

GPS TRACKING OF SHEEP TO INVESTIGATE SHELTER AND SHADE USE IN RELATION TO CLIMATIC CONDITIONS

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ABSTRACT

In Australia inclement weather contributes to losses of new-born lambs and recently shorn sheep. Provision of forced shelter has been observed to reduce lamb losses by up to 10 percent and when given a choice, ewes preferentially seek shelter on offer for a limited period around two weeks post shearing (Alexander et al. 1980). Given shearing is not ideal in late pregnancy, alternative ways of attracting sheep to shelter are needed. This paper reports on the results of deploying GPS collars on sheep on a commercial property in the Northern Tablelands region of NSW Australia, with the aim of understanding the relationship between local climate and topography and sheep preference for shelter during pregnancy. In this work, two 14 ha field designs were evaluated. Field A comprised of perimeter shelter belts (3-4 rows of native trees) and individual, free standing trees within the field. Field B comprised of perimeter shelter belts, a single, internal shelter belt ('boomerang' shape) and a number of free standing trees. Over two shearing and lambing seasons a random sample of 5 ewes from two flocks of 200-300

ewes were fitted with GPS collars providing continuous (43-51 days) observations of the ewes' movement and proximity to shelter. Weather stations and temperature loggers were strategically located throughout the fields to provide localized measures of temperature, wind speed and precipitation.

During night-time camping (1900-0400 hrs), and where the choice of an internal shelter belt was provided (Field B), sheep were observed to spend more time in the vicinity (≤ 10 m) of shelter belts than free standing trees. In Field A where only internal trees was on offer in addition to perimeter shelter belts, a greater preference for the free standing trees was observed. Daytime, shade-seeking behaviour indicated an increase in preference for individual, internal trees in both fields compared to night-time camping.

Table 1 Time spent (as a percentage of total time) in the vicinity of free standing trees compared to shelter belts.

Time	Field A		Field B	
	Free Standing Trees	Shelter Belts	Free Standing Trees	Shelter Belts
Night-time 1900-0400 hrs	62%	38%	5%	95%
Day-time 0800-1500 hrs	92%	8%	42%	58%

The effects of local climatic temperature 'extremes', wind direction and diurnal movements on daytime and night time preferences are expected to play a role in the observed shelter-seeking behaviour and the outcome of this additional analysis will also be reported.

REFERENCES

Alexander G, Lynch JJ, Mottershead BE & Donnelly JB. (1980). *Proc. Australia Society Animal Production* **13**, 329-332.