RECOVERY OF FEED INTAKE BY SHEEP FOLLOWING FASTING

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Fasting of livestock that occurs during handling, sale and transportation to feedlots reduces rumen fermentative capacity which is reflected in poor appetite during the initial period of refeeding (Cole *et al.* 1985). Under conditions of the live sheep export industry, McDonald *et al.* (1990) found inconsistent effects of duration of fasting on the proportion of sheep not eating on the first few days of refeeding. In the present study, the effects of duration of fasting and the composition of pelleted diets used for refeeding on the recovery of feed intake by fasted export sheep were investigated in 2 experiments.

In experiment 1, 24 pens each of 4 Merino wethers, fed coarsely milled oaten hay for 6 days at 750 g/head.day, were fasted for 0, 24, 48, 72 or 96 h with water available (4 pens/treatment) or fasted for 96 h without water (4 pens). Mean daily maximum temperature during the 96 hour period was 15°C. The sheep were then refed *ad libitum* a pelleted feed (8.2 MJ, 102 g CP/kg DM). In experiment 2, 24 pens of 3 adult wethers were fed *ad libitum* a 50:50 oat grain:oat hay diet with the last 5 days of intakes used as covariates. The sheep were fasted for 0 or 48 h and then fed *ad libitum* 1 of 4 diets in a 2 x 2 factorial combination of high and low energy and protein, consisting of 60 and 30% oats, 33 and 63% oat hulls and containing 10 and 0% cotton seed meal and 1 and 0% urea, proportionally replacing the 2 major components. All diets contained 7% premix which included buffering compounds. In each experiment, feed intakes after fasting were recorded daily commencing on the same day for all treatments. All sheep were familiar with the pelleted feeds.

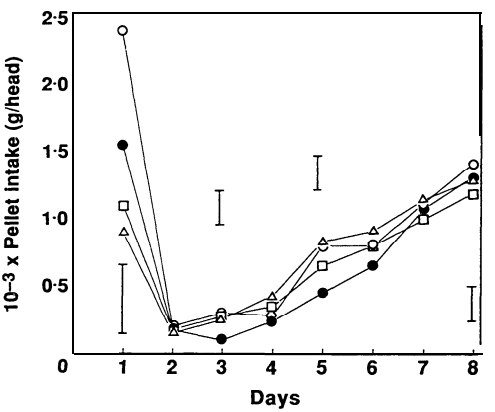

Fig. 1. Pellet DM intake of sheep following 0 (○), 24 (●), 48 (□) and 96 h (▲) of fasting. Vertical bars indicate s.e.d.

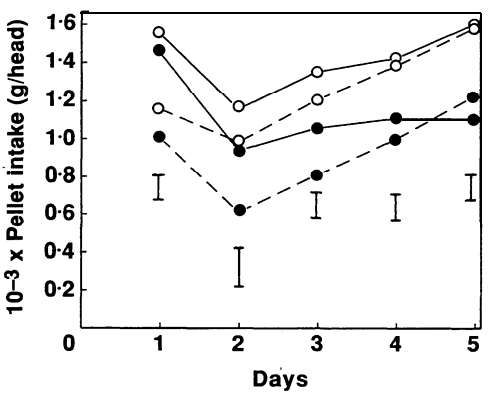

Fig. 2. Dry matter intake of sheep fed high (●) and low (○) energy pellets following 0 (—) and 48 h (- - -) of fasting. Vertical bars indicate s.e.d.

In both experiments, all sheep were seen eating on each day of refeeding. In experiment 1, sheep in all treatments took 7 days to attain 1 kg/head.day, the level used for maintenance feeding in the export industry. The only significant effect was on day 1 of refeeding (Fig. 1). The restricted level of hay feeding prior to fasting may explain the high feed intake of the unfasted sheep on day 1 (Fig. 1). Sheep virtually ignored the water during the fasting periods and water availability had no effect on the feed intake of sheep fasted for 96 h without water. The feeding pattern (Fig. 1) is similar to that reported by Arnold and Charlick (1978) who fed sheep oat grain-hay following fasting. In experiment 2, fasting reduced feed intake on days l-3 of refeeding but this effect was only significant ($P < 0.001$) on day 1. Sheep ate more ($P < 0.05$) of the lower energy diets after the first day of refeeding. Protein concentration had no effect and combined results are given in Fig. 2.

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