

# And now, the Bad News: BVD in Vaccinated Beef Herds

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## Introduction

Bovine viral diarrhea virus (BVDV) is the most common infectious cause of abortions, stillbirths and weak calves in western range beef herds. A variety of vaccines containing a BVDV component are used by producers to prevent the consequences of fetal BVDV infections. In spite of vaccination, BVDV "wrecks" occur annually. This study examined the impact of BVD-associated disease in vaccinated beef herds.

## Materials and Methods

Case histories from BVD epidemics in beef herds, including vaccination schemes, were examined. Virus isolation on tissues and blood were performed. Herds were examined by serum neutralization (SN) and screened for persistently infected (PI) calves by microtiter BVDV isolation. The data were compared with those from uninfected herds.

## Results and Conclusions

Epidemic BVDV-associated losses occur in vaccinated beef herds. Several aspects of range beef cow management affect the clinical presentation of BVD in these herds. An important difference between beef and dairy herds is that the breeding season (60 to 90 days) is restricted in beef cattle. Fetal infection during the first 90 days of pregnancy leads to early embryonic death, abortions, stillbirths, stunted calves and a high probability that PI calves will be born. In contrast, such congenital defects as cerebellar hypoplasia are not a

characteristic feature of BVDV infection in beef herds. Introduction of BVDV commonly occurs when bred replacement heifers with PI calves *in utero* are acquired.

Vaccination is widely practiced, and cows vaccinated with MLV vaccines will have SN titers  $\geq 1:1024$ , indistinguishable from those due to natural infection. While serology from individual cows is not useful, differential serology, i.e. SN titers to type 1a, 1b and 2 BVDV, can be of help in BVDV diagnosis, depending on the genotype of the field strain in the affected herd.

The underlying reason for BVDV vaccine failure is the degree of genetic and antigenic variation between strains of BVDV. Another problem is the unrealistic expectations of producers regarding the degree of fetal protection that BVDV vaccines can provide. In conclusion, BVDV vaccines should be used to prevent severe disease in acute BVDV infections. Veterinarians should not rely on vaccination to prevent fetal infections and epidemic BVDV in beef herds. Client education regarding BVDV transmission and biosecurity during the breeding season are the most important ways to prevent BVD in beef herds.

## References

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