

WOOL FOLLICLE CHANGES AFTER THE BREAK OF THE SEASON

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Recent evidence suggests that follicle “shutdown” in response to the break of the season in Mediterranean environments can be a significant factor in determining staple strength (Schlink, unpubl.), but few experiments have been conducted to determine the causes of “shutdown”. We have examined the effect of genotype and stocking rate on follicle morphology after the break of the season.

The design of the experiment is given in detail by Earl *et al.* (1994). Briefly, 6 Finewool and 6 Strongwool Merinos were grazed at each of 9 stocking rates ranging from 6.2 to 20.0 dse/ha. Skin biopsies (1 cm diameter) were taken at monthly intervals from February to June, the break of the season occurring in April. Only data from the May sampling are presented here. This sampling provided the maximum number of abnormal follicles. Skin samples were fixed in buffered formalin and prepared for sectioning. Sections were taken at 8 μ m transverse to the plane of the follicles, every 5th section being retained from the sebaceous to the keratogenous zone. Sections were stained using the Saccip procedure. Follicle morphology was scored as follows: class 1 (normal); class 2 (nuclei of the outer root sheath arranged distally, irregular outer root sheath); class 3 (fibre absent, only inner root sheath present); class 4 (complete shutdown of the follicle). Two hundred follicles were scored at a depth deemed to maximise the chances of detecting all abnormal follicles.

There were no significant differences between genotypes in the proportion of follicles in each of the morphology classes (class 1 = 0.60 and 0.61; class 2 = 0.31 and 0.30; class 3 = 0.03 and 0.03; and class 4 = 0.07 and 0.06 for the Finewools and Strongwools respectively). Stocking rate on the other hand significantly affected follicle morphology (Figure 1).

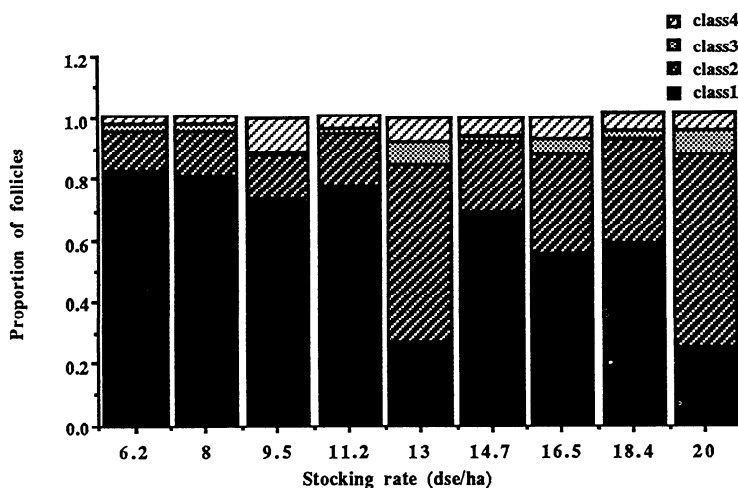


Figure 1. The proportion of “normal” follicles (class 1) declined, and the proportion of slightly abnormal (class 2) and shutdown follicles (classes 3 and 4) increased, with increasing stocking rate

The cause(s) of follicle pathology induced by the break of the season remains to be determined but appears in part to relate to nutrition, as sheep at a high stocking rate were more susceptible to the effects than sheep at a low stocking rate.

EARL, C.R., STAFFORD, J.E., ROWE, J.P. and ROSS, R.A. (1994). *Proc. Aust. Soc. Anim. Prod.* 20: 309-12.