

UCD VET VIEWS  
CALIFORNIA CATTLEMAN, MAY 1995

### REDWATER

Redwater (Bacillary Hemoglobinuria) can affect cattle at any time of the year; however, it is most common in the late spring, summer, and autumn. Redwater is caused by a bacterium called *Clostridium hemolyticum*, which colonizes in the liver of susceptible cattle and produces protein toxins that in turn destroy the body's red blood cells, damages other organ systems and rapidly causes death. Redwater is rare in cattle less than one year of age and while young cattle possess a certain resistance to *Cl hemolyticum*, they can be affected and die also. The most commonly affected cattle are adults in good condition.

The disease is most common in the western United States and the first cases were reported in California in 1916. The organism that causes Redwater is common in areas with alkaline soils, water with a pH of 8, and in pastures that are not well-drained. It is often present in the feces of normal cattle and has been isolated from the liver and kidneys of healthy cattle. It causes disease when it establishes itself in the liver in an area of low oxygen tension (in anaerobic areas). These anaerobic areas in the liver can be due to a number of common conditions, the most common of which is damage caused by liver flukes. In addition, liver damage caused by liver biopsies, liver abscesses (due to high grain diets of the type common in feedlots), or other less common situations can set up conditions to allow the Redwater organism to multiply and cause disease.

The disease has a short incubation period and the vast majority of affected cattle are usually found dead and bloated. If clinical signs are observed, the most common ones are anemia, rapid breathing, high fever (104-106), and urine that is dark red and foamy in appearance. The red urine is due to the presence of large amounts of hemoglobin from the destroyed red blood cells. The affected animals are weak, depressed and usually die within 12 hours of the time the first signs appear. Treatment consists of antitoxin and antibiotics; however treatment is invariably unsuccessful even if the animals are seen prior to death. The course of the disease is very rapid and most all cattle with Redwater are simply found dead and most bloat soon after death. Other conditions that can be confused with Redwater include (a) Leptospirosis, (b) legume bloat, (c) copper toxicity, (d) anaplasmosis, (e) anthrax, (f) bracken fern toxicity, and (g) blackleg. Therefore, animals that die in this manner should be necropsied by your veterinarian or sent to the diagnostic laboratory to determine the cause of death so that other losses can be prevented. Your veterinarian can easily identify Redwater as the cause of death and can take a impression smears of the liver to confirm the condition.

Prevention of liver fluke infestation and establishing better drainage in problem pastures will aid in the prevention of Redwater. However, the most important means of prevention is the routine use of vaccines (bacterins) to increase the immunity of the cattle against this disease. Animals should be vaccinated and given a booster at least once per year in areas where the disease occurs. An excellent time for the booster is in the late spring or early summer, ahead of the seasons when this disease is most common. The vaccines used to prevent Redwater do not provide long term protection, however, and exposure to a large number of organisms seems to override the protection provided by a yearly booster. In areas of high exposure cattle may have to be vaccinated every 6 months or in some instances, every 2 to 3 months. Your veterinarian can give you excellent advise about the vaccine frequency that works best in your locale. Also, it is very important that all animals that die quickly be examined to determine the cause of death, for Redwater is so common and can easily be confused with conditions such as bloat. The Redwater vaccine is made separately or is combined in "8-way Clostridial vaccines". The combination Clostridial vaccines, "5-way or 8-way", should not be confused with 8-way respiratory vaccines that contain virus antigens and Leptospirosis vaccines. Once again, your veterinarian can advise you regarding the appropriate vaccine or vaccine combination to prevent Redwater.

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