

LIFETIME WOOL 4. EWE WOOL PRODUCTION AND QUALITY

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Managing feed on offer (FOO) in winter/spring has proved to be a useful tool for manipulating wool characteristics of dry sheep and increasing pasture utilisation and total wool production per hectare (Hyder *et al.* 2002). The same general principles will apply for breeding ewe flocks. However, the potential benefits from increasing stocking rates to produce more and finer wool per hectare from the ewe flock will need to be balanced against potential penalties in lambing rates, lamb survival and the heath and lifetime productivity of the progeny. This paper reports preliminary data from the 'Lifetime Wool' project (Thompson and Oldham 2004, *these proceedings*) on the quantity and quality of the wool produced by ewes fed differently through pregnancy and lactation.

The FOO to ewes from mid-pregnancy until weaning, and the corresponding ewe liveweight profiles throughout the whole year, are reported elsewhere (Hyder *et al.* 2004 and Ferguson *et al.* 2004, *these proceedings*). The ewes at the VIC site lambed in late August/early September and were shorn in February while those at the WA site lambed in August and were shorn in April. Mid-side wool samples were collected immediately prior to shearing, and used to measure yield, mean and variation in fibre diameter, staple length and strength. At shearing, the total weight of greasy wool was recorded for individual ewes. Average FOO between mid-pregnancy and weaning (140-150 days) explained 58 to 82% ($P < 0.001$) of the variation in clean fleece weight (CFW) and mean fibre diameter (MFD) of wool grown over 12 months at both sites (Figure 1). The CFW responses to FOO from Day 90 appear to differ between years and sites, especially for FOO levels less than 1500 kg DM/ha (Figure 1). The MFD of wool produced by the ewes followed a similar response to CFW.

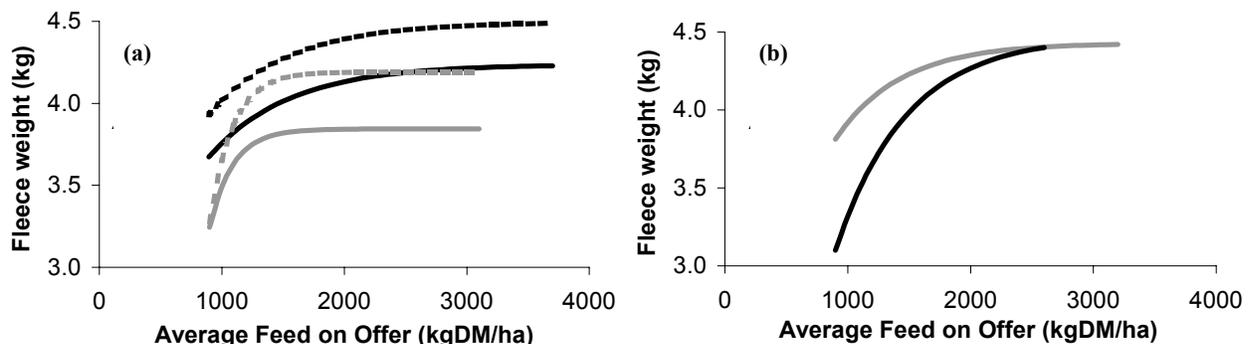


Figure 1. The influence of feed on offer from Day 90 of pregnancy to weaning and ewe condition score (CS) at Day 90 of pregnancy on ewe clean fleece weight; (a) VIC, 2001/CS 2 (—), 2001/CS3 (---), 2002/CS 2 (—), and 2002/CS3 (---); and (b) WA, 2001/CS2 and CS3 combined (—) and 2002/CS2 and CS3 combined (—).

The effects of ewe condition score at Day 90 on CFW and FD was more evident at the VIC site than the WA site, which was consistent with the differences generated in ewe liveweight between joining and mid-pregnancy at the two sites (Ferguson *et al.* 2004, *these proceedings*). At the VIC site, better feeding of ewes during early and mid-pregnancy increased staple strength by 8-10 N/ktex (25 vs. 33 and 18 vs. 27 N/ktex for ewes in condition score 2 and 3 at Day 90 of pregnancy in 2001 and 2002, respectively). In WA, staple strength was > 35 N/ktex in both years, irrespective of ewe nutritional treatment.

FERGUSON, M., PAGANONI, B. L., and KEARNEY, G. (2004). *Aust. Soc. Anim. Prod.* 25, (*these proceedings*).

HYDER, M. W., THOMPSON, A. N., DOYLE, P. T. and TANAKA, K. (2002). *Aust. J. Exp. Agric.* 12, 265-74.

HYDER, M. W., GORDON, D. J., and TANAKA, K. (2004). *Aust. Soc. Anim. Prod.* 25, (*these proceedings*).

THOMPSON, A. N. and OLDHAM, C. M. (2004). *Aust. Soc. Anim. Prod.* 25, (*these proceedings*).