

Haskell County Animal Hospital

Animal Health Update

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BOVINE VIRAL DIARRHEA (BVD)

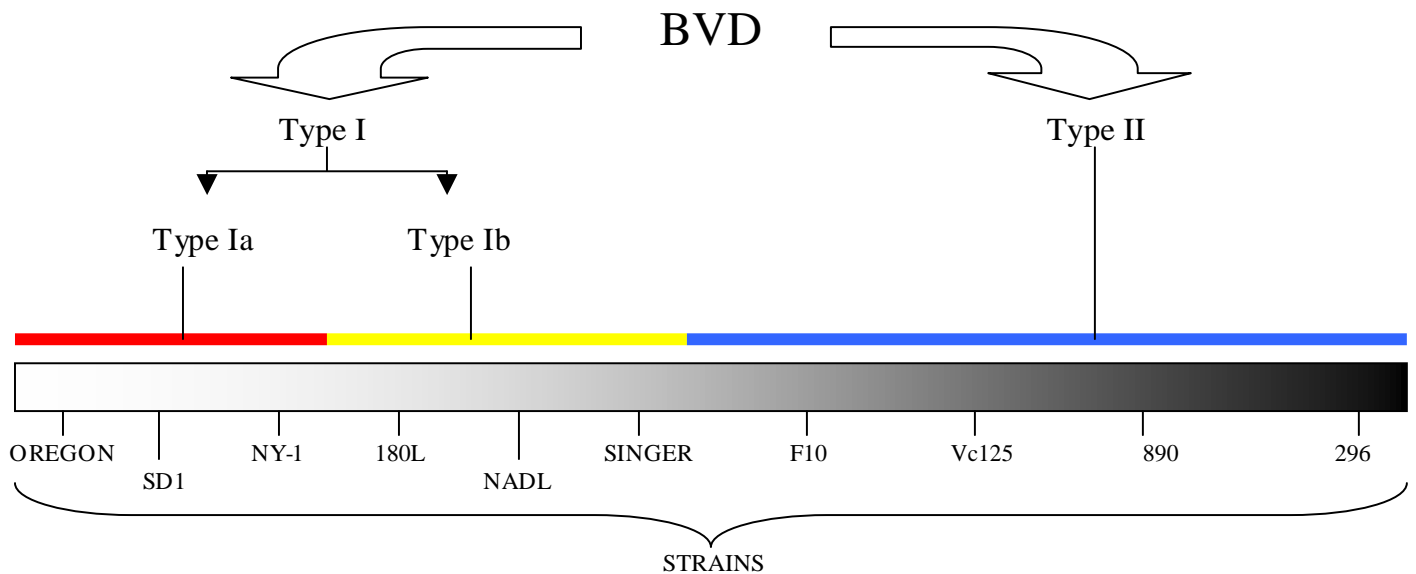
Part I “The Bug”

Introduction

This series of newsletters (3 parts) on Bovine Viral Diarrhea (BVD) is not intended to give that “answer” you may be looking for to stop any BVD associated disease you may be seeing in your herd. Instead, the newsletters are intended only to give you a better understanding of how complex BVD associated disease is. At the present time we have no “answer” to stop BVD associated diseases. Tremendous work by researchers has given us new insight into understanding BVD disease, but I believe what we know is only the tip of the iceberg! Much more research and education is needed to truly limit the effects of BVD and its associated diseases.

BVD was first isolated and described from an outbreak in a New York dairy in 1946. As the name implies the description of the disease was a severe diarrhea. Today we know that BVD is a primary cause of enteric (intestinal), respiratory, reproductive and immune system diseases in cattle. BVD is now recognized worldwide.

An overview of the “genetic” family tree can be seen in the following figure.



The farther two strains are apart from each other the more distantly they are related (less genetically in common). Whereas the closer together the strains are, the more related they are (more genetically in common). This aspect of BVD viruses will become obviously important when we discuss protection and vaccination in BVD part III.

Dr. Vic Cortese, a research scientist, puts it this way, “BVD is not “a virus,” but a group of related viruses. That changes how you look at it. There’s no set pattern to BVD. That’s the scary thing about research. What research may show one strain or isolate of BVD may be completely different from another”.

There may be more than 200 different strains of BVD. Half of these are called Type I and the other half called Type II depending on their genetic characteristics. Type I strains are further divided into Type Ia and Type Ib strains.

Different strains show different specificity for the tissue they infect. Some strains show a higher incidence of respiratory disease where other strains may be more involved in digestive or reproductive diseases. Strains also vary tremendously in their virulence or the severity of disease produced.

The genetics of the BVD viruses are unstable and change quickly. This virus is very mutagenic. This means the virus actually changes structurally quite frequently. The virus can mutate to a more distant genetic virus and continue on as a mutation or it can revert back to its original form.

This mutation ability can inherently decrease protection levels from our vaccines and affect the resistance levels an animal may have against that virus if it changes. Dr. Steve Bolin and others have theorized that this high mutation rate may lend itself to mutation around vaccination programs. Dr. Bolin states that this may be particularly true with inactivated or killed vaccines.

As one researcher said, “BVD will be hard to control because it is a moving target.”

BVD virus is easily transmitted through oral and nasal secretions and is very contagious. Reproductively, it is transmitted by semen and through embryo transfer. Other means of transmission include needles, nose tongs, rectal gloves, live or contaminated vaccines, blood feeding flies and via the air. Processing and treatment programs can easily spread BVD virus in a group of calves if proper techniques are not utilized. Disinfection of all instruments and the needles of killed biologicals, vitamins and antibiotics will help prevent the spread of BVD. Do not disinfect the needles of any MLV vaccine as it will kill the vaccine, instead change the needles more frequently and rinse needles between animals with sterile water.

Water troughs are a common source for BVD virus spread. Cleaning and rinsing water troughs frequently will help lower the spread of BVD. In the hospital and recovery pens the water troughs need to be cleaned and disinfected daily as it is in these pens where most of the transmission can occur.

Part II will discuss the variety of BVD diseases and the clinical signs associated with those diseases. Part III will address the issues of prevention, vaccination and therapy.