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Abstract

The objective of this study was to determine the relative value of Holstein feeder steer lots compared to steer lots of other breed descriptions sold through video auctions while adjusting for all other factors that significantly influenced sale price. Data were analyzed from 14,075 lots of feeder steers sold through 211 livestock video auctions from 2010 through 2018. All lot characteristics that could be accurately quantified or categorized were used to develop a multiple regression model that evaluated effects of independent factors on sale price using a backwards selection procedure. A value of $P < 0.05$ was used to maintain a factor in the final model. A lot was categorized into one of four breed descriptions: 1) English and/or English crossed; 2) English-Continental crossed; 3) Brahman influenced; and 4) Holstein. The average weight and number of steers in lots analyzed were 800.8 ± 111.5 lb and 121.1 ± 110.3 head, respectively. During the nine years, English, English crossed lots sold for the greatest ($P < 0.05$) sale price (\$152.39/cwt). English-Continental crossed lots sold for the second greatest ($P < 0.05$) sale price (\$150.61/cwt). Brahman influenced sold for the third greatest ($P < 0.05$) sale price (\$148.75/cwt). Holstein lots sold for the lowest ($P < 0.05$) sale price (\$110.56/cwt). To determine potential change in relative value of Holstein feeder steers from 2010 to 2018, data were analyzed in three-year increments. In all three-year increments, Holstein feeder lots sold for the lowest ($P < 0.05$) sale price compared to the other breed descriptions of beef steer lots. The average discount of Holstein feeder lots relative to other breed descriptions was \$33.19/45.36 cwt in 2010–2012, \$42.96/cwt in 2013–2015, and was the greatest in 2016–2018 at an average discount of \$46.24/cwt, likely indicating lessening interest in the feedlot sector to feed Holstein steers to harvest.

Introduction

Dairy-type animals have a significant role in United States beef production. In 2018, fed dairy steers contributed 12.6% or 3.37 billion pounds to beef production (Boetel,

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2019). Dairy carcasses often receive high quality grades, are uniform and consistent, and provide a year-around supply of beef (Andersen, 2019). The finishing process for dairy-type steers, however, has common challenges compared with beef steers. Challenges include poorer feed efficiency, a lower dressing percentage, gut health issues, as well as carcasses that are light-muscled and often too large (Andersen, 2019). For these reasons, dairy-type steers are often undesirable for feedlots and packers. The objective was to determine relative value of Holstein feeder steer lots compared to steer lots of other breed descriptions sold through video auctions while adjusting for all other factors that significantly influenced sale price.

Experimental Procedures

Information describing factors about lots sold through a livestock video auction service (Superior Livestock Auction, Fort Worth, TX) was obtained from the auction service in an electronic format. These data were collected for lots of feeder steers sold from 2010 through 2018.

The descriptive pieces of information that were available for each lot of feeder steers were auction year, area of the United States where lot originated, breed description of lot, health protocol administered to the lot, the amount of weight variation within the lot, frame score of the lot, flesh score of the lot, implant status, source and age verification, freight adjustment status, whether or not the steers had horns, lot size (both linear and quadratic effects), base weight of the lot (both linear and quadratic effects), the number of days between auction and forecasted delivery dates, and sale price of the lot (\$/cwt). A multiple-regression model was developed using a backwards selection procedure to quantify the effects of factors on the sale price of feeder steer lots. The model was adjusted for the random effect of auction date nested within auction year. The specific and current requirements of each of the video auction service's special health and management programs are available at www.SuperiorLivestock.com.

Results and Discussion

Data were analyzed from 14,075 lots of feeder steers sold via 211 video auctions through Superior Livestock Auction from 2010 through 2018. Average weight and number of steers in lots analyzed were 800.8 ± 111.5 lb and 121.1 ± 110.3 head, respectively (Table 1).

From 2010 through 2018, English, English crossed lots sold for the greatest ($P < 0.05$) sale price (\$152.39/cwt) (Table 2). English-Continental crossed lots sold for the second greatest ($P < 0.05$) sale price (\$150.61/cwt). Brahman influenced sold for the third greatest ($P < 0.05$) sale price (\$148.75/cwt). Holstein lots sold for the lowest ($P < 0.05$) sale price (\$110.56/cwt). To determine potential change in relative value of Holstein feeder steers from 2010 to 2018, data were analyzed in three-year increments. In all three-year increments, Holstein feeder lots sold for the lowest ($P < 0.05$) sale price compared to the other breed descriptions of beef steer lots. The average discount of Holstein feeder lots relative to other breed descriptions was \$33.19/cwt in 2010–2012, \$42.96/cwt in 2013–2015, and was the greatest in 2016–2018 at an average discount of \$46.24/cwt.

In each three-year increment, there was a greater relative price discount for Holstein steers than the previous increment. Evaluation of the average sale price was based on a percentage discount revealed in lower market prices. Lots of Holstein feeders were discounted a greater percentage than when market prices are higher. From 2010–2012, the average sale price for lots of feeder steers was \$123.21/cwt and lots of Holstein feeder steers were discounted 26.9% (Table 3). From 2013–2015, the average sale price was \$176.62/cwt and lots of Holstein feeder steers were discounted 24.3%. From 2016–2018, the average sale price was \$139.13/cwt with a 33.2% discount for lots of Holstein feeder steers.

As the supply for beef increases, buyers have the ability to be more selective with their purchases. In early 2017, a major packer announced their decision to no longer harvest Holstein steers. Industry decisions like this influence many segments of beef production, and likely is related to the relative price discounts of Holstein feeder steer lots compared with steer lots of other breed descriptions.

The discount for Holstein lots and the lessening interest in feeding dairy-type steers has resulted in many dairy producers utilizing beef semen in lower quality dairy cows and heifers. Domestic beef semen sales drastically increased by 59% from 2017 to 2018, primarily as a result of use in dairy cows and heifers (Geiger, 2019). Several major semen companies have created programs designed to identify bulls to breed to dairy cows and heifers.

Implications

The relative price discount for Holstein feeder steer lots compared with other breed descriptions appears to have increased during this time frame, and thus is likely indicating lessening interest in the feedlot sector to feed Holstein steers to harvest.

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Table 1. Non-adjusted means, medians, and ranges for factors describing the lots of single-gender steer feeder cattle sold through 211 Superior Livestock Auction's video sales from 2010 through 2018

Factor	Mean $\pm$ standard deviation	Median	Range
Number of calves in the lot	121.1 $\pm$ 110.3	70	17 to 1,680
Base weight of the lot, lb	800.8 $\pm$ 111.5	825	220 to 1,280
Number of days from auction to forecasted delivery	30.8 $\pm$ 38.2	15	0 to 287
Price per 100 lb, \$	145.80 $\pm$ 33.77	141.00	68.00 to 333.00

Table 2. Sale price of Holstein feeder steer lots relative to other breed descriptions sold through 211 Superior Livestock Auction video sales from 2010 through 2018

Breed description	Number of lots	Least squares mean of sale price (\$/cwt)	Regression coefficient
2010–2018			
English, English crossed	3,829	152.39 ^a	41.83
English-Continental crossed	4,310	150.61 ^b	40.05
Brahman influenced	4,945	148.75 ^c	38.19
Holstein	991	110.56 ^d	0.00
2010–2012			
English, English crossed	1,252	128.10 ^a	34.47
English-Continental crossed	1,562	126.81 ^b	33.18
Brahman influenced	2,185	125.56 ^c	31.93
Holstein	282	93.63 ^d	0.00
2013–2015			
English, English crossed	1,171	182.43 ^a	44.82
English-Continental crossed	1,485	180.46 ^b	42.85
Brahman influenced	1,630	178.83 ^c	41.22
Holstein	373	137.61 ^d	0.00
2016–2018			
English, English crossed	1,465	145.62 ^a	47.84
English-Continental crossed	1,359	144.47 ^b	46.69
Brahman influenced	1,283	141.97 ^c	44.19
Holstein	360	97.78 ^d	0.00

Breed description affected the sale price ($P < 0.0001$).

^{a,b,c,d}Prices without a common superscript differ ($P < 0.05$) within years.

Table 3. Non-adjusted average sale price of Holstein feeder steer lots and the percentage discount for each three-year increment

Years	Non-adjusted average sale price (\$/cwt)	Average discount (\$/cwt)	Percentage discount
2010–2012	123.41	33.19	26.9
2013–2015	176.62	42.96	24.3
2016–2018	139.13	46.24	33.2