CALCULATION OF DRY SHEEP EQUIVALENTS

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A traditional approach used to calculate the stocking rate (SR) of experiments involving breeding ewes is to assign a dry stock equivalent (DSE) rating based on changes in energy requirement through pregnancy and lactation. However, if we accept the definition of a DSE as the metabolisable energy (ME) required to maintain a 50 kg wether in good condition [~8.6 MJ/day], then calculating DSE values should take into account the *actual* production response - as a direct indication of daily ME intake - rather than simply assigning a DSE value based on a *theoretical* pregnancy/lactation status.

For example, Figure 1 illustrates the plot-average liveweight of 25 single-bearing ewes grazing target amounts of feed on offer (FOO) from day 96 to day 238 after mating. Using the traditional method, all ewes would have been assigned the same DSE value in the period prior to lambing, despite there being 6 kg difference in average liveweight at the start of the period, and some plots gaining liveweight at 160 g/hd.day compared to others losing 180 g/hd.day.

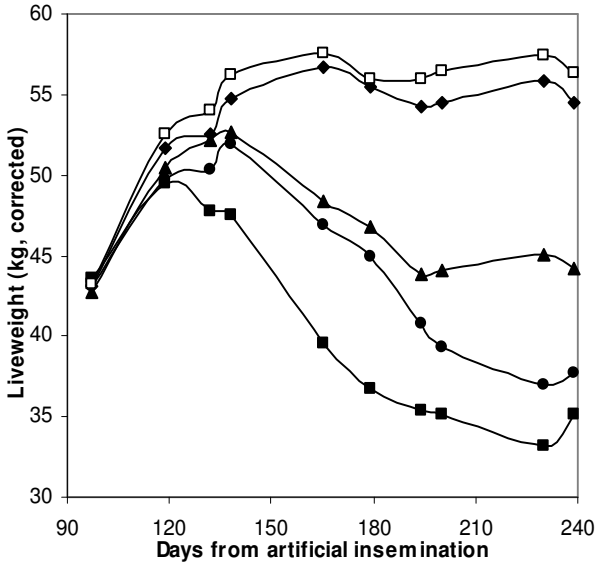

Figure 1. Plot-average liveweights, corrected for fleece/conceptus, of single bearing ewes grazing annual pastures maintained at 700 (■), 1000 (●), 1500 (▲), 2000 (♦) and 3000 (□) kg DM/ha

Relationships between LWC and daily ME intake (MEI) were generated using GrazFeed® for single-bearing ewes of different liveweight and at various stages of pregnancy. These relationships allowed MEI estimates to be made for short-term changes in ewe liveweight during pregnancy and lactation (Figure 1). The MEI estimates were divided by a wether maintenance ME requirement of 8.6 MJ to calculate DSE, then converted to a per hectare basis, and summed over the treatment period (day 96-238 after mating). This was compared to the SR calculated using the traditional method, where ewes were assigned a rating of 1 DSE from day 1-100 of pregnancy, 1.3 DSE at day 125, and 1.5 DSE at lambing.

For both SR calculation methods, SR decreased with increasing FOO, and the highest target FOO treatment had a significantly ($P<0.05$) lower SR compared to lower FOO treatments.

However, differences in SR between the 2 methods was small for low target FOO treatments but increased for FOO targets 1500 and above, reflecting the periods of liveweight gain in these higher target FOO treatments.

This method of calculating DSE will be possible where liveweight or condition score profiles are available, and should provide a more realistic, comparable estimate of SR.

Table 1. Comparison of stocking rates (DSE/ha) calculated either from estimates of metabolisable energy intake or assigned a rating based on changes in energy requirement

Target FOO (kg DM/ha)	Mean actual FOO (kg DM/ha)	SR - MEI (DSE/ha)	SR -Traditional (DSE/ha)
700	900	54	58
1000	1150	48	48
1500	1410	42	33
2000	2140	42	27
3000	2270	29	19

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