



BEEF CATTLE RESEARCH UPDATE

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The Effect of Implant Status on Sale Price of Beef Calves Sold through a Video Auction Service (2010 - 2013)

Research over the last 50 years has clearly demonstrated the efficacy and cost effectiveness of growth-promoting implants in beef cattle. A 1997 review of research trials that evaluated the effectiveness of implanting nursing beef calves showed that implanting steer calves with zeranol (Ralgro, 23 trials reviewed) or estradiol-progesterone implants (13 trials reviewed) increased average daily gains by approximately 0.1 lb/day from the time of implant insertion to weaning.¹ In this review, the gain response in heifers was slightly greater (0.12 to 0.14 lb/day). Hence, implanting suckling calves typically increases weaning weights by approximately 15 to 25 pounds. Most studies have demonstrated that implanting had no negative effect on future reproductive performance of heifer calves when a single implant was administered according to label instructions at 2 to 3 months of age. However, re-implanting replacement heifers increases the risk of reduced pregnancy rate.

A 2007-08 USDA survey of U.S. beef cow operations (2,872 cow/calf operations from 24 states) found that only 9.8% of operations implanted some of their beef calves prior to weaning. The percentage of operations that implanted any calves increased as herd size increased (5.2, 15.7, 22.9, and 26.8%, respectively, for herd sizes of 1-49 cows, 50-99 cows, 100-199 cows, and 200+ cows).² In a more recent study, using data from more than 5 million beef calves sold through a video livestock auction service from 1995 through 2009, the percentages of lots of beef calves that were implanted decreased from 64.3% in 1995 to 26.5% in 2009.³ In more recent years, some producers have opted not to implant calves prior to weaning in an effort to enter the “natural” market and receive a premium price at sale compared with implanted calves.

A 2015 study quantified the effect of implant status on the sale price of beef calves marketed through a livestock video auction service from 2010 through 2013 and calculated the percentages of lots of calves that were implanted.⁴ In this study, information describing factors that could potentially affect the sale price of lots of beef calves was obtained electronically from the auction service (Superior Livestock Auction, Fort Worth, TX) for 27,746 lots (2,749,406 total calves) selling in 92 video auctions. The analysis adjusted for 18 additional variables other than implant status which might effect sale price. These other variables included auction date, calf sex, mixed-sex status of lot, breed description, frame score, flesh score, geographical region of origin, health protocol, body weight variation within the lot, presence of horns, vaccination protocol, age and source verification, Certified Natural program nested within implant status, Non-Hormone Treated Cattle program nested within implant status, Superior Progressive Genetics program status, Bovine Viral Diarrhea-Persistently Infected Free status, lot size, and the number of days from auction to planned delivery.

These researchers reported that implant status had no effect on sale price in any of the 4 years of the study (Table 1). In the three of the four years (2010, 2011, and 2102), not implanting numerically reduced sale price by \$0.09 to 0.17/cwt. In 2013, not implanting numerically increased sale price by \$0.40/cwt. The percentage of lots that were implanted in each year was 28.4, 30.3, 30.5, and 29.0 for the years 2010 to 2013, respectively, with a mean of 29.5%. Approximately 33 and 25% of the steer and heifer lots were implanted, respectively. The percentage of lots of beef calves that were implanted was relatively low (ranging from 18.2 to 27.9%) in lots that originated from the West Coast, Rocky Mountain/North Central, and South Central regions of the United States. However, 64.9% of the lots from the South East region were implanted.

Table 1. Effect of implant status on the sale price of beef calves marketed through a livestock video auction service from 2010 through 2013.

Implant Status	# of Lots	Sale Price, \$/cwt	P-value
2010			
Implanted	2,123	114.99	0.53
Not implanted	5,355	114.91	
2011			
Implanted	2,126	141.45	0.39
Not implanted	4,882	141.28	
2012			
Implanted	1,940	163.07	0.64
Not implanted	4,429	162.96	
2013			
Implanted	1,997	162.05	0.12
Not implanted	4,894	162.45	

Adapted from Rogers et al., 2015.

Since numerous studies have consistently shown that non-implanted calves weigh less at weaning, these calves need to bring a substantial price premium to offset the decreased number of pounds sold. The results of this study indicate that not implanting nursing beef calves for the distinct purpose of receiving an increase in sale price is not supported. These authors concluded that “unless well-planned marketing strategies are used that capture a premium for ‘natural’ (or non-implanted) calves, beef producers will receive reduced revenue from calf sales by choosing not to implant nursing calves.” Assuming that implanting suckling calves increases weaning weights by approximately 15 to 25 pounds and that calves sell for \$1.50/lb at weaning, this study suggest that that many cow/calf producers are leaving about \$22.50 to \$37.50 on the table by not implementing this management practice.

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- ¹ Selk, G. 1997. Implants for suckling steer and heifer calves and potential replacement heifers. p 40-50 in: Symposium: Impact of Implants on Performance and Carcass Value of Beef Cattle. Okla. Agric. Exp. Sta., Oklahoma State University, Stillwater.
- ² USDA-APHIS. 2008. Beef 2007-08, Part I: Reference of Beef Cow-calf Management Practices in the United States, 2007–08. USDA–APHIS–VS–CEAH, Fort Collins, CO. Available: https://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef0708/Beef0708_dr_PartI_rev.pdf.
- ³ Seeger, J. T., M. E. King, D. M. Grotelueschen, G. M. Rogers, and G. S. Stokka. 2011. Effect of management, marketing, and certified health programs on the sale price of beef calves sold through a livestock video auction service from 1995 through 2009. *Journal of the American Veterinary Medical Association* 239: 451-466.
- ⁴ Rogers, G. M., M. E. King, K. L. Hill, T. E. Wittum, and K. G. Odde. 2015. The effect of growth-promoting implant status on the sale price of beef calves sold through a livestock video auction service from 2010 through 2013. *Prof. Anim. Sci.* 31: 443-447.

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