

Vesicular Stomatitis in Colorado

Brian J. McCluskey, DVM, MS, Dip. ACVPM

Can you believe it! Another outbreak of vesicular stomatitis (VS) is occurring in Colorado this year making 1998 the third out of the last four years that this viral disease has infected animals in Colorado. Outbreaks also occurred in 1995 and 1997. In the past, VS appeared in Colorado and other states in the southwest only sporadically. The old maxim was that VS came around about every ten years. In outbreaks in the 1980^s cattle also seemed to be as equally likely to become infected as horses. Yet in the last three outbreaks combined, very few cattle have become infected and most fortunately no dairies in Colorado have reported any cases of clinical VS. So what has changed? Why does this virus appear to be staying with us from year to year and has it gained a predilection for horses over cattle? How have these changes affected the way outbreaks are managed and ultimately what effects might subsequent outbreaks have on the Colorado dairy industry?

Between the '95 and '97, '98 outbreaks the geographic distribution of VS cases shifted from the Four Corners and Western Slope to areas along the Front Range. A case is defined as a premise with animals confirmed to be positive for VS by clinical examination and laboratory tests. This year cases to date have only been diagnosed in counties along the Front Range. Some of this shift may be attributable to reporting bias, i.e. less reporting of positives from other areas of the state than the Front Range, but it is apparent that the virus this year has targeted a very specific area, generally from Jefferson to Larimer counties. In addition, only one case in a bovine has been reported so far this year in Colorado with the remaining (n=73 at press time) cases being diagnosed in horses. Again we may attribute some of this to reporting bias from horse owners to cattle owners but the observation that a majority of cases have been in horses through the last three outbreaks suggests the virus prefers horses to cattle. The increase in cases both along the Front Range and an apparent preference for horses could be associated with the rapid growth in population in Front Range counties and the subsequent increased density of horses in this area. It may also be associated with subtle changes in the ecology or environment in the areas that are experiencing cases. Investigations of genetic changes in the VS viruses over the three outbreaks and between different geographic locations are currently being conducted by Colorado State University. These studies may also examine what ecological differences are associated with the areas that experience cases. Does the observation that the most recent outbreaks of VS occur mostly in horses suggest that dairy operators should not be concerned? Certainly not. Vesicular stomatitis in a dairy could be devastating. Cows not able to eat due to oral ulcers or milk because of teat and udder lesions are common in dairies affected by VS. Economic impact studies conducted on dairies affected during outbreaks in the 1980's indicated losses ranging from \$97 to \$202 per cow and \$92,247 to \$130,261 per dairy. The one dairy affected during the 1995 outbreak was located in New Mexico and experienced per cow losses of \$787.

There are two serotypes of VS viruses that cause clinical disease in the United States, VS-New Jersey and VS-Indiana. VS-Indiana had not been isolated in the southwestern United States since 1966 prior to last year. During the 1997 outbreak both the VS-New

Jersey and VS-Indiana serotypes were isolated and to this point in the 1998 outbreak only the VS-Indiana serotype has been isolated. Again, what specific changes in environment or ecology that would bring VS-Indiana back after 30 years are unknown. Studies conducted in Central America, a region considered endemic for VS, have shown that it is very likely the vectors and reservoirs of the two serotypes are different with concomitant differences in ecological zones and habitats.

So how can VS outbreaks affect you? As previously mentioned, the direct effect of VS infected cows can be quite serious resulting in loss of production in the short and potentially long term. Beyond the direct effects, VS outbreaks can effect all livestock producers in Colorado. The Office of International Epizootics (OIE) is the international governing body for animal and plant health and establishes lists of animal diseases that are considered to be the most important for international trade. Vesicular stomatitis is a List A disease, which puts it in the same category as Foot and Mouth Disease and Bovine Spongiform Encephalopathy (BSE). When countries diagnose diseases on List A they are required to report this finding to the OIE within 24 hours. A positive diagnosis of a List A disease can set into motion numerous restrictions on movement of livestock, embryos, semen and animal products from that country to international trading partners. No specific restrictions on milk products have been put in place during the last three outbreaks but movements of live animals and germplasm have been hindered. It is not only the international community that places restrictions on livestock from infected states. To protect their trade, many states within the U.S. have developed protocols that either require additional health certification, additional testing or complete bans on livestock from infected states. In some respects the infected states are regionalized because of VS. The concept of regionalization stresses the establishment of distinct geographic areas that either have been shown to contain certain diseases or from which a disease is absent. In large part this concept can facilitate trade by removing restrictions from large areas of countries that have proven freedom from a disease even if a smaller portion of the country is affected by the disease. The concept may even facilitate trade from affected areas by placing additional testing and/or health certification requirements on animals from these areas in place of total bans on animal movements (as has been done with Colorado during VS outbreaks).

The management of VS outbreaks by state and federal regulatory authorities has remained essentially the same through the last three outbreaks. Premises determined to house livestock positive for VS are placed under state quarantine until 30 days after the last lesion in an affected animal is healed. However, if outbreaks continue to occur as frequently as in the past four years an evaluation of the sporadically occurring definition of this disease may be warranted. Regardless of how the disease is defined, as long as it remains as a List A disease the effects on producers will likely remain the same; quarantines and restrictions on movement of livestock and their products both internationally and nationally.

Information on steps to take in preventing VS from infecting your livestock can be obtained from the State Veterinarian's Office, 303-239-4161.