LIFETIME WOOL. 3. EWE LIVEWEIGHT AND CONDITION SCORE

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The nutrition, liveweight (LW) and body condition score (CS) of breeding ewes varies considerably throughout the year due to fluctuations in the quantity and quality of available feed. Extreme nutrition of ewes during pregnancy affects wool production (Kelly *et al*. 1996) and possibly 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). A wide range of LW and CS profiles during pregnancy and lactation was a prerequisite for determining the response curves for both maternal and progeny characteristics that contribute to farm profit.

At each site, adult Merino ewes were split into 2 flocks after stratification for LW and sire source, and differentially fed to achieve mean CS of ~ 2 or 3 by about day 90 of pregnancy. Within each CS flock, they were then allocated to pastures maintained at 5 different levels of feed on offer (FOO; Hyder *et al.* 2004). Treatments ceased at lamb weaning when ewes were recombined as a single flock. Ewes were weighed and condition scored every 2-4 weeks. Ewe LW was corrected for cumulative fleece weight estimated from 5 or 6 dyebands spaced through the year, and for conceptus weight using the equations developed by Wheeler *et al.* (1971).

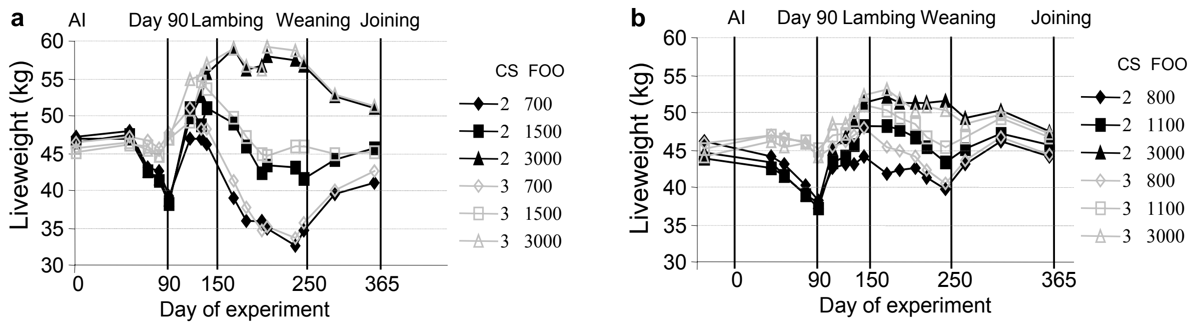

Figure 1. Patterns of change of liveweight for single-bearing ewes in 2001 for (a) Western Australia and (b) Victoria fed to either condition score 2 or 3 by day 90 of pregnancy, and thereafter grazed on 5 levels of feed on offer (FOO) until weaning (~ day 250) – for clarity only 6 of the 10 treatments are shown.

The experiments generated a large range of LW and CS profiles, although the magnitude of the change in LW was larger at the Western Australian site than at the Victorian site (Figure 1). The CS profiles closely followed liveweight (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 suggest FOO is non-limiting to feed intake above 2000 kg DM/ha (data not shown), but 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 a number of the other papers in the Lifetime Wool series.

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