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Current factors affecting feeder cattle pricing in Kansas and Missouri cattle markets

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Current Factors Affecting Feeder Cattle Pricing in Kansas and Missouri Cattle Markets

K.W. Harborth, L.L. Schulz, K.C. Dhuyvetter, and J.W. Waggoner

Introduction

Today's tough economic environment for cattle producers makes each decision critically important, and increased knowledge of the link between pricing and genetic, management, and marketing decisions can increase an operation's sustainability and profitability. Cow-calf producers and cattle feeders have long been interested in the impact of various physical and market characteristics on feeder cattle and calf prices. As demonstrated in many previous studies, significant relationships exist between feeder cattle prices and their physical and market characteristics. Weight, lot size, health, condition, fill, muscling, frame size, breed, time of sale, and horn status significantly affect feeder cattle auction prices. Historically, significant premiums and discounts have been associated with these particular feeder cattle physical characteristics.

The purpose of this study was to gain knowledge of the current link between market pricing and genetic, management, and marketing decisions. Findings from this research will provide updated information regarding how the myriad of industry changes since the 1980s and 1990s has affected the characteristics that influence feeder cattle and calf prices.

Experimental Procedures

Transaction-level feeder cattle market data were collected from feeder cattle auctions in Dodge City, KS, and Carthage, MO, during November and December 2008 and March and April 2009 by trained evaluators. The data represent approximately 4 months of historical cash price information. Data collected totaled approximately 8,200 individual lot transactions encompassing 84,319 head. Data recorded for each transaction included lot size, sex, color, breed, condition, fill, muscle, frame size, weight uniformity, freshness, horn presence, time of sale, weight, and price. In addition to details of individual transactions, a time series of feeder cattle futures prices was collected to approximate market conditions. A hedonic pricing model was applied to estimate the impact of various physical characteristics and market factors on feeder cattle pricing.

Results and Discussion

Breed, muscling, and frame size are important feeder cattle characteristics influenced through genetic selection. Pricing results for genetically influenced factors are reported in Table 1. Cattle buyers paid greater premiums for Angus (\$3.10) and Angus × Hereford crossbred calves (\$2.72) than for the base breed (Hereford influenced) calves. The greatest discounts were applied to dairy (-\$12.22) and longhorn (-\$10.86) influenced calves. Compared with the base breed Hereford, price changes among the remaining breed categories were relatively small. A significant premium was paid for black (\$2.49), white (\$1.01), and mixed hide colors (\$1.89) compared with red-colored calves. Because the premiums and discounts are additive, this implies a black Angus calf would bring a \$5.59/hundredweight premium (\$3.10 + \$2.49) relative to the base animal

(red Hereford). Heavy (\$6.62) and extremely heavy (\$5.25) muscled cattle brought significant premiums compared with average muscled calves. Feeder cattle buyers likely prefer heavily muscled calves as they are expected to produce desirable carcasses. Buyers discounted small-framed calves (-\$5.98) and gave a modest premium (\$0.75) to large-framed calves. Increased concern about growth patterns and finish weights apparently contributed to larger discounts for calves that are not expected to match cattle feeding and meat processing specifications.

On-farm management of weight, health, condition, and horn presence significantly affects feeder cattle prices. Figure 1 shows discounts attributed to additional weight for steers, heifers, and bulls. Heifers were discounted the least in the fall and spring as weight increased, whereas the largest relative discounts were seen for steers and bulls in the spring. Differences in feeder cattle prices across weights are likely due to the relationship of feeding performance and profitability of feeding programs. Expected fed cattle prices, feeder cattle prices, corn prices, interest rates, and feeding performance all affect cattle feeding profitability. Because feeder cattle prices were explicitly accounted for in the model, the large weight discounts can be attributed to differing expectations about anticipated feeding performance, interest rates, and fed cattle prices. Corn prices were not included in the analysis because they varied little during the study. Effects of other management factors on pricing are shown in Table 2. Buyers discounted calves that appeared unhealthy (-\$6.31), had horns (-\$2.18), or were in too-thin or too-fat condition. It is evident that buyers prefer healthy calves because unhealthy calves increase the possibility of death loss and poor feeding performance. Moderately conditioned calves were preferred because they show the ability to convert feed to gain. Discounts for horned cattle are likely due to increased injury in confinement and increased handling costs.

Marketing factors including weight uniformity, lot size, gut fill, sale location, and time of sale affected pricing (Table 3). Weight uniformity significantly affected feeder cattle prices as nonuniform lots of cattle were discounted \$2.11/hundredweight. Although nonuniform lots received discounts, the relationship between weight uniformity and lot size needs to be considered. Figure 2 shows the price paid for calves on the basis of lot size. As lot size increased, price per hundredweight increased. The highest prices were paid for lot sizes approaching truckload sizes. As lot sizes exceeded truckload sizes, prices leveled off and even decreased, likely because fewer buyers were bidding on these very large lot sizes. Feeder cattle buyers prefer to purchase larger lot sizes because the incidence of health problems decreases with non-mixed cattle and because of the convenience and lower transportation costs of large purchases. Discounts were applied to very full (-\$4.02) and full (-\$0.72) cattle compared with average fill cattle because cattle with significant amounts of temporary water or forage weight are undesirable. Although the largest premiums were realized for cattle sold in the third quarter of the sale relative to the first quarter of the sale, time of sale may or may not be easily controllable by producers.

Implications

Results should be of interest to a wide variety of industry stakeholders including cow-calf operators, cattle feeders, and agribusiness firms that service the cattle sector. Although cattle producers cannot affect forces that drive the cattle market, they can control factors that affect the premiums and discounts their calves can potentially

obtain. Producers should market healthy, dehorned cattle, ideally in large, uniform lots. Producers should also avoid selling cattle that are extremely thin or fat and/or extremely gaunt or full to obtain the greatest value. Overall, this research effectively gathered market information and allowed for dissemination of this information to industry stakeholders, potentially improving feeder calf value and total returns to producers.

Table 1. Effect of genetic factors on feeder cattle premiums and discounts

Characteristic	Pens, %	Price change, \$/hundredweight
Breed		
Angus	21.9	3.10*
Hereford	1.6	Base
Angus/Hereford cross	6.6	2.73*
Other English crosses	7.3	0.66
Exotic crosses	50.9	1.78*
Longhorn	0.7	-10.86*
Brahman	3.0	-0.76
Dairy	0.6	-12.22*
Mixed breed	7.2	-0.82
Color		
Black	40.6	2.49*
Red	12.8	Base
White	10.2	1.01*
Mixed color	36.2	1.99*
Muscling		
Light muscling	0.02	5.03
Average muscling	4.5	Base
Heavy muscling	94.3	6.62*
Extremely heavy muscling	1.2	5.29*
Frame size		
Small	0.04	-5.98*
Medium	41.1	Base
Large	58.9	0.75*

* Statistically significant compared with base (P<0.10).

Table 2. Effect of management factors on feeder cattle premiums and discounts

Characteristic	Pens, %	Price change, \$/hundredweight
Health		
Healthy lot	99.7	Base
Unhealthy lot	0.3	-6.31*
Horns		
No horns	90.9	Base
Mixed horns	7.6	-0.70*
Horns	1.4	-2.18*
Condition		
Very thin	0.1	-10.83*
Thin	16.4	-1.23*
Moderate	77.2	Base
Fat	6.4	-0.86*
Very fat	0.04	-4.87

* Statistically significant compared with base (P<0.10).

Table 3. Effect of marketing factors on feeder cattle premiums and discounts

Characteristic	Pens, %	Price change, \$/hundredweight
Weight uniformity		
Uniform lot	98.8	Base
Nonuniform lot	1.2	-2.11*
Fill		
Very gaunt	0.1	-3.60
Gaunt	5.8	-0.99*
Average fill	63.6	Base
Full	30.3	-0.72*
Very full	0.2	-4.02*
Market location		
Joplin	82.1	-5.15*
Dodge City	17.9	Base
Time of Sale		
1st quarter	24.7	Base
2nd quarter	24.9	1.00*
3rd quarter	25.3	2.03*
4th quarter	25.1	0.62*

* Statistically significant compared with base (P<0.10).

MANAGEMENT

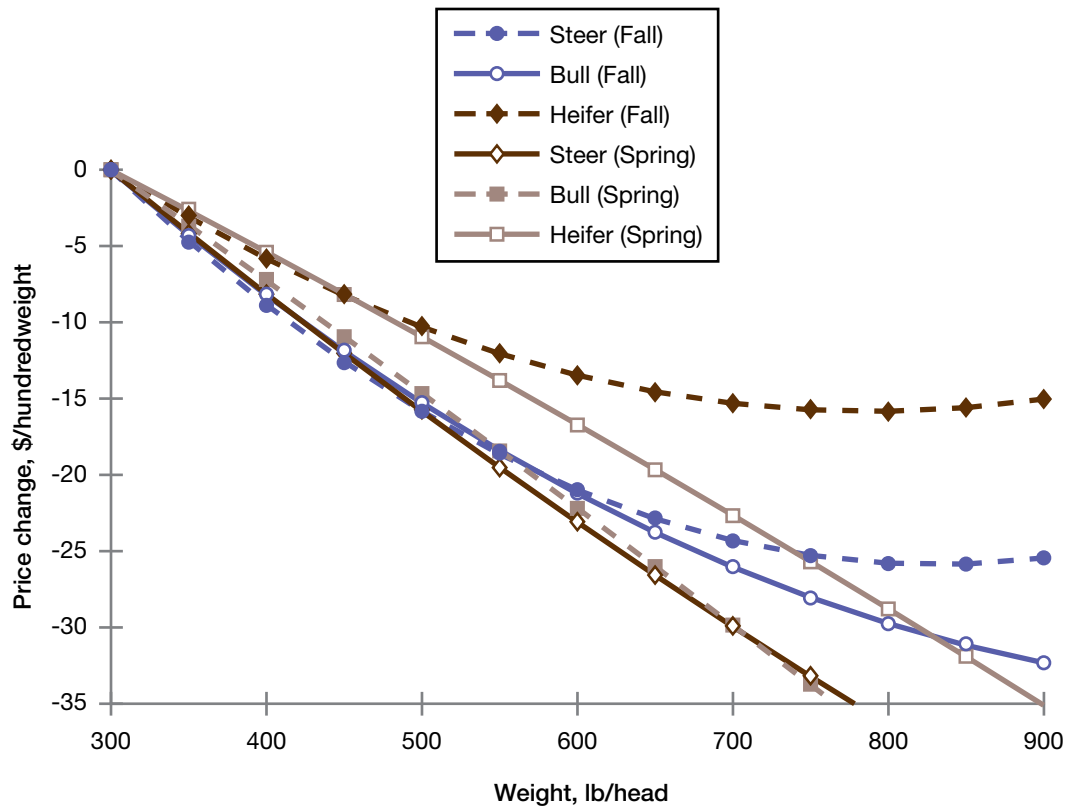


Figure 1. Effect of weight on feeder cattle price.

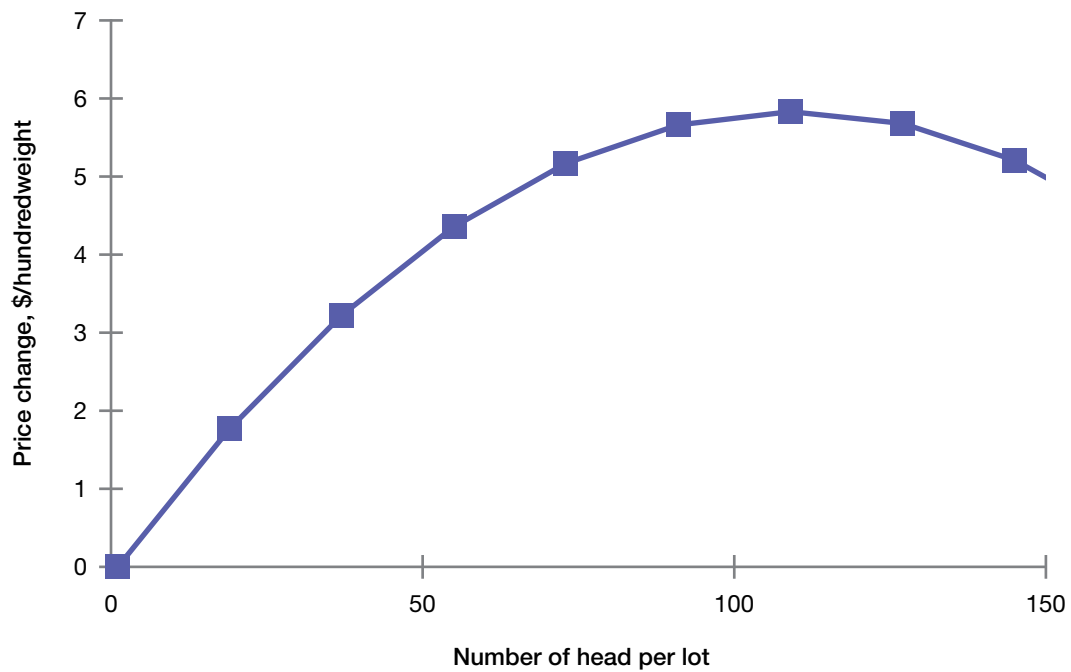


Figure 2. Effect of lot size on feeder cattle price.