



**UC DAVIS**

**VETERINARY MEDICINE**

California Animal Health and  
Food Safety Laboratory System

# CAHFS CONNECTION

LEADING DIAGNOSTICS NATIONALLY, PROTECTING CALIFORNIA LOCALLY • AUGUST, 2017



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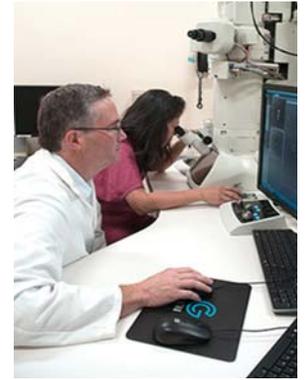
-Fowl cholera - turkey

## Holiday Schedule

In observance of Labor Day, CAHFS will be closed on Monday, September 4, 2017.

## New State-of-the-Art Electron Microscope

Thanks to the California Department of Food & Agriculture and the Office of Emergency Services, CAHFS received funding to purchase a state-of-the-art electron microscope (EM). The new scope is one of the most powerful diagnostic electron microscopes available. It is the primary, and in some cases, the only way to diagnose the agents responsible for new or emerging diseases. The EM scope quickly provides a visual image of the potential disease agents in tissues and other samples. This is especially important for new and emerging pathogens including viruses, bacteria and protozoa. Current molecular techniques, e.g., real-time PCR and immunohistochemistry, are able to deliver rapid results, but only for known agents; new strains of an existing or novel pathogen may not be detected.



Brad Pesavento and Rosa Manalac working with new EM scope

## Pig

**Seneca Valley (SV) virus**, named after the region of its original discovery, keeps the California porcine industry currently on alert. The virus belongs to the same family as foot-and-mouth disease (FMD) virus and causes almost identical clinical signs. Infected pigs develop blisters around the nose, mouth and hooves, with associated lameness and other non-specific signs, including fever and lethargy. Only a laboratory test can distinguish between the feared FMD and SV viruses. While the latter was rarely seen in the U.S. in the past, several outbreaks occurred in the Midwest in 2015 and 2016. This summer, several pig shipments into California from other states showed symptoms compatible with SV virus infection. In suspect cases, swabs are collected on-site by veterinarians from the California Department of Food and Agriculture and are delivered to CAHFS where they are tested immediately for SV, FMD and Vesicular Stomatitis (VS) viruses; these samples are routinely found positive for Seneca Valley virus. Because the clinical signs and lesions of SV are indistinguishable from those of FMD and VS, incoming pig shipments with these signs are placed under quarantine and held until the lab results exclude the presence of FMD and VSV. In 2017 alone, 32 Foreign Animal Disease investigations have been initiated in California due to SV virus. Epidemiology investigations show the virus has been introduced from several different states, an indication that the outbreak is not likely to end soon.

## Bovine

***Mycoplasma bovis*** caused **pneumonia and polyarthritis** in 5- to 8-month-old Angus calves from a herd in which 16 of 2500 animals had swollen joints and lameness over a 1-month-period. A submitted heifer had chronic bronchopneumonia with pulmonary abscesses and scarring, as well as thickened synovium, cloudy joint fluid, and fibrin and edema around the carpal, hock and stifle joints. *M. bovis* was detected in the lung and joints by PCR and immunohistochemistry. *Mannheimia haemolytica* was also isolated from a lung abscess.

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## Equine

***Cryptococcus* sp. meningoencephalitis** was the cause of depression, muscle fasciculations, rear leg hypermetria and dysmetria, and progressive ataxia over an eight-day period in a 13-year-old Quarter horse gelding. The animal developed bilateral blindness and mild colic the day before death, and it was euthanized because it did not respond to treatment. Gross examination of the brain revealed cloudy meninges. Histologic evaluation of brain and meninges revealed severe inflammation with numerous yeasts compatible with *Cryptococcus* spp. Fungal culture of the meninges and cerebrospinal fluid identified *Cryptococcus* spp.

## Camelid

**Co-infection by *Cryptococcus* and *Coccidioides*** were diagnosed in a 1.5-year-old female alpaca that was found dead after having chronic anemia and weight loss for several weeks. The alpaca had recently been relocated to California from Arizona. On necropsy, there were numerous raised, white nodules, surrounded by hemorrhage, on the lips, tongue and throat. Multifocal, variably sized, tan to white nodules were present in lungs, conjunctiva, mediastinal lymph nodes, liver and spleen. Microscopic examination confirmed dual infection by *Cryptococcus* spp. and *Coccidioides* spp. infection. Both fungal agents are present in California and Arizona, but given the reported duration of the disease, it is likely that one or both of the agents were acquired in Arizona.

## Small ruminants

**Urolithiasis** was diagnosed in two unrelated sheep flocks. The first flock submitted a yearling Mouflon ram on alfalfa hay and pellets. This was the second ram to die after several days of lethargy and “hunched” posture. The ram had severe urinary bladder distention and hemorrhagic cystitis due to complete obstruction of the urethral process by yellow gritty sand-like uroliths. The second flock had an atypical presentation as it involved

the ureter of a 4-year-old Rambouillet ewe euthanized after a 1-week duration of illness. Gross examination revealed one ureter distended and obstructed by a cluster of light brown uroliths up to one cm. in diameter. Bilaterally, there was renal pelvis dilation and histologically there were renal tubular lesions and nephritis consistent with an outflow obstruction. Analysis of the ewe’s uroliths determined that they were predominately composed of calcium carbonate.

**Rumen acidosis** was diagnosed in an 18-month-old goat that was active in the morning, “hiccupping” about noon and found down and unresponsive two hours, dying soon after. The rumen content pH was 4.5, and it contained moderate amounts of grain. Histologic lesions supported rumen acidosis. The goat probably consumed excessive grain the night before. There were also moderate numbers of trichostongyle and coccidia eggs in the feces.

## Poultry and Other Avian

An unusual case of **fowl cholera** was diagnosed in 18-week-old tom turkeys with history of having trouble walking, being down on the legs, increased mortality, but with no respiratory signs. Necropsy of eight turkeys revealed severe keel bursitis and synovitis of the hock joints but no pneumonia. *Pasteurella multocida* was isolated from the joints. Typically fowl cholera is a respiratory disease in turkeys, associated with severe pneumonia.

