

Effect of Livestock Auction Location, Number of Buyers, and Grouping on the Selling Price of Arkansas Feeder Cattle

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Story in Brief

Data were collected from 15 Arkansas livestock auctions to determine if livestock auction location, number of buyers, and selling in groups affected the selling price of feeder cattle. Data collected included how calves were sold (single or groups), gender, breed or breed type, color, muscle thickness, horn status, frame score, fill, body condition, age, health, BW, and price. Longitudinal and latitudinal coordinates and the number of buyers were determined for each livestock auction. Selling prices differed ($P < 0.001$) across livestock auctions. The distance of livestock auctions to Oklahoma City and longitude were not related ($P > 0.10$) to feeder calf prices. The livestock auctions with greater than average selling prices sold a greater percentage (34%) of feeder cattle breeds or breed types that sold for a higher than average selling price ($P < 0.005$) compared to livestock auction with below average selling prices (20%). A positive linear relationship existed between livestock auction sales volume and selling price ($P < 0.02$) and number of buyers present ($P < 0.01$). Feeder calves sold in groups received a greater selling price than feeder calves sold individually ($P < 0.0001$). Therefore the perceived quality of feeder cattle, sales volume and number of buyers influenced livestock auction selling prices whereas the location of livestock auctions had only a slight effect on selling price. Selling feeder cattle in groups returned a higher selling price than selling single feeder cattle.

Introduction

The majority of Arkansas cow-calf producers market feeder cattle through local livestock auctions. Many cow-calf producers believe that the factors that affect the selling price of feeder cattle are subjective and are priced inconsistently from one livestock auction to another. Cattle producers are concerned with where the calves are sold, how the calves are handled at the livestock auction, and if these factors affect selling price.

The objective was to determine if livestock auction location, number of buyers, and grouping of calves affected the selling price of feeder cattle across weekly Arkansas livestock auctions.

Experimental Procedure

Five USDA certified livestock market reporters collected data weekly from 15 livestock auctions in Arkansas from January 1, 2005 to December 31, 2005. The livestock auctions were located in Ash Flat, Charlotte, Conway, Fayetteville, Fort Smith, Glenwood, Green Forest, Harrison, Hope, Marshall, Ola, Ozark, Pocahontas, Ratcliff, and Springdale. A total of 581,413 feeder cattle were sold through these livestock auctions, and data were randomly collected (every 5th to 6th calf) on 52,401 lots consisting of 105,542 head (18.2%).

Longitudinal and latitudinal coordinates for each livestock auction were used to determine the relationship between location and selling price using a regression analysis. Regression analysis was also used to determine the relationship between 2005 sales volume and the number of buyers, 2005 sales volume and selling price, number of buyers and selling price, and selling price and the driving distance between livestock auctions and Oklahoma City. Analysis of variance was performed using the General Linear Model (GLM) procedure of SAS (SAS, Inst., Inc, Cary, N.C.). Due to the unbalanced nature of the data, the model included month and weight as covariates. Sale price was the dependent variable. All other variables contributed to the error sum of squares. Sale lots included calves sold as individuals, groups of 2 to 5 calves and

groups of 6 or more calves. Chi square analysis (PROC FREQ of SAS) was used to determine if the livestock auctions that sold feeder calves above the mean price sold a higher percentage of higher priced breed or breeds types and calf color and polled feeder calves than livestock auctions that sold feeder calves below the mean price. All selling prices are reported in US dollars/100 lb.

Results and Discussion

There was a difference in the selling price of feeder calves across weekly livestock auctions ($P < 0.001$); however, selling price for the top 5 livestock auctions were not different ($P > 0.10$). The mean selling price by livestock auctions ranged from $\$115.39 \pm 0.21$ to $\$119.88 \pm 0.18$ (Table 1). The average livestock auction selling prices were less variable in 2005 than in previous data from a similar study conducted in 2000 (Troxel et al., 2002).

The livestock auctions with higher than average selling prices sold a higher percentage (34%) of feeder cattle breeds or breed types that sold for a higher than average selling price ($P < 0.005$) compared to livestock auctions with below average selling prices (20%). The higher than average selling price livestock auctions sold more feeder calves with the more desirable colors (55% vs. 51%; $P < 0.005$) and more polled feeder calves (86% vs. 84%; $P < 0.005$) than the below average selling price livestock auctions.

The longitude (degrees west) and the distance to Oklahoma City were not related ($P > 0.10$) to feeder calf selling prices. Latitude or the degrees north tended to be related to feeder calf selling price ($P = 0.08$; Fig. 1). This suggests the livestock auctions located in the northern regions of Arkansas may have a slighter greater selling price than livestock auctions located in the southern region. Therefore, the quality of feeder cattle influenced livestock auction selling prices; whereas, the location of livestock auctions had only a slight effect on selling price.

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There was a positive linear relationship ($P < 0.02$) between the 2005 sales volume and feeder calf selling price (Fig. 2). As sales volume increased, so did feeder calf selling price. Perhaps the larger livestock auctions (in term of sales volume) sold feeder cattle for greater prices because more buyers were present. The number of buyers increased linearly ($P < 0.01$) with increasing sales volume (Fig. 3). Therefore, livestock auctions that sold more cattle during 2005 had more buyers present. The relationship between the number of buyers and feeder calf selling price only tended ($P = 0.08$) to be significant (Fig. 4). Therefore, simply having more buyers present during a livestock auction did not insure greater selling prices.

The main effect of how cattle were sold was significant ($P < 0.0001$; Table 2). The selling price for feeder cattle sold individually, groups of 2 to 5 head, and groups with 6 or more was $\$117.26 \pm .06$, $\$120.12 \pm 0.12$, and $\$122.61 \pm 0.22$, respectively. Therefore, it is clear that buyers paid more for cattle sold in groups with groups of 6 or more being the most advantageous.

Implications

The majority of cow-calf producers in Arkansas sell feeder cattle at local livestock auctions. Selling prices for feeder cattle are different across livestock auctions in Arkansas. That difference is due to cattle quality and 2005 sales volume. Grouping cattle into uniform groups will improve selling price compared to selling feeder cattle as singles.

Literature Cited

Troxel, T.R., et al. 2002. The Professional Animal Scientist 18:227-236.

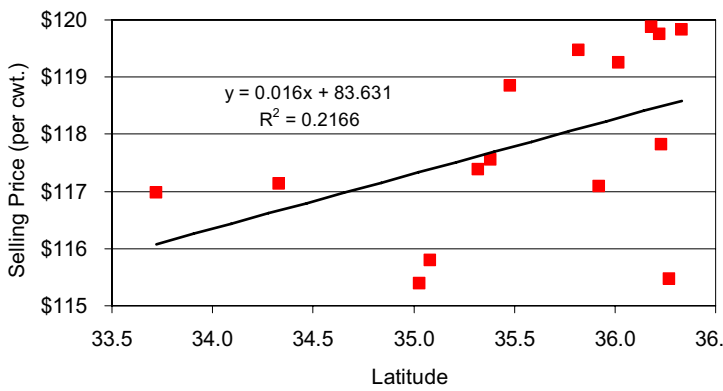


Fig. 1. The relationship between feeder calf prices and latitude ($P = 0.08$).

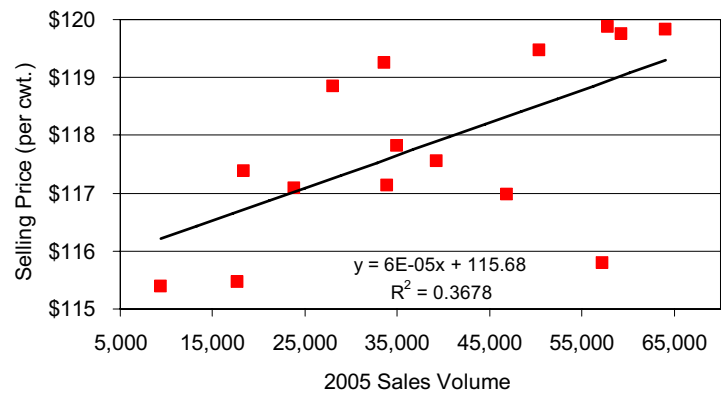


Fig. 2. The relationship between 2005 sales volume and feeder calf prices ($P < 0.02$).

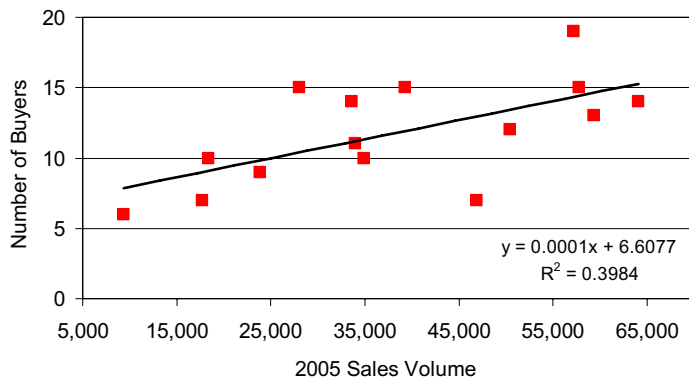


Fig. 3. The relationship between 2005 sales volume and the number of buyers ($P < 0.01$).

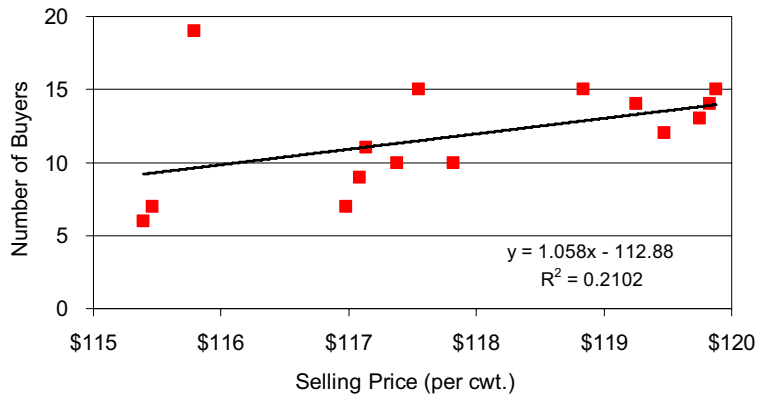


Fig. 4. The relationship between the number of buyers and feeder calf selling price ($P = 0.08$).

Table 1. The mean \pm SE selling price of the livestock auctions participating in 2005 survey^a.

Item	Selling price ^b
Livestock Auction	
1	\$119.88 \pm 0.18 ^c
2	\$119.83 \pm 0.18 ^c
3	\$119.75 \pm 0.17 ^c
4	\$119.47 \pm 0.18 ^c
5	\$119.25 \pm 0.22 ^c
6	\$118.84 \pm 0.17 ^d
7	\$117.82 \pm 0.23 ^e
8	\$117.55 \pm 0.15 ^{e,f}
9	\$117.38 \pm 0.19 ^{e,f}
10	\$117.14 \pm 0.24 ^{e,f}
11	\$117.09 \pm 0.24 ^f
12	\$116.98 \pm 0.21 ^f
13	\$115.79 \pm 0.21 ^g
14	\$115.46 \pm 0.27 ^g
15	\$115.39 \pm 0.21 ^g

^a Main effect of livestock auctions on selling price ($P < 0.001$).

^b Least-squares mean \pm SE (US dollars/100 lb).

^{c, d, e, f, g} Least-squares means within column without a common superscript differ ($P < 0.01$).

Table 2. The mean \pm SE selling price of feeder calves based on grouping^a.

Item	Selling price ^b
Grouping	
Singles	\$117.26 \pm 0.06 ^c
2 to 5 head	\$120.12 \pm 0.12 ^d
6 or more	\$122.61 \pm 0.22 ^e

^a Main effect of calf grouping on selling price ($P < 0.0001$).

^b Least-squares mean \pm SE (US dollars/100 lb).

^{c, d, e} Least-squares means within column without a common superscript differ ($P < 0.0001$).