



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

CAHFS CONNECTION

January 2012

Inside this issue:

- **Ruminant -**
Neonatal diarrhea
- **Horse -** Zinc phosphide poisoning
- **Exotic Avian -**
Megabacteriosis
- **Poultry -** Aspergillosis
- **Small ruminants**
Foot rot
- **Dogs -** Diethylene glycol

**Not receiving
 CAHFS Connection
 directly? Contact
 Sharon Hein at
slhein@ucdavis.edu**

HOLIDAY SCHEDULE

In observance of Martin Luther King Day, CAHFS will be closed on **Monday, Jan 16, 2012.**

Ruminants (cattle, sheep, goats)

Neonatal diarrhea in calves, goats and lambs is caused by a variety of agents, some of which are age specific or require histopathology to diagnose. Coronavirus is usually diagnosed by fluorescent antibody testing (FAT) of colon tissue but electron microscopy (EM) and ELISA can also be used to detect this virus but are not as sensitive as FAT. Septic animals may have diarrhea though no enteric pathogens are present. Samples from field necropsies should include fresh lung, liver, ileum, spiral colon and feces (5ml). Fixed tissue minimally should include two loops of spiral colon, ileum, jejunum, abomasum, rumen, lung, liver and any gross lesions. Additional tissues that are helpful are kidney, spleen, thymus, heart and adrenal.

Pathogen	Specimen (fresh unless specified)	Test Method(s)	Age most often affected
Rotavirus	Feces	ELISA, Electron Microscopy	1-30 days
Coronavirus	Colon Feces	Fluorescent antibody-bovine ELISA or PCR- bovine; EM	1-30 days
<i>Clostridium perfringens</i> , type C (<i>bloody enteritis</i>)	Frozen intestine content, feces; Fresh and fixed intestine	<i>C. perfringens</i> toxins ELISA (5ml minimum bloody content) Gross and histopathology	1-15 days
Salmonella	Feces, tissues	Culture, PCR	1-90 days
K99 <i>E. coli</i>	Ileum or feces	ELISA, aerobic culture with ELISA confirmation	1-5 days+
Attaching and effacing <i>E. coli</i>	Colon and ileum (fixed)	Histopathology	1-30 days
Cryptosporidia	Feces	Acid fast stain, ELISA	4-30 days*
Coccidia	Feces, colon	Flotation, McMaster's, Histopathology	>21 days**
Septicemia	Lung, liver	Aerobic culture	1-90 days
Yeast or fungal – abnormal GI flora	Rumen and abomasum	Histopathology	1-30 days

+attachment sites for K99 *E. coli* are lost after 5 days of age when the intestine epithelium matures.

*cryptosporidia are not shed in feces before 4 days of age but may be seen earlier by histopathology.

**coccidia pre-patent period is 21 days. CAHFS does not usually see it in hutch calves though it might be seen as early as 3 weeks in calves, kids and lambs on pasture or in group pen housing.

Congratulations to Dr. Kris Clothier, CAHFS Bacteriologist, on successfully passing the American College of Veterinary Microbiologists boards this past December.

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

Equine

Malicious poisonings are not restricted to neighborhood barking dogs. CAHFS was recently involved in a suspected malicious poisoning in horses. Two horses that were found dead in their pens and a bag of oats found in the horses' environment were submitted. Necropsy revealed extensive hemorrhage of the lungs, trachea, larynx and neck tissue. The oats were coated with a grey powder material. Toxicology testing identified the material as the **rodenticide, zinc phosphide**. Phosphine, the breakdown product of zinc phosphide, was identified at high concentrations in both horse's stomach content.

Exotic Avian

Megabacteriosis also called **gastric yeast infection** is a common fungal infection of canaries, finches and psittacines. The disease is caused by an ascomycetes yeast named *Macrorhabdus ornithogaster* and it affects primarily the proventriculus resulting in its inflammation. Clinical signs due to megabacteria can be nonspecific but it has been associated most commonly with birds "going light". The fungus can be identified easily by cytology of the feces or histopathology of the proventriculus.

Poultry

Aspergillosis is a disease of birds caused by a fungal infection with species of the genus *Aspergillus*. Probably all species of birds are susceptible to aspergillosis. In poultry, *Aspergillus fumigatus* is the most frequently involved followed by *Aspergillus flavus*. Aspergillosis is a costly disease for the poultry industry. The disease occurs when *Aspergillus* spores are inhaled, which then cause white-yellowish caseous nodular type lesions in the lungs and air sacs. In some cases, the trachea, syrinx, and bronchi can also be affected. In rare severe infections, aspergillosis may become systemic infecting multiple organs including brain, eye, joints, etc. Young birds are more susceptible to this disease. Aspergillosis is called commonly "brooder pneumonia" when young birds get it from contaminated hatcheries or brooding farm environments. Older birds, particularly turkeys, can have aspergillosis when litter, air, or feed are heavily contaminated with *Aspergillus* spores. In severe infections, *Aspergillus mycelia* can be found in the lumen of air sacs. Aspergillosis is diagnosed by histopathological demonstration of any *Aspergillus*' forms associated with inflammation in the tissues affected. *Aspergillus* can be isolated in selective media for fungi.

Small Ruminants

Wet winters and mild spring weather can lead to an increase in problems with **foot rot**, especially in sheep and goats. This condition can lead to severe lameness, erosions of foot structures, and premature culling. Two bacterial agents are implicated as the cause of contagious foot rot. One, *Dichelobacter (Bacteriodes) nodosus*, flourishes in diseased hoof tissue but can't survive outside of the host for more than two weeks. The other, *Fusobacterium necrophorum*, is a common environmental anaerobe associated with sporadic cases of interdigital dermatitis but can also act synergistically with *D. nodosus* and worsen hoof damage. Commercial vaccines are available; however, strain variation is common with these agents and little cross-protection is provided between them. Isolation of these organisms is extremely difficult due their fastidious culture requirements. Please contact the lab for information on submission recommendations if you are attempting to recover these bacteria from diseased tissues.

Toxicology

The Toxicology Section identified **diethylene glycol (DEG)** as the likely cause of acute **renal failure** and death in a dog. The dog had chewed on a "non-toxic" gel cold/hot pack and ingested a significant amount of its ingredients. Testing quantified diethylene glycol as being present in the gel material at approximately 20%. Exposure calculations indicated that the dog likely ingested a toxic amount of the gel material.

DEG is a widely used solvent and is less toxic than its relative ethylene glycol, but still capable of causing renal toxicity. In contrast to ethylene glycol, diethylene glycol intoxication is not associated with the formation of calcium oxalate crystals in the urine. The company who imported the product from China worked with the Consumer Products Safety Commission to implement a voluntary recall (click [here](#) for details).