



The Veterinary Link

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Listeriosis

Listeriosis is a disease caused by a bacterial organism (*Listeria monocytogenes*) that is very common in soil and in the intestines of cattle and other animals. Because of its presence in soil, it is common on many types of hay, grass and other crops, and also in surface water. Even though this organism is common on plants and in soil, it usually needs a low-oxygen environment to multiply to dangerous levels.

Listeriosis infections

Although listeriosis can occur in grazing animals, it occurs most commonly in animals fed improperly fermented silage or baleage. Silage that still has oxygen present and that has a pH level greater than 5.5 is considered dangerous. If *Listeria* is present in the feed, up to 100% of the animals in the herd may become infected. As many as 10% may show signs of disease, and many of the affected animals will die. Listeriosis is most common in the winter and spring. Confined cattle, especially those being

fed silage, are at higher risk than range animals.

Listeria organisms have been found in the feces of healthy animals and humans, but most infections are too mild to cause illness. In those animals that become ill, the signs of listeriosis can appear as different syndromes. In adult cows, the disease is most commonly a nervous system problem, with fever, depression, circling, tremors, and ear droop or lip droop on one side. Listeriosis can also cause abortions and stillbirths in a few infected cows. Most listeric abortions occur in the last trimester, but they may occur at any stage of gestation. Calves that are born healthy can develop septicemia after becoming infected with the bacteria from their dam's milk.

In adults, grass and grain awns can result in abrasions and small puncture wounds in the mouth lining and on the lips, muzzle and nostrils. *Listeria* organisms penetrate these tissues and migrate along one or more branches of the nerves in the face to the base of the brain. The lesions are confined to the

brain, and disease signs vary according to the functions of the damaged brain sections.

Listeriosis is suspected when a herd being fed a silage- or baleage-based diet has one or more animals with nervous system disease. Examination of a spinal fluid sample can aid diagnosis, but a final determination of whether the herd's problem is listeriosis or another nervous system disease is done by laboratory examination of the brains of animals that die.

Other diseases that cause nervous system problems in cattle include infection with *Haemophilus somnus*; polioencephalomalacia (polio) due to sulfur, lead or salt toxicosis; and rabies. Testing blood samples for antibodies to *Listeria* is not helpful because many healthy animals have been exposed to the organism and would test positive without the organism's being the cause of the current problem.

Treatment

Animals with listeriosis should be treated with antibiotics. The organism is sensitive to many antibiotics, including ampicillin and penicillin. Some animals treated early for the disease (before nervous system signs are severe) will recover. If an animal is down, treatment is not likely to be beneficial.

During an outbreak of listeriosis, affected animals should be quickly isolated and treated, and dead animals should be disposed of rapidly. Prevention is dependent on the proper production of silage. Pay attention to moisture and packing when filling the silo. The addition of silage inoculants may help reduce the risk of listeriosis by speeding up the fermentation process. Hay bales that are used for baleage must be wrapped tightly to minimize oxygen retention and must be wrapped with plastic so that oxygen is excluded. Because *Listeria* organisms need less oxygen to thrive than mold, the presence of mold in silage or baleage is not necessary to indicate a risk of *Listeria*.

Listeriosis is an important disease, not only because of its effect on cattle, but also because it can be passed to humans. Raw vegetables contaminated by soil or manure and not adequately washed can spread the organism to people. Animals that are not sick but that are infected with the bacteria can pass *Listeria* to humans via raw meats or unpasteurized milk, or it can be passed in processed soft cheeses or deli meat from cross-contamination after processing.

Signs of listeriosis in cattle

- Affected animals become depressed and disoriented, develop a fever, are indifferent to their surroundings, and usually separate themselves from the rest of the herd.

- In the early stages, affected animals tend to crowd into corners and lean or push their heads against stationary objects.

- Facial paralysis may occur on one side with drooping ear, dilated nostril and lowered eyelid.

- Intermittent twitching and paralysis of facial and throat muscles and tongue, which results in a protruding tongue, profuse salivation and difficulty swallowing, may occur.

- Marked nasal discharge and loss of appetite are common.

- Inflammation of the eyelids is also common, and an animal may appear blind.

- If the animal walks, it stumbles and moves in circles, always in the same direction.

- The animal's legs may become progressively paralyzed.

- When near death, the animal falls and is unable to rise without assistance.

- When lying on the ground, even in coma, the affected animal lies constantly on the same side despite attempts to change it to the other side.

Control

- During an outbreak, affected animals should be isolated and treated.

- Dead animals should be disposed of rapidly.

- Take care to produce high-quality silage.

