The FMD-NS ELISA, the most sensitive test to detect FMDV infected animals in a vaccinated population

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Introduction
Foot-and Mouth disease is one of the most important infectious diseases, and outbreaks with devastating consequences still occur. The disease can be controlled by vaccination, however a critical issue is the occurrence of carrier animals and the risk they pose in transmitting the virus. The aim of this study was to evaluate the most sensitive method to detect carriers.

Material and methods
Seventeen Holstein-Friesian cattle, vaccinated with a full dose, a quarter dose, one-sixteenth dose of FMDV strain A/TUR 14/98, and two not vaccinated were challenged with 10,0000 cattle ID50 four weeks after vaccination. Serum and probang samples were taken prior to vaccination and infection and after infection at regular intervals until 2 years after infection. Samples were tested for the presence of FMDV (by virus isolation), FMDV viral genome (by real-time PCR), FMDV-specific IgA antibodies (by ELISA), antibodies against FMDV non-structural proteins (by Ceditest FMDV-NS ELISA, as described by KJ Sorensen et al., 1998) or neutralising antibodies.

Results
All cattle became carriers. All inoculated cattle developed high titres of neutralising antibodies which remain high during the entire experiment, only 14 out of 17 had an intermittently IgA antibody response in the oropharyngeal fluid. However, all animals developed antibodies against the non-structural proteins and became positive in the Ceditest® FMDV-NS ELISA as early as 6 days post infection and remain positive until the end of the sampling period.

Conclusion
Based on our results, the Ceditest® FMDV-NS ELISA is the most sensitive method to detect carriers in a vaccinated cattle population.

Reference