



BVD in the Feedlot, Part I

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BVD is a viral disease that's been around for a long time. Until recently, it didn't really get a whole lot of attention from beef producers or their veterinarians. However, that has changed significantly. With increased intensity in management practices, both on the ranch and in the feedlot, more attention is being paid to disease prevention and the economic advantages associated with prevention. In the quest for minimizing costs, BVD has surfaced as a profit killer in many feedlots across the continent.

There are relatively few cattle in the national population (<2) that are persistently infected (PI) with the BVD virus. However, the actual impact of BVD goes far beyond those few head. PI animals very efficiently shed large amounts of virus in many body secretions (urine, saliva, respiratory secretions, diarrhea), and any animals in contact with those secretions are exposed to live, virulent (infective) virus. There are many different strains of the BVD virus, and every one is capable of mutation. Therefore, you can never be sure of 100% complete protection against every strain of the virus that the cattle may potentially be exposed to. Even cattle that are preconditioned or backgrounded properly are still susceptible to infection from virus shed by a PI animal.

Non-PI animals will still become infected with the virus, but infection is usually short-lived, a strong immune response is initiated, and shedding is limited. However, this holds true if the cattle are immunocompetent, or their immune system is functioning as it should. There are many

factors that can negatively impact the immune system, one of which is stress. Stress can come in many forms, dietary (acidosis), environmental (cold, wet weather), or social (crowding). Viruses (not only BVD) are also notorious for compromising the immune system and allowing for a bacterial pneumonia to knock the calf out. It is bacterial pneumonia that leads to chronic calves that never fully recover and don't gain and grade to their full potential. This adds opportunity cost, as well as treatment costs, to the equation.

Sometimes, non-PI animals can develop a more severe form of the disease, which at times manifests itself as a "bleeding syndrome." The BVD virus can sometimes affect the cells in the body that help with blood clotting, called thrombocytes. Thrombocytes produce blood platelets, which are an integral part in the clotting cascade in the body. Therefore, if these thrombocytes are not functioning normally, there are not enough platelets in the body. This results in excessive bleeding from injection sites, bleeding from the nose for no obvious reason, and potentially, bleeding into the eyes, which results in blindness.

Identification of PI animals in problem pens is definitely worth the money and time. The University of Minnesota Veterinary Diagnostic Lab will run pooled samples (up to 100 head) to identify possible PIs. If the pooled sample is positive, the sample can be split, and the test performed on the split samples. The positive split sample can then be further split and retested, until the PI is

eventually identified. By identifying and eliminating the PI calf from the pen, incidence of bovine respiratory disease can be significantly reduced. In one real-life scenario, a pen of 76 head of commingled steers (of which one was a PI) during the first 3 months of the feeding trial, experienced 46% morbidity (sickness) and 18% mortality (deaths). Of the steers that were treated, 12% became chronics, which will never gain and grade to their full genetic potential. After the PI calf was eliminated from the group, treatment costs plummeted from \$13.66/head on the pen of 76, to a total of \$30 for the remainder of the feeding trial. This is an excellent example of how much one PI calf can cost an entire pen.

Often times, PI animals will eliminate themselves from a group by way of a syndrome called “mucosal disease.” Once a PI animal develops mucosal disease, it will invariably succumb, and thus be removed from the group. In this way, BVDV infection in a herd is somewhat limited. The exact cause of mucosal disease has not yet been entirely elucidated. The facts we have now are that, the animal must first be persistently infected with a “noncytopathic”

(non cell killing) strain of the virus, and at some point, be exposed to a “cytopathic” (cell killing) strain. Or the “noncytopathic” strain that the calf is persistently infected with will undergo a mutation, changing from “noncytopathic” to “cytopathic.” This results in massive destruction of the calf’s cells, especially those of the oral and gut tracts, and eventually death. Mucosal disease will usually show up between 6-18 months of age, so, if you don’t know to look for a BVD PI, they can cause you all kinds of headaches for nearly the entirety of the feeding period of a pen of cattle.

The best way to keep BVD PI’s out of the feedlot is to test every calf that comes in. Sometimes this can’t be done. By keeping accurate and up to date treatment records, and working closely with your veterinarian, you may be able to identify problems early, and save time and money, and a pen full of calves.

For any further information on this topic, please feel free to [contact us](#).