CAHFS

CONNECTION

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**Aquatic**

As part of CAHFS’ efforts to improve and diversify services to our clientele, the CAHFS-San Bernardino lab is now receiving fish for diagnostic testing. In the recent past, we have collaborated with state and federal agencies on investigations of fish die-offs in southern California, and we have also received submissions from private aquaria in California and elsewhere. Conditions identified have included fungal infection [phaeohyphomycosis], bacterial infections e.g. Aeromonas spp., parasitic infestations e.g. protozoa such as scuticociliate, and neoplastic conditions e.g. lymphoma. Both fresh samples and formalin-fixed tissues or whole fish can be submitted.

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**Bovine**

Bovine viral diarrhea virus (BVDV) in cattle can cause abortion, fetal deformities, bleeding disorders, digestive disease, coronitis, persistent infection (PI) and immune suppression thus contributing to respiratory and other infections. PI animals are of great concern due to their constant shedding of BVDV, therefore many monitoring programs focus on the detection of PI animals. CAHFS offers several tests to detect the presence of the virus in live animals. PCR molecular testing on whole blood in EDTA or serum will reliably detect both acute and persistent infection in any age animal. Whole blood is preferred over serum as virus accumulates in white blood cells. For persistent infection an antigen ELISA test is available on ear notches (any age) and serum (must be over 3 months old). The antigen ELISA test does not reliably detect all acute infections. To distinguish between a transiently infected animal and a PI animal, retesting in 3 weeks is recommended. Serology (SVN) will indicate exposure to field or vaccine strains and titers can last for years. Serology results are meaningful if samples from two different time points in the same animal are compared to each other or results from exposed versus non exposed animals are compared.

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**Exotic Avian**

Among heavy metal toxicities in pet and exotic birds zinc toxicity is one of the most common occurrences. Zinc toxicosis in pet birds is also called “New cage disease” because of the galvanized cages made out of zinc that are used for housing pet birds. Other sources of zinc include pennies minted after 1982, hardware, metallic toys and accessories. Pancreas and kidneys are the most commonly affected organs due to zinc toxicity in birds. The intoxication produces a variety of clinical alterations, including lethargy, depression, anorexia, vomiting, diarrhea, polydipsia and loss of weight. Toxic levels of zinc cause degeneration and necrosis of pancreas and sometimes necrosis of the kidney tubules. Serum or plasma can be analyzed for zinc levels in live birds and liver and pancreas in dead birds. There are differences between species of birds in regards to toxic levels of zinc: cockatoos and Eclectus parrots have higher normal concentrations of zinc in their serum or plasma compared to other psittacines.

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**Contagious Equine Metritis (CEM)** is a reportable disease in the U.S. Sample requirements are very strict with regards to sampling sites; transport conditions, and timing from collection to set-up. The test requires samples to be kept cool and set up within 48 hours of collection. As CAHFS does not currently perform CEM cultures, samples should be shipped directly to the UC Davis Vet Med Teaching Hospital (VMTH) Microbiology Service. CEM submission form is available at: [http://www.vetmed.ucdavis.edu/vmth/small_animal/laboratory/local-assets/pdfs/Exportsubm.pdf](http://www.vetmed.ucdavis.edu/vmth/small_animal/laboratory/local-assets/pdfs/Exportsubm.pdf). For any questions contact the VMTH Microbiology Service at 530-752-9445.
Marek’s Disease (MD) is a common, acute or chronic, very contagious, and economically important disease of poultry, caused by an alpha herpes virus, named Marek’s disease virus (MDV). There is wide variation in pathogenicity among the strains of MDV, which range from non-pathogenic to very virulent. MD has been reported in turkeys, quail and pheasants; however, chickens of any age are by far the most susceptible species. MD is the most common disease diagnosed in California backyard chicken flocks. MD infection occurs by inhalation of feather and dander epithelial cells containing infectious virus. Common clinical conditions include lymphomas (lymphoid tumors) in multiple internal organs, peripheral nerves, feather follicles, and eyes; immunosuppression; transient paralysis; lymphoid tissue degeneration; and vascular syndromes. Microscopic lesions due to MD can be seen as early as 2 weeks of age. As a result of MD, flocks may have reduced weight gain, egg production and feed conversion; and increased susceptibility to other pathogens. Other problems include increased mortality in layers, and increased condemnation rate in broilers, which can be as high as 60% and 10% respectively in unvaccinated flocks. Histopathological examination of affected organs, including peripheral nerves, is very useful for diagnosing MD. Since 1970, MD has been controlled very successfully through vaccination which can provide greater than 90% protection if done properly. Interestingly, MD vaccine protects birds only from tumor formation, not from infection. MD was the first cancer that was successfully controlled through vaccination in any species, one of the most remarkable achievements of veterinary medicine. MD vaccination in commercial poultry is performed mostly by in ovo injection at the 19th day of embryo development, but can also be controlled successfully with subcutaneous vaccination in the neck of day-old chicks.

Small Ruminants

Yersinia pseudotuberculosis infection in goats in California. In January, three 1- to 2-year-old goats from two different premises located in Sonoma and Yolo counties were diagnosed with Yersinia pseudotuberculosis infections. Two of the goats (Angora) from one premise had died without prior clinical signs. The third (Boer) presented with melena of < 30-day duration; this goat came from a flock of 1100 animals, 50 with similar clinical signs and 25 which had died in the previous month. Postmortem examination at CAHFS revealed lesions of ulcerative enterotyphlocolitis, mesenteric lymphadenitis, and hepatitis with abundant intraliesional bacterial colonies. Yersinia pseudotuberculosis was isolated from intestines, mesenteric lymph nodes and/or liver in all 3 cases. All 3 goats had selenium and copper deficiency, as well as gastrointestinal parasitism (Haemonchus sp., Teladorsagia sp., Nematodirus sp., and/or Trichuris sp.). A review of CAHFS records between January 1990 and June 2011 revealed 43 cases of Y. pseudotuberculosis in goats; 25 of these 43 cases (58%) were diagnosed between 2004 and 2006. Clinical syndromes included enteritis/colicitis with or without septicemia (27 cases, 62.8%), abortions (7 cases, 16.3%), abscesses (6 cases, 14%), conjunctivitis (2 cases, 4.6%) and hepatitis (1 case, 2.3%). Cases occurred in meat (30.2%), dairy (25.6%) and fiber (2.3%) breeds, with no breed reported in 41.8% of cases. All 27 cases of enteritis/coliitis occurred between December and May. Twenty one out of the 27 cases (77.8%) occurred in goats from 1 to 9 years of age, and 5 cases (18.5%) were in goats less than 1 year old. Both goats with normal and subnormal levels of hepatic copper and selenium were affected. Cases of enteritis/coliitis show a marked seasonal distribution (only seen in winter and autumn) and are more frequent in animals over 1 year of age.