

Lifetime Wool – The ‘best bet’ optimum condition score profile for Merino ewes lambing in winter

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ABSTRACT

Draft guidelines for the ‘optimum nutritional management’ of ewes have been developed from response curves for the clean fleece weight and fibre diameter of ewes to varying levels of green pasture from mid pregnancy to weaning. Response curves were also defined for the mortality, clean fleece weight and fibre diameter of the progeny at their hogget shearing. The guidelines are defined in terms of the annual condition score profile required to achieve a performance by ewes and their progeny that will deliver approximately 90% of the maximum production for each of these key drivers of whole-farm profitability. It is further proposed that flocks managed to the ‘optimum’ condition score profile will achieve pasture utilisation/carrying capacity/ha that is approximately 90% of the theoretical maximum based on the duration of growing season and soil fertility. In 2005, the draft guidelines are being ‘road-tested’ by 100 woolproducers across southern Australia.

AIM

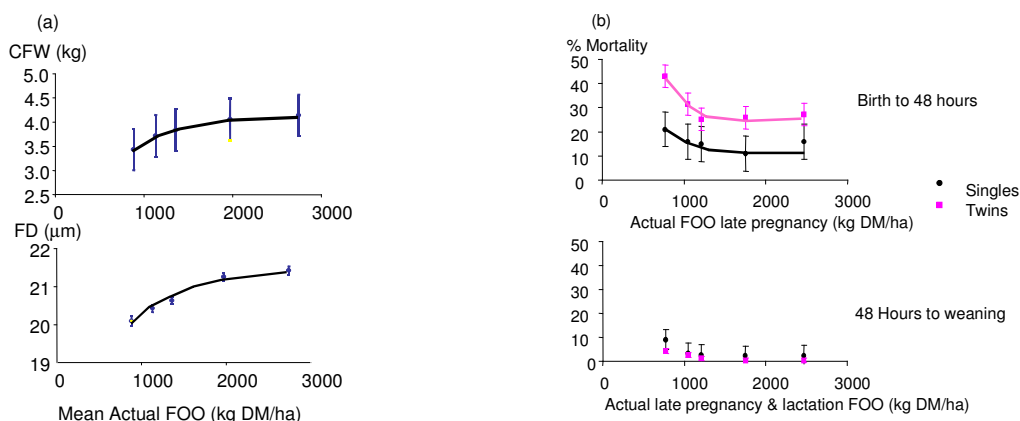
To draft nutritional guidelines for the management of ewes based on critical condition score targets.

METHOD

Response curves - defined in plot-scale experiments conducted by *Lifetime Wool* (1, 2) - to increasing availability of green feed from day 90 of pregnancy for the key drivers of whole-farm profitability were used to develop optimum condition score profiles for merino ewes lambing in late winter.

The weight and mean fibre diameter of wool produced by ewes increased to a plateau between 1500 and 2000 kg/ha of green dry matter on offer (FOO; Figure 1a). Similarly the mortality to 48 hr, and to weaning, of their twin progeny in particular also reached a minimum at a FOO of 1500 to 2000 (Figure 1b) as did the quantity and quality of wool produced by the progeny over their lifetime (Figures 1c and d).

The optimum economic solution for each dose response shown in Figure 1 is where the marginal cost of extra FOO is equal to the marginal return from extra product. This is approximately 90% of the maximum response (Ross Kingwell pers.comm.) and somewhere between 1500 and 2000 kg/ha of green FOO during late pregnancy and lactation for the relationships shown in Figures 1a, b, c and d. Similarly, the whole-farm analysis presented by John Young at last year’s Sheep Updates (1) strongly suggested that the maximum profit was generated when ewes were fed to follow the liveweight profile associated with a FOO of around 1500/ha.



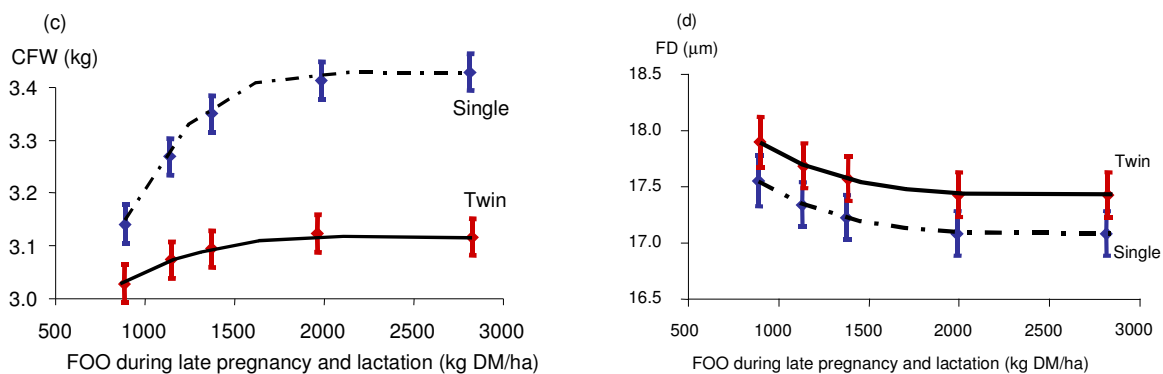


Figure 1. The responses to increasing levels of green feed on offer (FOO) from day 90 of pregnancy to weaning of ewes clean fleece weight (CFW) and mean fibre diameter (FD) (a) and progeny mortality (b) CFW at hogget shearing (c) FD at hogget shearing (d). The graphs are for treatment means \pm sem for 2 sites and 2 years ($n = 20$ to 30 pregnant ewes and the progeny by 2 or 3 reps).

RESULTS AND DISCUSSION

Only 25 ewes need to be assessed for condition score to have the same precision as weighing 50 ewes when estimating flock means. In addition, assessing changes in the liveweights of ewes is complicated by wool and fetal growth. Hence, the guidelines shown in Figure 2 are defined in terms of the annual condition score profile required to achieve a performance by ewes and their progeny that will deliver approximately 90% of the maximum production for each of the key drivers of whole-farm profitability shown in Figure 1. It is further proposed that flocks managed to the 'optimum' condition score profile shown in Figure 2 will achieve pasture utilisation/carrying capacity/ha that is approximately 90% of the theoretical maximum based on duration of growing season and soil fertility (3).

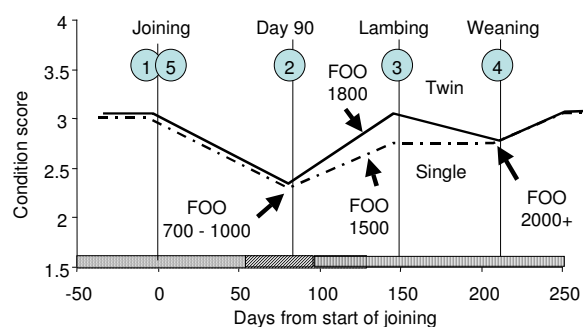


Figure 2. A schematic of the draft *Lifetime Wool* guidelines defined in terms of the condition score targets from joining (1) to the next joining (5) for single (—) and twin (---) bearing ewes with a winter/spring lambing. The periods of dry (▨), break-of-season (▧) and spring feed (▩) are shown on the x axis.

In 2005, the draft guidelines are being 'road-tested' by 100 woolproducers across southern Australia.

KEY WORDS

Guidelines, optimum-nutrition, ewes, condition score-targets

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