

Blackleg In Cattle¹

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Introduction

Blackleg is a peracute, non-contagious, and highly fatal (nearly 100%) disease of skeletal and heart muscle of cattle. It is mainly seen in cattle from 6 months to 2 years of age. It infrequently affects cattle greater than 2 years of age.

The Infective Agent

Clostridium chauvoei, a bacterium, is the primary causative agent. This class of bacteria exists in a spore form in the presence of oxygen. Because in the spore form it is resistant to environmental changes and disinfectants, it can survive in the soil for years.

The Disease Process

The soil-born blackleg organism enters the animal by the ingestion of contaminated feedstuffs. Following ingestion, the organism may live in the gastrointestinal tract, spleen, and liver without causing any problem. What causes the bacteria to proliferate is not entirely known but its most likely a result of muscle bruising associated with handling and shipping. There is also a recognized increased incidence in blackleg when calves are on a

high plane of nutrition and are experiencing rapid growth rates. When conditions in the animal are right, the bacteria enter into a rapid proliferation phase, producing toxins that cause muscle death and, subsequently, the death of the animal.

Clinical Signs

Animals observed before death are depressed and show signs of lameness and swelling in the affected limb. Early in the disease process the body temperature may reach 106° F and the swollen area may be painful to the touch. Later on in the disease process, the swelling becomes cold and non-painful to the touch. Often when the swollen area is palpated there is the perception of air under the skin (crepitation). The time from the beginning of clinical signs to death ranges from 12 to 36 hours. Some affected animals may not show any lameness or limb swelling but the diaphragm, heart, or tongue may be involved. Many times affected animals are found dead without displaying clinical signs.

Treatment

Treatment is usually futile. In the face of an outbreak it is effective to vaccinate and administer

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procaine Penicillin G at the same time. The antibiotic will stop the proliferation of the bacteria and its associated toxin, allowing time for the vaccine or bacterin to stimulate protective immunity in the calf.

Prevention

Blackleg bacterin is effective. Most cattle producers use the multi-valent clostridial bacterin (2-way to 8-way). The first vaccination usually occurs at 60 to 90 days of age or when calves are first processed. A booster dose of the bacterin should be repeated in 4 weeks or at weaning. In areas with a high disease incidence, additional vaccinations may be administered depending on the herd veterinarians recommendation. Even though blackleg bacterin is cheap and effective, the disease is seen on a yearly basis. The 1997 NAHMS reports that only about 70% of all cattle operations vaccinate against blackleg.

Take Home Message

1. The blackleg organism, *Clostridium chauvoei*, can live in the soil for years in its spore form.
2. Blackleg is still a threat to the unvaccinated calf.
3. Blackleg is easily prevented by proper administration of *Clostridial chauvoei* bacterin in the healthy calf.
4. The carcass of an animal that dies of blackleg should be disposed of to prevent the further premise contamination.

Warning

1. Have your veterinarian establish a diagnosis.
2. Read and follow all label instructions and withdrawal times for slaughter.
3. Give all vaccines subcutaneously if there is an option according to the label.