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BLUETONGUE VIRUS IN THE MIDWEST

Over the years we have coped with various new disease outbreaks, everything from PRRS to the West Nile virus. In the fall of 2024, we dealt with a new outbreak of a virus that typically has not been a major issue in Iowa, the Bluetongue virus. Prior to this, we have had very limited exposure to clinical Bluetongue in our practice.

My first exposure to the virus was when I tested a cow for Bluetongue in 2001 for a sale at the Denver Stock Show. This cow tested positive, yet never had had any clinical symptoms prior to testing. The owner had acquired her out of western Nebraska, and we felt the exposure had occurred prior to him owning her.

BLUETONGUE TRANSMISSION

Bluetongue virus is not a contagious virus, meaning it will not spread from animal to animal. Vector transmission is the primary route via the saliva of the biting midge; thus, disease spread is seasonal through the warmer, more humid months of the year.

In the United States, the biting midge, *Culicoides sonorensis*, is the primary vector of the virus. As a

species, sheep and White Tail deer are affected the most. Goats and cattle can also be affected but normally do not exhibit clinical disease. The Bluetongue virus originates from Africa, but has spread throughout the world. Currently, there are 24 strains identified worldwide.

Bluetongue entered the United States in the early 1950s and has been most prevalent in the southern United States where it is more endemic due to warmer weather. Northern areas of the United States show reduced incidence and Canada is free of the virus except for some incidence in the Okanagan Valley in British Columbia.

In the past, outbreaks have occurred in the northern range of the Bluetongue virus into Wyoming and Montana. The potential for expansion of the range of Bluetongue in the United States is possible and has occurred in Europe since the early 2000s. In Europe, the northern spread of Bluetongue resulted in severe disease that caused high morbidity in cattle similar to what was seen in Iowa.

The high morbidity in cattle, not typically seen with Bluetongue,

could be due to the introduction of a new strain of Bluetongue and/or the lack of immunity in the animal population since it's not an endemic area. Reasons for the northward spread of the virus could be for several reasons: the warmer and drier weather caused by the drought and possibly the increased movement of cattle throughout the United States. It has also been suggested that infected midges might have been pushed northward from hurricane activity that occurred during 2024.

IMPACTS OF THE VIRUS

Bluetongue virus affects the endothelial cells causing vasculitis which will compromise circulation and explains the blue tongue which is occasionally seen due to cyanosis. Symptoms in sheep will include high fevers with increased respiration which can easily be misdiagnosed as pneumonia. The increased respiratory rate is actually caused from pulmonary edema (fluid in the lungs) which is the result of the vasculitis. Often the muzzle and ears will be swollen from edema caused by the vasculitis. It can

also cause lameness in multiple limbs due to inflammation in the coronary bands.

In addition to the biting midges, the virus can also be transmitted to the fetus from an infected dam during pregnancy. This can result in abortions. It also can be the cause of malformed limbs, dome skulls, or dummy lambs in newborns. Symptoms in cattle and White Tail deer will be similar to those seen in sheep. While we saw more mortality in sheep and deer during the outbreak, there were a fair number of cattle affected and some mortality there as well.

TREATMENT AND PREVENTION

Treatment options for Bluetongue are centered more on supportive care. The use of anti-inflammatories to relieve symptoms and antibiotics to prevent secondary infections are warranted. Provide clean, comfortable bedding with shade along with clean water and food.

Prevention should center on control of vector parasites. Biting midges will reproduce in manure piles and manure contaminated water, so sanitation is important in control as well. Culicoides are susceptible to synthetic pyrethroids or organophosphates and can help to limit the spread of the virus. Culicoides are also susceptible to Ivermectin, but while it will kill the biting midge, it is not known if it will act in time to prevent the spread of the virus.

Vaccines have been used but are limited in the United States. Only a modified live vaccine has been available and primarily used in sheep. It is only for one strain and the immunity for one strain

does not cross protect against others. Also, it should not be used in pregnant ewes as the vaccine can cause similar defects in newborn lambs as that caused by the wild virus.

Another issue is that the vaccine should not be used during the time of year that biting midges are active, as the midges can transmit the vaccine virus. Serial passage of the vaccine strain between animals could cause a mutation into a different strain with the potential to cause disease.

Work with your veterinarian if you suspect Bluetongue in your herd or flock. It looks like Blue-

tongue is a disease we will continue to see in Iowa. Recently this month, we had a case of a Hereford bull with a non-descript illness. He had a low-grade fever and crackling sounds in the lungs that lasted over a two-week time period. Testing was done for Bluetongue virus on this bull, and it came back positive. It is a disease that can look like other diseases such as pneumonia or EHD (Epizootic Hemorrhagic Disease). Your veterinarian can help to get an accurate diagnosis for the best outcome. ■

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