

Calf age does not effect test sensitivity or specificity for detection of BVD

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Introduction

- Bovine virus diarrhoea (BVD) results in immunosuppression, gastrointestinal disease & impaired fertility
- Foetuses of cows <125 days pregnant may become persistently infected (PI) if exposed to BVD
- PI calves shed the virus for life, and have reduced life expectancy
- Finding and removing PI calves is an important part of BVD control
- Concerns have been raised about the potential for maternal antibodies to BVD to interfere with test results in young (<35 day old) calves
- The objective of this study was to assess test sensitivity when calves are tested at <35 days of age

Materials and methods

- Calves (n=1,030) from 11 herds enrolled
- All herds had BVDV detected in bulk tank milk (n=8 herds) or following individual animal testing (n=3 herds)
- Calves were ear notched at 3, 10, 24 and 38 (± 3) days postpartum
- The Day 38 samples were analysed by PCR (IDEXX Real time PCR BVDV) & two antigen ELISA (IDEXX BVDV Ag/Serum Plus test; IDEXX BVDV PI X2 Test plus)
- Calves testing positive for any of these tests at Day 38 were bled at ~100 days of age
- Day 100 samples were tested for BVDV antigen (IDEXX BVDV Ag/Serum Plus ELISA; BVDV Ag PI X2 test kits) & antibody (IDEXX BVDV Total Ab Test; IDEXX BVDV P80 test kits)
- Earlier (Day 3, 10 and 24) samples from calves testing positive at Day 38 were also tested by antigen ELISA and PCR
- Calves were defined as PI if they were antigen test positive at Days 38 and 100, and transiently infected (TI) if antigen positive at Day 38, but not Day 100

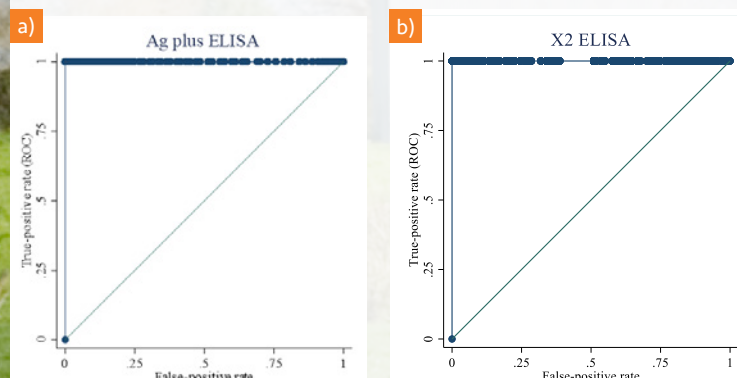
Results

- 26 of 1,030 (2.5%) of calves tested positive upon PCR at Day 38
- 1 additional calf was test positive by antigen ELISA at Day 38
- 5 of the 26 PCR positive calves (from 3 herds) were defined as PI and were test positive upon ELISA and PCR at Days 3, 10, 24 and 100
- The TI calves were antigen ELISA test negative at all time points
- Using PI status as the gold standard, the two antigen ELISA tests had 100% sensitivity and specificity for differentiating TI vs PI vs uninfected calves (Figure 1 a,b)
- The age of calves at testing did not effect the sensitivity or specificity of antigen ELISA or PCR test results

Conclusions

- There was no evidence of reduced sensitivity of the IDEXX ELISA or PCR tests for detecting BVD PI calves, irrespective of the age of the calf
- In this study the age of the calf did not affect the ability to detect a PI
- The antigen ELISA were superior to PCR for differentiating between PI and TI calves

Figure 1 a, b. Receiver operator curves for 2 antigen ELISA ((a) IDEXX Ag plus, (b) IDEXX X2) for differentiating PI from TI or uninfected calves ear notched at Days 3, 10, 24, and 38 of age



PI or TI? Know the difference with IDEXX



Superior to PCR for differentiating PI from TI calves; the IDEXX Antigen ELISA is the gold standard diagnostic tool for detecting PI animals in the herd, and can be used on ear notch samples at any age¹.

Do you know
farms with a previous
BVD issue or suspect
bulk tank result



Test every calf
with IDEXX antigen
ELISA to identify and
remove PI's



The right test at the right time:



PCR

The most sensitive and specific method of identifying BVD infection. However, it does not differentiate between transient and persistently infected animals. A PCR positive animal should be quarantined and re-tested 2 weeks later.



Bulk Tank Milk Antibody

The best test for economically monitoring the presence of BVD on-farm. Can indicate the presence of a PI even if it is not in the milking herd, through changing S/P ratios.



Bulk Tank Milk PCR

Another way to monitor the milking herd and is a very sensitive indicator of a PI cow contributing to the vat. When using this test ensure non-contributing cows and dry stock are also tested (see BVD Dairy Farm Frameworks for specific recommendations).

BVD Antigen

The best test for identifying PI's on animals of any age. A positive result on an ear notch IDEXX Antigen ELISA should be immediately culled*.



SAVE more this season, with IDEXX ear notch testing!#

- Submit 20-39 samples and SAVE 10%
- Submit 40-59 samples and SAVE 15%
- Submit 60 or more samples and SAVE 20%

SUBMIT & SAVE

It's as simple as that.

IDEXX also offers individual milk ELISA, individual or pooled ELISA and the IDEXX BVD Antigen Point-of-Care cow side testing device.

Click here for [**BVD DAIRY FARM FRAMEWORK**](#)

[**www.idexx.co.nz**](http://www.idexx.co.nz)

[**www.farmframeworks.com**](http://www.farmframeworks.com)

1800 838 522

¹ See overleaf.

Terms and conditions apply. Offer only valid for IDEXX BVD Antigen ELISA tests on ear notch samples. Samples must be received in one submission to qualify. Multiple submissions allowed.

* Serum samples can also be used but we recommend follow up testing to confirm PI status when using IDEXX Antigen ELISA with Serum..

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