. trading partners including Japan, South Korea, Russia, and Mexico suspended imports of U.S. beef and beef products. Many USDA Program Diseases can cause international trade barriers. Eliminating these diseases could introduce new markets for U.S. livestock and poultry, and ease testing and trade restrictions.

Rapid detection and reporting is essential. One reason to detect FADs or Program Diseases quickly is to minimize the costs associated with control, eradication, and trade losses. A second reason is to prevent disease establishment in animal reservoirs (including wildlife) or arthropod vector populations. If a FAD is not recognized quickly and eradicated, its presence could be permanent. This danger is particularly serious when the disease can enter wildlife and/or insect vectors. In 1998, West Nile virus (WNV) was considered to be exotic to the Americas. In 1999, the first cases and fatalities in humans, wild birds, and domestic animals (horses) were recognized in New York. Animal and public health officials hoped to eradicate the virus by conducting surveillance in wild birds and by controlling the mosquito vectors. Since that time, West Nile virus has established itself in wild bird and mosquito populations across North America and has spread into parts of South America. It has become an endemic disease.

Another important group of diseases all accredited veterinarians should be aware of are the OIE-listed diseases. Most of the important FADs and many of the USDA Program Diseases can be found on a list maintained by the World Organisation for Animal Health. This organization, formerly known as the Office International des Epizooties, still uses the acronym OIE. The OIE sets standards for animal diseases affecting international trade. It also collects and disseminates information about disease outbreaks. Most Nations, including the U.S., are OIE members. OIE member countries submit routine reports on the disease status on the OIE listed diseases. If a country is recognized as free of an OIE listed disease, any change in the disease status in that country must be reported immediately. In the past, OIE-listed diseases were traditionally divided into two lists (A and B), with List A
containing the most important diseases in terms of their impact on international trade. In 2004, OIE members approved the creation of a single list of diseases notifiable to the OIE. The list is modified annually in January. It currently contains more than one hundred diseases that affect cattle, sheep, goats, pigs, horses, camels, birds, rabbits, fish, amphibians, mollusks, crustaceans, and/or bees. OIE-listed diseases are very important, as their presence in a country can prevent or restrict the export of susceptible animals and animal products.

Some diseases, particularly emerging diseases such as Hendra or Menangle virus infections, may not (yet) be found on the OIE list. Do not assume that a FAD is not important just because it is not OIE-listed. The remainder of this module provides more detail on the information accredited veterinarians need to recognize and report FADs, Program and Reportable Diseases with links to additional resources.

Graphic: This graphic lists the years various diseases emerged and in what part of the world. 1986: First case of BSE, United Kingdom; 1993: Hantavirus (Sin Nombre Virus), United States; 1994: Hendra virus, Australia; 1997: First human cases of avian influenza H5N1, Hong Kong; Menangle virus, Australia; 1998: Nipah virus, Malaysia; 1999: West Nile virus, United States; 2003: Monkeypox, First case of BSE, United States; 2009: Human H1N1 pandemic, United States, many countries worldwide.
Some foreign animal diseases, such as Nairobi sheep disease, have never occurred in the U.S. Other FADs such as foot-and-mouth disease (FMD), classical swine fever (CSF or hog cholera), bovine babesiosis (cattle tick fever), and screwworms were once endemic* in the U.S. but have now been eradicated through prompt reporting, surveillance, and control efforts. Another FAD, rinderpest, was declared eradicated from the world by the OIE in May 2011. This was the second disease, after smallpox, to be eradicated from the globe through human efforts. Accredited veterinarians need to familiarize themselves with FADs to be able to promptly recognize and report suspicions to animal health authorities. This action can prevent severe losses to animal health, public health (if zoonotic), and impacts on the economy and international trade. 

Presenter: A handout of the FADs of Interest to Category II Veterinarians can be found at the end of the speaker notes PDF provided. If you printed a hard copy, hold it up for demonstration purposes. 

Photo: Close-up of a vesicle on the dental pad in a sheep's mouth due to FMD. Photo source: USDA

* Endemic means that a disease is constantly present in a population. The amount of disease is relatively stable and predictable. Source: Thrusfield, Veterinary Epidemiology 3rd ed., 2007.

Category II accredited veterinarians treating livestock, poultry, and horses need to acquaint themselves with the diseases that are OIE-listed. Many of these diseases are foreign to the U.S., but some, such as anthrax, rabies, and certain strains of bluetongue, are endemic. Accredited veterinarians should be aware of exotic arthropods that could enter the U.S. In addition to the harm they cause directly, these arthropods can carry the agents of FADs.

NVAP Module 5: Vesicular Diseases and NVAP Module 18: Avian Influenza (AI) and Exotic Newcastle Disease (END) provide much more information on FADs that have been or could be encountered on livestock or poultry operations. 

Presenter: A handout of the FADs of Interest to Category II Veterinarians can be found at the end of the speaker notes PDF provided. If you printed a hard copy, hold it up for demonstration purposes.
Awareness of susceptible species and clinical signs of FADs in companion animals is an important responsibility of accredited veterinarians. Companion animals can be hosts for important arthropods not found in the U.S. such as the tropical bont tick, *Amblyomma variegatum* that carries the rickettsia that causes heartwater disease. FADs such as screwworm infestations, Rift Valley fever (RVF), glanders or velogenic Newcastle disease (vND) can affect companion animals and possibly spread to livestock or poultry. Also important to note is the potential for companion animals serving as a fomite. Their footpads and fur or feathers can harbor certain viruses. Companion animal movement between farms with susceptible species could result in disease spread if conditions are favorable. NVAP Module 6: Exotic Avian Diseases and NVAP Module 7: Foreign Animal Disease Detection in Category I Animals provides more information on 12 FADs that have been or could be encountered in companion animals. Presenter: A handout of the FADs of Interest to Category I Veterinarians can be found at the end of the speaker notes PDF provided. If you printed a hard copy, hold it up for demonstration purposes.

FADs can enter the U.S. by a variety of routes. The following slides cover some preventive measures taken to prevent the introduction of FADs into the country.
Many infectious diseases can be carried by asymptomatic animals; as a result, pre-export, import, and/or post-entry quarantines may be required by receiving countries. Some pathogenic organisms may also remain viable in animal products for a period of time. Diseases like foot-and-mouth disease (FMD), classical swine fever (CSF), swine vesicular disease (SVD), and African swine fever (ASF) virus can survive in meat products, even in partially cured products like sausage. The Swine Health Protection Act regulates producers and premises that are feeding meat containing waste (garbage) to swine. The Swine Health Protection Act requires any producer who utilizes waste feeding practices to obtain a permit and requires those producers to follow strict cooking and biosecurity (to prevent recontamination of cooked product) standards. The standards are described in Title 9 of the Code of Federal Regulations Parts 166 and 167.

Introduction of FADs can also occur in (or on) insect vectors and wild animals. Infectious agents carried by insect vectors or in wild animals can pass freely across national borders. Agents that can be carried in migratory birds, which travel long distances and may pass through several countries each year, are of particular concern. Wild animals may also carry arthropod vectors, such as ticks, that are infected with FAD agents. The intentional introduction of a FAD by terrorists is also a possibility. Some agents introduced to affect humans could also infect animals. Zoonotic FADs could be seen by the veterinary profession before physicians. Agroterrorists may intentionally introduce a FAD agent that causes harm to animal health yet has no effect on humans, with the goal of causing economic and trade disruption as well as fear. The intentional introduction of foot-and-mouth disease is one such devastating animal disease that could cripple the U.S. economy.
Imported animals or animal products: Many infectious diseases can be carried by asymptomatic animals; as a result, pre-export, import, and/or post-entry quarantines may be required by receiving countries. Some pathogenic organisms may also remain viable in animal products for a period of time. Diseases like foot-and-mouth disease (FMD), classical swine fever (CSF), swine vesicular disease (SVD), and African swine fever (ASF) virus can survive in meat products, even in partially cured products like sausage. The Swine Health Protection Act regulates producers and premises that are feeding meat containing waste (garbage) to swine. The Swine Health Protection Act requires any producer who utilizes waste feeding practices to obtain a permit and requires those producers to follow strict cooking and biosecurity (to prevent recontamination of cooked product) standards. The standards are described in Title 9 of the Code of Federal Regulations Parts 166 and 167. Photo: Pigs unloading off a livestock trailer. *Photo source: Katlyn Harvey, Iowa State University*

Carried by unsuspecting travelers: Upon entry into the U.S., travelers are required by the Department of Homeland Security to declare if they have been on a farm/ranch/pasture or touched/handled livestock. Travelers could bring FADs into the U.S. if they carry contaminated fomites or are incubating a zoonotic disease. A fomite could be as simple as a shoe that had been worn while walking through a farm or pasture. Travelers entering the U.S. from foreign countries as well as from Hawaii, Puerto Rico, and the U.S. Virgin Islands are also required to declare any meats, animals, and animal products (among other items) that they intend to bring into the U.S. (Source: USDA) The U.S. Department of Homeland Security (DHS) Customs and Border Protection (CBP) is responsible for examining those items. Since it is impossible to screen every traveler, their clothing/footwear, or vehicle for contaminated or prohibited items as well as relying on people’s honesty in completing the declarations form, the risk of FAD introduction exists.
**Import inspection:** In 2003, in accordance with the Homeland Security Act of 2002, a Memorandum of Agreement was signed between DHS and USDA, transferring certain agricultural import and entry inspection functions from USDA to DHS. The DHS employs approximately 58,500 CBP personnel to monitor cargo and vehicles at our borders and ports. Millions of trucks, rail cars, and ship containers enter the U.S. annually. A wide variety of infectious items, from animal products to arthropod vectors or contaminated fomites, might cross the border within these shipments. USDA maintains a border and air/seaport inspection force of approximately 150 inspectors, who monitor the entry or transit movement of APHIS-regulated animals into or through the U.S. Other commodities such as animal products may receive a deferred inspection or be required to undergo other mitigation at or after entry. Given the volume of products and traffic crossing the border, it is impossible to inspect each container or vehicle. In reality, less than 2% of transboundary movement is actually inspected. Thus the risk of FAD introduction exists and vigilance is essential. Given the prevalence of some FADs in countries where our military serve, pre-clearance inspections/examinations of returning military cargo and passengers are performed by military personnel trained as Customs and Border Clearance Agents. *Source: U.S. Transportation Command (USTRANSCOM)*

**International travel waste handling:** Unused meals, other feedstuffs, and trash generated during transport from other countries to the U.S. are regulated under Title 7 CFR §§ 330.400-403 and Title 9 CFR § 94.5. The USDA-APHIS Plant Protection and Quarantine (PPQ)* and DHS CBP are responsible for monitoring garbage unloading from vessels and airplanes that arrive at approved U.S. ports. *PPQ safeguards U.S. agriculture and natural resources from animal and plant pests and noxious weeds. APHIS-regulated garbage includes milk, garbage (unused meals and other foodstuffs), or trash that is comingled with meals, meat, milk, or garbage. It must be off-loaded at the point of arrival and handled in ways that will not introduce a FAD. All APHIS-regulated garbage must be placed in sealed, leak-proof containers and transported to an APHIS approved facility, where it is incinerated to ash, sterilized, or ground and discharged into an approved sewage system. If you notice unapproved handling of international garbage, contact your VS District Office.
The USDA's Animal and Plant Health Inspection Service's (APHIS) Veterinary Services (VS) coordinates the protection of agriculture in the United States. APHIS works to keep FADs out of the U.S. through import regulations of animals and animal products, quarantines, and testing; surveillance of domestic animals and some wildlife species within the U.S.; inspections and investigations of livestock by APHIS field personnel; FAD testing by the National Animal Health Laboratory Network (NAHLN); coordination of responses to animal disease outbreaks; and public outreach and other informational efforts.

Import quarantines and testing will vary from species to species. Livestock and poultry must be imported through a port designated in Title 9 of the CFR for the importation of animals. Most livestock and poultry entering the U.S. are inspected by a USDA Port Veterinarian. If the animal(s) must be quarantined, they must enter the U.S. through USDA Import Centers which are located in Miami, Florida or Newburgh, New York or privately-owned quarantine facilities that have been approved by USDA. Animals may be quarantined at these facilities for 3-60 days, depending on the species, country of origin, and purpose of importation. Before animals (which includes semen, embryos, and hatching eggs) and animal products (e.g., meat, table eggs, etc.) are allowed into the U.S., many must be tested for disease. The testing requirements depend on the species of animal or type of product, the disease status of its country of origin, and the purpose of the shipment.

Although some pre-export testing may be done in the country of origin, APHIS also tests quarantined animals for selected FADs or other diseases of concern. When all required tests are negative and the quarantine period has passed with no signs of disease, the animal is released to its owner. Some post-entry quarantine measures may also be stipulated for certain animals, such as horses from contagious equine metritis-affected countries, or some zoo animals regulated by APHIS. Some pet animals regulated by APHIS, such as dogs returning from countries affected with screwworm, are inspected at ports of entry, but they are not usually quarantined. Pet birds returning to the U.S. from countries other than Canada are required to be tested at the time of inspection and must undergo a 30-day home quarantine; or if returning from a country affected with high pathogenicity avian influenza, must be quarantined for 30 days at a USDA facility. U.S. origin pet birds.
returning from Canada must be inspected, but are not
tested or quarantined at or after arrival in the U.S. Other
‘pets’ (poultry, ruminants, etc.) are required to meet APHIS
importation requirements applicable to livestock
populations of the species involved. Hawaii is free of
rabies and may or may not quarantine animals, depending
on the state of origin and the rabies titer of the animal.
Individual states also have entry requirements that must be
met by importers for livestock, birds, dogs, cats, and other
animals, including pets.

Customs and Border Protection, U.S. Fish and Wildlife
Service inspectors or other federal officials may confiscate
illegally imported animals at U.S. borders, at which point
animals may either be quarantined until further resolution
is possible or euthanized.

The role of accredited veterinarians in FAD surveillance is
important. Accredited veterinarians are essential to the
prompt recognition and reporting of suspicious clinical
signs. Sometimes a disease raises suspicion immediately
because the morbidity or mortality rate is unexpectedly
high, or because the clinical signs are unusual. But FADs
do not always look strange. Many FADs can look like
endemic diseases. The differential diagnosis for classical
swine fever in pigs for example can include salmonellosis,
erispelias, acute pasteurellosis, streptococcosis,
leptospirosis, and porcine reproductive and respiratory
syndrome. The following are reasons to suspect a FAD:
There is a history of possible contact with people or
livestock returning from abroad; the syndrome does not
follow the usual clinical pattern or respond to treatment as expected.

Let’s discuss the importance of reporting suspicions.
Reducing the impact of a FAD on U.S. animal and public
health and the economy requires early detection, prompt
reporting, and rapid response. Should a FAD be
introduced, there are specific steps to follow to report and
control the outbreak. If you suspect a FAD, immediately
contact your State Animal Health Official (SAHO) and the
Assistant District Director (ADD). Accredited veterinarians
should NOT attempt to diagnose a foreign animal disease
or submit samples to a diagnostic laboratory as this could
lead to additional spread if not handled appropriately.
Several hundred foreign animal disease investigations occur every year in the United States. Most people do not hear about all the investigations that occur because the majority are negative. Understanding the various steps in a FAD investigation is important to alleviate the concerns about reporting and ‘what happens next’ when you call in your suspicions to the ADD and SAHO.

If surveillance shows a possible FAD introduction, or upon request from the AD or SAHO, a Foreign Animal Disease Diagnostician (FADD) becomes involved in the investigation. FADDs are federal, state, or university affiliated veterinarians trained by APHIS at the Foreign Animal Disease Diagnostic Laboratory in Plum Island, NY to recognize and respond to foreign animal diseases. There are approximately 500 FADDs that are trained to respond to suspected foreign animal disease outbreaks, assess the situation, and take appropriate samples for testing.

FAD Investigations

**Step 1:** If suspicious signs are identified, they should be reported immediately to the AD and SAHO. This initiates the FAD investigation.

**Step 2:** The AD and/or the SAHO assigns a Foreign Animal Disease Diagnostician (FADD) to investigate the case who will visit the premises and examine the affected animals; conduct a thorough epidemiological investigation; communicate with the National Veterinary Services Laboratories (NVSL) to discuss sample collection, preparation, handling and destination lab; collect diagnostic samples and conduct any necropsies; and help the producer establish biosecurity measures that will prevent the disease from spreading.

**Step 3:** Control measures may be implemented. If a FAD appears to be likely, animal health officials may implement a premises quarantine and/or restricted movement controls before the final laboratory confirmation is available. Planning for the response may also begin.

**Step 4:** a FAD is confirmed or ruled out. If a FAD is confirmed, Federal and State officials will implement a full-scale response plan. If not, quarantines and restricted movement orders will be lifted. Further diagnostics become the responsibility of the animal owner.
**FAD Investigations:**

**Step 5:** Once a FAD is confirmed, Federal and State officials respond. The USDA-APHIS-VS works with the SAHO in the state where the animal(s) is located to coordinate the response to the diagnosed FAD. Other Federal and State agencies may also participate in the response.

**Step 6:** The U.S. must notify the OIE of any non-endemic listed diseases within 24 hours of a confirmed diagnosis. Upon notification, the OIE disseminates disease outbreak information and pathogen detection to its member countries via an internet-based program called the World Animal Health Information System (WAHIS). This allows member countries to take necessary preventative actions, which may involved trade restrictions. U.S. authorities also call neighboring countries and major trading partners.

**OIE Early Warning System:** The OIE notification process includes the following:

Step 1: The OIE has established a warning system that allows member countries to take action should there be an occurrence of a FAD.

Step 2: The infected country is required to inform the OIE Central Bureau in France.

Step 3: The OIE Central Bureau then warns other countries which are considered at risk. Both of these steps must occur within the first 24 hours.

Step 4: Each country considered at risk will take the appropriate preventative actions.

Step 5: The OIE will then disseminate the information to all other OIE member nations.

Step 6: The infected country is required to submit weekly update reports on the outbreak status until the outbreak has been resolved. Graphic: Various steps of the OIE Early Warning System.
The USDA-APHIS National Veterinary Services Laboratories (NVSL) perform or officially confirm the results of all diagnostic testing and studies related to FAD investigations in the United States. The NVSL is composed of 4 testing laboratories, three of which are located in Ames, Iowa. The fourth laboratory is the Foreign Animal Disease Diagnostic Laboratory which is located on Plum Island, New York. The combined NVSL have expertise in all of the diagnostic tests for significant animal diseases found in the Americas. All non-equine vesicular disease* samples and other highly contagious diseases are sent to Plum Island, NY. Potential foreign animal diseases of equine (including vesicular diseases) or poultry origin, as well as transmissible spongiform encephalopathies**, are sent to the laboratories in Ames, IA.

*Vesicular diseases are a group of viral infections with very similar clinical signs. These diseases are characterized by vesicles and erosions, typically on and around the mouth, feet, and mammary glands. Vesicular diseases include foot-and-mouth disease, vesicular stomatitis, swine vesicular disease, and vesicular exanthema.

**Transmissible spongiform encephalopathies are a group of neurodegenerative diseases. The exact nature of the agent underlying TSEs is still under investigation. However, the most widely accepted theory is that the disease is caused by an infectious protein, or prion. Bovine spongiform encephalopathy, scrapie, and chronic wasting disease (CWD) are examples.
During the outbreak, disease control and eradication personnel work from a set of operational guidelines APHIS has developed for responding to FADs. An Incident Command is established in the area of the outbreak, and response teams are dispatched to perform each activity needed to bring it under control. Those activities will be reviewed next.

The Foreign Animal Disease Preparedness and Response Plan (FAD PReP) documents are in various stages of development and available at the websites listed below. These operational guidelines describe the various response activities in a FAD outbreak may involve: Quarantines and movement restrictions; surveillance to show containment, control, identify new cases; epidemiologic investigations; indemnity for animals that must be depopulated; depopulation (or rarely, treatment) of affected and exposed animals; carcass disposal; cleaning and disinfection of affected premises; vaccination; vector controls; management of wildlife; and public education.

Several groups can become involved in the response for controlling FADs. VS may need temporary personnel to assist during a FAD outbreak. NVAP Module 19: Animal Health Emergency Response provides details about various government, state, and private organizations that utilize private practitioners and animal health technicians to respond to an outbreak. A brief list is provided here with links for more information.

- USDA’s National Animal Health Emergency Response Corps (NAHERC)
- National Veterinary Response Team (NVRT)
- Veterinary Medical Assistance Teams (VMATs)
- State emergency response teams: Contact your state Veterinary Medical Association or Department of Agriculture for more information
- Private organizations: Numerous organizations involved
Remain educated about FADs. During the last several decades, many familiar diseases, such as screwworm myiasis, classical swine fever and bovine babesiosis, have been eradicated from the United States. Veterinarians who were once aware of these diseases have retired, and today's accredited veterinarian may only have limited training in emerging and exotic diseases. To be vigilant for FAD detection, first you must be aware of the clinical signs and the species affected. Know what to look for, and then include it on your differential list. Many animal diseases foreign to the U.S. occur in other countries. Remaining educated and current on the nature and location of these diseases can help raise your awareness level.

Disease transmission can be interrupted by controlling exposure through proper disease prevention practices or biosecurity measures. The following should be considered when recommending to producers prevention practices to limit the opportunity for disease entry: consider a closed herd or flock if practical; quarantine new additions and returning animals; buy semen and embryos from sources with a good disease control program; buy feed from reputable sources; isolate sick animals; control rodents (trap, reduce access to food sources); keep a record of visitors; and prohibit entry to animal areas except to essential personnel.

Report unusual illnesses or unexpected deaths; keep wildlife out of animal areas; develop an insect control program; practice good hygiene and sanitation, especially when moving between groups of animals; avoid sharing equipment and tools with other farms; wash and disinfect equipment and vehicles contaminated with animal excrement; wear protective clothing, and clean/disinfect or change footwear when entering the farm; provide protective clothing and footwear for visitors (e.g., service providers).
The USDA established Program Diseases jointly with states and industry to control and/or eradicate specific diseases or pests of livestock and poultry. Programs vary from those focused on eradication, to herd/flock certification, to surveillance, to control disease (a component of all). The next section will provide a brief overview of USDA Program Diseases with resources for more information.

USDA Program Diseases:

**Eradication.** The goal of the bovine and cervid brucellosis, bovine tuberculosis, and scrapie programs is to eradicate these diseases from the U.S. The swine brucellosis and pseudorabies programs have resulted in eradication of these diseases from the US commercial swine population. The programs are now being modified to focus on surveillance activities that increase disease detection methods.

**Certification.** The Chronic Wasting Disease (CWD) Herd Certification Program for farmed cervids, Scrapie Flock Certification Program for sheep and goats, and Trichinae Herd Certification Program for swine recognize and certify herds that are at a low risk of disease. Herd or flock certification can be used to meet international or interstate movement requirements, improve marketability and/or can be a component of an eradication program.

**Surveillance** is an important component of current USDA programs for rapid detection and also to promote trade by ensuring freedom from disease. Some programs, such as the Swine Pseudorabies Surveillance Program and the Cattle Fever Tick Eradication Program* may continue surveillance for diseases, or their vectors, that have been eradicated from the U.S. but could be re-introduced from neighboring countries.

**Control.** Strictly speaking, all of the federal disease programs can be considered control programs. However, some programs have as their goal the prevention of transmission from infected animals. The Equine Infectious Anemia (EIA) Program, for example, regulates the disposition of infected horses but is not an eradication or certification program. *The Cattle Fever Tick Eradication Program conducts surveillance for *Rhipicephalus (Boophilus) annulatus* and *Rhipicephalus (Boophilus) microplus*. These tick species transmit the parasites *Babesia bovis* and *Babesia bigemina*, which cause bovine babesiosis. A permanent 500-mile quarantine buffer zone...
along the Texas-Mexico border was established in 1938 to effectively contain, monitor for and eliminate any fever tick incursions originating from Mexico on stray and smuggled livestock and free-ranging native and exotic ungulates.

USDA Program Disease control and eradication measures include quarantines to stop the movement of possibly infected or exposed animals; testing and examination to detect infection; destruction of infected (sometimes exposed) animals to prevent further disease spread; treatment to eliminate parasites; vaccination (in some cases); and cleaning and disinfection (C&D) of contaminated premises. Source: USDA-APHIS Status of Current Eradication Programs

Regulations for program diseases include eradication, certification, and control programs which are governed by the Code of Federal Regulations, Title 9 Animals and Animal Products –AND– Uniform Methods and Rules (UM&R) –OR– Program Standards for each Program Disease. The Uniform Methods and Rules (UM&R) or Program Standards contain details regarding control procedures, testing, marketing animals, and surveillance. For example, the UM&R for the Cooperative State-Federal Brucellosis Eradication Program contains “minimum standards for certifying herds, classifying States and areas, and detecting, controlling, and eradicating brucellosis, as well as minimum brucellosis requirements for the intrastate and interstate movement of cattle and bison.” Source: USDA-APHIS Brucellosis Eradication: Uniform Methods and Rules, October 1, 2003

Other USDA animal health programs are broader in their scope. For instance, the National Poultry Improvement Plan (NPIP) and the National Aquatic Animal Health Plan (NAAHP) address a variety of diseases affecting poultry or aquatic animals. The NPIP and NAAHP do not have specific Uniform Methods and Rules or Program Standards as found in other USDA Program Diseases. Rather they provide recommendations to States, Tribal Nations, industry and other stakeholders to prevent, control, and manage pathogens of concern to their respective industries. NVAP Module 14: Aquatic Animal Diseases and Related Regulatory Activities and NVAP Module 17: NPIP
Listed here by species are the various USDA Program Diseases that will be reviewed. Complete details about each program are beyond the scope of this overview module. Links for more information are provided after each program summary coming up and recording these websites for future reference is encouraged. The next several slides provide a brief overview with resources for self-study on each disease program. **Bovine Programs:** Bovine Brucellosis Eradication, Voluntary Bovine Johne’s Disease Control Program, Bovine Tuberculosis Eradication. **Cervid Programs:** Brucellosis Eradication, Chronic Wasting Disease (CWD) Herd Certification Program. **Equine Programs:** Equine Infectious Anemia (EIA), Equine Viral Arteritis (EVA). **Sheep & Goat Programs:** National Scrapie Eradication Program, Voluntary Scrapie Flock Certification Program. **Swine Programs:** Swine Brucellosis Eradication, Pseudorabies Surveillance, Trichinae Herd Certification Program.

First we will review the various USDA Program Diseases for bovine: brucellosis, tuberculosis, and Johne’s disease.
**Bovine brucellosis**, caused by *Brucella abortus*, is a serious disease of livestock that has significant animal health, public health and national and international trade consequences. Brucellosis mainly affects domestic cattle, bison, and swine; however goats, sheep and horses are also susceptible. In its principle hosts, brucellosis infection causes loss of young through spontaneous abortions or birth of weak offspring, decreased milk production, and occasional sterility in cattle. There is no economically feasible treatment for brucellosis in livestock. Humans may become infected by contact with infected animal tissues or ingestion of dairy foods made using unpasteurized milk from infected animals. In humans, brucellosis initially causes flu-like symptoms and may develop into a variety of chronic conditions, including arthritis. Humans can be treated for brucellosis with an extensive course of antibiotics. A cooperative state-federal brucellosis program was established in 1934. This program, which has evolved through the years to meet the needs of disease eradication efforts and the cattle industry, has nearly eradicated bovine brucellosis from U.S. domestic animals. Brucellosis vaccination is still used as part of the Brucellosis program activities in some states, although it is declining in the U.S. overall. The national brucellosis vaccination policy recommends judicious and appropriate use of vaccination in herds at risk of exposure in high-risk areas.

**State Classification:** The bovine brucellosis program currently classifies states into Class Free (no infections), Class A (herd infection rate not exceeding 0.250%), and Class B (herd infection rate not exceeding 1.500%). States can be divided into areas, with each area reflecting a different class based on the herd infection rate. In July 2009, all fifty States achieved brucellosis Class-Free state status. In 2009, APHIS proposed a new approach that will transition the bovine Brucellosis program from the current state-based classification system to an approach where any restrictions will be based on the risk of transmission of brucellosis from a specific area rather than the entire State. A national surveillance system that includes a risk-based disease management area approach will facilitate this transition.
**Surveillance** for the **bovine brucellosis eradication** program. In recent years, most brucellosis-affected herds have been identified through Market Cattle Identification (MCI) surveillance activities. Slaughter surveillance and first-point testing (testing at markets and points of concentration) have proven successful in finding suspect and reactor animals, leading to the disclosure of brucellosis-affected herds. Requirements for testing prior to inter or intrastate movement, sale or exhibition, or State-specific area testing requirements have also been instrumental in finding brucellosis-affected herds. In 2011, amendments were made to the State-Federal Cooperative Brucellosis Program, reflecting a national slaughter surveillance plan that demonstrates the disease-free status of the U.S. domestic cattle and bison herd. The new national bovine brucellosis slaughter surveillance plan provides for testing of samples collected from test-eligible animals at slaughter and provides a 95% confidence that brucellosis would be detected in as few as one infected animal per one million animals. Suspected cases of bovine brucellosis must be reported to the appropriate animal health authorities by veterinarians, laboratories, and producers.

**Bovine brucellosis eradication program changes.** In October 2009, APHIS published a concept paper entitled “A New Direction for the Bovine Brucellosis Program” in the Federal Register that outlined proposed changes to the Brucellosis Program. These potential changes represent a new approach to managing bovine Brucellosis in the United States that will effectively demonstrate the disease-free status of the United States through a national status-based program supported by a national surveillance strategy; enhance efforts to mitigate disease transmission from wildlife; enhance disease response and control measures; implement a risk-based disease management area concept; and modernize the regulatory framework to allow for disease risks to be quickly addressed. Because both the bovine brucellosis and bovine tuberculosis programs are undergoing similar changes, APHIS will develop a single rule for both the Brucellosis and TB programs that ensures consistency and flexibility while reducing administrative burdens.
Bovine tuberculosis (TB) is caused by *Mycobacterium bovis*, a rod-shaped, acid fast bacterium. This organism can infect all warm-blooded animals, including humans. The cooperative State-Federal Tuberculosis Eradication Program began in 1917. Bovine TB has nearly been eradicated from U.S. livestock, and the prevalence rate in cattle herds is now less than 0.001%; however, sporadic cases continue to occur. Barriers to complete eradication include the presence of the disease in wildlife, imported cattle, and captive cervid herds. Bovine TB is now rare in humans as a result of the eradication program, milk pasteurization, and advances in sanitation and hygiene, and the development of effective human treatments.

The bovine tuberculosis eradication program has historically classified states into status levels based upon the number of TB-affected herds in the State. A State’s bovine TB status is a primary determinant of the requirements for interstate movement of livestock, with more restrictions placed on animals from States in lower status levels of the program. A zone with a different status can also be formed within a State on a case-by-case basis. This is commonly referred to as “split-State status.”

- Accredited Free states: 0% prevalence of TB affected cattle and bison herds.
- Modified Accredited Advanced states: <0.01% prevalence of infected cattle and bison herds.
- Modified Accredited states: < 0.1% prevalence of infected cattle and bison herds.
- Accredited Preparatory states: <0.5% prevalence of infected cattle and bison herds.
- Non-accredited states: Do not meet the provisions of the tuberculosis UMR or have a herd prevalence rate of 0.5% or greater. States may have different statuses levels for bovines and captive cervids. In 2009, APHIS proposed a new approach that will transition the bovine TB program from the current state-based classification system to an approach where any restrictions will be based on the risk of transmission of TB from a specific area rather than the entire State.
Surveillance for TB consists of slaughter surveillance in cattle and bison and live-animal testing in cattle, bison, and captive cervids. Tuberculin tests must be done by a Category II accredited veterinarian (caudal fold test only), designated accredited veterinarian, or state or APHIS veterinarian. A designated accredited veterinarian is a specially trained accredited veterinarian who has been approved to perform additional tuberculosis tests such as the single cervical test (cervids) or the bovine interferon gamma assay. Designated accredited veterinarians may also be approved for other TB program activities. Testing: The caudal-fold test (CFT) is the official tuberculin test used in cattle, bison, or goats for routine testing. The single cervical tuberculin (CT) test is used in captive cervids. Practitioners must become designated accredited veterinarians to perform this test. The tuberculin test is read by observing AND palpating the injection site 72 hours +/- 6 after injection. Observation without palpation is cause for removal of veterinary accreditation. Animals must be officially identified at the time of the test.

Tuberculosis Program Changes: In October 2009, APHIS published a concept paper entitled “A New Approach for Managing Bovine Tuberculosis” in the Federal Register that outlined proposed changes to the TB program. These potential changes represent a new approach to managing bovine TB in the United States that will mitigate the introduction of TB into the U.S. national herd; enhance TB surveillance; increase options for managing TB-affected animals and herds; modernize the regulatory framework; and transition the TB program from a State classification system to a science-based zoning approach. Because both the bovine TB and brucellosis programs are undergoing similar changes, APHIS will develop a single rule for both the TB and brucellosis programs that ensures consistency and flexibility while reducing administrative burdens.
**Voluntary Bovine Johne’s Disease Control Program**
- *Mycobacterium avium* subsp. *paratuberculosis*
  - Infect young
  - Chronic subclinical carriers
  - Shed organism
  - Progressive cases, eventually fatal, wasting diarrhea
  - Official test positive animals moved interstate
  - Regulated under 9CFR part 80
  - Official eartag, owner-shipper certificate to recognized slaughter establishment/approved livestock facility

**The control program for Johne’s disease is voluntary.**
Johne’s disease (paratuberculosis) is a disease of ruminants caused by *Mycobacterium avium* subsp. *paratuberculosis*. Animals are usually infected when they are young. Many become chronic subclinical carriers and may shed the organism, but only a few carriers develop overt clinical signs, usually after an incubation period of years. Clinical cases are progressive and eventually fatal, with wasting and diarrhea as the most prominent signs. If Johne’s disease remains uncontrolled in a herd, more animals start to become ill, and clinical signs develop at an earlier age. Interstate movement of cattle, sheep, goats, and other domestic animals that test Johne’s positive using an official test is regulated under 9CFR part 80. In general, the animals must bear an official eartag and be shipped with an owner-shipper certificate to a recognized slaughter establishment or approved livestock facility that will sell the animal to such an establishment.

**Voluntary Bovine Johne’s Disease Control Program (cont’d)**
- Elements of the Program
  - Producer education about disease costs and management strategies
  - Producer assistance in establishing good management strategies
  - Herd testing and classification to demonstrate disease risk level

**The three elements of the voluntary Johne’s disease program consist of**
1) Producer education about disease costs and management strategies; 2) Assistance to producers in establishing good management strategies; and 3) Herd testing and classification to demonstrate the level of risk of Johne’s disease. Graphic: Johne’s Disease Control Program educational pamphlet.

**USDA Program Diseases: Cervid**

**Next we will review the various USDA Program Diseases for cervids:** brucellosis and chronic wasting disease (CWD).
**Brucellosis in Cervidae** is caused by *Brucella* species (*abortus and suis*). Currently, there is no federal cervid brucellosis eradication program, but several States have developed State administered cervid brucellosis programs. Many of the State’s cervid brucellosis programs include a brucellosis herd certification program for captive cervid herds. Under this herd certification program, cervid herds can be recognized as certified brucellosis-free (movement testing is not required) or brucellosis-monitored. In addition, many of the State cervid brucellosis programs utilize the disease control and eradication standards described in the *Brucellosis In Cervidae Uniform Methods and Rules, September 30, 2003*. These program standards reflect such activities as testing before interstate movement or at slaughter, and quarantining and further testing or depopulation of brucellosis-affected herds. As APHIS works to develop the single comprehensive rule for both the bovine Brucellosis and bovine TB programs, cervids will be included. Activities for cervids will reflect surveillance, interstate movement and herd certification standards.

**Chronic Wasting Disease (CWD)** is prion disease of cervids in North America resulting in degenerative neurological illness. It has been reported in wild deer, elk, and moose populations, and in captive cervid herds in North America. As of 2011, CWD has been identified in free ranging cervids in 15 U.S. states and two Canadian provinces (Alberta and Saskatchewan). Since 2003, APHIS has cooperated with state agencies in CWD surveillance and prevention and control programs in both farmed and free-ranging cervid populations. This has included testing affected and exposed animals, paying indemnity, based on availability of federal funding, for appraisal, depopulation, and disposal, and developing herd plans.
The APHIS National CWD Herd Certification Program (HCP) is designed to be a voluntary Federal-State-Industry cooperative program administered by APHIS and implemented by participating states. In June 2012, APHIS published an interim final rule that established a voluntary herd certification program (HCP) to address the needs of the farmed cervid industry and concerns of State animal health and wildlife partners. The rule established a National program that provides uniform herd certification standards and supports the domestic and international marketability of U.S. farmed cervid herds. A final CWD rule was published in the Federal Register on April 29, 2014 following consideration of public comments received. This National CWD program was developed in coordination with States and the farmed cervid industry. The CWD Program Standards describe participation requirements; registration, identification, and record keeping requirements; fencing requirements; surveillance and sampling procedures; diagnostics, reporting and interstate movement. Guidance on responding to CWD affected herds is included. Several states already have CWD monitoring or certification programs for captive herds.

Next we will review the various **USDA Program Diseases** for **equine**: equine infectious anemia (EIA) and equine viral arteritis (EVA).

Equine infectious anemia (EIA) is an insect-transmitted retroviral infection of equids. All equids, including those that are asymptomatic, become carriers and are infectious for life. The control of EIA is mainly carried out by the individual states and the USDA has disease control regulations that regulate infected horses. The EIA UM&R provides recommendations to assist states in standardizing control programs and movement requirements.
Most states have an import **testing** requirement. These requirements may vary from state to state. Always check the import state(s) testing requirements prior to interstate travel. It is also advisable for equine owners to confirm testing requirements prior to movement because some exhibitions/competitions may require EIA testing prior to entry. Only accredited veterinarians or state or federal animal health officials or military veterinarians can submit blood samples for EIA testing. The most widely-accepted laboratory test for EIA diagnosis is the agar gel immunodiffusion (AGID) or Coggins test. This test identifies infected animals by detecting antibodies to the EIA virus. ELISA tests are also used to screen animals. Because false positives are more common in this assay, the serum from a reactor is retested in the Coggins test before any regulatory action is taken.

Equine viral arteritis (EVA) is an acute, contagious viral disease of horses and other equids caused by equine arteritis virus. Infection results in abortions and occasional disease and death in young foals. EVA decreases the commercial value of carrier stallions and reduces export markets for infected animals and their semen. Most nations do not allow carrier stallions or semen from these animals to enter the country. Voluntary Control Program: The control of EVA is influenced by differences in virus transmission between stallions, which become asymptomatic chronic carriers and shed the virus in semen for years, and mares and immature horses, which are infectious only during the acute stage. In acutely ill animals, the virus is transmitted by both respiratory and venereal routes.

EVA control includes isolation of acutely infected horses while they are shedding the virus; vaccination of uninfected stallions each year before breeding; testing of seropositive stallions that do not have an EVA vaccination certificate; and selective breeding of stallions that shed EVA (carriers) as approved by the State Animal Health Official (SAHO).
Next we will review the various **USDA Program Diseases** for **sheep and goats**: National Scrapie Eradication Program (NSEP) and the Scrapie Flock Certification Program (SFCP).

**Scrapie** is a fatal, degenerative TSE* affecting the central nervous system (CNS) of **sheep and goats**. It is characterized by a long incubation period. Clinical signs include incoordination, behavioral changes, other neurological signs, and in some cases, intense pruritus; any of which may be accompanied by loss of condition. Scrapie was first reported in the United States in 1947. Scrapie is relatively rare in the U.S. but the economic impact is significant.

*Transmissible spongiform encephalopathies (TSEs) are a group of fatal, neurodegenerative diseases. The exact nature of the agent underlying TSEs is still under investigation. However, the most widely accepted theory is that the disease is caused by an infectious protein, or prion. Bovine spongiform encephalopathy, scrapie, and chronic wasting disease (CWD) are examples.

In 1952, the **National Scrapie Eradication Program (NSEP)** was established. The NSEP is a mandatory program that applies to all sheep and goat producers in the United States. The NSEP was revised in 2001 to accelerate the eradication of scrapie from the United States. The revised program requires the official identification of most sexually intact sheep and goats in commerce; additionally, it identifies scrapie-infected animals through surveillance of mature cull sheep and goats at slaughter as well as suspects reported by veterinarians and producers. **NVAP Module 11: Sheep and Goats: Scrapie and Health Certificates** provides more details about NSEP and SFCP.
The Scrapie Flock Certification Program (SFCP) was added in 1992 and is a voluntary certification program within the NSEP. The SFCP identifies scrapie free flocks by monitoring them over a 5-7 year period. Participation in the SFCP has multiple benefits for participants. Because the U.S. has not yet eradicated scrapie, producers who wish to export sheep and goats to most countries, including Canada, must participate in the SFCP. Enrollment also increases the marketability of the flock in domestic markets. Finally, animals from export certified flocks are valuable breeding stock for other flocks.

Next we will review the various USDA Program Diseases for swine: brucellosis, pseudorabies and trichinae.

Swine brucellosis eradication program: Swine brucellosis is caused by *Brucella suis*. Reproductive signs are most common, but lameness can also be seen. Cattle are also occasionally infected with *B. suis*. Pigs can be infected with *Brucella abortus* or *B. melitensis*, but this is rare. *Brucella suis* (as well as other *Brucella* species) is zoonotic; human infections are usually the result of occupational exposure to infected pigs. In 1961, concerns over human brucellosis in swine abattoir workers prompted the establishment of the swine brucellosis program. In 1997, APHIS began the Brucellosis Emergency Action Plan (EAP). As a result of the EAP, brucellosis surveillance and the management of new cases are conducted as emergencies. As of November 2011, all States commercial swine herds are swine brucellosis free (stage III – eradicated but States continue to conduct surveillance). Swine brucellosis continues to exist in feral swine and herds allowing exposure to feral swine. **Surveillance:** APHIS is revising their surveillance methods, moving from an eradication phase to a targeted surveillance approach that allows for rapid detection. Breeding pigs are tested for brucellosis before they are sold, when they pass through markets, and at slaughter.
Pseudorabies (PRV or Aujeszky’s disease) is caused by a contagious herpesvirus (pseudorabies virus). Infection with the virulent strain that emerged in 1962 causes neurologic signs in nursing piglets and respiratory disease in older pigs. Pregnant animals may abort, resorb their fetuses, or give birth to mummified or stillborn fetuses. Young pigs often die, but older pigs typically survive. PRV can infect other species including cattle, dogs, cats, and sheep but does not infect humans or horses. PRV may cause an intense pruritus in those species; death often occurs in a few days. The Pseudorabies Eradication Program was established in 1989 due to the severe outbreaks caused by the virulent virus. This Industry-State-Federal cooperative program effectively eliminated the virus from commercial swine in 2004 and all States commercial swine are PRV Free. This program has moved to post-eradication surveillance as outlined in the PRV Surveillance Plan. PRV still exists in feral swine. Sporadic cases are occasionally identified in swine herds with exposure to feral swine.

Pseudorabies surveillance: Targeted surveillance is utilized for PRV because it increases the odds of rapidly finding disease and helps protect and ensure the commercial swine industry is disease free. The surveillance plan has three goals: 1) Rapid detection; 2) Demonstration of freedom; and 3) Monitoring risk of PRV introduction. To support these goals, samples may be collected from diagnostic laboratories, premises with feral swine exposure, premises with increased risk from feral swine, markets and buying stations, and various slaughter establishments including sow-boar and market swine.

The Trichinae Herd Certification Program was initiated to minimize the risk of human trichinellosis and to facilitate exports of fresh pork from the U.S. Trichinellosis is caused by eating meat contaminated with the parasitic nematode Trichinella. T. spiralis is the species found in pigs. If an animal or person is infected by large numbers of Trichinella, the clinical signs may include diarrhea, anorexia, fever, weakness, myositis. Trichinellosis is a concern mainly in humans. Most infections in domestic animals are asymptomatic or undiagnosed. Photo: White circles mark Trichinella spiralis in muscle. Source: University of Georgia, Athens.
The **Trichinae Herd Certification Program** is a voluntary pre-harvest pork safety program. It is designed to certify herds which, due to their management practices, have little risk of being infected with *T. spiralis*. Qualified Accredited Veterinarians conduct audits to record risk factor interventions on the farm. After at least two audits, pigs and pork products from the farm can be sold as “trichinae certified.” Accredited veterinarians can become auditors in the Trichinae Certification program after training in good management practices by APHIS or its designee(s). Qualified accredited veterinarian status must be renewed every 2 years. Only qualified accredited veterinarians or qualified APHIS veterinarians can conduct audits for enrolled herds.

**Program diseases and interstate movement**: Testing requirements for program diseases usually depend on the disease prevalence in the originating and destination State. Animals from herds that are certified free of a particular disease may be exempt from some testing. The interstate movement of animals is regulated by Federal laws and/or by rules set by the State the animal is entering. Most interstate movement regulations apply to livestock and poultry. Always check with the destination State Animal Health Official (SAHO) for current testing requirements, as regulations may change without notice.

Many USDA Program Diseases are also **reportable diseases**, which is the topic of the last section of this presentation.
As a review from the introduction, **reportable diseases** vary by the type of disease (foreign animal, program, zoonotic) and the level of authority they are reported to (State, Federal, international). Diseases are also reportable under different time frames, depending on the need for control measures. If a unique disease situation presents itself, call the office of your AD, SAHO, and State Public Health Veterinarian and ask about its reportability to be certain the disease is handled appropriately. Links to SAHOs and ADs were presented previously.

**State reportable diseases:** States are responsible for establishing which diseases and the timeframe in which they must be reported. While FADs and serious human zoonoses appear on the list in every state, other diseases are reportable according to the state’s control programs and concerns. As a federally accredited veterinarian, it is your responsibility to be aware of the reporting requirements in your state. In many cases, these lists can be accessed online at the state’s agriculture department or legislative documents (State Codes) website. Tip: An Internet search that includes the state’s name, the term “reportable disease” and the names of one or two FADs (e.g., classical swine fever and African horse sickness) will often take you directly to your state’s list. Animal diseases should be reported to the office of the SAHO. If it is zoonotic, it should also be reported to the state’s Department of Health; not all states have a designated State Public Health Veterinarian so communicate with an appropriate official. Ensure you follow the required reporting time frame.

**Federal reportable diseases:** Animal diseases of Federal importance should be reported to the AD or designee. Those include all foreign animal diseases, certain USDA Program Diseases, and some bioterrorism disease agents. Ensure you follow the required reporting time frame. In some cases, the diagnostic laboratory will report the findings directly to the AD and SAHO. However, it is your responsibility as the accredited veterinarian to ensure the appropriate authorities were notified. Two phone calls are better than none. Animal diseases with zoonotic potential may also need to be reported to the Centers for Disease Control and Prevention (CDC). These are referred to as “notifiable” diseases and your State Department of Health can provide the CDC with the information needed. This may occur immediately or as periodic reports from each state.
Internationally reportable diseases: Confirmed foreign animal diseases must be reported by the U.S. Chief Veterinary Officer to the World Organization for Animal Health (OIE) within 24 hours of a confirmed diagnosis. Within this timeframe, our trading partner countries will also be notified. After the initial detection of BSE in an imported cow in 2003, and because of the public health significance of the disease, BSE Enhanced Surveillance was initiated from 2004 to 2006. More than 750,000 cattle were tested and two additional atypical BSE cases were detected. In 2006, the BSE Ongoing Surveillance Plan was implemented and tests approximately 40,000 cattle per year, focusing on animals at higher risk for BSE. The program exceeds OIE testing standards. Samples are collected from various streams but on-farm mortalities with histories of CNS signs provide particularly valuable samples. Accredited veterinarians play a critical role in collecting and submitting samples and should work with their ADD to ensure that necessary protocols are followed. To prepare its annual report to the OIE, APHIS uses information entered into the National Animal Health Reporting System (NAHRS). NAHRS records data on OIE-listed diseases in livestock including cattle, goats, sheep, swine, and horses, as well as poultry and aquatic animals. Data are supplied monthly on a voluntary basis by State Animal Health Officials, based on the information reported by private practitioners, laboratories, and others. NAHRS data is available to all stakeholders involved in public, animal, and environmental health.

The importance of prompt reporting cannot be overemphasized. Prompt reporting of diseases can prevent the spread of foreign animal, program or zoonotic diseases; reduce the risk that a FAD will become established in wildlife or arthropod reservoirs; prevent the spread of important contagious domestic diseases; prevent human disease; reduce the economic costs of an outbreak. When in doubt about a disease's significance or likelihood of being a FAD or USDA Program or reportable disease, immediately call the State Animal Health Official or ADD.
Now that you have completed this module, you should be able to:

- Define a foreign animal, USDA Program, and reportable diseases
- Describe the safeguards that help prevent FADs from entering the U.S.
- Outline the steps in a foreign animal disease investigation
- List the USDA programs for controlling or eradicating diseases in various species of livestock and poultry
- Report foreign animal and reportable diseases
- Locate additional resources and learning opportunities
- Recognize the additional opportunities available to accredited veterinarians

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Specific (sections) were reviewed within USDA-APHIS-VS by: David Pyburn, DVM, Swine Health Programs (Trichinella); Troy Bigelow, DVM, Swine Health Programs (Brucellosis, Pseudorabies); Equine Program Diseases (EIA, EVA); Debra Donch, DVM, PEM, National Brucellosis Epidemiologist and Program Manager (Brucellosis); Tuberculosis Eradication Program Staff; Karen A. James-Preston, DVM, MPA, Director, National Center for Import Export – Animal Products (Import); Patrice N. Klein, MS, VMD, DACPV, DACVPM, Senior Staff Veterinarian – Chronic Wasting Disease Program Manager (CWD); Dean Goeldner, DVM, Senior Staff Veterinarian (Johne’s Disease, Bovine Spongiform Encephalopathy); Alan Huddleston, VMD, National Scrapie Program Coordinator (Scrapie); Diane Sutton, DVM, National Scrapie Program Coordinator (Scrapie). The content has been reviewed and approved by USDA-APHIS Legislative and Public Affairs.