

On-farm participatory research is an essential step towards achieving successful adoption of innovation: ‘Lifetime Wool’ a case study

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Keywords: on-farm, participatory research, lifetime wool, innovation

Introduction ‘Lifetime Wool’ project (LTW) is a national project that is developing new nutritional guidelines for the management of ewe flocks across Australia funded by farmers through Australian Wool Innovation (AWI – EC298; 2001-2008). A large replicated plot-scale experiment was used to define the dose-response of current production (wool and reproduction from the ewe) and future production (survival, growth and wool from progeny over their lifetime) to a range of levels of ewe nutrition (Thompson & Oldham, 2004). However, “farmers and research workers have long realised that the difference between the results obtained on experimental plots and those obtained by farmers is of crucial importance” if farmers are to be convinced to adopt new technology (Davidson & Martin, 1968). Hence, the LTW was designed from the start to include four distinct phases: (i) plot-scale research (2001 – 2003; see Oldham *et al.* 2006); (ii) on-farm paddock-scale research (2003 - 2005); (iii) whole-farm systems modelling (see Young *et al.* 2004); and (iv) on-farm demonstration or ‘road-testing’ of the draft guidelines (2005-2007).

Results and Discussion The results of the first 2 years of plot-scale experiments strongly suggested that all of the key ewe and progeny characteristic responded to increasing levels of nutrition during late pregnancy and lactation with an asymptotic dose response (Oldham *et al.* 2005). Similarly, the initial whole-farm modelling suggested that it was feasible to describe an annual liveweight/condition score profile for ewe flocks (joining to joining) that would ‘optimised’ whole-farm profit. Hence, the next challenge was to compare the performance of commercial flocks managed to follow either the maximum performance liveweight/condition score profile or a ‘best-bet’ optimum profile to estimate the erosion in the difference between nutritional treatments when transferred to the farm scale. Project staff closely supervised this phase. Flocks were weighed and condition scored monthly by project staff on 15 farms across southern Australia and changes in feeding levels/stocking rate were budgeted in close consultation with the co-operating farmers. These experiments were primarily aimed at confirming that results at the paddock-scale would fall on the same nutritional response surface as those from the plot-scale experiments, exploring the performance of twins versus single progeny but most importantly developing the management process for the new guidelines in conjunction with ‘potential champions’. These experiments were conducted on flocks joined in January to April 2003, thus only 3/15 results for adult wool production of progeny have been collected. However, the overall results to date reflect the differences seen at the plot-scale and all the co-operating farmers have shown their potential as future ‘Lifetime Wool Champions’ by committing to the final Demonstration Phase of the project. The objectives of the demonstration phase are to test that the key activities and tools in the draft ‘LTW guidelines’ are; **feasible** (practical to implement) and **effective** (lead to an increase in profit) **in the hands of our target audience**. The key message underlying these draft guidelines is “You must measure to manage – let the animals do the talking”. This activity started in January 2005 and it is seen as the key to the success of the overall project; it involves participatory research in its ultimate form. The 15 co-operators in the experimental phase will be observed/monitored as they attempt to manage a flock to the new guidelines; managing a flock to follow as closely as possible a predetermined annual liveweight or condition score profile using the tools developed by the project. On these farms project staff will also measure the performance of a control flock managed, as the farmer would have done before they were exposed to LTW. In addition, a further 85 farmers have volunteered to ‘road-test’ the guidelines by attempting to manage a flock to the LTW guidelines in consultation with LTW staff. The additional farms are associated in groups of 5 or 6 around the original 15 farms and are supported by LTW staff during 5 group meetings per year.

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