



## **Effect of Selected Characteristics on the Sale Price of Feeder Cattle in Eastern Oklahoma: 1997 & 1999 Summary**

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### **Story in Brief**

Data from two studies of characteristics affecting the sale price of feeder cattle sold in auctions in eastern Oklahoma indicated distinct preferences for cattle that were large framed and heavily muscled. Intact bulls and heifers received prices significantly lower than comparable steer counterparts. Horned steers received discounts of \$3/cwt. Hereford, Brahman, Shorthorn and dairy cattle were discounted relative to prices received by Angus cattle. Baldies and exotic breeds received premiums. Body condition or fill varying either side of an “average” description resulted in discounts of \$2/cwt to over \$10/cwt.

Key Words: Beef Cattle, Feeder Cattle, Characteristics, Price

### **Introduction**

The most prominent segment of the cattle industry in eastern Oklahoma is the cow/calf segment. Almost two-thirds of the state’s cowherd is found in the eastern one-half of the state. Calves produced by cattle operations in eastern Oklahoma are primarily sold at weaning in local auctions to order buyers.

The general price of cattle is affected by conditions of supply and demand including consumer beef demand, feedlot occupancy, feed prices, stage of the cattle cycle, forage availability and weather forecasts, value of added gain, futures prices, etc. The profitability of cow/calf producers is affected by these factors but individual cattlemen can do little to influence the effect of these national trends on the price received for calves sold on any particular day.

There are other factors peculiar to the cattle that can be controlled by the producer that have significant effects on prices, animal performance and profitability. These factors were targeted for observation in these studies.

Buyers appraise individual characteristics as predictors of quality and animal performance and adjust bids accordingly. Previous studies in Kansas (Schroeder et al., 1988; Sartwelle et al., 1996), Tennessee (Rawls et al., 1995) and Georgia (Brown and Morgan, 1996) found significant differences in the prices received for cattle dependent on characteristics also observed in these studies. The purpose of each of these studies was to determine the extent to which selected characteristics of feeder cattle affect their sale price at auction in eastern Oklahoma.

### **Materials and Methods**

A survey instrument was developed based on previous work by Kansas State University workers (Schroeder et al, 1988). A training session was conducted at an auction facility in McAlester, OK, for personnel who were to grade the cattle in the 1997 study.

Another training for 1999 was held at the Tulsa Stockyards. The purpose of the training was to coordinate the grading and classifying of feeder cattle characteristics to be observed by the graders.

Oklahoma State University County Extension Agriculture Educators observed and recorded the characteristics of 15,473 sale lots of feeder cattle in 1997 and 11,135 sale lots in 1999. Over 62,000 total head were included in the surveys with each having about half of the cattle. Surveyed cattle were sold in 18 different sale barns throughout eastern Oklahoma and Oklahoma City. Data were collected from multiple visits to each sale barn during 4 wk in October, 1997, and April, 1999.

Data recorded on each lot of cattle sold included weight, selling price, gender, breed, horns, frame, muscle thickness, gut fill, body condition, health, number of cattle and their uniformity in multiple head groups. Data were analyzed by year for steers and heifers separately. Bulls were excluded from data analyses except for testing the effect of gender on sale price. Least squares means comparisons were calculated using General Linear Models Procedure of SAS (1985).

### **Results and Discussion**

**Gender.** Steers made up 42% and 40% of the lots sold in 1997 and 1999, respectively. Heifers accounted for 42% and 45% in 1997 and 1999, respectively. The lower proportion of heifers sold relative to the number of steers and bulls may be indicative of the number of females retained by producers as replacement females. Steers sold for an average \$76.96/cwt and \$80.23/cwt in 1997 and 1999, respectively. Bulls sold for \$3.56/cwt and \$2.24/cwt less than that of steers, and heifers at \$10.56/cwt and \$7.43/cwt less in 1997 and 1999, respectively. The prices received for bulls are presumably lower due to the reduced animal performance experienced with these animals subsequent to castration. The price difference for heifers relative to steers reflects problems characteristic to females including reduced daily gain, lower feed efficiency, estrus, unexpected pregnancies and subsequent difficult births. The price may also reflect a generally lower quality animal in that the better heifers are retained as replacement females for the cowherd.

**Sale Weight.** Most cattle had sale weights less than 600 lb. Approximately 86% and 70% of the total number of sale lots weighed less than 600 lb in the 1997 and 1999 studies, respectively. As body weight increased, sale price decreased for both steers and heifers. Although steers sold at a higher price per cwt than heifers, the price decline due to heavier body weight was greater for steers in both years. The calculated value of added weight averaged across weight groups to 899 lb in 1997 was \$53.93/cwt and \$49.58/cwt for steers and heifers, respectively. The value of added weight for steers and heifers was similar at approximately \$45/cwt in spring, 1999.

**Breed Type.** Factors affecting prices for different breeds reflect buyer perceptions relative to growth rate, reproductive traits, carcass traits and other factors that may affect animal performance and producer profitability. Cattle classified as Angus were used as the base to calculate price discounts or premiums for other breed classifications. Relative to cattle perceived as Angus by the graders, black exotics and other exotics sold at greater prices for both steers and heifers (Table 1). Dairy and Longhorn steers and heifers sold at very large discounts relative to Angus. Hereford cattle were discounted relative to Angus. Steers with less than ¼ Brahman influence sold at a slight discount. However, <1/4 Brahman heifers

sold at a premium in 1997, perhaps due to a perceived value as replacement females for eastern Oklahoma operations where resistance to heat, humidity and parasites is valued. Across the breed types surveyed, data from the studies are in general agreement as to the direction of premiums and discounts with those of Georgia, Kansas and Tennessee workers.

**Frame Size and Muscling.** Stocker and feeder cattle are described and marketed according to USDA feeder cattle grades. In the 1997 study, small frame steers and heifers sold with severe discounts, \$18.86 and \$20.99/cwt, respectively, compared with large framed steers and heifers (Table 2). That discount was substantially reduced in 1999 (to less than \$4/cwt). The medium frame size was divided into upper medium and lower medium categories. A significant price difference, \$2 to 5/cwt, for steers and heifers was shown to exist between the upper medium and lower medium frame sizes for both steers and heifers in both studies. This preference for larger framed cattle may be due to a perceived greater growth potential for these cattle. However, overly large carcasses and a reduced ability to grade choice may be of concern, depending on final live weight at harvest. Size should also be considered as it affects reproductive traits of female siblings to be retained as herd replacements.

In 1997, light-musclcd cattle, especially steers, sold at large discounts (Table 3). The discount for light-musclcd steers averaged \$26.48/cwt. These discounts were reduced up to \$10/cwt in the 1999 study. These discounts may be highly confounded with breed characteristics.

**Fill, Body Condition, Health and Horns.** Gut fill was discounted based on the magnitude of variation from an average fill. Both gaunt and tanked steers and heifers received severe discounts, mostly \$4 to 10/cwt, dependent on gender and year, with lesser discounts as fill moderated.

Very thin steers and heifers averaged discounts of over \$9/cwt and up to \$14/cwt. Fat steers were discounted over \$6/cwt, and heifers \$5 to 11/cwt across both studies relative to cattle in average condition.

Cattle perceived to be sick or lame suffered severe discounts, some of which exceeded \$25/cwt. Cattle with bad eyes were discounted over \$7/cwt and as much as \$14/cwt. Stale cattle received price reductions up to \$8.75/cwt. Cattle with rough or muddy hair coats were slightly discounted (usually over \$2/cwt). Only 3% of the cattle were perceived sick at the time of sale.

Horned cattle received discounts relative to their polled counterparts of approximately \$3.00/cwt for steers and \$2/cwt for heifers.

**Size and Uniformity of Sale Lot.** Lots with two or more steers sold for \$4.01 to 7.14/cwt over the price of steers sold as singles in fall, 1997. Price differences due to lot size were mixed in 1999, possibly a reflection of discounts received for fleshy cattle coming off wheat pasture relative to thinner cattle purchased for grazing in fall, 1997. Multiple head lots that were not uniform sold for approximately \$2/cwt less than uniform lots in 1997, but price differences were mixed in 1999.

**Implications.** Many factors influence the sale price of cattle, some of which producers may control. It is imperative that cow/calf producers and those in the stocker cattle industry understand market needs and preferences as reflected by market prices. Understanding the impact of these market preferences and their relationship with animal performance can significantly contribute to profitability.

## Literature Cited

Brown, D.T. and E.W. Morgan. 1996. University of Georgia, Blairsville.

Rawls, E.L. et al. 1995. University of Tennessee.

Sartwelle III, J.D. et al. 1996. Cooperative Extension Service, Kansas State University. MF-2142 (Revised).

SAS. 1985. SAS User's Guide:Statistics (Version 5 Ed.). SAS Inst. Inc., Cary, NC.

Schroeder, T. et al. 1988. Kansas Agr. Exp. Sta. Report of Progress 547.

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**Table 1. Effect of breed character on sale price of feeder cattle in eastern Oklahoma auctions.**

Breed	No. lots (%)	Price difference due to breed, \$/cwt	No. lots (%)	Price difference due to breed, \$/cwt	
		<b>Steers-Oct. 1997</b>		<b>Steers-Apr. 1999</b>	
Hereford	179 (2.8)	-8.37 <sup>b</sup>	166 (3.7)	-4.76 <sup>ab</sup>	
Angus	378 (5.8)	Base <sup>ef</sup>	278 (6.2)	Base <sup>cd</sup>	
Blk/rd white face	680 (10.5)	.85 <sup>fg</sup>	447 (10.0)	.74 <sup>acd</sup>	
Blk exotic	695 (10.7)	2.66 <sup>h</sup>	730 (16.4)	.93 <sup>acd</sup>	
Other exotics	2110 (32.5)	1.17 <sup>gh</sup>	1448 (32.4)	.95 <sup>acd</sup>	
<1/4 Brahman	1283 (19.8)	-1.91 <sup>d</sup>	723 (16.2)	-1.17 <sup>e</sup>	
>1/4 Brahman	855 (13.2)	-5.91 <sup>c</sup>	253 (5.7)	-6.11 <sup>b</sup>	
Dairy	84 (1.3)	-24.95 <sup>a</sup>	154 (3.4)	-22.70 <sup>f</sup>	
Longhorn	129 (2.0)	-26.82 <sup>a</sup>	81 (1.8)	-23.69 <sup>f</sup>	
Mixed (>1 head)	103 (1.6)	-1.83 <sup>de</sup>	184 (4.1)	1.76 <sup>ad</sup>	
		<b>Heifers-Oct, 1997</b>		<b>Heifers-Apr, 1999</b>	
Hereford	179 (2.8)	-8.37 <sup>b</sup>	166 (3.7)	-4.76 <sup>ab</sup>	
Angus	378 (5.8)	Base <sup>ef</sup>	278 (6.2)	Base <sup>cd</sup>	
Blk/rd white face	680 (10.5)	.85 <sup>fg</sup>	447 (10.0)	.74 <sup>acd</sup>	

Blk exotic	695 (10.7)	2.66 <sup>h</sup>	730 (16.4)	.93 <sup>acd</sup>
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<sup>a,b,c,d,e,f,g,h</sup>Values with differing superscripts in a column differ (P<.05).

Base prices: Steers 1997, \$78.30; 1999, \$75.09. Heifers 1997, \$65.89; 1999, \$67.59.

**Table 3. Effect of muscling on sale price of feeder cattle in eastern Oklahoma auctions.**

Breed	No. lots (%)	Price difference due to muscling,	No. lots (%)	Price difference due to muscling,	
		\$/cwt		\$/cwt	
		Steers-Oct, 1997		Steers-Apr, 1999	
Heavy	5718 (88)	Base <sup>a</sup>	3200 (72)	Base <sup>a</sup>	
Medium	728 (11)	-9.37 <sup>b</sup>	1109 (25)	-4.18 <sup>b</sup>	
Light	50 (1)	-26.48 <sup>c</sup>	152 (3)	-14.95 <sup>c</sup>	
		Heifers-Oct, 1997		Heifers-Apr, 1999	
Heavy	5619 (87)	Base <sup>a</sup>	3474 (69)	Base <sup>a</sup>	
Medium	743 (12)	-4.82 <sup>b</sup>	1426 (28)	-.67 <sup>b</sup>	
Light	76 (1)	-8.10 <sup>c</sup>	128 (3)	-8.06 <sup>c</sup>	

<sup>a,b,c</sup>Values with differing superscripts in a column differ (P<.05).

Base prices: Steers 1997, \$78.31; 1999, \$74.57. Heifers 1997, \$67.67; 1999, \$73.01.