

Bluetongue and Epizootic Hemorrhagic Disease in Livestock

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Bluetongue (BT) and Epizootic Hemorrhagic Disease (EHD) are diseases caused by similar viruses that are rapidly spread by biting gnats, resulting in similar symptoms in cattle, sheep and whitetail deer, among others. These diseases were first noted in South Africa in the late 1800's and have since spread over much of the world where conditions allow the presence of biting gnats. BT and EHD are most often seen in the southern US and during the late summer and early fall when gnat populations are highest.

Bluetongue may cause severe disease and death loss in sheep, often with a significant economic impact due to the loss of wool or production of poorer quality wool, as well as abortions in pregnant ewes. The most important consequence of the BT is restriction of exportation of live animals, embryos, and semen resulting from the presence of the disease in the US.

EHD is the most important disease of deer in the Southeast. EHD affects all ages of deer, is highly infectious and often results in many fatalities. However, the disease in cattle is unusual.

The Cause of BT and EHD

These 2 diseases are caused by separate but similar viruses. Both viruses have several subtypes and the severity of these diseases locally can vary widely due to subtype differences. The BT and EHD viruses are spread by biting gnats of the genus *Culicoides* which are locally known as sand gnats, sand flies, punkies and no-see-ums. These biting gnats are most proliferative in warm, wet environments. The gnats pick up the virus via blood from infected animals and pass it along to susceptible animals through insect bites. Infected cattle and deer serve as reservoirs of the virus and this may explain how the virus overwinters in cooler areas.

Both viruses affect small blood vessels reducing the blood supply and causing lack of oxygen to various parts of the body distant from the heart. The virus may occasionally enter the uterus of pregnant animals causing disease in the developing offspring.

Symptoms and Treatment of BT and EHD

Repeated exposure to the viruses seems to result in more frequent and more severe disease in cattle and sheep. Goats seem to be very resistant to BT and EHD. Disease due to these viruses is uncommon in cattle and less than 5% of exposed cattle show recognizable symptoms. The BT virus is capable of causing severe disease in large numbers of sheep and EHD is a common and deadly disease of Whitetail Deer. The symptoms of BT and EHD include:

- Drooling
- Runny nose
- Swollen muzzle
- A blue tongue due to lack of oxygen
- Lameness in one or more limbs
- Fever
- Ulcers and hemorrhages in and around the mouth
- Pain and redness where the skin joins the hoof wall
- Partial or complete loss of fleece
- Fetal birth defects

Diagnosis of these diseases is based on symptoms and blood testing of affected animals. There is no effective treatment beyond good nursing care. Cattle generally recover uneventfully in 2 to 3 weeks, though sheep may die or have a prolonged illness.

Control of BT and EHD

Control of these diseases is based on control of the gnats and eliminating other means of spreading blood from one animal to another:

- Fly control
- Cleaning standing water in puddles, tires, cans, etc.
- Single use of needles for injections
- Disinfection of dehorners and castration instruments between animals

BT and EHD are insect-spread viral diseases which can cause losses in livestock. The symptoms of the diseases are similar though cattle are uncommonly affected. Gnat control and preventing blood spreading to other animals should be of value in controlling these diseases. Vaccination for the bluetongue virus is available in endemic regions and has been shown to be effective in the control of outbreaks in infected populations.