



Identify and Prevent BVD PI's

Bethany Lovaas, DVM, University of Minnesota Beef Team

Even though you've vaccinated your calves, don't expect that they are going to be 100% protected. You can do everything exactly according to label directions, and follow recommendations to the letter on nutrition and calf health, and the calves may still be vulnerable to a BVD outbreak. There are a few factors that contribute to this. One factor is that when the calves are on feed, their nutritional stress levels are higher than when they are on pasture. This leads to a propensity for respiratory disease. Also, many calves are commingled with strange calves that could be from a completely different region of the country. This creates a social stress in the pen, but more importantly, it exposes the calves to different strains of the BVD virus. There are significant enough differences between vaccine strains and wild-type strains (and between wild-type strains themselves), that the calves' immune systems aren't prepared to deal with them all.

In the case of an outbreak of respiratory disease, often a pen of calves will receive a booster vaccination, to get their immune systems up and running. Anecdotally, a change in product can sometimes affect a better response. Since the calves were already exposed to one vaccine virus, their immune systems are 'old pros' at dealing with and eliminating that particular virus from their bodies. However, they may still be susceptible to a wild-type strain that they've not been in contact with before. Therefore, anecdotally, vaccination with a different vaccine virus (different product), may sufficiently stimulate their immune systems to 'change gears' and respond to the new virus types. This is true of all

the viral respiratory pathogens, not just BVDV.

Another factor that may contribute to an apparent 'vaccine failure' is the potential presence of a calf that is persistently infected with BVD virus. These calves continuously shed large amounts of virus in all of their bodily secretions. The exposure to large amounts of infective virus can simply overwhelm the immune system of the non-PI calves, and lead to clinical respiratory disease. It is very important to identify and remove PI calves to avoid this situation.

Testing for potential PI calves should be viewed as an insurance policy, rather than an added expense. Removing the PI calves from a pen will result in significant savings in treatment costs for the entire pen of cattle, as well as the pens adjacent. Testing of pooled samples also significantly decreases the cost of testing, in relation to individual animal testing. Sourcing calves from previously tested, low risk herds will help decrease the likelihood of bringing a PI calf into a feedyard. Once PI cattle are identified, they should be immediately removed. A second test should be performed on the suspect cattle, to confirm that they are indeed persistently infected, rather than a false-positive. After confirmation, the PI calf should be euthanized; no matter how good it looks, as it is the source for huge amounts of highly infective virus.

Prevention of BVDV PI cattle can be a bit problematic, depending on the facilities and production system that the cow herd is managed under. As stated many times

before, in many different publications, vaccination with a modified live vaccine is a must. Also, timing of vaccination is very critical. Over time, after a vaccination, immunity wanes, and can reach levels that are not protective in the face of a significant challenge. Therefore, the best time to vaccinate for fetal protection against BVDV is 30-60 days prior to breeding, so that the immune response is at its peak when the fetus is at greatest risk for persistent infection. For some producers, spring vaccination isn't a problem at all. For others, the risk of losing baby calves while moving and sorting cows outweighs the additional protection benefits of spring vaccinations. Also, a producer's ability to vaccinate in the spring is based largely on the calving season. When using a modified live vaccine, it is important to get the cows vaccinated at least 30 days prior to the planned breeding date or bull turn out, because the vaccine virus will interfere with the reproductive performance of the cows.

For the cow herd, testing for BVDV persistent infection is a once in a lifetime test. The only opportunity for a bovine to become infected is during a critical window of gestation. But, even though a cow is not persistently infected, she can still give birth to a PI calf, if she was exposed to BVD virus during the critical window (40-125 days). Therefore, it is still prudent to test the calves of non-PI cows. So, is it sufficient to simply test the calves, and assume that the cows

are not persistently infected? A PI cow can never give birth to a non-PI calf, true. However, not all of the cows will calve, and those that don't should definitely be tested. Cows that have a history of reproductive failure are considered high risk, and should not be allowed to slip through the cracks. The herd bull should also be tested, if he hasn't been already.

Testing of calves should occur before the breeding season as well. If there is a PI calf in the herd, it will shed virus in high quantities, which can wreck havoc on the fertility of the rest of the cow herd, and can potentially result in additional PI calves that would be born the following spring. Any herd additions should also be tested, and purchased pregnant females should be allowed to calve, and the calf tested, before the pair is introduced to the rest of the herd.

If you are concerned about BVD problems in your herd, consult with your herd veterinarian on vaccination and testing strategies. For more information on this, or for any other beef industry related questions, please visit our website at (www.extension.umn.edu/beef).

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