

# The Effect of BVDV on Various Claw Disorders: A Case Control Pilot Study

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## Introduction

In general the immunosuppressive properties of BVDV lead to a reduction in local defense mechanisms. The clinical outcome of infection depends on the immune status of the animal and the time of infection. The precise aetiology of digital dermatitis (DD) is not completely understood. DD is considered to be a multifactorial disease, both cow and management as well as environmental factors play a roll in its clinical occurrence. Several species of bacteria have been identified to play a role as causative organism. In order to motivate Dutch dairy farmers to embark on either a BVDV eradication or monitoring programme AHS Deventer conducted an effect study.

## Materials and Methods

Between October 2006 and January 2007 two specially trained students scored 2051 cows of 10 case and 15 control herds for the presence or absence of the eight hind claw disorders: digital dermatitis, heel horn erosion and interdigital dermatitis, interdigital hyperplasia, interdigital phlegmon, chronic laminitis, white line disease, sole haemorrhage and sole ulcer. Clinical and subclinical claw disorders were recorded during routine claw trimming sessions performed by a professional claw trimmer. Both case and control herds showed base line claw disorder prevalences comparable to Dutch dairy herds. Other cow factors were included. On a herd level: floor type, manure scraper use, access to pasture, bedding type, herd size, frequency of footbath use, interval between trimming sessions and bulk milk cell count were included. All case herds were selected as BVD Quick

scan test positive, a combination of three standard type BVD diagnostic tests, to indicate the BVD status of a herd. BVD virus persistently infected animals were identified and removed from the herd during the first half of 2006. All control herds have been certified BVDV free for at least 5 years. Freedom from disease was confirmed twice yearly by spot testing.

## Results

Generalised equations estimate (GEE) analysis was performed under the assumption that animals in the same herd are more strongly correlated than animals of separate herds. We further assumed that all animals in a case herd have recently been in contact with the BVD virus, and all animals present in the control herds have never been in contact with the BVD virus. Digital dermatitis (Mortellaro) was the single claw disorder found in a significantly higher number in case herds (OR 2.2, 95% CI; 1.5 – 3.3), possibly indicating an increase in Mortellaro problems in the presence of BVDV.

## Significance

The primary purpose of this case control pilot study was to determine associations between BVDV infection and various claw disorders. It Was assumed that all animals in a case herd have recently been in contact with the BVD virus, and all animals present in the control herds have never been in contact with the BVD virus. Digital dermatitis (Mortellaro) was the single claw disorder found in a significantly higher number in case herds (OR 2.2, 95% CI; 1.5 – 3.3), possibly indicating an increase in Mortellaro problems in the presence of BVDV.