

THE EFFECT OF SORTING ON FEEDLOT ANIMAL PERFORMANCE

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Story in Brief

Four hundred twenty five crossbred feeder steers (787 lb) were visually divided into a light group and heavy group, individually weighed and placed into two pens. Each pen was subsequently divided on day 45 into two additional pens on the basis of above or below pen average performance and fed for an additional 67 days. Mean initial weights for the light and heavy pens were 763 and 810 lbs, respectively. Over the first 45 days, steers in the light group gained an average of 2.6 lb/day (164 steers below average, 2.33 lb and 49 steers above average, 3.65 lb) and steers in the heavy group gained an average of 3.05 lb/day (128 steers below average, 2.46 lb and 84 steers above average, 3.96 lb). Over the remaining 67 days, poor performing and good performing steers from the light group gained 3.10 and 3.98 lb/day, respectively. Poor performing and good performing steers from the heavy group gained 3.48 and 3.70 lb/day, respectively. These data are inconclusive as to whether sorting actually improved performance of the poorer performing steers, but they demonstrate the diversity of performance of cattle in a single feedlot pen.

(Key Words: Feedlot steers, sorting)

Introduction

Feedlot cattle are usually handled, treated and monitored as a pen, not as individuals. Within any pen of cattle, both slow and rapidly gaining cattle must be present because in research trials, where animals are individually weighed, wide differences are generally detected. Reasons for slow animal gains include genetic, environmental, health and injury factors. The relative difference in animal value at the end of a feeding period may be as much as \$300/head between the best performer and the poorest performer (Martin et al. 1986; Strasia et al. 1987). This does not consider animals that have been railed during the feeding period. Such differences in performance occur in both cattle of one brand (ranch cattle) as well as cattle assembled by order buyers. Ideally, feeder cattle should be sorted into performance groups prior to being placed on feed, however, most production/management systems are not attuned to handling cattle in this manner. Management problems arise from the logistics of time and facilities necessary for the feedlot cowboy staff to move, weigh and sort pens of cattle. The objective of this study was to determine the benefit of sorting feedlot cattle on the basis of performance after approximately 45 days on feed, on subsequent animal performance.

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Materials and Methods

Four hundred twenty five crossbred steers averaging 787 lb were gathered from a pasture adjacent to the H.C. Hitch feedlot (Guymon, OK), driven into the feedlot and visually sorted into a light group and a heavy group on September 24, 1987. The steers were individually weighed full, identified, implanted with Synovex-S and injected with IBR, BVD, PI-3, Leptospirosis and 7-way clostridial vaccines, Ivermectin, Vitamin A and copper. The steers were placed on the normal feedlot program, progressing through the ration step-up program and onto the finish ration with the amount of diet delivered to the bunk determined by the feed caller. The diet consisted of high moisture corn-steam flaked corn, corn silage supplement and an additive mix (94 Mcal NEM and 62 Mcal NEg per cwt of ration).

The light group was weighed full on day 44 as a lot, average daily gain was calculated and the steers then were individually weighed. Those steers with gains above the pen mean were sorted to one new pen and those steers with gains below the pen mean were sorted to another new pen. On day 45, this procedure was repeated with the steers in the initial heavy group. Animals were not co-mingled and the original two pens became four pens based on performance. Final full weights were taken on the day 112 and on day 113 the steers were trucked 60 miles to Booker, Texas for slaughter where carcass data were obtained. For calculating daily gains, all weights were shrunk by 4%.

Results and Discussion

The initial visual sort resulted in average initial weights of 763 and 810 lb in the light and heavy groups. The steers in the light and heavy groups had daily feed intakes of 19.11 and 20.35 lb during the initial period and gained 2.63 and 3.05 lb/day, respectively (Table 1). Over the first 45 days, the good performers of the light group gained 56.7% faster ($P < .05$) than the poor performers (2.33 vs 3.65 lb/day); and gains remained 28.4% faster ($P < .05$) over the final 67 days (3.10 vs 3.98 lb/day). Compared to gains the first 45 days, subsequent gain of poor performers was increased by 33% whereas gain of good performers was increased by only 9%. Over the first 45 days, the good performers of the heavy group gained 61.0% faster ($P < .05$) than the poor performers (2.46 vs 3.96 lb/day) but gains remained only 6.3% faster over the final 67 days (3.48 vs 3.70 lb/day). Compared to gains over the first 45 days, subsequent gain of poor performers was increased by 41.5% whereas, gain of good performers had decreased by 6.6%. This data tends to indicate that rate of gain of slow gaining steers was increased by sorting whereas gain of rapidly growing steers was not altered by sorting. It is impossible to determine if these differences were due to sorting because no unsorted controls were included in the test.

Over the final 67 days, good performers in the light group were 14.5% more efficient than poor performers (7.36 vs 6.29 lb DM/lb gain) and in the heavy group good performers were 17.8% more efficient than poor performers (6.90 vs 5.67). Calculated metabolizable energy values of the feed were 7.6% and 6.3% greater for good than poor performers in the light and heavy groups, respectively.

In both groups, carcasses were significantly ($P < .05$) heavier for good than poor performers due their greater daily gains. Rib eye area also tended to be greater for good than poor performers. In the light

Table 1. Effect of sorting on steer performance.

	Light Group		Heavy Group	
	Poor	Good	Poor	Good
No. of steers	164	49	128	84
Weights, lb.				
Initial	762 ^a	765 ^a	810 ^b	810 ^b
0-45 days	871 ^a	936 ^b	923 ^b	991 ^c
46-112 days	1087 ^a	1213 ^c	1169 ^b	1253 ^d
Daily Gains, lb.				
0-45 days	2.33 ^a	3.65 ^b	2.46 ^a	3.96 ^c
46-112 days	3.10 ^a	3.98 ^d	3.48 ^b	3.70 ^c
0-112 days	2.79 ^a	3.85 ^c	3.08 ^b	3.80 ^c
Dry matter intake, lbs.				
0-45 days	<<-----19.11----->>		<<-----20.35----->>	
46-112 days	20.53	24.20	21.24	21.56
Feed/Gain, 46-112 days	7.36	6.29	6.90	5.67
Calculated ME, Mcal/kg				
46-112 days	3.04	3.27	3.19	3.39
Carcass weight, lb.	664 ^a	730 ^c	706 ^b	748 ^c
Dressing percent	63.7 ^b	62.6 ^a	62.9 ^a	62.2 ^a
Rib eye area, sq. in.	11.9 ^a	12.2 ^{ab}	12.0 ^a	12.6 ^b
Fat thickness, in.	.46 ^{ab}	.52 ^b	.50 ^b	.44 ^a
KPH	1.97 ^a	2.18 ^b	1.91 ^a	2.00 ^a
Percent choice	42.9	48.9	52.1	47.4
Yield grade	2.76 ^a	3.10 ^c	2.96 ^{bc}	2.83 ^{ab}

abcd Means in the same row with different superscripts differ ($P < .05$).

* Full weights, no 4% pencil shrink.

group, good performers had greater ($P < .05$) fat thickness than poor performers whereas, in the heavy group poor performers were fatter ($P < .05$) than good performers.

In summary, these data are inconclusive as to whether sorting improved performance of slower gaining steers, but they demonstrate the diversity of performance of cattle in a single feedlot pen.

Literature Cited

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