

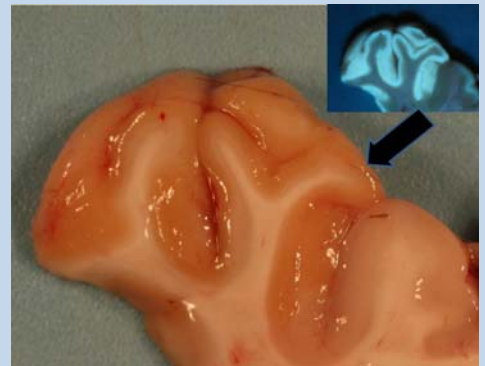
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## Bovine

**Monensin toxicosis** resulted in sporadic deaths from **myocardial necrosis** leading to **heart failure** in 65- to 75-day-old Holstein calves in hutches on one dairy from which two calves were submitted. The grain samples tested by CAHFS had 200 and 240ppm monensin (intended level was 130ppm) and the total mixed ration had approximately four times the recommended level based on weight and expected feed consumption in calves. One calf had concurrent *Salmonella* Dublin septicemia.

**Polioencephalomalacia** was the diagnosed cause of **incoordination, recumbency and blindness** in 4-month-old Holstein calves from one dairy where three animals were affected, and from an unrelated calf ranch where eight calves were affected. At post-mortem exam four of five submitted animals had slightly swollen and pale yellow cerebral cortex (photo) which fluoresced green under a UV light, indicative of necrosis due to polio. The diagnosis was confirmed by histopathology. Both premises were feeding molasses and on the calf ranch the problem began shortly after a complete ration change to one with molasses syrup. Molasses can be high in sulfur. Polioencephalomalacia is generally a thiamine responsive disease with multiple possible causes that include ingesting thiaminase containing plants, thiamin analogs (i.e., amprolium) or diets high in sulfates/sulfur. Some cases are due to overgrowth of thiaminase producing rumen bacteria, lead toxicosis or in young calves, sodium toxicosis. The latter two do not respond to thiamine treatment.



The yellow discolored (arrow) gray matter of the cerebral cortex which fluoresces with UV light (inset) is indicative of polio.

## Equine

**Sudan grass toxicosis** was diagnosed in two adult horses with a history of **rear leg ataxia and dribbling urine**. Both horses had been grazing a Sudan grass hybrid pasture for about a week. Necropsy on the more severely affected horse that was euthanized revealed a large flaccid urinary bladder and normal appearing organs. Histopathological examination of organs including the spinal cord and brain failed to detect any abnormalities (a common finding with this syndrome). Sudan grass toxicosis presents with clinical signs typical of those seen in this case and has been associated with horses grazing pastures containing sorghum/sudan grass hybrids. Johnson grass has also been incriminated. Drying of the grass to make hay appears to destroy the unknown toxic principle.

**Zinc phosphide toxicosis** was the cause of death in two adult donkeys with acute onset of illness including **convulsions**. Both animals at necropsy had diffuse pulmonary congestion (non-specific change) and non-vegetable, grey, wet, granular material in their stomach contents which was positive for zinc phosphide. Zinc phosphide is a rodenticide which is designed to be used to control burrowing mammalian pests. If an animal dies a thorough necropsy is recommended, and stomach contents, liver, kidney, brain, fat, and urine should be collected to rule out toxicants (all toxicology tissue samples should be fresh and not formalin-fixed).

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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](mailto:shlein@ucdavis.edu).

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## Small Ruminant

**Maedi Visna Virus (Ovine Progressive Pneumonia)** was identified by histopathology, immunohistochemistry and serology as the cause of **chronic interstitial pneumonia** in a 5-month-old Friesian lamb. Secondary infection with *Mannheimia haemolytica* resulted in severe bronchopneumonia causing respiratory difficulty and death despite antibiotic treatment. Maedi Visna Virus associated pneumonia is generally seen in sheep greater than 2-years-old, but can become clinically significant in younger animals if complicated by a secondary infection.

## Pig

**Heart failure** most likely due to **gossypol toxicosis** was the cause of death in four, 6- to 7-month-old pigs in a group of 30 pigs fed left over calf grain. The histologic lesion of degeneration and vacuolation in the heart of two pigs was more typical of gossypol toxicosis than ionophores. Cottonseed was found in the stomach contents with a free gossypol level of 79ppm. Though this single value was not considered acutely toxic, gossypol is typically an accumulative toxin (over weeks to months). Since left over feed probably varied in the amount of cottonseed present each day, the fact that only four pigs died may have been a result of varied exposure. Monensin was also detected in the stomach contents at a non-toxic level.

## Poultry and Other Avian

**Anticoagulant rodenticide toxicosis** was diagnosed in a backyard chicken with dark red/black stained contents in the gizzard and pale organs (perhaps due to internal bleeding). The bird also had severe carcinomatosis.

**Erosion** of the koilin layer of the **gizzard** sometimes resulting in ulcers is a common occurrence in chickens and turkeys. CAHFS is beginning to see an increase in cases of gizzard erosions in antibiotic-free raised turkey poults. Though there are many causes for gizzard erosions, one hypothesis in these birds is that organic acids and chlorine used in the water to control bacteria and copper sulfate in the feed to control mold may, if used in excess, cause gastric irritation resulting in gizzard erosions. Other conditions which have also been associated with gizzard erosions in the literature, but not found in cases to date, include amines such as gizzerosine (a byproduct of fish or meat meal which is not commonly used in poultry feed), group I adenovirus in chickens, stress, foreign bodies, heavy metals, and occasionally nematode parasites.

**Blackhead**, also called Histomoniasis, was found in five backyard flocks in the past few months; three involving 4- to 6-week-old chickens and two involving 2- to 3-month-old turkeys. Signs ranged from **weak, depressed, droopy, stumbling** with or without bloody droppings, to sudden death. Two of the three chicken cases had lesions limited to the ceca, while the third chicken case and both turkey cases had more classic involvement of both the liver and ceca. *Histomonas meleagridis* is a protozoal disease affecting many avian species including turkeys, chickens, peafowl, chukars and quail. Transmission is primarily through ingestion of contaminated feed and water. Cecal worm of chickens, *Heterakis gallinarum* has been known to act as an intermediate host for this protozoon. For this reason chickens and turkeys should not be raised together. Clinical signs in poultry include diarrhea (sulfur-colored droppings), lethargy, anorexia and increased mortality sometimes approaching 90 percent especially in turkeys. Unfortunately an effective therapeutic drug to control or treat blackhead in poultry is not available.

**Ocular cryptosporidiosis** was the cause of **eye and conjunctival swelling, ocular discharge**, weight loss, depression and mortality in several cliff swallows from a rehabilitation center that died despite treatment with a variety of antibiotics. The dead swallows submitted for necropsy had severe conjunctival edema and mild to moderate conjunctivitis with Cryptosporidia attached to the epithelium of the conjunctiva, nasal turbinates, trachea and major bronchi; little or no inflammation was associated with respiratory lesions. Electron microscopy confirmed the organisms were Cryptosporidium spp. Ocular and respiratory cryptosporidiosis is a contagious disease seen in a variety of avian species and is more common in immune compromised birds. Some literature states birds may respond well to antibiotic treatment, but not all avian species respond equally. The underlying stressful conditions that predisposed birds to acquire the disease must be identified and removed to improve the chance of a successful treatment.