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**Comparison of transcutaneous ultrasound over
the right flank with transrectal
ultrasonography in the diagnosis of pregnancy
in New Zealand dairy herds**

A thesis presented in partial fulfillment of the requirements
for the degree of
Master of Veterinary Science
at Massey University

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2004

Abstract:

Application of a 3.5 MHz sector transducer over the right flank allows the rapid and clear visualization of bovine pregnancy (ie: fetus, fetal membranes, fetal fluid and/or placentomes). A total of 1736 cows in ten commercial, pasture-based New Zealand dairy herds were examined for pregnancy by transcutaneous ultrasound across the right flank and transrectal ultrasound between 37 and 198 days of gestation. The gold standard was derived from calving records or examination at slaughter. The overall sensitivity of transrectal ultrasound (96.24%) was markedly higher than flank ultrasound (58.55%) and the overall probability of a correct diagnosis of pregnancy status was also significantly higher ($p < 0.0001$). From 155 days of gestation, however, flank ultrasound represented a more accurate method of pregnancy diagnosis and the probability of a correct diagnosis was significantly higher ($p < 0.0001$) after this gestational age.

The gestational age of 225 cows from four Spring-calving dairy herds was determined and ultrasound pregnancy test recorded, to determine possible fetal characteristics able to be visualized via transcutaneous ultrasound over the right flank in order to age pregnancy during mid to late gestation. Linear or quadratic equations and curves were formulated from 60 to 198 days of gestation. The fetal characteristics of thoracic diameter, abdominal diameter or umbilical diameter can be used to age pregnancy from 60 days of gestation. Placentome height and length were not significant in the determination of gestational age.

Acknowledgements:

I would like to acknowledge the partial funding received for these studies from the New Zealand Large Herd Association (NZLHA) and Massey University who purchased the 3.5 MHz sector scanner for this study.

My sincere thanks go to my supervisors, Dr Tim Parkinson, Dr Scott McDougall and Nick Lopez-Villalobos who never failed to give me support, encouragement and a “gentle shove” when needed.

I cannot thank enough the Whangarei-based herdowners and managers who willingly participated in the study, providing complete access to their herds, records and time. My sincere thanks go to Rob and Jo Philip; John and Jenny Waterhouse; Grant and Gaylene Pram; Barrie Neeley; Darryl and Raewyn Barge; David and Erin Jones; Peter and Cath Noakes; Royce and Lorraine Kokich; Tom and Sue Wood; Dave and Sharon Hodgson; Archie and Gail Rika and their herd manager Birgit. I would also like to thank Andrew and Anne Fraser, Fraser McBeth and Brett Farrell who demonstrated enormous patience during the early trials of the project involving rotary dairies.

Thank you to all at Whangarei Veterinary Services, particularly Dr Angus Campbell, Dr Jules Wilson, Dr Vicki Payne, Sue Wood, Linda Elson, Jane Langford and Faye Moore who provided the ultrasound machine, transrectal transducer and never-ending support, patience and chocolate biscuits. A huge thankyou to Shelley McKenzie who was always a willing assistant despite hardships (ie: several long showers!). Thank you also to the Animal Health Centre, Whangarei for lending their ultrasound scanner.

Thank you also to all at South and Mid Canterbury Vet Services, in particular those at Ashbury Vet Centre, Timaru and Ashburton Veterinary Centre, Ashburton for their patience in my frequent absences in order to finish this Thesis.

My sincere thanks to Dr Kevin Bell, chief veterinary officer and staff at Dargaville Beefpackers and the head of the meat department and staff at Morewa Richmond for examination of all cull animals included in this study.

It takes more than a simple acknowledgement to express my thanks to my family, friends and, in particular, Johann for providing support and encouragement every step of the way – couldn't have and wouldn't have done it without you.

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