

Profitability Differences

Between Steers and Heifers

Christopher L. Williams
Research Assistant, Department of
Agricultural Economics

Michael R. Langemeier
Extension Agricultural Economist,
Livestock Production

James Mintert
Extension Agricultural Economist,
Marketing

Ted C. Schroeder
Associate Professor, Department of
Agricultural Economics

Department of Agricultural Economics

Whether to place steers or heifers in a feedlot can be a difficult decision. Many factors can affect the difference in profitability between feeding steers and heifers. A recent study at Kansas State University (KSU) indicates feeding profit differences between steers and heifers slaughtered at approximately the same age can range from -\$46.02 per head to \$49.71 per head.

Differences in sale price, feeder price, feed conversion, and average daily gain all help explain variation in feeding profit differences between steers and heifers. About 75 to 86 percent of the variability in profit differences over time can be explained by fluctuations in these factors. Cattle feeders should take these factors into consideration when developing budgets, calculating break-evens, and making procurement decisions.

About the study

Closeout data for 1,752 pens of heifers and 4,549 pens of steers from two southwestern Kansas custom

feedyards were used in the KSU study. Data were used for every month which had at least two pens of heifers and steers placed on feed from January, 1985, through May, 1991. Only pens of steers placed between 600 and 899 lbs. and heifers placed between 500 and 799 lbs. were used. These pens were divided into three weight categories by placement weight. 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. This made possible profitability comparisons between steers and heifers fed a similar number of days. For the lightweight group, 12 months were dropped because data were not available. Three months were dropped for the heavyweight group due to lack of data. Data for the

comparisons between 600-699-lb. heifers and 700-799-lb. steers were available for all of the months in the study period.

Closeout sheet information included placement date,

feeder cattle purchase price, placement weight, days on feed, total gain, daily gain, sale weight, feed conversion (as fed), yardage charges, feed cost, feed consumption (as fed), feeding cost per pound of gain, fed cattle sale price, and slaughter date. Some closeout sheets did not record the feeder purchase prices and/or sale prices. Feeder cattle prices reported by the USDA for the Winter Livestock Auction, 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 the USDA, were substituted for missing sale 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 averaged \$5 per head higher than heifer profits. Feeder steer prices were from \$2.65 to \$3.66 per cwt. higher than feeder heifer prices. Average sale prices for steers were about \$1 per cwt. higher than average sale prices for heifers. Cost per pound of gain was around \$3 per cwt. higher for heifers than steers.

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

Table 1. Monthly averages for steers and heifers, by placement weight, from January 1985 through May 1991

Variable	Placement Weight (lbs.)					
	500-599		600-699		700-799	
	Heifers	Steers	Heifers	Steers	Heifers	Steers
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 (as fed) (lbs. feed/lb. gain)	8.43	8.02	8.46	8.11	8.81	8.31
Cost per pound of gain (\$/cwt.)	48.67	45.58	48.80	46.27	50.51	47.43
Feeder cost (\$/hd.)	414.56	507.24	469.81	562.35	525.32	619.20
Other cost (\$/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
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

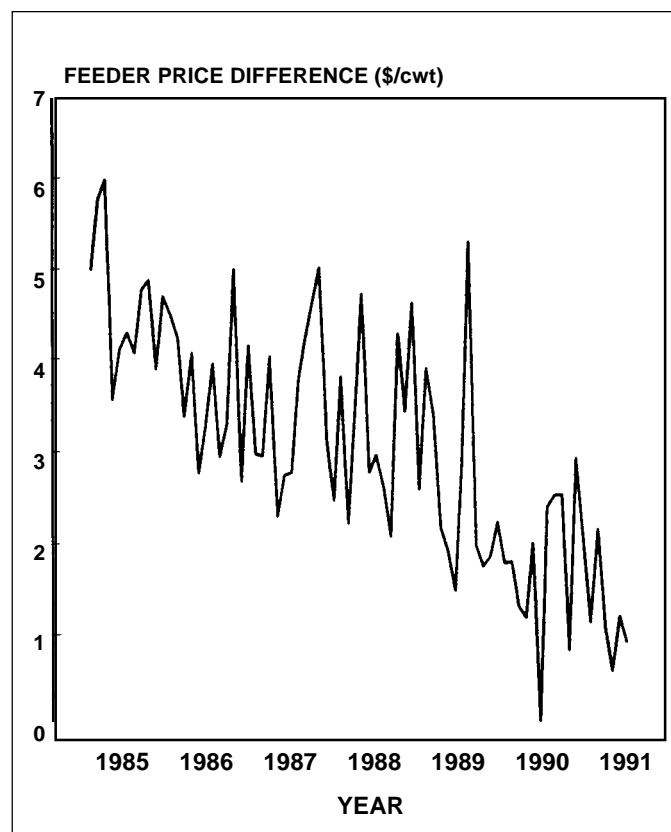


Figure 1. Average feeder price difference, steers minus heifers, steers placed at 700-800 lbs.; heifers placed at 600-700 lbs. from January, 1985 through May, 1991.

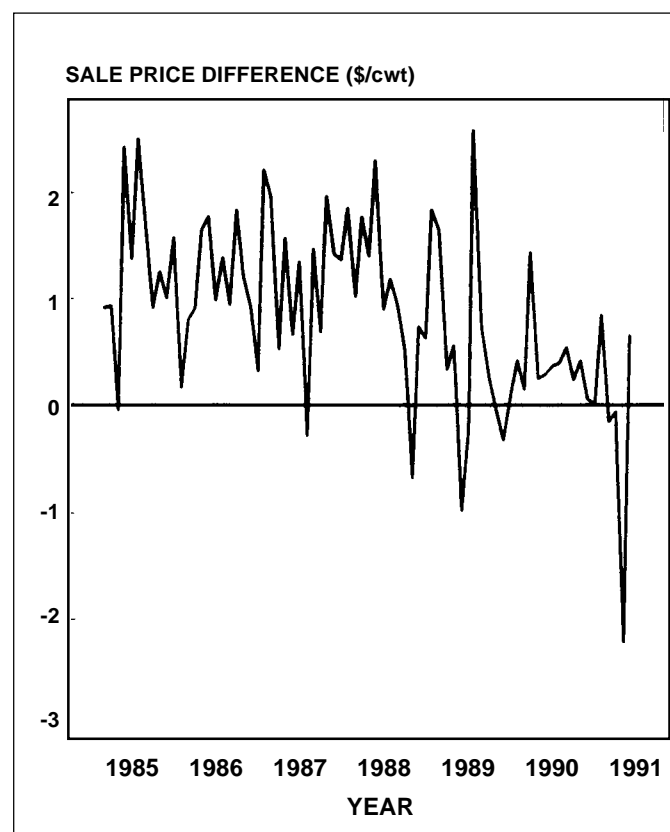


Figure 2. Average sale price difference, steers minus heifers, steers placed at 700-800 lbs.; heifers placed at 600-700 lbs. from January, 1985 through May, 1991.

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. However, from late 1989 through May, 1991 the difference in feeder steer and heifer prices was typically less than \$2 per cwt.

Sale price differences also converged over the study period. Figure 2 shows the average sale price difference, steer prices minus heifer prices, for steers placed at 700-799 lbs. and heifers placed at 600-699 lbs. In 1985 producers could expect steer sale prices to average as much as \$2.50 per cwt. more than heifer sale prices. By late 1989 the difference between steer and heifer sale prices became much smaller, typically less than \$1 per cwt., and heifer prices at times averaged more than steer prices. The sharp drop-off in sale price differences 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, monthly fluctuations in profit differences were substantially larger. Figure 3 reveals the average monthly profit differences, steer profits minus heifer profits, for steers placed at 700-799 lbs. and heifers placed at 600-699 lbs. During the six year period profit differences ranged from \$45 per head more profitable for heifers to nearly \$40 per head more profitable for steers. Figure 3 shows that there are large variations in per head profit differences between feeding heifers and steers, and suggests cattle feeders need to manage their feeding programs to take advantage of this variability.

Factors affecting profit difference variability

About 75 to 86 percent of the variability in profit differences between feeding steers and heifers over time

Table 2. Percentage of total explained profit difference variability over time attributable to selected factors, January 1985 - May 1991

Explanatory Variable	Placement weight (lbs.)		
	Heifers 500-599 Steers 600-699	Heifers 600-699 Steers 700-799	Heifers 700-799 Steers 800-899
 Percent of variability explained		
Sale 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
Avg. daly gain difference	9.6	5.1	15.9
Total explained	74.9	78.8	85.6
Total unexplained	25.1	21.2	14.4

resulted from differences in sale price, feeder price, feed conversion, and average daily gain. Figures in Table 2 show the relative importance of each

factor affecting profit differences between steers and heifers. Feeder cattle purchase prices and fed cattle sale prices were important factors for all three

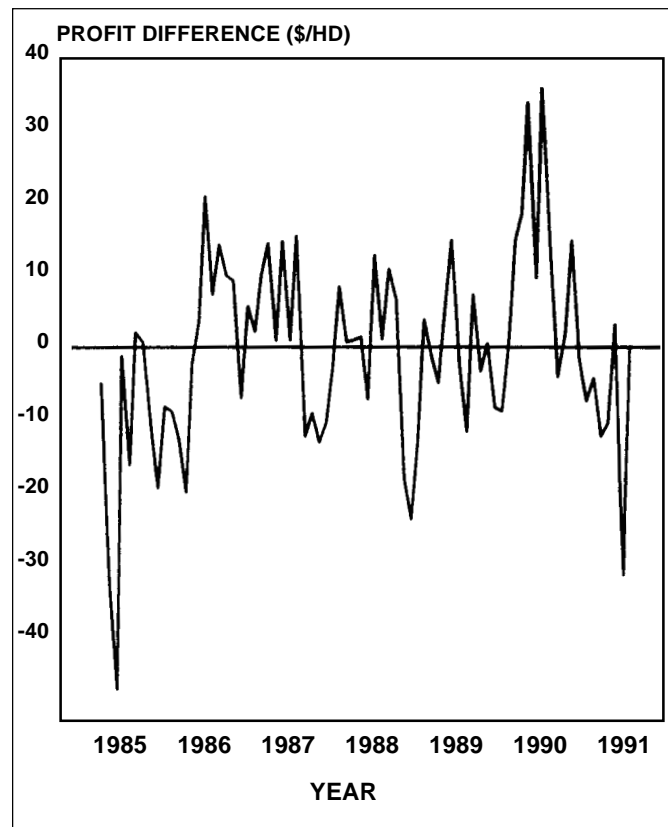


Figure 3. Average monthly profit difference, steers minus heifers, steers placed at 700-800 lbs.; heifers placed at 600-700 lbs. from January, 1985 through May, 1991.

placement weight groups. These two factors accounted for 53 to 63 percent of the feeding profit differences between steers and heifers. As placement weight increased, the importance of fed price increased, and the importance of feeder price declined.

A word of caution regarding this result is in order. Recent changes in the fed steer and heifer price relationship suggest that sale price differences in the future might be less important than these results indicate. For example, during the last three years of this study the average price differential between fed steers and heifers (steer prices minus heifer prices) was \$0.40 per cwt. compared to \$1.39 per cwt. during the first three years of the study. If the more recent price structure continues in the future, sale price differences between fed steers and heifers will have a smaller impact on profit differences than the results from this study suggest.

The impact of feed conversion differences on profit differences between steers and heifers declined as placement weights increased. Differences in feed conversions explained 12.6 percent of the profit difference for the lightweight group, but only 8.7 percent for the heavyweight group. This probably occurred because the lighter weight cattle were on feed longer. Finally, the importance of differences in average daily gain fluctuated across placement weight groups. Daily gain differences had the most influence on the heavy placement weight group.

Conclusions

This KSU study found that differences in sale price, feeder price, feed conversion, and average daily gain were all important factors in explaining differences in per head profits between steers and heifers. Feeder and sale price

differences were the most influential factors affecting profit differences. From 53 to 63 percent of the variation in profit differences was accounted for by these two factors.

Differences in feed conversion and average daily gain explained another 15 to 25 percent of the variation in profit differences. Cattle feeders are encouraged to use this information when deciding whether to place heifers or steers, and to develop budgets containing feeding cost of gain and break-even price projections.

Acknowledgments

The authors acknowledge the generosity of the two anonymous feedyard managers for providing data and Brenda Moore and Stacey Strnad for their considerable work entering and managing the large data set for this study.



Cooperative Extension Service, Manhattan, Kansas

Issued in furtherance of Cooperative Extension Work, acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, and United States Department of Agriculture Cooperating, Richard R. Wootton, Associate Director. All educational programs and materials available without discrimination on the basis of race, color, national origin, sex, age, or disability.

August 1993

File Code: Farm Management 1 GB 8-93—1.5M; 8-96—250