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NEW BVD VACCINES: What's the Story?

New diagnostic tests have opened up a range of possibilities for the control of Bovine Virus Diarrhea (BVD) in cattle that simply did not exist a few years ago. Now there are a number of new BVD vaccines available that will also help producers control this costly disease.

Refresher course—what problems does the BVD virus cause?

The BVD virus can cause a wide spectrum of disease problems. BVD virus infection can be fairly mild to fatal. In well cared for cattle it can cause diarrhea, with damage starting in the mouth and extending throughout the gastrointestinal tract. Hence, the name: ***Bovine Virus Diarrhea.*** BVD is also a major cause of respiratory disease in young cattle going into stocker operations, backgrounder operations, and feedlots. It can cause abortions or reproductive failure in cows. One of the most important problems caused by BVD is the Persistently Infected (PI) animal. These PI cattle are actually infected with the BVD virus before they are born—at about 80-100 days of gestation (before 125 days) in most cases. Many of these calves are born alive but cannot develop any immune response or protection against the BVD virus. They are sub-optimal performers (some obvious, some not). They also shed billions of virus particles every day in their saliva, urine, and feces. They act as the "typhoid Mary" for the entire herd—infecting and re-infecting other cattle in the herd and causing continued illness in the entire group of cattle.

What do we need to remember to prevent BVD?

The most important points to control and prevention of BVD are (1) adequate vaccination of young cattle and replacement cattle, (2) annual vaccination (boosters) for the herd, (3) prevent the introduction of PI cattle, and (4) elimination of any PI cattle from the herd.

How do the new vaccines help?

As listed above two of the 4 most important control points for BVD have to do with vaccination. We have recognized for some time that the BVD virus mutates rapidly and that there are many possible strains of the BVD virus in nature. The fact that this virus can change so easily creates a bigger challenge for vaccines. There are type 1 and type 2 BVD viruses and also sub-types, i.e. 1b, 2a, etc. The new vaccines have included more than one sub-type and this helps to better protect the cattle against BVD infection and disease. Another important control point is the prevention of PI cattle. Some of the vaccines have been developed and tested to provide fetal protection. That is to say, vaccinating the cow or heifer can protect the calf from becoming infected before 125 days of gestation (pregnancy).

How well do these vaccines work?

A recent study looked at that very question. In this study, there were 30 pregnant beef heifers that were co-mingled with 4 adult cows which were PI's (the Typhoid Mary's we talked about earlier). Fifteen of the 30 pregnant heifers had been vaccinated with a killed BVD vaccine (BVD types 1a and 2) prior to breeding. The other 15 heifers were non-vaccinated controls. The vaccine was a commercial vaccine also containing IBR, PI_3, BRSV, and Lepto 5 way fractions. Of the 15 non-vaccinated control heifers, one aborted and 14 had calves that were infected with the BVD virus when they were taken by Caesarian section. Of the 15 vaccinated heifers there were only 4/15 calves that were infected with the BVD virus.

What does this study tell us?

First, having the 30 heifers (vaccinated and controls) housed together with 4 adult PI cows is a tremendous challenge. It takes a very good vaccine to provide any protection. In this trial the vaccine fully protected 73% of the calves and all the heifers from disease due to BVD. We learned the following: (1) this is an excellent vaccine that provides very good protection in the face of a very stiff challenge, (2) no vaccine is perfect, and (3) prevention of PI's can be as important as prevention of clinical disease.

What else do I need to do?

The new vaccines can be very important tools in controlling BVD; however, it is also important to keep PI's out of your herd. The old saying, "Good fences make good neighbors" is something to remember along these lines. Avoid having your pregnant cows (particularly cows less than 4 months pregnant) come into contact with cattle from outside your herd. The stocker calves that use winter range adjacent to a spring calving herd can be a very high-risk situation. Also, have ***all*** new bulls and replacement females tested for PI status.

What samples are needed for these tests?

The two most common tests require either a skin sample or a serum sample. The skin sample is usually taken from the ear. The serum sample is derived from a blood sample that is allowed to clot, spun in a centrifuge and the clear serum is collected with a disposable pipette.

What is the bottom line?

Work with your veterinarian to select and use these new BVD vaccines in your herd to help prevent new infections. Also, consult with your veterinarian regarding testing for BVD PI in your herd, see if it makes sense for you and your operation. Make sure all new cattle coming into your herd are free of BVD—no PI cattle.

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