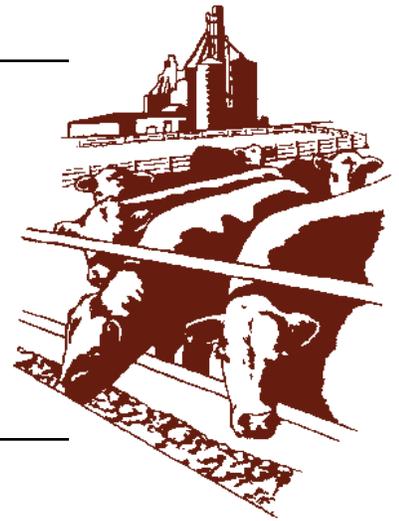




Beef Cattle Handbook



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Profitability Differences Between Steers and Heifers

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The decision to place steers or heifers in a feedlot, or not, can be a difficult one. Many factors can affect the relative profitability of feeding steers and heifers. Feeding profit differences between steers and heifers sent for processing at approximately the same age can range from about -\$50 to \$50 per head (2).

Factors that influence the relative profitability of steers and heifers include: differences in fed cattle prices, feeder prices, feed conversions, and daily gains. Some of these factors may be more important in explaining relative profitability than the other factors. If this is the case, cattle feeders should take this into account when developing budgets, calculating break-even prices, and making procurement decisions. This publication discerns the relative importance of each factor.

Feedlot Closeout Study

Results from a recent study (2) conducted at Kansas State University (KSU) can be used to determine the relative importance of differences in prices, and performance on the difference in profitability between steers and heifers. This study utilized closeout data for 1,752 pens of heifers and 4,549 pens of steers from two western Kansas custom feedlots. Data was used for every month that had at least two pens of heifers and steers placed on feed from January, 1985, through May, 1991. Three weight-category comparisons were used. Heifers placed at 500-599 lbs. were compared to steers placed at 600-699 lbs., heifers placed at 600-699 lbs. were compared to steers placed at 700-799 lbs., and heifers placed at 700-799 lbs. were compared to steers placed at 800-899 lbs. These weight categories facilitated comparisons between steers and heifers

fed a similar number of days.

Information collected from the closeouts included placement date, feeder cattle purchase price, placement weight, days on feed, total gain, daily gain, sale weight, feed conversion (as fed), feeding cost per pound of gain, fed cattle price, and slaughter date. Some closeout sheets did not record feeder purchase prices and/or sale prices. Feeder cattle prices reported by the USDA (1) for the Winter Livestock Auction in Dodge City, Kansas were substituted for missing feeder steer and heifer prices. Fed steer and heifer prices for the western Kansas direct trade, also reported by USDA (1), were substituted for missing fed cattle prices.

Monthly Averages

Table 1 shows monthly averages of selected prices, costs, and performance factors for each of the three heifer and steer placement weight categories. Average profits ranged from \$20.27 per head to \$37.66 per head for heifers, and \$25.39 per head to \$38.61 per head for steers. The largest average profit difference between steers and heifers was in the heaviest placement weight group. Steer profits in this group were, on average, \$5 per head higher than heifer profits.

The average fed cattle price for steers was about \$1 per cwt. higher than the average fed cattle price for heifers over the study period. Feeder steer prices were from \$2.65 to \$3.66 per cwt. higher than feeder heifer prices. Cost per pound of gain was around \$3 per cwt. higher for heifers than steers. This higher cost of gain can be attributed to the lower performance of heifers. Average feed conversion, on as fed basis, was from 0.35

Table 1. Monthly Averages for Steers and Heifers, by Placement Weight, from January 1985 through May 1991.

VARIABLE	Placement Weight					
	Heifer 500-599 lbs.	Steer 600-699 lbs.	Heifer 600-699 lbs.	Steer 700-799 lbs.	Heifer 700-799 lbs.	Steer 800-899 lbs.
DAYS ON FEED	154.80	145.60	127.48	127.34	113.04	117.64
AVERAGE DAILY GAIN (lbs./day)	2.66	3.12	2.82	3.22	2.84	3.30
FEED CONVERSION (lbs. feed/lb. gain)	8.02	8.02	8.46	8.11	8.81	8.81
COST PER POUND OF GAIN (\$/CWT.)	48.67	45.58	46.80	46.27	50.51	47.43
FEEDER COST (\$/hd.)	414.56	507.24	469.81	562.35	525.32	619.20
ALL OTHER COSTS (\$/hd.)	197.99	205.61	174.28	189.51	161.23	182.99
INTEREST (\$/hd.)	26.74	29.92	23.71	27.99	22.82	27.84
TOTAL COST (\$/hd.)	639.29	742.76	667.79	779.84	709.36	830.02
PAY WEIGHT IN (lbs.)	571.05	665.51	653.77	750.18	735.95	836.82
FEEDER PRICE (\$/cwt.)	72.68	76.34	71.88	74.96	71.36	74.01
SALE WEIGHT (lbs.)	988.98	1124.04	1017.19	1165.07	1062.00	1228.55
SALE PRICE (\$/cwt.) ^{68.51}	69.57	68.55	69.40	68.69	69.61	69.61
GROSS RETURNS (\$/hd.)	676.95	781.37	697.23	808.55	729.63	855.41
PROFIT (\$/hd.)	37.66	38.61	29.44	28.71	20.27	25.39

to 0.50 lbs. higher for heifers. In addition, average daily gains were from 0.40 to 0.46 lbs. lower for heifers.

Trends in Price Differences

The difference between feeder steer and heifer prices declined throughout most of the 1985 to 1991 period. Figure 1 illustrates the difference in average feeder prices, steer prices minus heifer prices, for heifers placed at 600-699 lbs. and steers placed at 700-799 lbs. During 1985-1988, steers sold for approximately \$3 to \$6 per cwt. more than heifers. In contrast, for most of the period from late 1989 to 1991 the difference between steer and heifer prices was less \$2 per cwt.

Fed cattle price differences also converged over the study period. Figure 2 shows the average fed cattle price difference—steer price minus heifer price—for heifers placed at 600-699 lbs. and steers placed at 700-799 lbs. At the beginning of the study period, producers could expect the fed cattle price for steers to be as much as \$2.50 per cwt. higher than the fed cattle price for heifers. By late 1989 the difference between fed cattle prices for

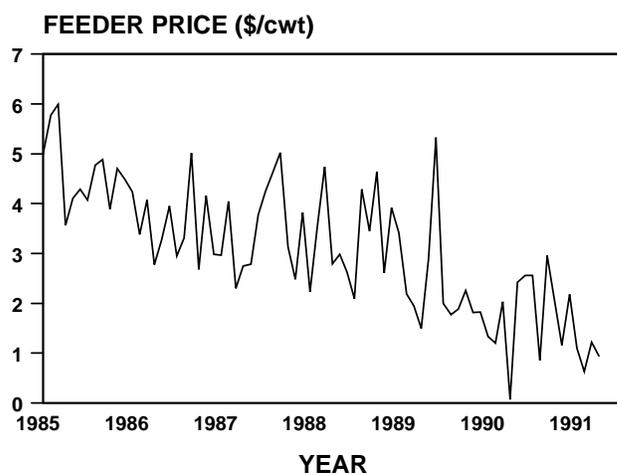


Figure 1. Average Feeder Price Difference, Steers Minus Heifers, Steers Placed at 700-799 Lbs. and Heifers Placed at 600-699 Lbs., January 1985 through May 1991.

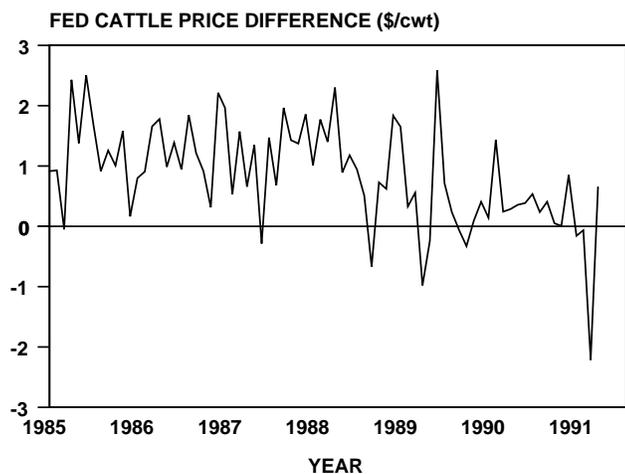


Figure 2. Average Fed Cattle Price Difference, Steers Minus Heifers, Steers Placed at 700-799 Lbs. and Heifers Placed at 600-699 Lbs., January 1985 through May 1991.

steers and heifers had become much smaller. During some of the latter months in the study period, fed cattle heifer prices were actually higher than fed cattle steer prices. The sharp decline in the price difference between fed steers and fed heifers explains much of the decline in the feeder steer price premium over feeder heifer prices.

Profit Differences

Although the average per head profit difference between steers and heifers was only \$1 to \$5 per head for the three weight comparisons, monthly fluctuations in profit differences were substantially larger. Figure 3 reveals the average monthly profit differences—steer profits minus heifer profits—for heifers placed at 600-699 lbs. and steers placed at 700-799 lbs. During the six-year period, profit differences ranged from -\$46 to \$35 per head. The -\$46 per head figure indicates that heifer profits were \$46

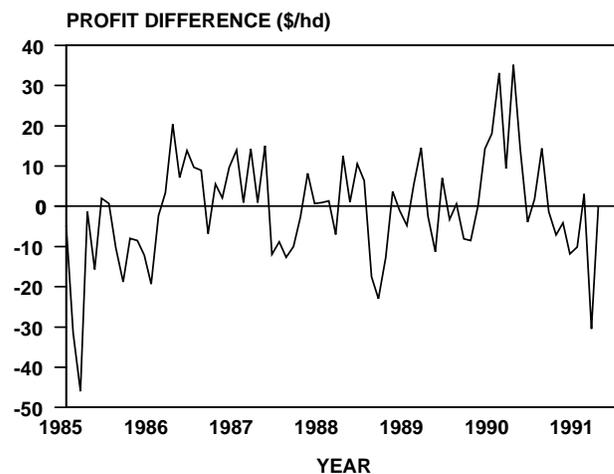


Figure 3. Average Monthly Profit Difference, Steers Minus Heifers Placed at 600-699 Lbs. and Steers Placed at 700-799 Lbs., January 1985 through May 1991.

per head higher than steer profits for that month. Similarly, the \$35 per head figure indicates that steer profits were \$35 per head higher than heifer profits for one of the months during the study period. The large variation in relative profits suggests that cattle feeders need to plan their placement decisions to take advantage of steer and heifer profit opportunities.

Factors Affecting Profit Difference Variability

About 75 to 86 percent of the variability in profit differences between feeding steers and heifers over the time period of the analysis results from differences in fed cattle price, feeder price, feed conversion, and average daily gain. Figures in Table 2 show the relative importance of each factor. Differences in feeder cattle purchase prices and fed cattle prices together explain from 53 to 63 percent of the variability in relative profits for the three

Table 2. Percentage of Total Explained Profit Difference Variability over Time Attributable to Selected Factors, January 1985 - May 1991.

EXPLANATORY VARIABLE	Placement Weight		
	Heifers 500-599 lbs. Steers 600-699 lbs.	Heifers 600-699 lbs. Steers 700-799 lbs.	Heifers 700-799 lbs. Steers 800-899 lbs.
Percent of Variability Explained			
FED CATTLE PRICE DIFFERENCE	13.0	23.7	59.2
FEEDER PRICE DIFFERENCE	39.7	39.6	1.8
CONVERSION DIFFERENCE	12.6	10.4	8.7
DAILY GAIN DIFFERENCE	9.6	5.1	15.9
TOTAL	74.9	78.8	85.6
TOTAL UNEXPLAINED	25.1	21.2	14.4

weight comparisons. As placement weight increased, the importance of fed cattle price difference increased, and the importance of feeder price difference declined.

A word of caution regarding the importance of fed cattle price differences is in order. Recent changes in the fed steer and heifer price relationship suggest that fed cattle price differences may be less important in the future. For example, during the last three years of the study, the average fed cattle price differential between fed steers and heifers was \$0.40 per cwt. In contrast, for the first three years of the study, fed steer prices were about \$1.40 per cwt. higher than fed heifer prices. If the more recent price structure continues in the future, fed cattle price differences will become relatively less important in explaining differences in relative profits.

Feed conversion and daily gain differences explained from 15 to 25 percent of the difference in profits. Feed conversion had the most influence on lighter weight placements, while daily gain had the most influence on heavier weight placements.

Management Recommendations

Results from a recent study (2) indicate that differences in feeder prices, fed cattle prices, feed conversions, and daily gains all influence the relative profits of feeding steers and heifers. Feeder prices and fed cattle prices had the most impact on profit differences. Therefore, cattle feeders should carefully consider these two factors when comparing the profitability of feeding steers and heifers.

Feeder price differences were relatively more important for lighter weight placements, while fed cattle price differences were relatively more important for heavier weight placements. The difference between fed steer prices and fed heifer prices has converged over the last ten years. If this spread continues to be narrow, we would expect fed cattle prices to have less influence on profit differences for all weight categories in the future.

Cattle feeders also need to take into account any differences in quality when comparing the profitability of steers and heifers. Large differences in quality could substantially narrow or widen potential differences in prices and performance.

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References

1. United States Department of Agriculture, Agricultural Marketing Service. Various Issues. *LS-214*, Dodge City, Kansas.
2. Williams, C.L., M.R. Langemeier, J. Mintert, and T.C. Schroeder. *Profitability Differences Between Steers and Heifers*. 1993. Cooperative Extension Service, Kansas State University, MF-1075.