

THE OVULATION RATE AND EMBRYO MORTALITY AMONG ADULT MERINO EWES GRAZED ON  
TAGASASTE (AN EVERGREEN PERENNIAL SHRUB), LUPIN STUBBLE OR PASTURE

C.M. OLDHAM and J.F. WILKINS

In Western Australia, Merino ewes are normally joined in summer on dry subterranean clover/rye grass pasture, cereal or lupin stubble. Many authors have reported increased ovulation rates in ewes grazing lupin stubble compared to flockmates grazing dry pasture. However, the associated increase in lambs born has been variable and it has been recently suggested this may be due to increased embryo mortality associated with chronic lupinosis (S.Gray, M.Johns and J.Allen pers. com.). Tagasaste (*Chamaecytisus palmensis*) is a perennial shrub which grows readily in poor sandy soils in Western Australia (Snook 1986) and limited evidence suggests it has a feeding value greater than dry pasture but less than lucerne (Borens and Poppi 1986). In this experiment we compared the reproductive performance of ewes grazing tagasaste or lupin stubble during joining with that of ewes on dry pasture.

Two thousand 4 and 6 year old ewes were randomly allocated among three groups. The oestrous activity of the flocks was synchronised so that 80% of the ewes in each flock were marked by rams between days 10 and 17 after being allocated to their joining paddocks. The ovulation rate of a sample of these ewes was observed. The embryo and foetal mortality was followed using real-time ultrasound scanning (Wilkins 1988).

TABLE 1 Group means for ovulation rate and embryo/foetal survival in pregnant ewes

	n	Ovulation Rate (CL/100 ewes)	Survival to			Embryo Loss (twin ovulators,%)
			(embryo) 27 days	(foetal) 52 days	93 days	
Pasture	130	115 <sup>a</sup>	110 <sup>a</sup>	106 <sup>a</sup>	104 <sup>a</sup>	21
Tagasaste	98	136 <sup>b</sup>	129 <sup>b</sup>	129 <sup>b</sup>	128 <sup>b</sup>	9
Lupin	126	181 <sup>c</sup>	169 <sup>c</sup>	167 <sup>c</sup>	165 <sup>c</sup>	12

different superscripts within columns indicate significant differences ( $p < 0.01$ )

The conception rates were similar:- 86,87,79 % for pasture, tagasaste and lupin groups respectively. The extra 66 corpora lutea (CL) or ovulations in the ewes grazing the lupin stubble for around 13 days compared to that of flockmates grazing traditional pastures was dramatic. However, the extra 21 CL produced by the ewes grazing tagasaste was also significant. The level of embryo mortality within twin ovulating ewes in the lupin and tagasaste groups was low compared with published estimates (Hanrahan 1980). In both these groups, extra twin ovulations were not associated with any decrease in embryo survival. With respect to the lupin stubble treatment, the level of infection of the stem with the phomopsis fungus was low and there was no rainfall during joining to activate the toxin. Hence, no association between chronic lupinosis and embryo mortality was seen in this experiment.

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