Protecting Livestock & Poultry Health, Public Health and the Food Supply

The California Animal Health and Food Safety Laboratory System (CAHFS) provides the early warning system that helps protect the health of California’s livestock and poultry and safeguards public health with rapid and reliable diagnoses for animal diseases. CAHFS operates in partnership with the California Department of Food and Agriculture (CDFA), veterinarians, and livestock and poultry producers.

CAHFS’ core mission is to provide the surveillance and diagnostic support necessary to rapidly detect and respond to catastrophic and emerging animal diseases, including Foot and Mouth Disease, Exotic Newcastle Disease and Highly Pathogenic Avian Influenza (Bird Flu). CAHFS faculty and staff have an outstanding record of discovering and describing new and emerging diseases and developing new and improved diagnostic methods.

Critical surveillance and response capability

- In 2014, scientists detected Avian Influenza (AI) virus subtype H5N8 in a quail flock. Quail have the ability to serve as a “mixing vessel” where human and avian strains of influenza viruses can recombine to create new strains that may be more pathogenic to animals and people. Early detection by CAHFS prevented spread of the disease.
- In order to detect AI early, CAHFS performs over 21,000 AI surveillance tests yearly on all species of wild and domestic birds from both routine necropsy submissions and CDFA/USDA live bird surveillance samples.
- CAHFS is the only laboratory in California that provides support for the USDA/CDFA bovine tuberculosis program.
- The last confirmed herd infected with bovine TB was in 2013.
- In 2012, scientists detected the first case of “atypical Bovine spongiform encephalopathy” in California. CAHFS is one of only 7 labs in the US approved to perform this testing. Following this detection, the laboratory hosted trade delegations from Taiwan and South Korea to demonstrate the highly effective BSE surveillance program in the U.S., which directly contributed to keeping the multi-million dollar trade markets open to beef exports.
- In 2009, diagnosticians detected a very virulent form of infectious bursal disease virus (vvIBDv) in a commercial layer flock. This strain had not been previously documented in the United States. The CAHFS diagnostic team developed and validated a rapid assay for detection of vvIBDv. As of June 2014, more than 100 cases originating from commercial and backyard flocks have been diagnosed with the disease.
- In 2002, researchers diagnosed Exotic Newcastle Disease (END) in backyard chickens, which led to a $168M joint USDA/CDFA eradication effort. CAHFS performed more than 110,000 tests for the disease in 10 months. Anticipating the need for a rapid, high volume test to show freedom from the disease, CAHFS, working with several commercial companies, developed an innovative, high throughput PCR test which markedly shortened the time to reopen international markets and reduced the overall cost of the outbreak.
- As a core laboratory in the National Animal Health Laboratory Network (NAHLN), CAHFS has the expertise and capability to test for a number of foreign animal and high-consequence domestic diseases. CAHFS has recently been involved in validation of a method that allows screening of bulk milk for FMD. This will provide rapid determination of herd status, which allows more effective quarantine measures, deployment of response personnel and valuable information to assist in keeping export markets open.
Innovative and powerful collaboration

- One of the largest animal health laboratory systems in the nation, the CAHFS team routinely collaborate with UC Davis School of Veterinary Science faculty to support research, teaching and public service activities and initiatives. The system’s faculty and staff expertise, statewide scope and in-depth disease investigation benefits both private and public stakeholders.

Ensuring food and feed safety

- California produces more than 21% of the U.S. milk supply. CAHFS provides diagnostic laboratory support to the CDFA Milk and Dairy Food Safety Program, assuring a safe and wholesome milk supply for consumers of California products world-wide.
- CAHFS offers a free backyard poultry postmortem service that has detected toxic levels of lead in backyard chickens whose eggs were a source of food for the owners. In rapidly-growing urban communities, this service can be critically important to families that may not be aware of disease risks associated with keeping backyard chickens. The service also assists the state in detecting index cases of rapidly moving viral diseases such as END and AI in order to prevent economically devastating outbreaks from significantly impacting the state’s economy.
- In 2013, the Equine Analytical Chemistry Laboratory, during routine post-race testing of urine from horses at several tracks in California, detected the banned substance zilpaterol. Occurrences of the substance at multiple, geographically separate sites led to a multi-agency investigation which focused on feed as the source of the drug. CAHFS quickly developed an assay to detect the compound at low levels in feed and molasses. The investigation discovered that the feed, which had been given to the horses who tested positive for zilpaterol, contained molasses supplied from a company that also made cattle molasses premix containing zilpaterol, which led to accidental contamination of the horse feed.
- As a member of FDA’s Veterinary Laboratory Investigation and Response Network, which primarily responds to contamination events in animal feed, CAHFS is currently assisting FDA with the ongoing investigation of suspected contaminated “jerky treats” from China that has led to sickness and death in pets.
- In 2007, CAHFS collaborated with the FDA and played a critical role in identifying melamine and cyanuric acid in pet food as the cause of kidney failure in cats and dogs. Toxicologists then developed tests to screen for melamine in pet food.

Monitoring environmental health and our natural resources

- The Deepwater Horizon oil spill in the Gulf of Mexico - recognized as the worst oil spill in U.S. history - occurred in 2010. As a Food Emergency Response Network member, toxicologists responded to this emergency food contamination event by providing testing of Gulf seafood for oil residues.
- CAHFS faculty worked with biologists at Integral Ecology in conducting a three-year mortality investigation of Pacific fishers (mammals related to pine martens and wolverines). In 96% of the animals, evidence of anticoagulant rodenticide poisoning or exposure was detected. Illegal marijuana cultivation sites were identified as the likely primary source of exposure for this endangered species. Contamination of these public forest and park lands in California is an emerging issue and CAHFS’ testing of wild animal species serves as a critical monitor of environmental health.