

## LIFETIME WOOL 1. PROJECT OVERVIEW

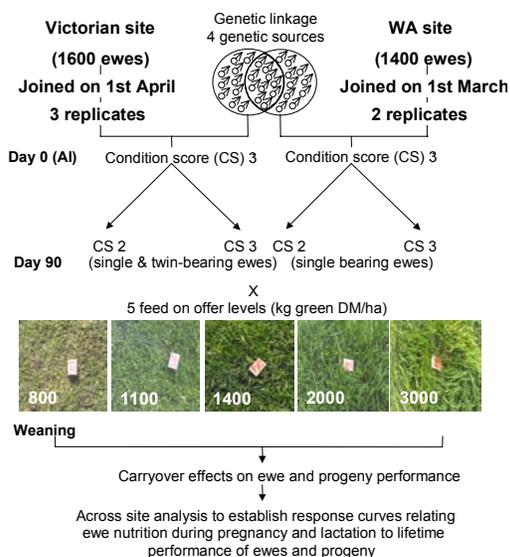
A.N.THOMPSON<sup>A</sup> and C.M.OLDHAM<sup>B</sup>

<sup>A</sup> Primary Industries Research Victoria (PIRVic), Dept of Primary Industries, Hamilton, Vic 3300

<sup>B</sup> Sheep and Pasture Industries, Dept of Agriculture Western Australia, South Perth, WA 6151

‘Lifetime Wool’ is a national project funded by Australian Wool Innovation that is developing profitable ewe management guidelines for woolgrowers across Australia. Most research on the effects of nutritional management of ewes has concentrated on the impacts on the dam herself and lamb birth weights and survival. New opportunities for developing optimum ewe management systems, based on achieving liveweight and body condition score targets at critical stages of the reproductive cycle, have emerged from the acceptance that nutrition during pregnancy can also have substantial impacts on the lifetime performance of the progeny. There is evidence that progeny from better fed ewes will produce more wool and finer wool throughout their lives (Kelly *et al.* 1996) and that these effects on progeny wool production alone could increase whole farm profits by more than \$5 per ewe per year (Thompson and Young 2002). Other progeny traits are also influenced by maternal diet, such as reproductive performance, body composition and susceptibility to disease and stress (Cronje 2003), but their importance in the context of practical sheep production systems has received little attention.

Optimal allocation of feed resources to breeding ewes is dependent on the identification of the critical windows during the reproductive cycle where nutritional manipulation can influence progeny lifetime performance, plus the levels of nutrition needed to induce such responses. Until recently, most studies of the impacts of nutrition on foetal growth and development tended to focus on late pregnancy and have also only considered extreme nutritional regimes often outside the boundaries of commercial reality. There is a clear need for dose-response experiments to determine the levels of ewe nutrition needed at different stages of the reproductive cycle to optimise both wool and meat production per hectare in the short term and the lifetime performance of the progeny.



**Figure 1. Design of plot-scale experiments**

The ‘Lifetime Wool’ project includes four distinct phases: (i) plot-scale research (2001 - 2003; see Figure 1); (ii) paddock-scale research and demonstration (2003 - 2005; see Oldham *et al.* 2004; *these proceedings*); (iii) whole-farm systems modelling (see Young *et al.* 2004; *these proceedings*); and (iv) extension and technology transfer (2004-2008). The plot scale research sites are located at Coleraine, VIC (36°58’S, 141°17’E) and Kendenup, WA (34°27’S, 117°35’E). Following artificial insemination, ewes at each site were fed to maintain or lose weight during early and mid-pregnancy, and then grazed different levels of pasture during late pregnancy and lactation. Treatment effects on ewe feed intake, liveweight and condition score, wool production and subsequent reproductive performance are measured, and carry-over effects on progeny liveweight, wool production and quality will be measured for a further 24-30 months. This series of papers reports on preliminary data from the plot-scale research sites.

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Email: [Andrew.Thompson@dpi.vic.gov.au](mailto:Andrew.Thompson@dpi.vic.gov.au)