

12-1-2009

Factors Affecting Wisconsin Feeder Calf Prices at a Local Livestock Market

Bill Halfman

University of Wisconsin- Extension, bill.halfman@ces.uwex.edu

Jeffrey W. Lehmkuhler

University of Kentucky, jeff.lehmkuhler@uky.edu

Tom Cox

University of Wisconsin, tlcox@wisc.edu



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

Recommended Citation

Halfman, B., Lehmkuhler, J. W., & Cox, T. (2009). Factors Affecting Wisconsin Feeder Calf Prices at a Local Livestock Market. *The Journal of Extension*, 47(6), Article 21. <https://tigerprints.clemson.edu/joe/vol47/iss6/21>

This Research in Brief is brought to you for free and open access by the Conferences at TigerPrints. It has been accepted for inclusion in The Journal of Extension by an authorized editor of TigerPrints. For more information, please contact kokeefe@clemson.edu.



December 2009
Volume 47 Number 6
Article Number 6RIB7

[Return to Current Issue](#)

Factors Affecting Wisconsin Feeder Calf Prices at a Local Livestock Market

Bill Halfman

Associate Professor
University of Wisconsin Extension
Monroe County
Sparta, Wisconsin
bill.halfman@ces.uwex.edu

Jeffrey W. Lehmkuhler

Assistant Professor
University of Kentucky
Animal and Food Sciences
Lexington, Kentucky
jeff.lehmkuhler@uky.edu

Tom Cox

Professor
University of Wisconsin
Agricultural & Applied Economics
Madison, Wisconsin
tlcox@wisc.edu

Abstract: Increasingly available information is illustrating the value of management on feeder cattle prices. Information from more than 2,000 lots was collected from a single market facility in western Wisconsin from 2004 through 2006 to examine factors affecting feeder cattle prices. Factors such as weight, breed, haircoat color, sex, lot size, and management practices commonly associated with preconditioning programs are found to affect feeder cattle prices in a market where dairy calves are predominate. This information provides support for implementation of a statewide preconditioning program.

Introduction

Rapidly rising input costs have resulted in reduced margins for many livestock operations. There continues to be interest in factors affecting feeder cattle markets across the United States. Several factors affect prices offered for feeder calves, which include but are not limited to weight, sex, time of year marketed, lot size, price of corn, hide color, and an array of management related factors.

Recent information from Iowa demonstrated that groups of feeder cattle announced as being enrolled in a third party verified preconditioning program resulted in premiums over other groups of feeder calves (Bulut & Lawrence, 2007). For 3,613 lots of Northern Plains feeder cattle sold in the fall of 2005, it was noted that

lots sizes of 11-20 head brought \$4.97/cwt over lots with five or less head (Luepp et al., 2007). These feeder cattle also received \$0.80/cwt more if they received a respiratory vaccine and \$1.65/cwt premium if they received a clostridial, respiratory viral, and *pasteurella* vaccine. Factors such as sex, hide color, and weight were also noted as affecting prices received. Barham and Troxel (2007) observed that both breed and haircoat color impacted feeder calf prices sold in the Southeast U.S. These studies have been conducted in states where beef cattle are a major agricultural commodity.

The objective of the work reported here was to help Wisconsin feeder calf producers determine management traits that affected feeder calf prices in a state where dairy is the major agricultural commodity. Data were collected on over 2,000 lots of feeder cattle sold in Wisconsin during 2004 through 2006 to model these factors and support management recommendations that enhance feeder calf prices.

Materials and Methods

The livestock market facility in Sparta, Wisconsin holds two special feeder calf sales each month. The primary interest in this location was that a group of local producers initiated a preconditioning program for their members in 2002. It was observed that few calves were enrolled in the program. The intent was to determine the impact of various factors affecting feeder calf value to help the cattle association improve participation in the program. The data were collected by a single individual who sat in the buyers' area of the livestock marketing facility while gathering the information as it was presented to potential buyers.

For 95% of the sales, all lots were monitored. Partial information was gathered from the other five percent of the sales with some lots at the beginning or lots offered late in the sale being missed. A few additional lots were missed which are estimated to be less than 0.1% of all lots. A total of 7,237 head of cattle were sold during these feeder calf sales. Lots comprised of animals of mixed sex were discarded resulting in a total of 2,008 lots used for this analysis.

A spreadsheet was used to develop forms for recording information on each lot of feeder calves. The following characteristics were recorded as announced by the auctioneer or ringman: number of head, average weight, sex, sale price, vaccinated, booster vaccination, knife castrated, and weaned prior to arrival. For clarification, vaccinated indicated that the animals received one set of vaccinations, and booster vaccination indicated they received an initial dose plus a booster vaccination. These vaccinations relate to the common viral respiratory vaccines, though calves may have also received additional vaccinations. The following observed characteristics of the lot were also determined: haircoat color, breed/ secondary color, horns, purple tag (local precondition program), average condition, below average condition, over conditioned or fleshy, sick, gut fill, dirty, mud, old (indicative of longer tails, larger head size, larger horn base, etc) and other.

All data were compiled into a single file. Breed/hide color were aggregated to black, red, mixed, other beef breeds, Holstein, and other dairy breeds. Number of head per lot was aggregated into lot size categories of: less than or equal to 5 head, 6-10 head, and greater than 10 head. Data for descriptive characteristics were treated as categorical data (either yes or no). For example if one animal had horns, the entire lot was coded as "yes" for horns. Frequencies were determined using a statistical software package (SAS v. 9.1). Impact on feeder calf value was analyzed using the experimental procedure GLMSELECT (SAS v. 9.1) with a randomly selected 25% of the data used to test the model and 25% to validate the model, and the remaining 50% of the data used to estimate the final model parameters. Price was modeled against the various feeder calf lot classification variables. The selected model parameter estimates found to be significant at a probability level of 0.05 are reported.

Results and Discussion

The distribution of lots over the course of the data collection period is shown in Table 1. The number of lots recorded in October was greatest, with the fewest lots recorded in June. This is a result of both the number of sales attended per month as well as the number of lots offered on each sale date. Not every sale was attended during the 3-year period. An effort was made to attend the sales during the anticipated feeder calf runs that occur in the fall, which partially explains the difference in the number of lots per month. The constant availability of dairy calves partially explains why a large seasonal variability was not noted. An increased effort to record data was put forth for the 2005 market year as indicated by the greater lot numbers recorded during this time. The fall runs typical of spring calving beef cow herds were attended in all 3 years.

Table 1.

Distribution of Feeder Calf Lots Sold at Sparta, Wisconsin Auction Market by Month and Year

Time of Sale	Lots	Percent of Total
January	117	5.8
March	122	6.1
April	268	13.4
May	205	10.2
June	115	5.7
July	137	6.8
September	125	6.2
October	490	24.4
November	228	11.4
December	201	10.0
2004	533	26.5
2005	1205	60.0
2006	270	13.5

It was observed that 82% of the lots recorded had less than or equal to five animals per lot (Table 2). The largest lot sold during this recording period was 78 head. Only 28 lots of the more than 2,000 lots recorded, contained 20 head or more; illustrating the challenge for feeder calf buyers to obtain semi-load lots of similar cattle from a single source.

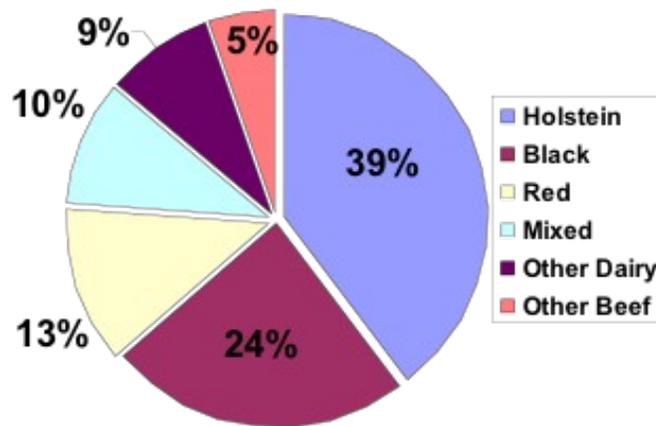
Table 2.

Number of Feeder Calves per Lot Sold at Sparta, Wisconsin Auction Market from 2004 to 2006

Lot Size	Lots	Percent of Total
≤ 5 head	1649	82.12
6-10 head	242	12.05
> 10 head	117	5.83

Breeds were diverse in the lots recorded. Holstein feeder calves made up the majority (39%) of the lots, followed by beef steers with black haircoat color (Figure 1). Given that Wisconsin has 1.2 million dairy cows and only 260,000 beef cows (USDA-NASS, 2004), these percentages were not surprising. The frequency of black haircoat color was approximately double that of lots recorded as having a red or red/white haircoat. This finding of nearly twice the number of black-hided cattle to red agrees with information reported by the 2005 national quality audit of fed cattle (NCBA, 2007). Most of the common dairy breeds (Holstein, Jersey, Brown Swiss, Guernsey, and dairy crosses) were observed along with less common beef breeds such as White Park, Pinzgauer, and Longhorn. These data clearly demonstrate two key principles: 1) the large number of Holstein steers sold at the Sparta, Wisconsin sale barn and 2) consistency with other information sources reporting that the majority of beef feeder calves have black haircoat color.

Figure 1.
Distribution of Lots by Haircoat Color/Breed Composition



Of the 2,008 lots used in this analysis, only 8.5% were horned (Table 3). Less than 1% of the lots were identified as being enrolled in the local preconditioning program, which was of interest in the study. Though not enrolled in the Purple Tag program, nearly 22% of the lots were announced as having been vaccinated, and 7.5% were recorded as being boosted for respiratory disease. It is important to note that this is not to be interpreted as only 22% of the calves marketed being vaccinated; rather only 22% of the lots were announced as being vaccinated. The information related to management of the cattle with respect to mud, manure, sickness, and body condition score, which can have negative impacts on prices, appears to have positively influenced the management associated with the lots sold in this market as few lots were characterized as such.

Table 3.
Characterization of Feeder Calf Lots Monitored at the Sparta, Wisconsin Livestock Auction Market¹

Variable	Lots	Percent of All Lots
Shots	431	21.5
Boostered	150	7.5
Purple Tag precondition	15	0.8
Knife castrated	125	6.2
Horns	170	8.5
Average Condition	172	8.6
Below Average Condition	39	1.9
Excessive Condition	36	1.8
Sick	8	0.4
Weaned	107	5.3
Gut Fill	18	0.9
Dirty	87	4.3
Mud	53	2.6
Old	25	1.3
¹ Lots were assigned based on information announced by the auctioneer/ringman as related to lots and/or subjectively scored by an individual.		

It was noted that several factors significantly affected prices (Table 4). A typical weight slide was observed and estimated to be \$12.91/cwt. This was in the range of \$10/cwt slides reported by Luepp and co-workers (2007) and the \$17/cwt slide reported by Bulut and Lawrence (2007). Even though 82% of the lots consisted of five head or less, increasing lot size was found to increase the price in this Wisconsin market. Barham and Troxel (2007) reported that lots containing 2 to 5 head sold for \$2.86/cwt higher than single lots in the southeast.

Bulut and Lawrence observed that prices paid for feeder cattle lots increased as lot size approached semi-load lots and then declined as they exceeded semi-load lot size. Last, Luepp and co-investigators (2007) observed inconsistent year-to-year responses for lot size, with prices increasing for all three lot size categories in 2005. However, prices increased for lot sizes of 11-20, but declined for lot sizes greater than 20 head in 2006.

Regional and seasonal differences likely exist for the demand of feeder calves based on the number of feedlots and/or farmer-feeders. Smaller farmer-feeders, which are common in Wisconsin, regularly market and buy small numbers of feeder calves. This is expected to support the prices of smaller lot sizes perhaps more than in cow-calf states that export the majority of feeder calves.

Bull and heifer calf lots were observed to sell at discounted prices compared to steer lots. This is similar to previous data and typical of what is observed in the markets. Hide color and/or breed type was observed to impact feeder calf prices. Holstein lots were estimated to sell for nearly \$14/cwt less than lots of black beef calves. The impact of hide color also agrees with previous findings in which black coat color lots sold for a premium.

Table 4.
Model Parameter Estimates for Factors Affecting Feeder Calf Prices at a Sparta, Wisconsin Livestock Auction Market

Variable	Parameter Estimate	SE	P-value
Intercept	161.56	3.646	<0.001
Weight, lb	-0.1291	0.0125	<0.001
Weight*Weight	0.0000499	0.00001122	<0.001
Sale order*Sale order	-0.000304	0.0000850	<0.001
Lot size	1.377	0.1383	<0.001
Lot size*Lot size	-0.0213	0.00329	<0.001
Month of sale	-0.633	0.1070	<0.001
Sex = Bull calf	-5.15	1.220	<0.001
Sex = Heifer	-9.13	0.924	<0.001
Sex = Steer	Base	Base	<0.001
Black haircoat color	7.04	1.213	<0.001
Red haircoat color	Base	Base	<0.001
Mixed haircoat color	4.56	1.469	<0.001
Other beef breeds	-2.80	1.806	<0.001
Holstein	-7.07	1.248	<0.001
Non-Holstein dairy breeds	-16.36	1.634	<0.001
Horns present	-4.07	1.360	<0.001
Vaccinated	2.93	0.946	<0.001
Average condition	-5.84	1.334	<0.001
Below Average Condition	-18.53	2.635	<0.001
Sick	-22.02	5.278	0.028
Old	-15.93	3.669	0.028

Management practices did influence feeder calf prices based on the modeled data. Lots announced as being immunized were projected to bring nearly \$3/cwt more than those lots that were not announced as having been immunized. Dehorned or polled lots sold for higher prices than horned lots, which agrees with previous findings. Average condition and below average condition feeder calves were discounted, while the impact of excess condition or fleshy cattle were not found to significantly affect prices in this data set, presumably due to the lower number of "Fleshy" lots and the large degree of variation. Cattle presented showing symptoms of illness, as assessed by the recorder, sold for severe discounts. The discount was in between that reported for

Iowa lots observed to be sick (-\$9.36 or -\$12.40) and the sick lots observed in the southeast (-\$37.88/cwt).

Implications

Many factors affect feeder calf prices. These findings provide Extension Educators and producers information related to factors that affect the value of feeder calves marketed in a dairy state. Extension educators can utilize this information to demonstrate how management practices can add value to feeder calves. The following general statements, with respect to management can be concluded from the study reported here.

1. Sick, below average condition and old feeder calves are discounted in the market. Producers should consider the economics of nursing sick calves back to a healthy condition before marketing them, or they should humanely euthanize these individuals.
2. Castrating, dehorning, and vaccinating feeder calves can add an average of \$12/cwt for male feeder calves under similar market conditions. These practices are required for preconditioning programs supporting efforts to increase participation in the local precondition program.

The information provided can be utilized by Extension educators to develop decision-making tools for producers to utilize with respect to management practices and expected margins. Further, these findings provide a baseline for studying the impact of increased management and evaluation of the effort to increase participation in preconditioning programs in the future.

References

- Barham, B. L., & Troxel, T. R. (2007). Factors affecting the selling price of feeder cattle sold at Arkansas livestock auctions in 2005. *Journal of Animal Science*, 85:3434-3441.
- Bulut, H., & Lawrence, J. D. (2007). The value of third-party certification of preconditioning claims at Iowa feeder cattle auctions. *Journal of Agricultural and Applied Economics*, 39:625-640.
- Luepp, J. A., Lardy, G. P., Haadem, K. L., Maddock-Carlin, K. R., Dvorak, W. W., Froelich, K. J., Kramlich, J. R., Payne, G. L., Hansen-Lardy, L. K., & Odde, K. J. (2007). Factors influencing sale price of North Dakota calves. *2006 Beef Cattle and Range Research Report*, pg. 36-39.
- United States Department of Agriculture. (2004). 2002 census of agriculture. National Agricultural Statistics Service. Retrieved July 23, 2007 from: <http://www.nass.usda.gov/census>
- NCBA, 2007. Executive summary of the 2005 National Beef Quality Audit.
- The SAS System for Windows (Version 9.1) [Computer software and manual]. (2002). Cary, NC: SAS Institute, Inc.

Copyright © by *Extension Journal, Inc.* ISSN 1077-5315. Articles appearing in the Journal become the property of the Journal. Single copies of articles may be reproduced in electronic or print form for use in educational or training activities. Inclusion of articles in other publications, electronic sources, or systematic large-scale distribution may be done only with prior electronic or written permission of the *Journal Editorial Office*, joe-ed@joe.org.

If you have difficulties viewing or printing this page, please contact [JOE Technical Support](#).