VARIATION IN WOOL STAPLE STRENGTH, STAPLE LENGTH, AND POSITION OF BREAK AMONG EXPERIMENTAL SHEEP ON COMMERCIAL PROPERTIES

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The measurement of staple strength (SS), staple length (SL), and position of break (POB), will influence the price structure of wool as buyers use this information to predict processing performance. Growers will need to know which aspects of sheep management give rise to variation in these characteristics. The aim of this experiment was to compare SS, SL, and POB of ewes and wethers grazing together on commercial properties and to assess the effect of reproduction on these traits.

In 1984 nine groups of 25 pregnant ewes (joined February/March) and 5 wethers were run with commercial breeding flocks at many locations over the high rainfall and wheat/sheep zones of New South Wales (details in Denney et al 1986). Wool staples were obtained from midside samples removed at shearing for measurement of SS, SL and POB. Dyebands placed in the wool at strategic times during pregnancy and lactation allowed the breakage point under test to be related to the period of growth.

At shearing in December there were significant differences ($P<0.05$) between groups in greasy fleece weight (range 4.7 kg to 5.7 kg) and in SS (24.0 to 44.9 N/ktext), however SL was not affected ($P>0.05$). The SS of twin bearing ewes was 12 N/ktext less than single bearing ewes ($P<0.05$). The average POB occurred during early lactation over the months of August or September, however within groups was variable. Although 41% of ewes grew their weakest wool when lactating, 29% developed a wool break after their lambs were weaned, 24% developed a break in late pregnancy but only 11% grew their weakest wool in early pregnancy.

The average greasy fleece weights of wethers running with the breeding ewes were significantly different between groups ($P<0.05$, range 5.4 kg to 7.3 kg) but there were no differences in SS (mean 45.6 N/ktext ±1.4), SL, or POB. Wethers grew their weakest wool over the April May period when pasture conditions were poorest.

As the ewes and wethers grazed together, the reduction in SS due to pregnancy and lactation was obtained by comparing the two sexes. The SS of ewes was 29% less than that of wethers (range 13 to 53%). However, the effect of pregnancy and lactation on SS depends on the number of lambs raised; ewes raising singles had a SS only 19% less than companion wethers whilst the reduction for ewes raising twins was 45%.

We conclude that under commercial conditions pregnancy and lactation has a large influence on SS, which also depends on the number of lambs raised. The variation in timing of POB, which may frustrate any managerial procedures aimed at increasing the SS of breeding ewe flocks, suggests that ewes react variably to the physiological stress of pregnancy and lactation.