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Management of Facial Eczema

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Abstract

Facial eczema is a hepatogenous photosensitisation of ruminants caused by sporidesmin produced by the saprophytic fungus *Pithomyces chartarum*. It is of large concern to the dairy industry, both with its effects on production and the significant animal welfare implications of affected stock.

In 2011 DairyNZ and Sustainable Farming Fund invested in research initially aimed at trying to get a better understanding behind the natural spore count variability in paddocks, between paddocks and between farms and to try and find alternative ways of managing facial eczema without zinc. After this research was completed in 2013 it was deemed necessary to try and understand to what extent management of facial eczema was breaking down and possible reasons for these breakdowns. The overall aim of this research was to try and help farmers improve their management of this disease and reduce incidence of facial eczema.

A study comparing the spore counts from paddocks containing varying quantities of herbs, clovers and tall fescue showed that the addition of chicory, plantain, lucerne and white clover into a ryegrass pasture did not provide any reduction in spore counts. Tall fescue paddocks showed lower spore counts over time than pure swards of ryegrass.

A study comparing the application of lime and nitrogen in comparison to control paddocks showed that application of lime before the risk period for facial eczema (in November), application of lime after a spore count rise, (in March) or urea application (in December) did not affect the number of spores produced by *Pithomyces chartarum*.

A study investigating the variability of spore counts within farm, paddock, grass sample and water aliquot showed that if spore counts are to be used for monitoring purposes to identify when to start and finish facial eczema (FE) prevention programmes, at least three aliquots per wash water should be selected.

Finally, a study looking at the different types of management of FE used and their effectiveness highlighted that FE management on dairy farms in New Zealand could be substantially improved;
principally through farmers getting more information on the success of their FE management programs and responding when tests show that FE management is not effective.
Acknowledgements

It is not until you reach the point of writing the acknowledgements of a thesis that you truly appreciate the number of people that contribute to the completion of such a body of work.

It was almost 5 years ago when I approached Mark Stevenson at an NZVA conference to consider further study in epidemiology. It was very much a situation of being in the right place at the right time as he was the one that set me on this path of facial eczema research, a topic I was already very interested and involved in as a veterinary practitioner. I truly appreciate the opportunity he gave me and his support in designing and reporting the trial work.

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I gratefully acknowledge DairyNZ and Sustainable Farming Fund for providing the funding for showing patience with a disease that is very unpredictable to study and continuing to support the research despite changes in the aims of the study as we gathered more information.

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To our wonderful farmers in the Waikato and throughout the country, I thank them for their generosity, open and honest communication and involvement in the studies. I can only hope that what we have concluded will help them in the future.
In the last 6 months I have been privileged to have Richard Laven come on board as a supervisor to guide me, support me, help me expand the data analysis and ultimately allow me to finish this thesis though extremely dedicated and speedy responses. He truly understood the challenges of completing this while working and being a mother of two and I cannot thank him enough for his effort.

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This is has truly been a wonderful experience and I hope it makes a difference within the dairy industry.
# Table of Contents

Abstract .................................................................................................................................................. ii
Acknowledgements ............................................................................................................................... iv
List of figures ........................................................................................................................................ viii
List of tables ........................................................................................................................................... x

Chapter 1 Introduction .......................................................................................................................... 1

Chapter 2 Literature review - A review of the disease and its management ........................................ 3
  2.1 The disease .................................................................................................................................... 3
  2.2 Diagnosis of liver damage .............................................................................................................. 7
  2.3 The fungus and it’s toxin ............................................................................................................... 9
  2.4 Control and prevention strategies .................................................................................................. 14
  2.5 Effectiveness of management of facial eczema ............................................................................. 29

Chapter 3 The effect of pasture sward mix on *Pithomyces Chartarum* spore counts in New Zealand 31
  3.1 Abstract ........................................................................................................................................ 31
  3.2 Introduction ................................................................................................................................... 32
  3.3 Materials and Methods ................................................................................................................... 33
  3.4 Results ........................................................................................................................................... 35
  3.5 Discussion .................................................................................................................................... 37
  3.6 Conclusion ................................................................................................................................... 37

Chapter 4 The influence of lime and nitrogen fertilizers on spore counts of *Pithomyces Chartarum* in pasture .................................................................................................................................................. 39
  4.1 Abstract ....................................................................................................................................... 39
  4.2 Introduction .................................................................................................................................. 40
  4.3 Materials and Methods ................................................................................................................... 43
  4.4 Results ........................................................................................................................................... 47
  4.5 Discussion .................................................................................................................................... 49
  4.6 Conclusion ................................................................................................................................... 51

Chapter 5 The variability of *Pithomyces Chartarum* spore counting ............................................ 52
  5.1 Abstract ....................................................................................................................................... 52
  5.2 Introduction .................................................................................................................................. 54
  5.3 Materials and Methods ................................................................................................................... 57
  5.4 Results ........................................................................................................................................... 62
  5.5 Discussion .................................................................................................................................... 72
List of figures

3.1 Plot of spore counts in the high and low diversity paddocks over time ........................................ 35
3.2 Plot of spore counts between the 6 different diversity treatments .................................................. 36
4.1 Line plots showing the median pasture spore counts (× 10,000) /g pasture for each treatment over time (Pre-summer lime) .................................................................................................................. 47
4.2 Line plots showing the median pasture spore counts (× 10,000) /g pasture for each treatment over time (Autumn lime) ....................................................................................................................... 48
4.3 Line plots showing median pasture spore counts (× 10,000) per gram of pasture for each treatment (6 plots/treatment) over time (Nitrogen) ........................................................................................................... 49
5.1 Dot plot showing estimated spore count (× 10,000) per gram of pasture as a function of sampling date, stratified by farm ......................................................................................................................... 63
5.2 Line plot showing the estimated spore count (x10,000) per gram of pasture as a function of sampling date, stratified by farm ....................................................................................................................... 64
5.3 Dot plot with line of best fit showing the association between mean spore count for multiple aliquots from one grass sample and the standard deviation of the counts of those aliquots .................................. 65
5.4 Bland and Altman limits of agreement plot for actual total count from ten aliquots per grass sample and predicted counts from one aliquot per grass sample ...................................................................................... 67
5.5 Bland and Altman limits of agreement plot for actual total count from ten aliquots per grass sample and predicted counts from two aliquots per grass sample .................................................................................... 67
5.6 Bland and Altman limits of agreement plot for actual total count from ten aliquots per grass sample and predicted counts from three aliquots per grass sample ............................................................................... 68
5.7 Line plot showing the association between actual count from 10 aliquots per grass sample and predicted counts (from Poisson model) from one to three aliquots pre sample ........................................................................... 68
5.8 Bland and Altman limits of agreement plot showing agreement between total spore count from three grass samples and 3* spore count from one of those three grass samples ........................................ 70
6.1 Dot plot of spore counts in each individual paddock (blue dot) of each individual farm (alphabet letter) in each region ......................................................................................................................... 87
6.2 Bar plot of the number of farms in the survey using different management methods for the prevention of facial eczema ......................................................................................................................... 88
6.3 Bar plot of the different combination treatments used for the prevention of FE ........................... 89
6.4 Dot plot showing the difference between herd managers dose rates and calculated dose rates. 92
6.5 Frequency histogram of serum zinc concentrations in cattle on farms that used zinc to control FE (n = 911) ........................................................................................................................................ 95
6.6 Frequency histogram showing GGT concentrations (expressed as IU/L) for the n = 1081 cows that took part in the study .............................................................................................................................. 96
6.7 Frequency histogram showing GGT concentrations (expressed as IU/L) for the n = 80 cows with GGT serum concentrations above 300 IU/L ......................................................................................... 96
6.8 Error bar plot showing the regional individual cow prevalence of FE (with their 95% confidence intervals) ............................................................................................................................................... 97

6.9 Bar plot of the number of farms using each of the different management options for the prevention of FE in young stock (n=97) ................................................................................................................................................. 98
List of tables

3.1 Sward mixes for research paddocks ............................................................................................... 33

3.2 Multivariable linear model for the effect of six difference types of pasture spore counts over time (weeks) ................................................................................................................................................. 36

5.1 Descriptive statistics of estimated spore count concentrations for each of the five weeks of the sampling period ............................................................................................................................................................. 62

5.2 Association between individual aliquot spore count and total count from 10 aliquots from the same grass sample .......................................................................................................................................... 66

5.3 95% limits of agreement for mean counts from one to three samples for total counts from 10 samples from the same wash water from an individual grass sample ......................................................... 69

5.4 Comparison between limits of agreement from testing one versus three grass samples from the same site and testing one of three aliquots vs 10 aliquots from one grass sample ........................................................................ 70

5.5 Descriptive results from a comparison between the average spore counts from multiple peg sites and a traditional paddock spore sample ........................................................................................................ 71

5.6 Multivariable linear regression model of the grass components affecting the geometric mean spore counts (spores/gram pasture) ..................................................................................................... 72

6.1 Number of farms using different management methods for the prevention of FE in different regions ................................................................................................................................................................. 88

6.2 Cattle weights from farms using water treatment and dose rates calculated from herd manager estimates of daily zinc use ............................................................................................................................. 93

6.3 Weights and dosing of cattle for farms using feed treatment ........................................................................ 93

6.4 Logistic regression model of factors associated with the odds of being a farm with inadequate FE protection ................................................................................................................................................................. 94