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An investigation of selected diseases and aspects of husbandry of working dogs on sheep farms and sheep and beef farms in New Zealand in 2010.

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This study is dedicated to Bebop and Rocksteady. You rock my socks.
Abstract

A cross-sectional study of 202 working sheep dogs and 56 owners was undertaken in 2010 to investigate the dogs’ age, gender, breed, body condition scores, aspects of their husbandry, prevalence of and risk factors for nematode and protozoan parasitism, and prevalence of and risk factors for chorioretinopathy in working sheep dogs. Owners were convenience sampled from the South-West Waikato and the Tux North Island Dog Trial Championship 2010. Two-way tables were used to explore the relationship between variables. Significance of association was assessed using a Chi-squared or Fisher exact test as appropriate with a p-value of < 0.05 considered significant. Faecal analysis found 68/170 dogs (40%) had a nematode and/or protozoan parasite infection. Nineteen per cent (33/170) were infected with parasites from the Nematode phylum: *Toxocara canis* (9/170, 5%), hookworms (*Uncinaria stenocephala* or *Ancylostoma caninum*) (20/170, 12%) or *Trichuris vulpis* (8/170, 5%). Prevalence of protozoan infections was: *Sarcocystis* spp. 35/170 (21%), *Isospora canis* or *Isospora ohioensis* 9/170 (5%), *Neospora caninum* and *Hammondia heydorni* 4/170 (2%) and *Giardia* spp. 13/170 (8%). Younger animals had a significantly higher prevalence of *Toxocara canis* (P< 0.0001) and *Giardia* spp. (P< 0.0001). Prevalence of chorioretinopathy in the working sheep dogs was 44/184 dogs (24%). Older animals and males had a significantly higher prevalence of chorioretinopathy than younger animals (P= 0.0007) and females (P< 0.0001) respectively. Body condition scores for 197 animals found that: 29 had a BCS less than or equal to 2/9, 78 had a BCS of 3/9, 77 had a BCS of 4/9 and 13 had a BCS equal to or greater than 5/9. The BCS varied significantly between breeds (P= 0.002) with Huntaways comprising 23/29 of the dogs who were BCS two or less. The mean age of the working sheep dogs was 4.8 years, 85/200 (43%) were Huntaways, 84/200 (42%) were Heading dogs and 173/191 (91%) of the working sheep dogs were entire. Seventy-eight per cent of owners fed their dogs a diet consisting of commercial food and home kill sheep meat once a day. This study concluded that gastrointestinal nematode and protozoan parasitism and chorioretinopathy are occurring in working sheep dogs. The aetiology of the chorioretinopathy is undetermined. Further farmer education on the use of anthelmintic and prevention of gastrointestinal nematode and protozoa parasites may be required.
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Table of Contents

Abstract ........................................................................................................................................ iv
Acknowledgements ................................................................................................................... v
Table of Contents ...................................................................................................................... vi
Definitions .................................................................................................................................. viii
List of tables ............................................................................................................................... ix
List of figures .............................................................................................................................. xi
List of abbreviations .................................................................................................................. xiii
Chapter 1. Introduction .............................................................................................................. 1
  1.1 An investigation of selected diseases and husbandry of working dogs on sheep farms in New Zealand in 2010 ...................................................................................... 1
  1.2 The development and importance of agriculture in New Zealand ...................................... 1
  1.3 The development and role of the working sheep dog in New Zealand ................... 4
Chapter 2. Literature review .................................................................................................... 8
  2.1 The general state of health and welfare of working sheep dogs in New Zealand .......... 8
  2.2 Specific health and welfare diseases of New Zealand working sheep dogs .............. 11
    2.2.1 Orthopaedic Diseases ...................................................................................................... 11
    2.2.2 Neurological Disease ..................................................................................................... 12
    2.2.3 Toxicities .......................................................................................................................... 14
    2.2.4 Nutrition .......................................................................................................................... 14
    2.2.5 Parasitic Disease ............................................................................................................ 16
    2.2.6 Bacterial Diseases .......................................................................................................... 18
    2.2.7 Chorioretinal Disease ..................................................................................................... 20
    2.2.8 Other Diseases ............................................................................................................... 21
  2.3 Overseas working sheep dog health and welfare ............................................................. 22
  2.4 Conclusion .......................................................................................................................... 23
Chapter 3. Study design, analysis and discussion of the age, gender, breed, body condition scores, husbandry and nematode and protozoan parasitism of working sheep dogs in New Zealand in 2010 ........................................................................ 25
  3.1 Introduction ......................................................................................................................... 25
  3.2 Study design ...................................................................................................................... 26
    3.2.1 Funding ........................................................................................................................... 26
    3.2.2 Sampling method ....................................................................................................... 26
Definitions

Working sheep dog  In this thesis, the title ‘working sheep dogs’ will be used to refer to working dogs on sheep farms and sheep and beef farms.

Sheep farm  The definition of a sheep farm for the purpose of this study was a commercial sheep production facility where the sheep received a majority of their diet by grazing pasture and crops.

Cyst  In this thesis, ‘cyst’ will be used to refer to either a protozoan cyst or a protozoan oocyst.

REF  When calculating relative risk, the REF (reference) is the value that was used for comparison with the other relevant values.
List of tables

Table 3.1: Number and percentage (in brackets) of dogs in each body condition score category stratified by age, breed and gender in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Table 3.2: Number and percentage (in brackets) of owners and dogs in each category for stated kennel husbandry variables in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Table 3.3: Number and percentage (in brackets) of owners and dogs in each category for stated diet husbandry variables in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Table 3.4: Number and percentage (in brackets) of owners and dogs in each category for stated animal health husbandry variables in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Table 3.5: Effect of age, breed, gender and body condition score on nematode and protozoan parasite infection in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.
Table 3.6: Effect of kennelling conditions and frequency of anthelmintic treatment on nematode and protozoan parasite infection in 164 dogs in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Table 4.1: Frequency of six clinical signs of chorioretinal disease in 175 working sheep dogs in a study of chorioretinopathy in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Table 4.2: Effect of age, breed and gender on the prevalence of chorioretinal disease in a study of chorioretinal disease in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Table 4.3: Effect of body condition score, nematode and/or protozoan parasite infection and *Toxocara canis* infection on the prevalence of chorioretinal disease in a study of chorioretinal disease in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.
List of figures

Figure 3.1: Histogram of the frequency of the number of dogs per owner in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 3.2: Histogram of the frequency of the age distribution of 198 dogs in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 3.3: Box plot of the proportion of commercial, home kill sheep meat, household scraps and other foods in the diet of 169 dogs owned by 46 owners in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 3.4: Prevalence of parasitism stratified by age for 166 working sheep dogs in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 3.5: Prevalence of infection with the individual parasite species stratified by age for 166 working sheep dogs in a study to determine the prevalence of parasitism in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010. *Toxocara canis* (P ≤ 0.0001); hookworms *Uncinaria stenocephala* or *Ancylostoma caninum* (P = 0.92); *Trichuris vulpis* (P = 0.84); *Sarcocystis* spp. (P = 0.48); *Isospora canis* or *Isospora ohioensis*
Neospora caninum and Hammondia heydorni (P = 0.08); Giardia spp. (P ≤ 0.0001).

Figure 4.1: Example of a typical normal fundus for a working sheep dog in a study into the prevalence of chorioretinal disease in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 4.2: Example of a focal fundic lesion showing focal hyper-reflectivity and focal pigment deposition, in a working sheep dog in a study into the prevalence of chorioretinal disease in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 4.3: Example of diffuse fundic lesions showing diffuse hyper-reflectivity and diffuse pigment deposition, blood vessel attenuation and optic nerve atrophy in a working sheep dog in a study into the prevalence of chorioretinal disease in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 4.4: Example of focal pigment deposition, focal reflective change, diffuse hyper-reflectivity and diffuse pigment deposition, blood vessel attenuation and optic nerve atrophy in a working sheep dog in a study into the prevalence of chorioretinal disease in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.

Figure 4.5: Example of optic nerve atrophy, blood vessel attenuation, diffuse hyper-reflectivity and diffuse pigment deposition in a working sheep dog in a study into the prevalence of chorioretinal disease in working sheep dogs in New Zealand. Data from a cross-sectional survey involving 56 dog owners and 202 dogs from the central North Island and the Tux North Island Dog Trial Championship conducted in 2010.
List of abbreviations

> Greater than
\geq Greater than or equal to
< Less than
\leq Less than or equal to
= Equals
95\% CI 95\% Confidence interval
Min. Minimum
Max. Maximum
GDV Gastric Dilation-Volvulus
IQR Interquartile range
NZVA New Zealand Veterinary Association
MPS IIIA Mucopolysaccharidosis IIIA
GME Granulomatous Meningoencephalomyelitis
MCPA 4-chloro-2-methylphenoxy acetic acid
MDR1 Multidrug Resistance Protein 1
IFAT Immunofluorescent Antibody Test
DCM Dilated Cardiomyopathy
OLM Ocular Larval Migrans
ZnSO_4 Zinc Sulphate
BCS Body Condition Score
REF Reference