LIFETIME WOOL. 8. PROGENY WOOL PRODUCTION AND QUALITY

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The perceived costs of maintaining ewe liveweights and condition during the autumn/winter feed-gap means that ewes often lose 0.5-1.5 of a condition score by mid-pregnancy or lambing. Poor ewe nutrition during pregnancy and lactation can influence wool follicle initiation and maturation processes in the developing Merino lamb (Short 1955). These effects on the follicle population are permanent, and have a direct impact on both the amount and fibre diameter of wool produced for the duration of the lamb's life (Kelly *et al.* 1996), but their importance in the context of developing practical ewe feeding systems has received little attention. The Lifetime Wool project (Thompson and Oldham 2004) aims to determine ewe nutrition targets that optimise ewe and progeny production and systems profitability. This paper provides preliminary data on the characteristics of hogget wool from progeny that experienced different maternal environments.

The animals used in this study were progeny from medium wool Merino ewes, born in Aug-Sep and Jul-Aug 2001 at the Victorian and Western Australian sites, respectively. The Victorian progeny were shorn at 5 and 17 months of age. The Western Australian progeny were shorn at 11 and 21 months of age. Prior to each shearing, a mid-side sample was taken from all animals and measured for washing yield and mean fibre diameter (MFD). At shearing, an un-skirted greasy fleece weight was taken and multiplied by yield to derive a clean fleece weight (CFW). The preliminary data reported here is for the shearings at 17 and 21 months of age for progeny from the 2 sites, respectively.

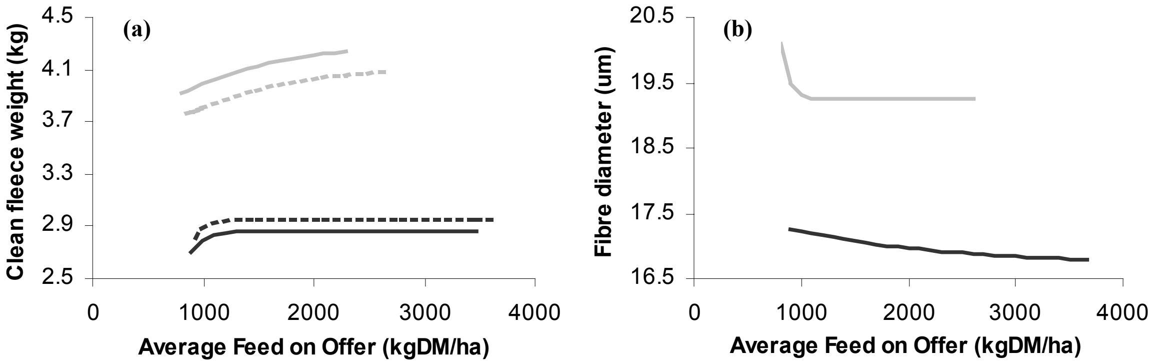

Figure 1. The effect of average feed on offer from day 90 of pregnancy to weaning and ewe condition score (CS) at day 90 of pregnancy on: (a) progeny fleece weight; VIC, CS 2 (—) and CS3 (- -) and WA, CS 2.0(—), and 2002/CS3 (- -); and (b) progeny fibre diameter; VIC (—) and WA (—), CS2 and CS3 combined.

These results reveal several significant, but variable, associations between ewe nutrition during pregnancy and lactation and progeny CFW and MFD (Figure 1). Adult progeny from ewes that grazed higher FOO levels tended to produce more wool (r^2 = 0.15, P=0.10 and r^2 = 0.47, P<0.01) that was finer (r^2 = 0.21, P<0.01 and r^2 = 0.22, P<0.05). The extreme responses were greater than those reported by Kelly *et al.* (1996), probably because the ewes in their study were in better condition at mating and the nutritional treatments ceased prior to lambing, whereas in the current study, they continued until weaning. The progeny CFW responses to ewe nutrition during early and mid-pregnancy differed between sites for unknown reasons. We anticipate that a clearer understanding of the results reported here will emerge after further shearing of these progeny, together with results from progeny from the 2002 and 2003 experimental years. A challenge in analysing the data is to accurately define ewe nutrition, which will be the focus of further work.

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