

## LIFETIME WOOL. 5. CARRYOVER EFFECTS ON EWE REPRODUCTION

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The importance of the liveweight (LW)/condition score (CS) at joining to the reproductive performance of flocks of adult Merino ewes is well recognised. Fecundity (lambs scanned *in utero* per ewe joined) is the combination of fertility (ewes pregnant/ewe joined) and the prolificacy or twinning rate of ewes pregnant. Fecundity has been shown to increase by at least 2 lambs per kg increase in the average LW of the flock at joining (Kelly and Croker 1990). The Lifetime Wool project (Thompson and Oldham 2004) imposed a range of nutritional treatments on ewes during pregnancy and lactation that resulted in carryover effects on their LW and CS at their next joining (Ferguson *et al.* 2004). This paper reports the implications of these differences in ewe LW and CS on subsequent reproductive performance.

Details on ewe LW and CS measurements are given by Ferguson *et al.* (2004). The CS measurements were adjusted to correct for operator differences between sites using the method described by Van Burgel *et al.* (2004). After weaning in November 2001, all ewes at both sites were grazed together at the standard commercial stocking rate until joining the following February/March. The ewes were scanned for pregnancy about 100 days after the start of joining using ultrasound. The data reported are for ewes that reared a single lamb in 2001 only. The data were analysed by combining replicates to create 10 flocks (2 CS at day 90 x 5 levels of feed on offer from day 90 to about day 230; n = 24 ewes in Western Australia and 29 ewes in Victoria).

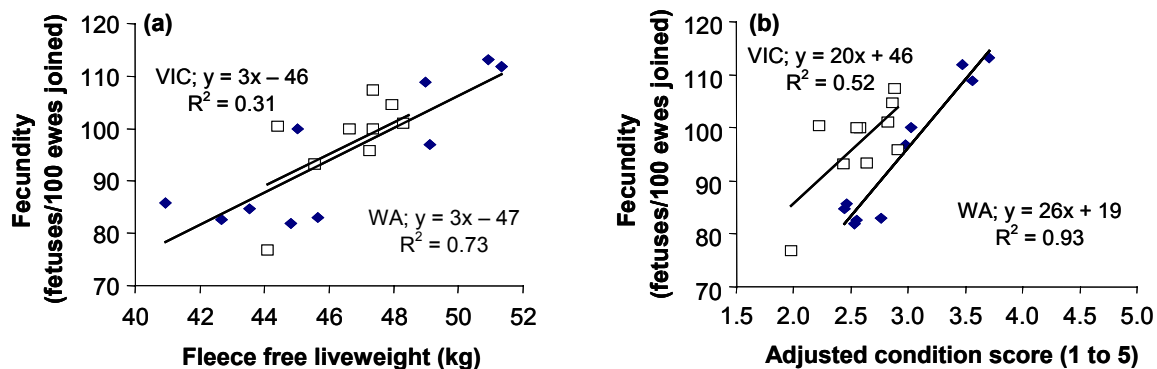


Figure 1. The influence of mean (a) fleece free liveweight and (b) body condition score of ewes on fecundity at the Western Australian (WA) (◆) and Victorian (VIC) (□) sites.

The FOO treatments produced much larger LW and CS deviations during late pregnancy and lactation at the Western Australian site than at the Victorian site (Ferguson *et al.* 2004); the range in ewe LW at weaning for the 2 sites was 33-61 and 40-50 kg, respectively. Changes in ewe LW and CS between weaning and the following joining were inversely related to ewe LW at weaning, such that the range in LW at joining had declined to 41-51 and 44-48 kg at the 2 sites. The average fertility (86 v. 89%) and fecundity (111 v. 112%) was similar at both sites. The fecundity increased at about 3 foetuses/100 ewes joined for each additional kg in fleece-free LW at joining in 2002 (Figure 1a). The relationship was the same at both sites, and at the higher end of the literature reviewed by Kelly and Croker (1990). The mean adjusted CS explained more of the variance in fecundity than fleece-free LW (Figure 1b).

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