Kansas Agricultural Experiment Station Research Reports

Volume 6
Issue 2 *Cattlemen's Day*

Article 6

2020

Region of Origin in the United States Affects Price Premiums Associated with Value-Added Health Protocols of Beef Calf Lots Sold Through Summer Video Auctions from 2010 Through 2018

M. J. Smith
Kansas State University, maggie35@k-state.edu

E. D. McCabe
Kansas State University, Manhattan, emccabe1@ksu.edu

M. E. King
Kansas State University, Manhattan, kingme@ksu.edu

See next page for additional authors

Recommended Citation

Smith, M. J.; McCabe, E. D.; King, M. E.; Fike, K. E.; Rogers, G. M.; and Odde, K. G. (2020) "Region of Origin in the United States Affects Price Premiums Associated with Value-Added Health Protocols of Beef Calf Lots Sold Through Summer Video Auctions from 2010 Through 2018," *Kansas Agricultural Experiment Station Research Reports*: Vol. 6: Iss. 2. https://doi.org/10.4148/2378-5977.7889

Region of Origin in the United States Affects Price Premiums Associated with Value-Added Health Protocols of Beef Calf Lots Sold Through Summer Video Auctions from 2010 Through 2018

Authors

M. J. Smith, E. D. McCabe, M. E. King, K. E. Fike, G. M. Rogers, and K. G. Odde

K-STATE Research and Extension

CATTLEMEN'S DAY 2020

Region of Origin in the United States Affects Price Premiums Associated with Value-Added Health Protocols of Beef Calf Lots Sold Through Summer Video Auctions from 2010 Through 2018

M.J. Smith, E.D. McCabe, M.E. King, K.E. Fike, G.M. Rogers,[1] and K.G. Odde

Abstract

The objective of this study was to identify the effects of value-added health protocols within a region on the sale price of beef calf lots sold through video auctions over a nine-year period. Differences in sale price of calves qualifying for various health programs suggest that the relative value perceived by buyers varies by region. Results may be indicative of the value associated with more intensively managed calves with increased potential transportation distance from origin to delivery.

Introduction

The benefits associated with the incorporation of value-added health protocols are thoroughly understood. The practice of preconditioning aims to reduce the risk of bovine respiratory disease, while increasing calf immunity and minimizing stress around weaning. The advantages associated with this increased level of management, and the value that accompanies the practice are well established. While price premiums are evident, it is imperative to consider that the value of a vaccination program may be dependent on the location in which a lot of calves originate.

While extensive research shows that preconditioning programs provide price premiums on a national basis, to our knowledge the effect of varying levels of management throughout different regions of the United States has not been investigated. Differences in local climate conditions, diverse management and marketing strategies, and variation in trucking distance are regional factors that can influence the health protocol calves may receive. These concerns suggest the potential for observed differences in the relative value associated with various preconditioning programs across numerous regions of the country.

[1] Grassy Ridge Consulting, Aledo, TX.

Experimental Procedures

Information describing factors about lots marketed and sold through a livestock video auction service (Superior Livestock Auction, Fort Worth, TX) were obtained from the auction service in an electronic format. These data were collected for lots of beef calves offered for sale during summer sales from 2010 through 2018.

Consigners to Superior Livestock Video Auction have the option to enroll their calves in different value-added health protocols. These programs are designed to align with various management practices, uniquely fitting operations with diverse facilities and marketing goals. A lot was categorized into one of five groups concerning health status: 1) VAC 34 or 34+; 2) VAC 45 or 45+; 3) Weaned: viral vaccinated; 4) Non-weaned: viral vaccinated; and 5) VAC 24. Calf lots originated from one of five U.S. regions: West Coast (California, Idaho, Nevada, Oregon, Utah, and Washington), Rocky Mountain/North Central (Colorado, Iowa, Illinois, Indiana, Michigan, Minnesota, Montana, North Dakota, Nebraska, South Dakota, Wisconsin, and Wyoming), South Central (Arizona, Kansas, Missouri, New Mexico, and Oklahoma), Southeast (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Tennessee, Texas, and Virginia), and Northeast (excluded due to few lots). For each region included within the study, a separate multiple regression model was developed using a backwards selection procedure to evaluate the effect of health program on the sale price of beef calves.

The specific and current requirements of each of the video auction's recognized vaccination protocols (VAC 34 and 34+, VAC 45 and 45+, and VAC 24) are available at www.SuperiorLivestock.com. Calves not qualifying for a defined health program were categorized into one of two groups: lots that were weaned and received at least one dose of a viral vaccination prior to shipment from the farm or ranch of origin (Weaned: viral vaccinated), and those lots that were non-weaned and received at least one dose of a viral vaccination (Non-weaned: viral vaccinated).

Results and Discussion

There were 43,242 total lots of beef calves fitting the study criteria. Within the analysis including all four regions, lots qualifying for VAC 45 or 45+ sold for the greatest price ($P < 0.05$) compared to all other health protocols. In the West Coast, lots qualifying for VAC 45 or 45+ and Weaned: viral vaccinated sold for similar ($P > 0.05$) prices, but at prices greater ($P < 0.05$) than calves administered all other health protocols within that region. Within the Southeast region, lots qualifying for VAC 45 or 45+ and Weaned: viral vaccinated sold for similar ($P > 0.05$) prices, and again at prices greater ($P < 0.05$) than calves in all other health programs. In both the North Central and South Central regions, lots meeting the requirements for VAC 45 or 45+ sold for the greatest ($P < 0.05$) price in their respective regions. Specific premiums for health protocols within respective regions can be seen in Table 1.

Differences in the sale price of calves eligible for numerous health programs indicates that the relative value of a calf health program recognized by buyers fluctuates between regions. As distance between origin of calves sold from the most concentrated area of cattle feeding in the northern plains became greater, price premiums concerning health

protocols increased. This finding suggests evident advantages and premiums associated with vaccination programs for those areas located farther away from the plains, as calves transported farther may be at greater risk of health issues.

Implications

While there are clear price advantages associated with vaccination and weaning management strategies across all regions, information regarding premiums within specific areas may prove valuable to producers from these regions.

Table 1. Effect of value-added health protocols within region[1] on the sale price of beef calf lots sold through summer video auctions from 2010 through 2018

Value-added health protocol administered to the lot	Number of lots	Least squares mean of sale price ($/100 lb)	Regression coefficient
All regions			
VAC 34 or VAC 34+	21,464	166.64[a]	2.69
VAC 45 or 45+	11,149	171.04[b]	7.09
Weaned: viral vaccinated[2]	3,325	170.35[c]	6.40
Non-weaned: viral vaccinated[2]	1,465	163.68[d]	-0.27
VAC 24	4,143	163.95[d]	0.00
West Coast			
VAC 34 or VAC 34+	4,337	164.82[a]	4.60
VAC 45 or VAC 45+	4,827	168.71[b]	8.49
Weaned: viral vaccinated[2]	1,263	168.80[b]	8.58
Non-weaned: viral vaccinated[2]	210	160.88[c]	0.66
VAC 24	680	160.22[c]	0.00
Rocky Mountain/North Central			
VAC 34 or VAC 34+	13,766	171.46[a]	1.31
VAC 45 or VAC 45+	2,887	175.25[b]	5.10
Weaned: viral vaccinated[2]	571	171.81[a]	1.66
Non-weaned: viral vaccinated[2]	457	169.45[c]	-0.70
VAC 24	1,058	170.15[c]	0.00
South Central			
VAC 34 or VAC 34+	1,590	166.70[a]	4.25
VAC 45 or VAC 45+	1,838	171.80[b]	8.63
Weaned: viral vaccinated[2]	638	167.49[a]	5.04
Non-weaned: viral vaccinated[2]	223	164.27[c]	1.82
VAC 24	510	162.45[c]	0.00

continued

Table 1. Effect of value-added health protocols within region[1] on the sale price of beef calf lots sold through summer video auctions from 2010 through 2018

Value-added health protocol administered to the lot	Number of lots	Least squares mean of sale price ($/100 lb)	Regression coefficient
Southeast			
VAC 34 or VAC 34+	1,820	162.17[a]	0.76
VAC 45 or VAC 45+	1,452	168.37[b]	6.96
Weaned: viral vaccinated[2]	860	169.28[b]	7.87
Non-weaned: viral vaccinated[2]	560	159.86[c]	-1.55
VAC 24	1,812	161.41[a]	0.00

The value-added health protocol affected sale price ($P < 0.0001$) in each region.

[1]The United States was divided into five regions. These include: West Coast (California, Idaho, Nevada, Oregon, Utah, and Washington); Rocky Mountain/North Central (Colorado, Iowa, Illinois, Indiana, Michigan, Minnesota, Montana, North Dakota, Nebraska, South Dakota, Wisconsin, and Wyoming); South Central (Arizona, Kansas, Missouri, New Mexico, and Oklahoma); Southeast (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Tennessee, Texas, and Virginia); and Northeast (excluded due to few lots).

[2]Calves in this category were vaccinated against one or more of the following respiratory tract viruses at some time between birth and the date of delivery: IBR, BVD Type 1, BVD Type 2, PI_3, and BRSV.

[a,b,c,d]Means without a common superscript differ ($P < 0.05$) in each region.