

Bluetongue and Epizootic Hemorrhagic Disease in Livestock

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Bluetongue (BT) and Epizootic Hemorrhagic Disease (EHD) are similar viral diseases spread by biting gnats which results in similar clinical signs in cattle, sheep and whitetail deer. 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 for the presence of biting gnats. In the southern United States, BT and EHD are most often seen in the late summer and early fall when gnat populations are highest. BT typically results in severe disease and death in sheep, while cattle have reproductive losses. 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, EHD in cattle is unusual, and the clinical signs are milder than in the whitetail deer.

The Cause of BT and EHD

Infected cattle and deer that are asymptomatic (not showing clinical signs of disease) serve as reservoirs of the viruses. Both viruses have several subtypes and the severity of these diseases locally can vary widely due to subtype differences. Biting gnats of the genus *Culicoides*, also known as sand gnats, sand flies, punkies and no-see-ums, spread the BT and EHD viruses. The viruses are not directly contagious. Spread of the disease is dependent upon biting gnats acquiring the virus from infected animals and then passing it along to susceptible animals when the gnats are feeding. As cooler weather arrives, the activity and the survival of the insect should diminish. This means that transmission will decline with colder temperatures.

Clinical Signs and Treatment of BT and EHD

Both viruses affect small blood vessels and reduce the blood supply, causing lack of oxygen to various parts of the body that are farther away from the heart. Repeated exposure to the viruses may result in more frequent and more severe disease in sheep. Goats seem to be very resistant to BT and EHD. Disease due to these viruses are uncommon in cattle and less than 5% of exposed cattle show recognizable signs. 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 clinical signs of BT and EHD can 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
- Fetal birth defects

The most definite way to diagnose these diseases is test the blood of clinically affected animals. There is no effective treatment beyond supportive care. Cattle generally recover uneventfully in 2 to 3 weeks, though sheep may die or have a prolonged illness.

Control of BT and EHD

Prevention of these diseases depends on control of the gnats and eliminating other means of spreading blood from one animal to another. Control measures include:

- Insect control: pour-ons, ear tags, back rubs
- Elimination of standing water in puddles, tires, cans, etc.
- Single use of needles for injections
- Disinfection of dehorning and castration instruments between animals

BT and EHD are viruses spread by insects and can cause losses in livestock. The clinical signs of the diseases are similar though cattle are uncommonly affected. Gnat control and prevention of blood spreading to other animals should be of top priority in controlling these diseases. If you have any further questions, contact your local veterinarian, Extension agent, or myself at lstrick5@utk.edu, or 865-974-3538.