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**EPIDEMIOLOGY OF BOVINE VIRAL DIARRHOEA VIRUS
INFECTION IN NEW ZEALAND DAIRY HERDS**

A DISSERTATION PRESENTED IN PARTIAL FULFILMENT OF THE
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ABSTRACT

This dissertation summarises the findings of two separate studies relating to the epidemiology of bovine viral diarrhoea virus in New Zealand dairy herds.

The objective of the first study was to estimate the distribution and causes of abortion in dairy herds across New Zealand during the 2001/2002 breeding season.

A questionnaire survey was sent to all veterinary practices that were listed as members of the New Zealand Veterinary Association. Veterinarians were requested to indicate the numbers of dairy herds where the rate of aborting cows was None (0%), Low (1-5%) and High (>5%).

The main causes of abortion among a total of 52 herd submissions were *Neospora caninum* (36.5%) and bovine viral diarrhoea virus (BVDV) (17.3%). This frequency distribution was similar in 35 herds submissions from the Low (1 to 5%) abortion category in that 34% were due to *Neospora caninum* and 15% were due to BVDV.

We concluded that BVDV and *Neospora caninum* are the most frequently diagnosed causes of abortion in dairy herds in New Zealand with a problem of abortion, as well as in herds with a low level of abortion.

The aim of the second study was to assess the relationship between results of a bulk tank milk antibody ELISA for bovine viral diarrhoea virus (BVDV) and the prevalence of BVDV sero-positive young stock as an indication of active infection of the herd.

Bulk tank milk samples from 724 dairy herds in the Waikato, Bay of Plenty and Northland regions of New Zealand were tested for BVDV antibodies. From this random population subset, 20 herds were again randomly selected from each of the quartiles of the percentage sero-positive (%SP) ELISA result and contacted for blood sampling. ELISA antibody test results on blood of 15 calves aged 6 – 17 months from each of 50 herds were available for final analysis.

Based on the blood results, 34 herds were classified as non-infected (0-3 sero-positive among 15 calves) and 16 herds as infected (5-15 sero-positive among 15 calves). Receiver operator characteristic (ROC) analysis suggested an optimal cut-off for bulk tank milk of 80 %SP yielding 81.2% sensitivity and 91.2% specificity.

We concluded that bulk tank milk could be used to determine the BVDV infection status of dairy herds in New Zealand.

The results of these studies are presented as two separate enclosed papers.

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DEDICATION

Konkome
Lorato

Always wished you were here with me in your different respective ways.

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PAPER I.

G Thobokwe and C Heuer. Infrequent abortions are also associated with bovine viral diarrhoea virus (BVDV) and *Neospora caninum*, *New Zealand Veterinary Journal*, Accepted (October 2002)

PAPER II.

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