

Oedema in Dead Lambs Increases with Birth Weight and Differs Markedly Between Years

V. Vazquez Lanchas^C, G. Refshauge^{AB}, R. van de Ven^D, J.E. Morgan^{AB} and D.L. Hopkins^{AB}

^AAustralian Sheep Industry Cooperative Research Centre, Armidale, N.S.W., 2350

^BIndustry & Investment NSW (Primary Industries), Centre for Sheep Meat Development, Cowra, N.S.W., 2794

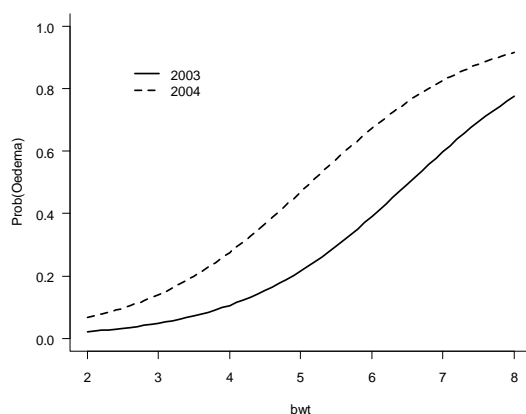
^CMontpellier SupAgro, International Centre for Higher Education in Agricultural Sciences,
2 Place Pierre Viala, 34060 Montpellier, France.

^DIndustry & Investment NSW (Primary Industries), Orange Agricultural Institute, Orange, N.S.W., 2800.

The mean birth weight (bwt) of dead lambs is less than the surviving cohort, but increasing bwt may not be a useful solution to improve survival (Hatcher *et al.* 2009). Additionally, levels of dystocia also increase with increasing bwt (Smith 1977), for all litter sizes. Autopsy data (Holst 2004) were used to review the probability of dead neonatal lambs showing signs of subcutaneous swelling (oedema).

Artificial insemination of 668, 5 and 6 y.o. Merino and Border Leicester Merino dams, occurred over 2003 and 2004. Representing Poll Dorset, Merino and Border Leicester, 32 sires were selected for muscling; growth; and muscling and growth (Hopkins *et al.* 2007a,b). Lambs were tagged within 15 h of birth and their bwt, dam, sex, litter size, birth date and level of birthing assistance were recorded. Those ($n = 397$, 22%) dying within 5 days of birth were autopsied and analysis occurred on these lambs only. Lambs with unknown dams were excluded. The binary responses for oedema (Yes or No) were analysed using logistic regression in ASReml (Gilmour *et al.* 2006). Fixed effects included year, sex, sire breed, dam breed, litter size and bwt. Random terms included dam, sire group and an interaction between dam and year. Non significant terms were removed.

Lambs that showed signs of oedema ($n = 84$, 26%) died from causes including dystocia, birth injury, starvation and predation. Of the 84 lambs with oedema, 35 (42%) were assisted in birth. Of those lambs without oedema, 5.4% had assistance in birth. Presence of oedema increased with bwt ($P < 0.001$) and differed across years ($P < 0.001$). Figure 1 shows the estimated probability of oedema in dead lambs was 50% at 6.5 kg in 2003, but around 5.2 kg in 2004.



The incidence of oedema in dead lambs increased with bwt, and the rate of increase differed significantly between the two years. The presence of oedema in 26% of autopsies shows that birthing difficulty is an issue and illustrates the value of data from autopsy. In some years, increasing bwt as a means to improve lamb survival is likely to risk significant increases in birthing difficulty.

Figure 1. The probability of dead lambs with oedema and across the birth weight (kg) range

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Email: gordon.refshauge@industry.nsw.gov.au