# EFFECT OF SELLING SYSTEM FOR STORE STEERS ON LIVEWEIGHT AND SUBSEQUENT PERFORMANCE IN A FEEDLOT

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## SUMMARY

Different fasting treatments simulating either paddock sale or saleyard auction of store steers prior to fattening in a feedlot were compared with an unfasted control in three groups of 20 crossbred steers. When steers were denied feed continually and water periodically for 32 h (paddock sale) or 56 h (saleyard auction), initial live weight decreased by 7.1% and 9.3% respectively. Paddock sale steers recovered their initial live weight after 10 d while the auction group took 17 d. Differences in live weight between paddock sale and control steers ceased to be significant (P > 0.05) after 14 d and these two groups were heavier (P < 0.05) than the auction group for another 60 d. Final liveweights were similar (P > 0.05) though the auction group tended to be lighter (P < 0.10). We therefore advise that the period off feed and water be minimized and suggest that water be available whenever possible during both selling systems.

## INTRODUCTION

In Australia, store (non-slaughter) cattle are normally sold on a per animal basis either by private negotiation in the paddock or by auction at a saleyard. For both methods, animals are without feed and water for various periods during transit and sale. As these activities may continue for as long as 2 d for paddock sales and 3 d for saleyard auction, substantial liveweight losses can be expected. Weight loss occurs rapidly in the first 12 h animals are off pasture and continues more slowly thereafter, whether or not water is available (Truscott and Gilbert 1978; Wythes et al. 1980). The latter authors recorded losses of 6.0, 7.6 and 11.4% of initial live weight when steers were denied feed and water for 12, 24 and 48 h respectively. In addition, they found that after grazing native pasture for 16 d, only those steers fasted for 12 h had regained their former live weight, while R. Tyler (pers. comm.) measured recovery after only 7 d following an 18 h fast, Any detrimental carry-over effect of selling method on subsequent weight gain is particularly important to feedlot operators, since total feed costs and time on feed are critical to profitability.

While it would seem advisable to minimize the time that store cattle are without feed and water during transit and sale, there is no information on the effect of method of sale on subsequent performance of cattle in a feedlot. In this study the effect of simulated paddock sale and saleyard auction systems on the live weight of store steers and subsequent liveweight gains in a feedlot were measured at 'Brian Pastures' Pasture Research Station, Gayndah, south-east Queensland, from June to September 1980.

## MATERIALS AND METHODS

Sixty 20-month-old 3/8 Sahiwal 5/8 Hereford steers with mean initial live weight of 309 - 4 kg (- SE) were yarded at 0900 h from 10 ha of sorghum stubble and weighed immediately (hour 0). They were then allocated by stratification on the basis of initial unfasted live weight and previous history (Robbins and Addison 1980) to three groups of 20 animals. For treatments 2 and 3 various periods off feed and water were imposed before animals entered the feedlot to simulate selling by paddock sale and saleyard auction methods, respectively, beginning with a 6 h period off water to mimic the time spent mustering and weighing

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on extensive properties (Table 1). The steers did not receive any feed from yarding until entering the feedlot. Animals in treatment 1 (control) went directly into the feedlot.

TABLE 1 Management treatments imposed on cattle to simulate sale in the paddock or by auction prior to entering a feedlot

Treatment	MMMM Muster (no water) TTTT Travel (no water) SSSS Sale (no water)  —Yards (no water) oooo Yards (water) FFFF (Feedlot)
1: 'Control'	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
2: 'Paddock sale'	MMMMMMM0000 TTTTTTOO FFFFFFFFFFFFFFFFFFFFFFFFFF
3: 'Saleyard auction'	MMMMMMM0000———————————————————————————
Hours	0 4 8 12 16 20 24 28 32 36 40 44 48 52 56

For each group the feedlot ration was chaffed *Lablab purpureus* hay mixed with rolled sorghum grain, with the proportion of grain increasing to 50% after seven days. The ration was fed at the rate of 2.7% (DM basis) of liveweight.

Steers in treatment 2 were weighed after 21, 25 and 32 h and those in treatment 3 after 21, 25, 34 and 56 h. Thereafter all steers were weighed (unfasted) at day 6, 10, 14, 17, 24, 31, 45, 59, 74 and 100. Liveweight data were analysed by analysis of co-variance using initial weight as a co-variate. Pairwise comparisons on the means of significant treatment effects were tested by Student's t-test.

During the first 3 d of the experiment, daily maximum temperatures ranged from 19.6 to  $23.2^{\circ}$ C and minima from 3.0 to  $7.2^{\circ}$ C. Relative humidity varied from 65% to 84%.

## RESULTS

After 25 h, weight loss was similar for treatment groups 2 and 3, averaging 6.4% of initial liveweight. The rate of loss declined after this time and reached 7.1% and 9.3% at the conclusion of fasting for treatments 2 and 3 respectively.

Treatment affected the time required for steers to regain their former live weight. Treatment 2 steers recovered initial weight after 10 d while treatment 3 steers took another 7 d (Fig. 1). It is not known if any weight loss occurred with control steers as they were first re-weighed after 6 d in the feedlot.

Control steers were significantly heavier (P < 0.05) than treatments 2 and 3 after 6 and 10 d but the difference between treatments 1 and 2 ceased to be significant (P > 0.05) after 14 d (Fig. 1). These two groups continued to be heavier (P < 0.05) than treatment 3 steers until after 74 d. At conclusion of the feeding period, average daily gains ranged from 1.05 to 1.16 (0.03  $^{\pm}$  SE) kg/hd, and total gains were not significantly different (P > 0.05) being 115, 109 and 104 (SE  $^{\pm}$  3.38) kg/hd for treatments 1, 2 and 3 respectively.

## DISCUSSION

These results demonstrate the impact which the selling system of store steers can have on liveweight and subsequent gains in a feedlot. The extent of liveweight loss during simulated transit and sale, and its subsequent recovery, depended on the duration of the fasting period. Cattle sold in the paddock lost less weight and recovered more rapidly than those sold by auction. However at the conclusion of the 100 d fattening period, final liveweights were similar (P > 0.05) for all groups.

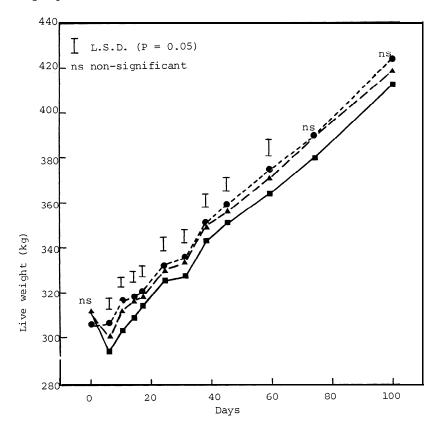


Fig. 1. Liveweight change of store steers subjected to simulated paddock sale (A--A) and saleyard auction (■-■), and subsequent liveweight change in a feedlot. Controls are shown ●--●

In this experiment, live weight of the cattle decreased by 6.4% after 25 h, regardless of selling treatment imposed. This is greater than the 3.1-4.7% reductions measured after 24 h for cattle denied feed but not water (Carr et al. 1971; Kirton et al. 1972), though less than the 7.6% reduction for steers denied both feed and water in other studies (Wythes et al. 1980). These results, for cattle given access to water for 3 h during the first day, suggests that even a short period on water can reduce the loss of liveweight. While the additional effect of transportation on liveweight losses is unknown for this study, other reports suggest it would be small (van den Heever et al. 1967; Wythes et al. 1981). Neither daily temperature nor humidity is likely to have accelerated liveweight loss.

Recovery to initial liveweight was influenced by method of sale, since the paddock sale group took 10 d and the auction group 17 d. Wythes  $\underline{\text{et al}}$ . (1980) measured recovery when weighed 16 d after a 12 h fast. In their experiment the recovery period was probably less, though not recorded, since the weight loss was similar to that in our paddock sale treatment (23 v 22 kg).

Compared with the control group the setback following paddock sale was no longer significant after 14 d, but an additional 60 d was required to overcome the effects of auction selling, despite the latter group needing only an extra week to regain their initial liveweight. Hence there was a marked impact of the further 24 h fast on the performance of steers sold by auction in this study.

It is concluded that both the paddock sale and saleyard auction methods of selling store cattle had no permanent effect on liveweight performance of steers in a feedlot for 100 d. Nevertheless it is emphasised that steers sold by auction tended to be the lightest after 100 d which suggests that a longer fast could produce residual deleterious effects on liveweight gain. Further investigation would seem warranted, in view of the sample size and length of the feeding period in this study. However, it is advised that the period without feed and water be minimized and that water be provided whenever possible for cattle in any selling system, not only for humane reasons, but also to reduce the amount of weight loss.

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