LIFETIME WOOL 8. PROGENY WOOL PRODUCTION AND QUALITY

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The perceived costs of maintaining ewe liveweights during the autumn/winter feed-gap means that ewes often lose 0.5 to 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; *these proceedings*) 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 August-September and July-August 2001 for the VIC and WA sites, respectively. The VIC progeny were shorn as lambs at 5 months and again at 17 months of age. The WA 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, the un-skirted greasy fleece weight was recorded 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 the VIC and WA progeny, respectively.

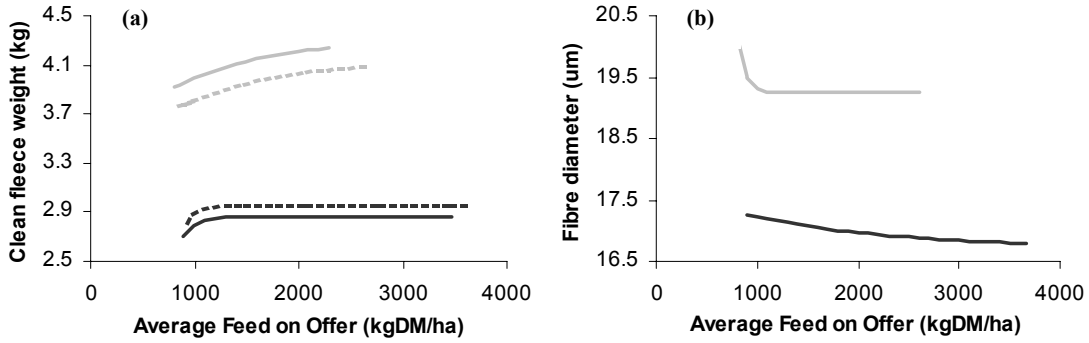

Figure 1. The effect of average feed on offer from Day 90 of pregnancy to weaning and ewe condition score (CS) at Day 90 of pregnancy on: (a) progeny fleece weight; VIC, CS 2 (▬) and CS3 (▪▪▪) and WA, CS 2.0 (▬), and 2002/CS3 (▪▪▪); and (b) progeny fibre diameter; VIC (▬) and WA (▬), CS2 and CS3 combined.

These results reveal several significant but variable associations between ewe nutrition during pregnancy and lactation and progeny CFW (Figure 1a) and MFD (Figure 1b). Progeny, aged 17 and 21 months at VIC and WA sites respectively, 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 reason for the different responses in progeny CFW to ewe nutrition during early and mid-pregnancy between the two sites is not known. We anticipate that a clearer understanding of the results reported here will emerge after further shearing of these progeny, together with results from progeny born in 2002 and 2003. A challenge in analysing this data is in accurately defining ewe nutrition, which will be the focus of further work.

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