

## LIFETIME WOOL 6. PROGENY BIRTH WEIGHTS AND SURVIVAL

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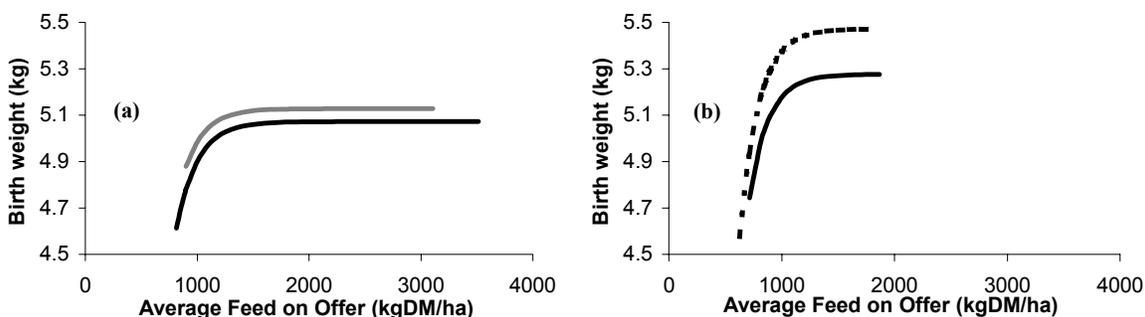
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Lamb survival is largely a function of birth weight (BWT), and restricting the level of nutrition to the pregnant ewe can reduce lamb BWT and survival depending on the timing and severity of the restriction and subsequent nutrition (Holst *et al.* 1986). This paper reports preliminary data from the 'Lifetime Wool' project (Thompson and Oldham 2004, *these proceedings*) on the impacts of differential feeding during pregnancy and lactation on the BWT and survival of single-born lambs.

Adult Merino ewes ( $n = 1600$  and  $1400$ , average liveweight  $46$  and  $47$  kg and condition score  $2.8$  and  $2.7$  for VIC and WA sites, respectively) were artificially inseminated and then fed to achieve a range in liveweight profiles through pregnancy and lactation; the 2001 ewe liveweight profiles are reported by Ferguson *et al.* (2004a; *these proceedings*). Lambs were tagged at birth, and their sex, BWT and dam number recorded. The BWT and mortality (total deaths to 48 hours) data from two years (2001 and 2002) from the VIC and WA sites were analysed separately.

The average BWT of single born lambs at both sites and both years were between  $4.5$  and  $5.5$  kg, and mortality varied from  $<5\%$  to  $30\%$ . The BWT of single lambs were not influenced by ewe nutrition to Day 90 of pregnancy at the VIC site in either year or the WA site in 2002. At the WA site in 2001, progeny from ewes fed to lose a condition score from joining to mid-pregnancy were heavier than those from ewes fed to maintain condition (Figure 1b). Average feed on Offer (FOO; kg DM/ha) between Day 90 of pregnancy and lambing explained  $35$  to  $40\%$  ( $P < 0.001$ ) of the variation in BWT in both years at the VIC site (Fig. 1a), and  $57\%$  of the variation in BWT at the WA site in 2001 (Fig. 1b).



**Figure 1.** The influence of feed on offer from Day 90 of pregnancy to lambing and ewe condition score (CS) at Day 90 of pregnancy on the birth weight of single lambs; (a) VIC, 2001 (—) and 2002 (---) (CS2 and CS3 combined); and (b) WA, 2001/CS2 (···) and 2001/CS3 (—).

It is clear that the BWT of single lambs was remarkably resilient to all but the most severe nutritional treatments. However, changes in other progeny traits, such as wool production and quality (Ferguson *et al.* 2004b, *these proceedings*), may be induced at levels of maternal nutrition that do not necessarily reduce lamb BWT. There were no consistent effects of ewe condition score at Day 90 or FOO during late pregnancy and lactation on the mortality of single lambs, with the exception of the lowest FOO treatment at the VIC site. The mortality of twin lambs at the VIC site also increased dramatically when FOO was less than  $1400$  kg DM/ha during pregnancy and lactation (data not shown). Progeny deaths related to FOO treatments continued after weaning and had a major impact on the profitability of the different ewe feeding strategies reported by Young *et al.* (2004; *these proceedings*).

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