Performance of Bull Versus Steer Feeder Calves

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When selling feeder calves, it is understood that bull calves will often receive a discount over steer calves. Buyers justify this discount by claiming that post-arrival castration of bull calves will result in decreased average daily gains (ADG) due to increased stress, disease susceptibility and days on feed. However, there is a debate as to what an appropriate discount is or whether there should even be a discount.

To help answer this question, Dr. Dale Blasi and his colleagues at Kansas State University recently published a report titled *Castration and Morbidity and Their Effects on Performance, Carcass Quality and Price Differential for Bulls and Steers* in *The Professional Animal Scientist* journal (PAS 27:19-28). The researchers designed this experiment to examine post-arrival castration effects on 3,380 male calves at multiple receiving yards.

This study was conducted over a three-year period (2006 to 2008) with bull calves castrated via Newberg knife and White’s Double Crush emasculator following a 12- to 24-hour adjustment period. Once castration had occurred, animals were vaccinated, de-wormed and commingled with other calves. Approximately 60 percent of the calves received over the three-year period were bull calves. While the researchers were interested in examining the performance of these calves, they were also interested in investigating the health effects of post-arrival castration. Therefore, they designed this experiment to evaluate average daily gain (ADG), feed to gain (F:G) and cost of gain (COG), as well as morbidity (illness), especially as related to the incidence of bovine respiratory disease (BRD) and the associated suppressed performance of treated animals.

Not surprisingly, the researchers demonstrated that steers had significantly superior performance compared to the post-arrival castrated bulls. In fact, they determined that steers averaged 3.4 pounds per day of gain as compared to 2.9 pounds per day of gain for bulls castrated after arrival. Many producers report that their bull calves are discounted because the buyer indicates that the animals will have a higher cost of gain. In fact, this study demonstrated post-arrival castrated bulls had a cost of gain that averaged 4 cents per pound more than steers, but could be as much as 17 cents per pound more depending on the weight of the bull calf.

The research team also examined morbidity (illness) rates and found that 28 percent of all steers and bulls needed treatment during the receiving period. The primary illness identified in these animals was bovine respiratory disease, as would be expected. But, more importantly, it was determined that post-arrival castrated bulls were 26 percent more likely to display symptoms associated with BRD and require treatment compared to steers. Due to the large sample size of this study, these researchers were able to determine that treating a steer or bull for BRD, a common illness in this production class, resulted in a 0.4 pound per day decrease in ADG compared to non-treated animals. This data seems to support the buyer’s notion that a pen of bull calves will cost more to produce due to a decrease in performance associated with illness.

Finally, these researchers followed a subset of animals through the feedlot period in order to evaluate carcass performance. Overall carcass value was not significantly affected by castration status; however, treatment for BRD decreased hot carcass weight and marbling, therefore reducing the overall value of the carcass.

This research confirms what many backgrounding and receiving yards have claimed for some time. That is,
that the producer selling bull calves should expect to receive an average discount of 4 cents per pound for calves that weigh more than 550 pounds and up to 7 cents per pound for bull calves that weigh less.

a bull calf requiring castration upon arrival requires more input costs to reach a similar marketing endpoint as that of a steer. This increase in input costs is primarily due to slower growth rates in response to stress associated with castration and increased disease susceptibility. However, at the beginning of this article, we asked the question: if a discount is warranted, what should it be? The results from Dr. Blasi’s work reveal