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## Bluetongue Disease

Bluetongue is an insect-transmitted, non-contagious viral disease that affects domestic and wild ruminants. The worst affected domestic species is sheep. Goats and cattle usually have mild, self-limiting cases. White-tail deer and pronghorn are among the wild species that can be affected by bluetongue virus.

Bluetongue virus is an Orbivirus. It is primarily spread by biting insects but can also rarely be transmitted venereally by infected semen and transplacentally from mothers to offspring. In the United States the primary insect vector is the biting gnat or midge (*Culicoides variipennis*). Other *Culicoides* species can also potentially serve as vectors. Large outbreaks of the disease are seen when these gnat populations reach peak numbers. The disease is considered seasonal in areas where insect activity is limited by inclement weather (freezing) and is more prevalent in temperate to tropical areas; therefore the southern and southwest states are the most common areas of prevalence in the U.S.

Currently there are at least 25 serotypes of bluetongue virus worldwide, of which 5 have been identified in the United States: 2, 10, 11, 13 and 17.

The clinical signs in animals include high fever, depression, labored breathing, sores or vesicles on the tongue, mouth or nostrils; lameness associated with laminitis and coronitis of the hooves; facial and tongue edema (swelling), where the disease gets its name; loss of wool, weight loss, abortion and even death. As mentioned earlier, sheep are the hardest hit domestic species. The degree of susceptibility in sheep varies depending on age, breed and disease serotype. In flocks infected for the first time, the morbidity (% of animals affected) can reach 50-75% and mortality can reach 20-50%. Again, cattle are not usually affected with clinical signs as badly as sheep but the *Culicoides* spp. are much more attracted to cattle and cattle serve as the primary reservoir and amplifying host for the virus as they develop a high level of viremia (high levels of virus in the blood stream). One of the biggest problems with the bluetongue disease are the restrictions imposed in international trade. The OIE (Office International Des Epizootics) has placed bluetongue on the List A of veterinary diseases. The result are restrictions being placed on international movement of cattle and sheep and their by-products from countries that have this infection to countries that do not. These restrictions do not recognize regional and seasonal freedom from virus activity. This has a huge negative economic impact on the United States.

Prevention and control of the disease involves minimizing or eliminating exposure of livestock to the *Culicoides* gnat during insect season. Eliminate breeding areas for the biting gnats. Move animals away from areas where biting gnats are numerous and during peak hours for insect activity (dawn and night time). Vaccination for bluetongue is of limited effectiveness since the only USDA licensed commercial attenuated vaccine in the U.S. is against serotype 10 only (Colorado Serum's Bluetongue Vaccine). The vaccine is specific for type 10 immunity and cross protection to other bluetongue serotypes has been reported to be limited and variable.<sup>1</sup> In spite of the lack of specific immunity to other bluetongue serotypes many ranchers choose to use the serotype 10 vaccine early in an outbreak because the identity of the infecting serotype can take weeks to determine after an outbreak occurs.<sup>2</sup> In addition, bluetongue virus has been reported to be a potent interferon inducer and as a result, some believe the available vaccine may provide antiviral protection.<sup>1</sup> Pregnant animals should not be vaccinated. Epizootic hemorrhagic disease (EHD) virus of deer mimics bluetongue disease in deer. The commercial type 10 vaccine does not provide cross protection immunity for EHD.

Treatment involves supportive care based on symptoms and antibiotics for secondary bacterial infections.  
References;

1. Current Veterinary Therapy 3, Food Animal Practice, Howard.
2. APHIS-USDA-GOV, News and Info, June 2003.
3. Veterinary Medicine, Radostits, Gay, Blood and Hinchcliff, 9th edition.

