

# Bronchopulmonary parasitism in Merino White and Merino Black lambs

## Parasitismo broncopulmonar em borregos das raças Merina Branca e Merina Preta

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### 1.INTRODUCTION AND OBJECTIVES

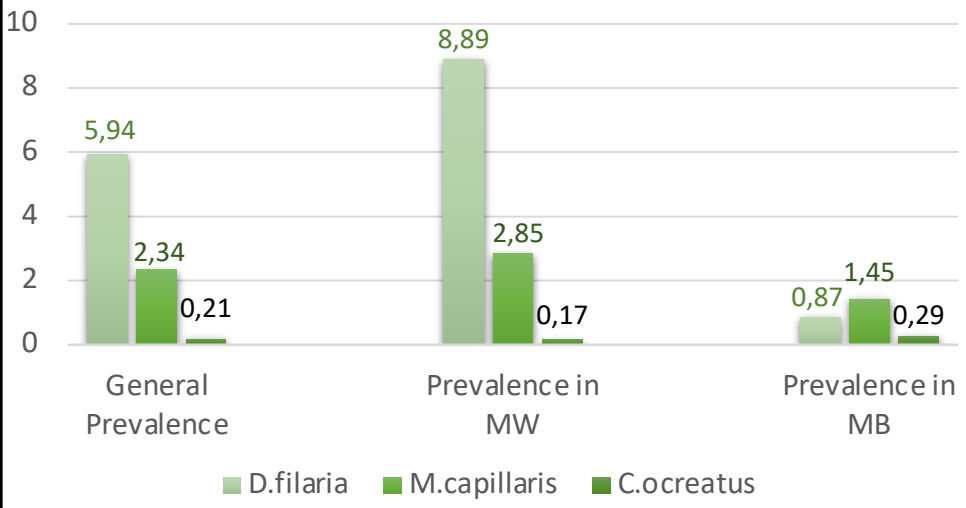
The Merino White (MW) and Merino Black (MB) breeds are autochthonous breeds from Alentejo, characterized by their high rusticity, adaptation to soil and climate conditions, and natural resistance to diseases. Bronchopulmonary parasites (BP), in particular, *Dictyocaulus filaria* (fig.2), can compromise immunity, predispose to secondary infections, negatively affect meat and milk production, and in the case of massive infections, lead to the death of the animal. This study aimed to determine the prevalence of BP parasites, quantify the production of larvae, and analyze the differences in susceptibility to these parasites between the two races.



### 3.RESULTS

7.64% of the samples had larvae of BP parasites and 35.29% of farms at least one infected animal. *D. filaria* was identified in 5.94% (95%CI: 4.61-7.64%) of the animals (8.89% MW and 0.87% MB), *Muellerius capillaris* (fig.1) in 2.34% (95%CI : 1.55-3.51%) (2.85% MW and 1.45% MB) and *Cystocaulus ocreatus* in 0.21% (95%CI: 0-0.77%) (0.17% MW and 0.29% MB). The mean number of larvae per gram of faeces was  $0 \pm 0.07$  for *D. filaria* ( $0 \pm 0.08$  MW and  $0 \pm 0.05$  MB),  $1.55 \pm 34.6$  for *M. capillaris* ( $2, 31 \pm 43.4$  MW and  $0.24 \pm 3.19$  MB) and  $0 \pm 0.07$  ( $0 \pm 0.08$  MW and  $0 \pm 0.05$  MB) for *C. ocreatus*. The relationship between race and BP parasitism was evaluated with a mixed logistic regression model using farms as a random factor, and no statistical association was observed.

#### BP Parasite Prevalence



### 4.DISCUSSION

- This study is one of the first to document the prevalence of BP parasites and quantify the respective levels of L1 larvae in MW and MB sheep.
- The prevalence of the three identified species was low in both races.

The results may be explained by in place anthelmintic treatments for gastrointestinal parasites and particular conditions of the Alentejo area under study, which may hinder the survival of L3 larvae of *D. filaria* and the maintenance of gastropod intermediate hosts of protostrongylid larvae.

Although both the percentage of infected animals and the levels of infection were apparently higher in the MW breed, when applying the mixed regression model, no significant differences were observed, meaning that other factors on farms may have influenced lungworm burdens.

- Based on the present data no conclusions can be drawn about a greater resistance to BP parasitism of MB compared to MW sheep.
- More studies will be needed, involving a larger number of farms, where both breeds are represented and exposed to the same management, soil and climate factors to compare levels of BP parasitism between MB and MW sheep.

**Fig.5:** Tail morphology of lungworm larvae. a) *Muellerius capillaris*, b) *Protostrongylus rufescence*; c(i) and c(ii): *Cystocaulus ocreatus*; d) *D. filaria*; e) *Neostongylus linearis*. J.A. van Wyk et al. / Veterinary Parasitology 119 (2004) 277–306 .

### 2.MATERIALS AND METHODS

The diagnosis of BP parasites was carried out between September 2019 and November 2021 on stool samples collected from the rectal ampulla of 596 lambs in 24 MW farms and 346 lambs in 13 MB farms. Larvae were isolated by the Baermann technique (fig.4), using 5 g of faeces and identified and quantified under a stereomicroscope using multiwell plates (fig.3).



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