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Can body condition score be used to refine worm control?

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SUMMARY

Anthelmintics are typically used to control worms and combat their deleterious effects on productivity, but inappropriate use has resulted in widespread resistance of worms to available anthelmintic treatment groups (Sutherland and Scott 2010). Adoption of new management strategies is required to slow the development of anthelmintic resistance. One potential strategy includes leaving a proportion of a flock untreated, which allows non-resistant (susceptible) worms to survive and thus slows the rate at which resistant genes accumulate in the worm population (Kenyon *et al.* 2009). The most appropriate indicator for selecting sheep that are to remain untreated is not clear. It is widely believed that sheep with a high body condition score (BCS) are better able to cope with worms (i.e., they have higher worm resilience) than sheep with low BCS, but little field research has been undertaken to verify this. Worm resilience is the ability to maintain an acceptable level of production despite a worm burden (Bisset *et al.* 2001). Figure 1 demonstrates a hypothetical relationship between BCS and worm egg counts (WECs) for worm resilient and non-resilient sheep.

The hypothesis of this project is that ewes with a low BCS will have greater production losses due to worms and will demonstrate a greater response to anthelmintic treatment than ewes with a high BCS. To test this hypothesis, Merino ewes at two properties have been allocated to groups with different BCSs but similar WECs. Half of the ewes in each group will receive regular anthelmintic treatment and half will remain untreated (Table 1). From May 2010 (pre-lambing) through to February 2011 (post-weaning), BCS, WEC and body weight assessments will be conducted to quantify responses to treatment (resilience).

Figure 1. Hypothetical relationship between BCS and worm resilience.

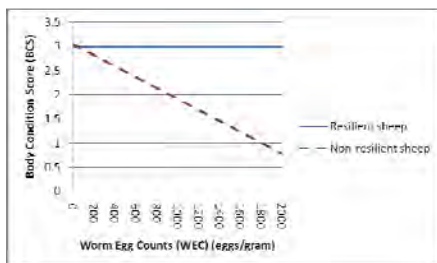


Table 1. Experimental design.

Merino Ewes 3 + years	BCS < 2.5	Treated
		Untreated
	BCS 2.5	Treated
		Untreated
	BCS 3.0	Treated
		Untreated
	BCS > 3.0	Treated
		Untreated

Fieldwork commenced in May 2010 and collection of data is ongoing. Additional experiments will commence later in 2010 to determine the relationship between BCS and worm resilience across a range of flocks. This research will provide producers with practical strategies to delay the development of drench resistance. It also has the potential to improve productivity and reduce on-farm costs by targeting parasite treatments to the proportion of the flock that will derive the most benefit from the treatment.

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