

Farm Management Strategies to Prevent the Development and Spread of Viral Illness

Tom Cameron DVM and Steve Hull, PhD; TimberLake Farms, Inc.

Viruses are a class of pathogens that can cause illness in susceptible populations. The vast majority of viruses are species specific and are non-zoonotic (not transmissible to humans or vice versa). Some unusual and rare viruses can cause disease in different species, but the overwhelmingly majority do not. For example, there is a canine influenza virus that can infect horses, but this virus is not infectious to people from either animal. On the other hand, the rabies virus can infect almost all mammals and is a zoonotic. Sooner or later we will all experience the threat of a viral outbreak on our farms. Precautions for prevention are straightforward as they are for limiting the spread of the potential disease on your farm. Firstly, early communication with your veterinarian is critical as he/she can suggest just how infectious the viral disease is and how rigorous you must be with precautions, quarantine and treatment.

Traditional antibiotics (such as penicillin, etc) are not an effective treatment for viruses. There are a very few prescription based antiviral agents for use in human disease, but we are not aware of any pharmaceutical antiviral compounds licensed for livestock animal use.

Viruses require a means to get from animal to animal. This can be “nose to nose” contact, spread of the virus by insects, virus on our hands, clothes, shoes or with farm implements used for cleaning (rakes, shovels, etc). Virus particles can be passed in the air (e.g. sneezing), but rarely move unassisted more than a hundred feet.

There are some viruses that are lethal (rabies for example), but the vast majority of viruses are not. The management key is to support the ill animal so it can develop its own defenses.

Virus infections typically have three stages. At first, exposure occurs and the animal exhibits no symptoms. This is called the viral incubation or latent period. Secondly, the virus rapidly reproduces in the host's blood and tissues, with the infected animal sometimes showing symptoms of viral disease (e.g. fever, depression, loss of appetite, nasal discharge). Lastly, the virus is shed through saliva mucous discharge, urine, feces - any number of routes depending on the specific type of virus and the particulars of its transmission.

Note that some viruses show no symptoms in any stage of the disease producing what is often called a “silent infection”. However, most viral infections have symptoms starting in the second stage and getting worse in the third stage.

Recovery from a viral infection also progresses through stages. Even during the latent incubation phase, the animal's immune system is developing defenses. Fever is the body's normal physiological response to decrease the rate of viral replication.

With a viral challenge, blood antibodies are also being mustered to fight the invading virus. With time, as the body's immune system overcomes the virus, the fever wanes and appetite recovers. Most animals recover uneventfully.

A positive consequence with recovery from a viral infection is that the animal has developed immunity to that specific virus for some period of time. In many cases immunity lasts for that animal's lifetime. However, many viruses mutate every few years, essentially becoming new and different organisms. When exposed to these mutated viruses, the body must repeat the process of recognizing, fighting and clearing the new invader.

This illustrates the need for a healthy immune system. To enable the animal to respond to these repeated stresses, it is important to provide sound nutrition. A healthy immune state is dependant on a diet appropriate in fresh forages, minerals and adequate protein.

All animals coming to or returning to your farm should be quarantined for a minimum of three weeks. In most cases, this is long enough for most viral diseases to go through the three stages of development, and for disease symptoms to resolve. If any symptoms of disease develop, quarantine should be extended until all symptoms are gone.

A quarantine area is not extensive or elaborate. Your transport trailer, for protection from the elements, with some fencing is perfectly adequate so long as it is physically isolated (minimum of 100 feet) from the other animals.

Viral diseases that present with a runny nose transmit viral particles by direct contact (nose to nose), community feed buckets, water pails and by insects that flock to the nasal mucous. In areas or times with insect persistence, the use of fly sprays (pyrethrum based) are very useful to limit fly populations. With cold winter weather, insect transmission is obviously severely limited.

Regardless of insect transmission, cleaning water and feed buckets is a must and limiting infected animals to a quarantine area is critical so that the virus spread is limited.

A very simple cleaning solution can be made from liquid chlorine bleach. This is the kind of bleach that will discolor any dyed garment. Simply use a 1:10 dilution (1 part bleach + 9 parts water) to create an effective anti-viral solution.

A hand pump sprayer or other means can be used to disinfect pails, feeding bowls, cleaning tools, stall walls, etc. Spray the solution on and allow it to dry.

Wearing clean clothes and shoes is important when dealing with viral diseases. Start in the “clean” barn with fresh clothes. Then move to the “infected” area and tend to those animals. DO NOT RETURN TO THE CLEAN BARN.

Contaminated clothing should be washed in hot beach water before returning to the clean area. Always start with clean clothing in the clean area. Wash your hands with hot water and soap. Using a foot bath is mandatory as you simply do not have enough shoes to rotate through. A simple foot bath can be constructed (cat litter box with carpet remnant square) with a bleach solution or other solutions containing quaternary ammonium products (Roccal-D for example).

We do not recommend the fabric booties that slip over your shoes as they are designed for smooth, hard hospital floors. Barn flooring, walkways, pastures or moisture simply tears them up.

Your quarantine pens should have separate feed supplies, separate cleaning rakes, etc., to prevent contamination.

The combination of quarantine, good hygienic practices and veterinary care can minimize your herd’s risk and limit spread of a viral disease throughout your herd.

[Copyright \(c\) TimberLake Farms, Inc.](#)