

Randall J Berrier, DVM
Staff Veterinarian
Technical Service

***Clostridium haemolyticum* (Bacillary Hemoglobinuria or Red Water)**

Red Water disease is caused by the gram-positive bacteria *Clostridium haemolyticum*. This is a disease that affects cattle and sheep all over the world. In the United States, Red Water is found primarily in the western part of the country and occasionally in the southern states. The name Red Water disease or Bacillary Hemoglobinuria comes from the classic red color of the urine in the affected animals. This is due to the presence of hemoglobin from lysed (ruptured) red blood cells.

Red Water has an acute onset and is highly fatal. The bacteria is a soil borne anaerobic (doesn't need oxygen) organism. There is a high incidence in animals that are grazing on irrigated or poorly draining alkaline pastures. This disease is also seen in association with liver flukes. Cattle are the most commonly affected species. The liver flukes migrate to the liver and create necrotic areas that become anaerobic. The *Cl. haemolyticum* bacteria is ingested and then absorbed from the GI tract and is carried to the liver, the bacteria lodge there until the ideal anaerobic conditions are created by the liver fluke. Once the bacteria begin to proliferate in these necrotic, anaerobic locations in the liver, they secrete toxins that cause necrosis (cell death) and hemolysis (ruptured red blood cells). This leads to the classic signs of this disease: jaundice with hemoglobinuria (red urine) and many necrotic areas in the liver. The incubation period of this disease is 7–10 days. Cattle that are in the best condition seem to be the most susceptible. Symptoms include jaundice, fever, abdominal pain (arched back), dark feces, dark red urine, edema and labored breathing. The duration of these symptoms can range from 12 hours to 4 days. In some cases cattle may be found dead in the pasture without clinical signs ever being observed. Your veterinarian can diagnose this based on clinical signs and post mortem findings. In affected cattle with symptoms, treatment is almost always necessary to have any hope of saving the animal. Treatment includes antibiotics (penicillin or tetracycline) and antitoxic serum.

Vaccination can be used as an aid to prevent this disease. Colorado Serum Company's **Essential 1** (Red Water – *Cl. haemolyticum* bacterin) is a whole cell, formalin-inactivated bacterin adsorbed on aluminum hydroxide that can aid in the prevention of Red Water with good efficacy for up to a year. Vaccination is recommended in the spring, prior to the expected occurrence of the disease. This disease occurs mainly in the late summer and autumn. Annual boosters are necessary. It is recommended to vaccinate every 6 months where constant exposure is likely. Vaccinate calves at 3 to 4 months of age.

