LIFETIME WOOL 3. EWE LIVEWEIGHT AND CONDITION SCORE

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The nutrition, liveweight (LW) and body condition score (CS; Russel *et al.* 1969) of breeding ewes varies considerably throughout the year due to fluctuations in the quantity and quality of available feed. Extreme nutritional treatments of ewes during pregnancy have been shown to affect wool production potential (Kelly *et al*. 1996) and other traits (Cronje 2003) during the life of their progeny. This paper reports the effects on ewe LW and CS of a range of nutritional treatments imposed as part of the 'Lifetime Wool' project (Thompson and Oldham 2004: *these proceedings*). A wide range of LW and CS profiles during pregnancy and lactation was a prerequisite to determining the response curves for both maternal and progeny characteristics that contribute to farm profit.

At each site, adult Merino ewes were split into two flocks after stratification for LW and sire source and differentially fed to achieve mean CS ~ 2 or 3 by Day ~ 90 of pregnancy. Within each CS flock, they were then allocated to pastures maintained at five different levels of feed on offer (FOO; Hyder *et al.*, 2004; *these proceedings*). Treatments ceased at lamb weaning when ewes were recombined as a single flock. Ewes were weighed and condition scored every two to four weeks. Ewe LW was corrected for cumulative fleece weight estimated from five or six dyebands spaced through the year and for conceptus weight using the equations developed by Wheeler *et al.* (1971).

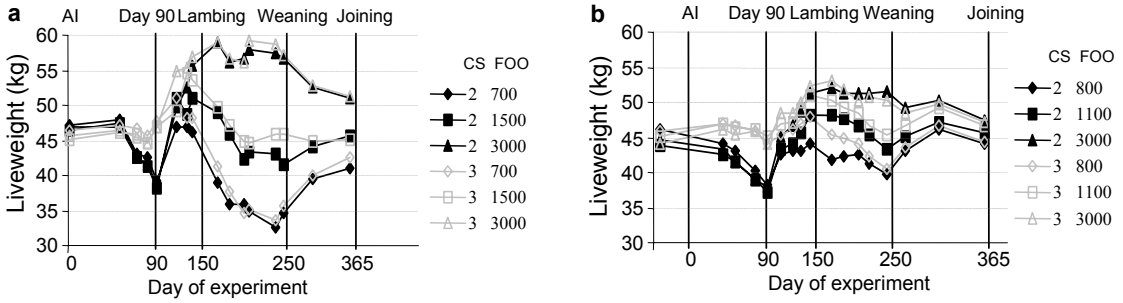

Figure 1. The pattern of change of maternal liveweight for single-bearing ewes in 2001 for (a) WA and (b) VIC fed to either condition score 2 or 3 by Day 90 of pregnancy and thereafter grazed on five levels of feed on offer (FOO) until weaning (~ day 250) – for clarity only six of the 10 treatments at each site are shown.

The experiments were successful in generating a large range of LW and CS profiles at both sites (Figure 1). The magnitude of the changes in LW was larger at the WA site than at the VIC site. The CS profiles closely followed the liveweight graphs (data not shown). Maternal LW change during late pregnancy increased curvilinearly ($P<0.001$) with increasing FOO, with FOO explaining 70-90% of the variance in LW change at both sites. However, these relationships differed for ewes in different CS at mid-pregnancy and between sites. The combined data suggests FOO is non-limiting to feed intake above 2000 kg DM/ha (data not shown), but as expected, critical FOO values such as that required for liveweight maintenance will vary depending on a complex group of pasture and animal factors. From a practical point of view, the variation in responses within and between sites indicates that assessments of LW in conjunction with FOO will be needed to achieve ewe nutrition targets. The effect of these nutritional regimes on ewe and progeny performance is reported in other papers in this series.

CRONJE,P. (2003). In Proceedings of the 6th International Symposium on the Nutrition of Herbivores. pp 321-32, eds L. 'tMannetje *et al*., Merida, Yucatan, Mexico.
HYDER,M.W., GORDON,D.J. and TANAKA,K. (2004). *Aust. Soc. Anim. Prod.* 25, (*these proceedings*).
KELLY,R.W., MACLEOD,I., HYND,P. and GREEFF,J. (1996). *Aust. J. Exp. Agric.* 36, 259-67.
RUSSEL,A.J.F., DONEY,J.M. and GUNN,R.G. (1969). *J. Agric. Sci. Camb.* 72, 451-4.
WHEELER,J.L., REARDON,T.F., HEDGES,D.A. and ROCKS,R.L. (1971). *J. Agric. Sci. Camb.* 76**,** 347-53
THOMPSON,A.N. and OLDHAM,C.M. (2004). *Aust. Soc. Anim. Prod.* 25, (*these proceedings*).

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