UC CE UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources Cooperative Extension

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Bluetongue

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In a nutshell:

- Bluetongue outbreaks are common this year–peak transmission occurs in October.
- The disease is spread by biting gnats and sheep commonly have the most severe symptoms.
- Look out for: high fever (104°F or greater), swollen tongue, face, or ears, ulcers in the mouth (especially the dental pad), excessive salivation and nasal discharge.
- Deer are very susceptible to Bluetongue and their interactions with sheep and cattle should be limited whenever possible.
- To reduce Bluetongue risk, consider housing sheep indoors at night, pasturing sheep and cattle together and applying insecticides.
- **If you suspect your animal has bluetongue, contact your veterinarian immediately**

Moderate (top) and severe (bottom) clinical signs of Bluetongue in sheep *(Source: Wilson et al., 2008)*

Sheep and cattle producers across the state have been experiencing Bluetongue outbreaks this year. These outbreaks typically occur between late July and October with the peak transmission time being in October. Bluetongue is a viral disease (*Orbivirus)* that is carried by small gnats called biting midges (*Culicoides* spp.). These gnats develop as immature insects in moist or wet habitat with high organic matter including along the margin of dairy ponds or in flooded cattle pasture. As adults, these gnats feed on the blood of large animals including sheep, cattle, deer, and horses. The gnats can transmit bluetongue virus to ruminant animals (including deer) when they bite. We tend to see seasonal variations due to increasing gnat activity in summer and early fall, with some years being worse than others as a result of differences in environmental conditions. Counterintuitively, drought conditions can increase bluetongue infections as livestock and wildlife concentrate at the few remaining water sources allowing for greater opportunities for bluetongue transmission by gnats to these animals.

Sheep typically have more severe clinical signs than cattle including: high fever (104°F or greater), swollen tongue, face, or ears, ulcers in the mouth (especially the dental pad), excessive salivation and nasal discharge. Many sheep will have swollen legs (especially around the coronary bands) and are often painful to walk or stand. Pregnant animals may abort or give birth to weak or stillborn lambs. Lambs may have nervous signs. Sheep that do survive infection may shed their haircoat weeks after infection. Death losses in susceptible flocks can be as high as 30%. Lambs are more commonly affected as they are less likely to have any immunity from previous exposure of the virus. While cattle are less likely to die of Bluetongue virus you may notice excessive salivation and even abortions, stillbirths, or calves born with nervous signs.

While a vaccine is available for this virus it is recommended to vaccinate prior to breeding and before the high-risk season for Bluetongue. For those who breed in the fall this may be feasible during the summer months. In a brief investigation, one flock in Siskiyou County was diagnosed with serotype 11 this fall of 2021. The vaccine that is commercially available aids in the protection against Serotype 10 and does not offer cross protection to other Bluetongue virus serotypes. There are multiple Bluetongue virus serotypes (10, 11, 13, and 17) that are present in Northern California during any given year. Generally, it is not recommended to use the commercial vaccine unless you are sure that serotype 10 is circulating in your area due to concerns about virus reassortment between the wild strains and the vaccine strain creating and entirely new serotype of Bluetongue virus with unknown effects.

While controlling these gnats using insecticides or by altering their developmental habitat is very difficult, gnat bites can be reduced by housing your animals indoors at night or protecting more susceptible sheep outdoors by pasturing them with cattle. Gnats seem to stay outside of structures (even without bug netting), so bringing small flocks into barns at night may help reduce animal exposure to these gnats. Also, gnats are more attracted to cattle and thus sheep may experience fewer bites and reduced occurrence of disease when sheep are held close to cattle. Deer on the other hand can be quite susceptible to Bluetongue and their interactions with sheep and cattle should be limited whenever possible.

When sheep must be moved through an area experiencing an outbreak of Bluetongue, the number of gnats biting sheep might be reduced for a short time by application of insecticides applied topically to each animal with particular care to treat the belly and flank. While insecticides applied in this way have been shown to reduce the number of gnats on treated animals, it is not clear that this will result in fewer animals being infected with Bluetongue. Appropriate insecticides to apply to sheep for control of biting midges can be found using the search tool for the VetPestX database here: https://www.veterinaryentomology.org/vetpestx

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