



# Cattle Producer's Handbook

Animal Health Section

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## Anthrax: A Guide for Livestock Producers

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Anthrax occurs worldwide and is associated with sudden death of cattle and sheep. Very few livestock producers or veterinarians have witnessed the disease or its signs, therefore, many do not consider it in their animal health program. However, it has been reported in Nevada since the beginning of commercial livestock production, and several endemic areas have been recorded. In summer 2000 alone, three separate outbreaks occurred in Nevada. What follows is a brief guide to assist livestock producers to recognize anthrax signs, and how to treat and prevent the spread of the disease.

Anthrax can infect all warm-blooded animals, including humans. However, ruminants, particularly cattle and sheep, are more susceptible. Horses, swine, deer, and humans are less susceptible than cattle or sheep. Wild ruminants, such as deer, wild carnivores, dogs, and cats, may also become infected. Birds have only been infected experimentally. However, carnivores birds can transmit spores in their feces.

The anthrax organism, *Bacillus anthracis*, has the ability to form spores and become resistant to adverse conditions if the animal carcass is opened and the organisms are exposed to air. Vegetative anthrax organisms in animals or their secretions may be destroyed by pasteurization or ordinary disinfectants. Sporulated anthrax organisms are highly resistant to heat, cold, chemical disinfectants, and drying. **The anthrax spore may live indefinitely in the soil of a contaminated pasture or yard.**

### Sources of Infection

Outbreaks typically occur when livestock are grazing on neutral or slightly alkaline soils and have been exposed to the spores via one or more of the following avenues (Fig. 1).

- From an anthrax afflicted carcass that was not burned or was left exposed.

- From ingesting contaminated soil in endemic areas when forage is sparse because of overgrazing or drought or when soil has been disturbed by digging or excavations.
- By flooding pastures with anthrax spore contaminated water or dumping an infected carcass in streams or ponds. Flooding often uncovers buried spores.
- Wounds caused by blood sucking insects.
- Contaminated feed, especially in the form of bone meal, meat scraps, and other animal protein products.

### Signs

Signs associated with anthrax depend on the species involved and the route of infection. When the anthrax organism enters the animal's body by mouth or nostrils, the signs occur soon after infection (acute form), followed rapidly by death. When infection takes place through the skin because of injury or insect bites, it appears localized at the site of injury in the initial stage. The affected area is initially hot and swollen, and then becomes cold and insensitive. Later, infection can become generalized.

Anthrax in cattle is often a fatal disease with no signs observed. Upon or near death, blood oozes from the body openings. This blood is heavily laden with anthrax organisms, and characteristically the blood does not clot. The carcass bloats and rapid decomposition occurs (Fig. 2). If the infection is less acute, symptoms may include a sudden staggering, difficult breathing, trembling, collapse, and death. In horses, colic may be observed.

Swelling may be seen over the body, particularly at the brisket. Illness is observed for 1 or 2 days, but it may last for 5 days; signs are preceded by fever, with a period of excitement in which the animal may charge anyone nearby. This is followed by depression in cattle or sheep.

Sometimes the anthrax organism localizes itself in the throat area. The tongue, throat, and neck are extremely