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Effect of Selected Characteristics on the Sale Price of Feeder Cattle in Eastern Oklahoma

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Authors:

S.C. Smith, D.R. Gill, S.C. Jones and B.A. Gardner

Story in Brief

Characteristics of 15,473 lots of feeder cattle, approximately 31,000 head, were recorded to determine their effect on sale prices received in livestock auctions in eastern Oklahoma. Data demonstrated significant price differences in cattle due to weight, sex, frame size, muscling score, presence of horns, gut fill, body condition, number of head in a sale lot, uniformity of multiple head lots and health.

(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 2/3 of the state's cowherd is found in the eastern 1/2 of the state. In addition, many stocker cattle graze warm season forages in this region.

Calves produced by cattle operations in eastern Oklahoma are sold primarily at local auctions to order buyers filling orders for customers. The price of these cattle is affected by conditions of supply and demand including: consumer beef demand, feedlot occupancy, feed prices, 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 also have significant effects on prices. These factors include weight, breed, number of cattle in a sale lot, uniformity, sex, frame, muscling, gut fill, body condition and health.

These characteristics have an effect on future performance and profitability. For instance, Schroeder et al. (1988) reported reductions in animal performance due to castration of .35 lb/d for 96 d and increased morbidity from 15% for steers to 36% for castrated animals. Reductions in animal performance due to dehorning averaged .12 lb/d. Smith et al. (1996) observed lesser effects on animal performance due to castration (.15 lb/d, $P<.10$) and dehorning (.12 lb/d, $P<.20$) of fresh calves purchased at local auction markets.

Buyers appraise individual characteristics as predictors of animal performance and adjust bids on cattle accordingly. Previous work by Kansas workers (Schroeder et al., 1988; Sartwelle et al., 1996) found significant differences in the prices received for cattle dependent on characteristics also observed in this study. The purpose of this study was to determine the extent to which selected characteristics of feeder cattle affect their sale price at auction in eastern Oklahoma.

Materials and Methods

County Extension Educators observed and recorded characteristics of 15,473 sale lots of feeder cattle, approximately 31,000 cattle, as they were sold in 15 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.

A survey instrument was developed based on previous work by Kansas State University workers (Schroeder, 1988). A training session was conducted at a local sale barn in McAlester, OK, for personnel who were to grade the cattle in the study. The purpose of the training was to coordinate the grading or classifying of feeder cattle characteristics to be observed by the graders.

Data recorded on each lot of cattle sold included weight, selling price, number of head, sex,

breed, horns, frame, muscle thickness, gut fill, body condition, health, number of head and uniformity of multiple head groups.

Data were analyzed 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

Steers made up 42% of the lots sold with bulls and heifers accounting for 16% and 42%, respectively. The lower proportion of heifers sold relative to steers and bulls may be indicative of the number of females retained by producers as replacements for the cowherd. Steers sold for an average $76.96/cwt. Bulls sold for $3.56/cwt less than steers and heifers at $10.56/cwt less. The prices received for bulls are presumably lower due to the reduced animal performance experienced with these animals subsequent to castration. The lower price for heifers relative to steers relates to problems characteristic to females including: reduced daily gain, lower feed efficiencies, 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.

Most cattle, 86%, had sale weights less than 600 lb, 59% of sale weights were less than 500 lb. 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. However, the calculated value of added gain averaged across weight groups to 899 lb was similar between sexes ($53.83/cwt vs $54.17/cwt for steers and heifers, respectively).

Certain attributes stereotypically assigned to breeds include those influencing growth rate, reproductive traits, and carcass traits. These attributes affect price. 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. Relative to Angus, Hereford steers were discounted $8.37/cwt and heifers $5.37/cwt. Steers with less than 1/4 Brahman influence sold at a slight discount, $1.91/cwt. However, <1/4 Brahman heifers sold at a $l.43/cwt premium, perhaps due to a perceived value as replacement females for eastern Oklahoma where resistance to heat, humidity and parasites is valued.

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). The medium frame size was divided into upper medium and lower medium categories. A significant price difference, approximately $2/cwt, for steers and heifers was shown to exist between the upper medium and lower medium frame sizes for both steers and heifers. These cattle would have been commonly classified into one medium frame score category. 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.

Light-muscled cattle, especially steers, sold at large discounts (Table 3). The discount for light-muscled steers averaged $26.48/cwt. The discount for medium- and light-muscled heifers relative to heavily-muscled heifers was substantially less than that of steers. Light-muscled heifers sold at a premium price to light-muscled steers. No explanation for this difference is apparent.

Gut fill was discounted based on the magnitude of variation from an average fill (Table 4). Both gaunt and tanked steers and heifers received severe discounts with lessened discounts as fill moderated. The effect of fill on price was fairly equal for steers and heifers.

Overly thin or overly fat cattle were discounted in price (Table 5). Very thin steers and heifers averaged discounts of over $13.00. Fat steers were discounted an average $6.01/cwt, and heifers averaged $11.37/cwt less than animals in average condition.

Cattle perceived to be sick or lame suffered severe discounts averaging $21.58 to $30.48/cwt dependent on sex. Cattle with bad eyes or stale cattle received price reductions averaging $6.91 to $13.38/cwt. Cattle with rough or muddy hair coats were slightly discounted ($2.62 and

$2.51/cwt for steers and heifers, respectively).

Cattle with horns received discounts in selling price relative to their polled counterparts, with horned steers being sold for $3.03/cwt. less, and horned heifers for $1.94/cwt less.

The number of head in a sale lot had a significant positive effect on sale price. Lots with two or more steers sold for $4.01 to 7.14/cwt over the price of steers sold as singles. The premium for multiple head sale lots of heifers reached a maximum at $4.70/cwt. Multiple head lots that were not uniform sold for approximately $2.00/cwt less than uniform lots for steers and heifers. A premium for uniform, multiple head lots is generally attributed to the convenience of filling orders for cattle of a specified description on the part of an order buyer. Also, larger, uniform lots may indicate a single point of origin for the cattle leading to less stress and fewer health problems as may be associated with a pen of cattle assembled from many origins.

Many factors influence the price of cattle sold in livestock auctions. Of these, many may be altered by the producer to obtain a higher selling price. For example, bulls can be castrated, polled bulls used to sire polled calves, etc. Proper management of controllable characteristics could result in larger net selling prices.

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Table 1. Effect of breed classification on sale price of feeder cattle in eastern Oklahoma auctions (October, 1997).

	Steers			Heifers		
Breed classification	No. lots (%)	Price, $/cwt	Price difference due to breed type, $/cwt	No. lots (%)	Price, $/cwt	Price difference due to breed type, $/cwt
Hereford	179 (2.8)	69.93[b]	-8.37	234 (3.6)	60.52[b]	-5.37
Angus	378 (5.8)	78.30[ef]	Base	521 (8.1)	65.89[d]	Base
Black/red white face	680	79.15[fg]	0.85	817	66.66[d]	0.77

	(10.5)			(12.7)		
Black exotic	695 (10.7)	80.96^{h}	2.66	532 (8.3)	69.53^{e}	3.64
Other exotics	2110 (32.5)	79.47^{gh}	1.17	2106 (32.7)	68.87^{e}	2.98
< ¼ Brahman	1283 (19.8)	76.39^{d}	-1.91	1298 (20.2)	67.32^{d}	1.43
> ¼ Brahman	855 (13.2)	72.39^{c}	-5.91	667 (10.4)	63.98^{c}	-1.91
Dairy	84 (1.3)	53.35^{a}	-24.95	44 (0.7)	52.14^{a}	-13.75
Longhorn	129 (2.0)	51.48^{a}	-26.82	112 (1.7)	50.11^{a}	-15.78
Mixed (lots >1 head)	103 (1.6)	76.47^{de}	-1.83	107 (1.7)	65.40^{cd}	-0.49
^{a,b,c,d,e,f,g,h}Values with differing superscripts in a column differ (P<.05).						

Table 2. Effect of frame size on sale price of feeder cattle in eastern Oklahoma auctions (October, 1997).

	Steers			Heifers		
Frame size	No. lots (%)	Price, $/cwt	Price difference due to frame size, $/cwt	No. lots (%)	Price, $/cwt	Price difference due to frame size, $/cwt
Large	3248 (50)	77.27^{a}	Base	2603 (40)	68.42^{a}	Base
Upper medium	2461 (38)	75.94^{b}	-1.33	2828 (44)	66.58^{b}	-1.84
Lower medium	765 (12)	73.87^{c}	-3.40	975 (15)	64.35^{c}	-4.07
Small	22 (.3)	58.41^{d}	-18.86	32 (.5)	47.43^{d}	-20.99
^{a,b,c,d}Values with differing superscripts in a column differ (P<.05).						

Table 3. Effect of muscling on sale price of feeder cattle in eastern Oklahoma auctions (October, 1997).

	Steers			Heifers		

Muscling	No. lots (%)	Price, $/cwt	Price difference due to muscling, $/cwt	No. lots (%)	Price, $/cwt	Price difference due to muscling, $/cwt
Heavy	5718 (88)	78.31[a]	Base	5619 (87)	67.67[a]	Base
Medium	728 (11.2)	68.94[b]	-9.37	743 (12)	62.85[b]	-4.82
Light	50 (.8)	51.83[c]	-26.48	76 (1.2)	59.57[c]	-8.10

[a,b,c]Values with differing superscripts in a column differ (P<.05).

Table 4. Effect of gut fill on sale price of feeder cattle in eastern Oklahoma auctions (October, 1997).

	Steers			Heifers		
Gut fill	No. lots (%)	Price, $/cwt	Price difference, $/cwt	No. lots (%)	Price, $/cwt	Price difference, $/cwt
Gaunt	41 (.6)	67.44[a]	-10.32	58 (.9)	63.97[b]	-4.19
Shrunk	1508 (23)	75.82[c]	-1.92	1213 (18.8)	66.38[c]	-1.78
Average	3964 (61)	77.76[d]	Base	4064 (63)	68.16[d]	Base
Full	951 (15)	73.61[b]	-4.15	1083 (17)	64.93[b]	-3.23
Tanked	32 (.5)	68.68[a]	-9.08	20 (.3)	59.60[a]	-8.56

[a,b,c,d]Values with differing superscripts in a column differ (P<.05).

Table 5. Effect of body condition on sale price of feeder cattle in eastern Oklahoma auctions (October, 1997).

	Steers			Heifers		
Body condition	No. lots (%)	Price, $/cwt	Price difference, $/cwt	No. lots (%)	Price, $/cwt	Price difference, $/cwt
Very thin	44 (.7)	64.19[a]	-13.24	42 (.6)	54.81[a]	-13.23

Thin	1523 (23)	73.79[b]	-3.64	1304 (20)	65.13[b]	-2.91
Average	4412 (68)	77.43[b]	Base	4277 (66)	68.04[c]	Base
Fleshy	512 (8)	74.87[b]	-2.56	806 (12.5)	65.74[b]	-2.30
Fat	5 (.08)	71.42[ab]	-6.01	9 (.14)	56.67[a]	-11.37
[a,b,c]Values with differing superscripts in a column differ (P<.05).						

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