Wethers aboard ship may have a higher than expected feed requirement for liveweight maintenance (McDonald 1988). Our aim was to define the quantity of typical shipping pellets required to maintain the live weight of wethers under conditions simulating live export.

Six hundred 5 year old heavy shipping wethers from three properties were transported to an outdoor feedlot to simulate assembly prior to export. Oaten hay was available ad libitum in racks on days 1 to 3 and pellets fed in troughs at the rate of 0.25, 0.50, 0.75, 1.00 and 1.00 kg/wether on days 1 to 5 respectively. The pellets were composed of (kg/tonne): hay 400, barley 300, oats 200 and lupins 100. On day 6, the sheep were trucked 50 km to mimic transport to the wharf, weighed, tagged and the three lines of sheep were allocated across the pens in a shed as if aboard ship. The experiment consisted of five feeding levels (1.0, 1.3, 1.6, 1.9, 2.2 kg/wether.day), four replicates and 30 sheep per pen (10 per line) for a further 21 days. An additional 21 wethers from the same farms were also used in single pens to estimate the digestibility of the pellets (three groups of seven fed at 1.0, 1.6 and 2.2 kg/wether.day respectively) after a two-week training period on the pellets.

The mean (± s.e.) live weight of the animals fell from 71.3 (± 0.8) to 67 (± 0.7) during lot feeding despite eating all pellets offered. In the shipping phase, daily feed intakes fluctuated widely until days 4, 8, 10, 10, 10 for the 1.0, 1.3, 1.6, 1.9 and 2.2 kg/wether treatments respectively. This was reflected in all treatments as losses in weight in the first week in the shed, gains in the second week and maintenance in the third week. The relationship of liveweight change (Y, kg/wether.day) to mean feed intake over the experiment (X, kg/wether.day) was:

\[ Y = -10.34 (± 1.16) \times 7.65 (± 0.93) X, r = 0.88, P < 0.001. \]

From this relationship, the wethers would need to have consumed 1.35 kg/wether/day with 95% confidence limits of -15 and +16% to maintain live weight. The in vivo digestibility (± s.e.) of the pellets was 0.68 (± 0.01) and not influenced by level of feeding; the metabolisable energy content was estimated to be (0.68 x 18 x 0.81) 9.9 MJ/kg DM.

Wethers of 67 kg kept indoors would be expected to maintain live weight when fed approximately 1.0 kg of these pellets (MAFF 1976). Thus the apparent feed requirements were 35% higher than expected confirming the suggestion of McDonald (1988). We are now seeking clues to explain this result.

This research was partly funded by AMLRDC.


* Department of Agriculture, Geraldton, W.A. 6530.
** Department of Agriculture, Katanning, W.A. 6317.
*** Department of Agriculture, South Perth, W.A. 6151.