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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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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.

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List of abbreviations

>	Greater than
≥	Greater than or equal to
<	Less than
≤	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