



UC DAVIS
VETERINARY MEDICINE
 California Animal Health and
 Food Safety Laboratory System

CAHFS CONNECTION

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Holiday Schedule

CAHFS will be closed on **Monday, February 17, 2014** in observance of President's Day.

Please contact your laboratory to plan your testing needs accordingly.

Bovine

Hypomagnesemia with and without **hypocalcemia** was diagnosed on a dairy where over 15 cows, less than 100 day in milk, died in two weeks with 2-3 new cases/day by the third week. Cows were found dead or had one or more of the following signs: tonic/clonic paddling, down, weak, hypermetria, tremors and seizures. Urine magnesium levels were below 10ppm (normal 120-150ppm) and serum and aqueous humor levels were also deficient in the four cows submitted for necropsy. Magnesium was deficient in serum from three live cows. Feed analysis of the total mixed ration revealed a potassium to magnesium (K:Mg) ratio of 6.5:1 (recommended 3-4:1). A lush alfalfa hay introduced into the ration less than 5 days before the problem began had a K:Mg ratio of 23:1 and the diet also contained citrus, another source of high potassium. Potassium inhibits absorption of magnesium leading to magnesium deficiency. A second unrelated dairy had five cows die and 11 affected over a few days due to hypomagnesemia and concurrent deficient or marginal calcium. Most affected cows were 50-60 days in milk and exhibited tremors and recumbency. Areas of superficial hemorrhage in the liver were the only gross lesions.

Electrocution was the presumptive cause of death of seven cows and a bull that died in the pre-milking wash pen immediately after the pump was turned on. Two other cows were knocked off their feet but recovered. No significant lesions were found in the three animals submitted for necropsy as is common with electrocution.

Urethral obstruction by uroliths resulted in "water belly" and death of a 9-month-old Charolais calf with a history of abdominal distension. The bladder was markedly enlarged and secondary peritonitis had occurred from urine leakage through the bladder wall and secondary bacterial infection.

Drought conditions may cause animals to graze closer to the soil increasing the risk of inhaling or ingesting anthrax spores. If you suspect anthrax, remove the whole eye or aseptically collect aqueous humor and submit it in a sealed tube for culture. Prevention by **vaccination of animals that graze in anthrax endemic areas is highly recommended**. Drought can increase the risk of **poisonings and nutritional imbalances** as well as affect water quality. The CAHFS website has an article on "Drought related poisonings and nutritional risks" by Drs. Poppenga and Puschner at www.cahfs.ucdavis.edu where you can also find a link to a CDFA anthrax factsheet.

BRUCELLA TESTING

Because not all Brucella testing requires a federal form, CAHFS will no longer call submitting veterinarians who request Brucella testing but do not provide a form. It is the responsibility of the veterinarian to determine whether or not a federal Brucella form is required and submit one accordingly.

Small Ruminants

Copper toxicosis resulted in the death of about 15 ewes over a 1-month period. Marked liver necrosis and icterus were often found. The liver copper levels on samples from 6 animals submitted ranged from 270-510ppm (normal 25-150ppm) and the kidney levels ranged from 30-140ppm. normal 4-6 ppm).

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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 shlein@ucdavis.edu.

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

Small Ruminant cont'd

***Clostridium perfringens* type D enterotoxemia** resulted in severe **watery diarrhea and death** in two lactating goats submitted from a 700 goat dairy where 4 goats had died and 12 were sick. Affected does died 6-24 hours after onset of diarrhea with anorexia and sometimes mild fevers. Epsilon toxin was detected in the colon contents of both does and alpha toxin from one doe. Only grain-fed (3lbs/day) does were affected despite use of vaccinations for *C. perfringens* types C and D.

Pig

Porcine epidemic diarrhea (PED), a coronavirus distinct from Transmissible gastroenteritis virus (TGE), caused **diarrhea** in an 11-week-old pig submitted from a ranch experiencing a 20% diarrhea rate in 8- to 12-week-old pigs with some deaths. Histology revealed villus atrophy compatible with viral cause and FA for TGE was negative. PCR was positive for PED virus on intestinal contents. PEDV is transmitted via the fecal-oral route with onset of diarrhea within 12 to 36 hours after exposure.

***Clostridium difficile* colitis** was diagnosed in 3- to 4-day-old piglets with a history of litter mortality without prior signs. Severe **mesocolonic edema** and green fluid intestinal contents were seen at necropsy. Microscopic lesions characteristic of *C. difficile* colitis were observed in one of the piglets, the other animal was too autolyzed to evaluate. The colon contents of one piglet had *C. difficile* toxins A/B and both pigs had large numbers of *C. difficile* on culture. Typical clinical signs include onset at 1-5 days of age, sometimes with dyspnea, mild abdominal distension and scrotal edema, commonly with yellow, pasty diarrhea. The diagnosis of *C. difficile* in piglets should be based on compatible clinical signs, characteristic lesions and detection of toxins A/B in the intestinal contents.

Wildlife

Ulcerative glossitis in black-tailed deer from two separate mortality events resulted in foreign animal disease (FAD) investigations. In each case, a single representative deer from a herd with 6-8 dead deer was submitted. The investigation included testing for Foot and Mouth disease, Epizootic Hemorrhagic disease, Bluetongue, Adenovirus Hemorrhagic disease, Malignant Catarrhal Fever, Parapox and Bovine Virus Diarrhea by PCR at CAHFS and NVSL - Plum Island. One deer, with multifocal oral ulcers and degenerative myopathy with mineralization, was diagnosed with **Bluetongue virus** (by PCR) **and selenium deficiency**. In the other case, the deer died of multisystemic trauma but the cause of the ulceration was not determined. All tests in the microarray were negative both at CAHFS and NVSL- Plum Island.

Poultry

Focal mycotic tracheitis resulting in **obstruction of the syrinx** was the cause of death in three chickens from three different premises with a history of unexplained, sudden death. Postmortem examination revealed a caseous plug formed from focal fungal infection obstructing the syrinx. *Aspergillus* sp. is the most common cause of mycotic tracheitis in birds. The fungi in the syrinx produce inflammation which leads to severe respiratory problems or sudden death from asphyxia. Aspergillosis is also seen in pet and wild birds, and should be considered as a differential diagnosis for sudden death in apparently healthy chickens and in other species of birds.

Swollen foot pads, hock joints and occasionally stifle joints with pale yellow exudate were noted in 10-day-old broiler chicks due to a **bacterial** infection. *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *E. coli* were isolated from various joints. Faulty toe trimming of the chicks at day one appeared to be the route of entry of the bacteria in to the joints. The chicks were negative for Reovirus.

Round heart disease (RHD) also called **dilated cardiomyopathy** was the cause of increased mortality (3 to 5 per day up to 30 to 100 birds/ day) in 7-week-old turkeys from a flock of 7500 turkeys. RHD is a sporadic disease in turkeys and genetics appears to be the underlying cause.