UCDAVIS
VETERINARY MEDICINE
California Animal Health and Food Safety Laboratory System

CAHFS CONNECTION

February 2012

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HOLIDAY SCHEDULE

In observance of President's Day, CAHFS will be closed on **Monday, Feb 20, 2012.**

Equine

Equine Herpesvirus type 1 is a primary equine pathogen that produces respiratory disease, abortion, neonatal death and/or neurological disease. A variant of this virus contains a certain mutation in the viral genome ('neuropathogenic marker'), which causes the virus to have a special affinity for nervous tissue; therefore, it is associated most commonly with neurologic signs in EHV-1 outbreaks. However, both forms of the virus (non-neuropathogenic and neuropathogenic) may produce all the syndromes listed above. Clinical examination, necropsy and histopathology can provide only a presumptive diagnosis of the disease. Confirmation of the diagnosis is usually reached by PCR on samples from live or dead horses. This technique has the advantage to differentiate between the non-neuropathogenic and the neuropathogenic form of the virus. Veterinarians or horse owners wishing to test their horses (showing clinical signs or having recently been exposed) for Equine Herpes Virus-1 (EHV-1) should submit a nasal swab sample to CAHFS-Davis. The swab can be shipped in viral transport media or simply in a red-top tube on blue ice overnight. The virus can be detected by nasal swab samples from day 1 to day 10 post-infection. An EDTA blood sample may also be submitted in a purple-top tube, however, the window for detecting the virus is much smaller (4-8 days post-infection). Samples will be tested for EHV-1 with and without the neuropathogenic marker. More information about Equine Herpesvirus-1 and its associated diseases can be found at:
http://www.cdfa.ca.gov/AHFSS/Animal_Health/pdfs/QA_EHV-1NeuropathogenicStrain.pdf

Toxicology

Strychnine poisoning. A Barbados sheep was found dead. There was initial concern that the sheep might have ingested tree tobacco (*Nicotiana glauca*) which was present in the animal's environment. Rumen contents were tested for plant alkaloids. No nicotine was identified, but, surprisingly, **strychnine** was detected. There was a suspicion that the sheep might have been intentionally exposed to the rodenticide, although no source for exposure was identified. This case emphasizes the need for considering historical information that might point towards a malicious chemical exposure, thorough searching of an animal's environment for possible sources of exposure and submission and testing of any suspicious environmental or feed sample that is identified. This is in addition to a full suite of tissue and fluid samples (blood, urine, eyeball, gastrointestinal contents, liver, kidney and brain) for analysis.

Detection (or isolation) of bacterial agents

Successful isolation and identification of bacterial agents requires that the sample be preserved in the best possible condition after collection and during shipment to CAHFS. Samples from non-sterile sites such as skin, eyes, and feces, are susceptible to overgrowth of normal flora which makes isolation of the potential pathogenic agent more difficult. To improve pathogen recovery and identification, samples should be kept moist at refrigerator temperature (40°F) and shipped to the lab within 24 hours of collection with organism of interest indicated on the submission form. , Aerobic, Mycoplasma, and anaerobic bacteria may have different preferred preservative systems. Please contact the lab if you are uncertain as to the recommended submission media and would like input before sample collection.

CAHFS Lab Locations

CAHFS - Davis
University of California
West Health Sciences Drive
Davis, CA 95616
Phone: 530-752-8700
Fax: 530-752-6253
cahfsdavis@cahfs.ucdavis.edu

CAHFS - San Bernardino
105 W. Central Avenue
San Bernardino, CA 92408
Phone: (909) 383-4287
Fax: (909) 884-5980
cahfssanbernardino@cahfs.ucdavis.edu

CAHFS - Tulare
18830 Road 112
Tulare, CA 93274
Phone: (559) 688-7543
Fax: (559) 686-4231
cahfstulare@cahfs.ucdavis.edu

CAHFS—Turlock
1550 Soderquist Road
Turlock, CA 95381
Phone: (209) 634-5837
Fax: (209– 667-4261
cahfsturlock@cahfs.ucdavis.edu

Your feedback is always welcome. To provide comments or to get additional information on any of the covered topics or services, please contact Sharon Hein at slhein@ucdavis.edu.

We're on the Web
www.cahfs.ucdavis.edu

Bovine

***Mycoplasma bovis* cellulitis:** Four cows with a history of lameness and swelling of one or more legs were diagnosed with ***Mycoplasma bovis* cellulitis**. *M. bovis* was detected in the inflamed subcutaneous tissue of all affected limbs. Although the route of infection was not definitely established, it was speculated that the organism might have entered through the intact skin or skin abrasions. Carpal trauma may have provided a favorable environment for localized *M. bovis* growth.

Histophilus somni*:** A 6-month-old calf was submitted for necropsy with a history of lethargy from a herd with increased mortality (7 dead at the time of submission). No respiratory or neurologic signs were noted by the owner. On necropsy, there were many dark round foci (1-4 mm) distributed throughout the brain, and polyarthritis was noted. Microscopic examination demonstrated **necrotizing myocarditis and thromboembolic meningoencephalitis (TEME)**. ***Histophilus somni was isolated from the brain. Necropsies on other animals in this herd identified similar manifestations of *H. somni,* TEME, myocarditis, polyarthritis and bronchopneumonia. *H. somni* requires specialized media and growth conditions to identify. Antimicrobial susceptibility testing of this bacterium is not routinely performed but the isolate can be sent for testing if requested.

Poultry

Necrotic enteritis: There are four main Clostridial diseases that affect poultry: **Necrotic enteritis** (NE) caused by *C. perfringens* types A and/or C; ulcerative enteritis (UE) caused by *C. colinum*; gangrenous dermatitis (GD) caused by *C. perfringens* and/or *C. septicum*; and botulism, caused by the ingestion of *C. botulinum* toxins. NE has the highest economic impact on affected flocks and can cause significant mortality. NE is a disease primarily of young chickens and turkeys, usually characterized by sudden onset of diarrhea followed by the death of large numbers of birds. Examination of the proximal small intestines and occasionally the ceca of affected bird reveals necrosis of the mucosa giving the appearance of a "turkish towel". Recently we have **isolated *C. sordelli*** from classical cases of NE lesions in chickens and turkeys. *C. sordelli* may be found in the intestines of many species of animals and is a common inhabitant of the soil. It has been classically associated with gas gangrene (myositis and cellulitis) in multiple species and abomasal bloat in lambs. From our findings *C. sordelli* appears to be more frequently associated with NE than previously thought. Coccidiosis is a predisposing factor for NE by *C. sordelli*. We are currently attempting to experimentally reproduce NE with *C. sordellii*. Demonstrating that *C. sordellii* is capable of producing NE outbreaks, might help to develop new vaccines against the disease, current vaccines target *C. perfringens* toxins solely.

Small Ruminants

Sodium fluoroacetate (also known as "1080") is an organofluorine chemical toxic to mammals, insects and birds and is not approved for use in California. 1080 toxicosis was diagnosed in a flock of 300 lambs and 150 ewes that began dying within a few hours of moving onto a new pasture. Initially, two ewes were found dead. The next morning 12 ewes were dead and the sheep were moved off the site. Both ewes and lambs exhibited a brief period of **disoriented running,** breaking through the electric fence followed by **apparent blindness**, weakness, ataxia and death. Over the next four days, 63 ewes and 80 lambs died with a peak at three days after grazing the suspect pasture (mortality rate: 35.3%). Gross examination at CAHFS of 4 dead animals (two 4-month-old lambs and two ewes) revealed bilateral diffuse pulmonary congestion and edema, hydrothorax, pericardial effusion with fibrin clots and multifocal areas of sub-epicardial left ventricular pallor and hemorrhages. Microscopically there was multifocal **myocardial necrosis** with myocarditis. Following negative results for a variety of potential cardiotoxins (oleandrin, strophanthidin, selenium), 1080 was detected in kidney samples from one lamb and one ewe. The probable source of compound 1080 was treated grain used to control burrowing mammals.

Heavy sheep mortality due to 1080 Intoxication ***(photo by N. East)***