Cattle Business in Mississippi – August 2011
"Stocker Cents" article

Timing and Method of Castration and Stocker Performance

Jane Parish – Extension Beef Cattle Specialist, Mississippi State University

It is no secret that, among feeder calves, intact bull calves are discounted relative to steers. Buyers know that the process of castration affects animal health, performance, and profitability. What calf buyers must determine is the appropriate price differential between bulls and steers. This answer depends on the timing and method of castration as well as the value of weight gain and cost of medical treatment.

As calves move from the weaning phase to either stocker or feeding phases, it is well documented that castration at arrival has negative impacts on performance and health. Castration is a stressor to bulls that may lower feed intake and average daily gain and make the animal more susceptible to disease. Banding is often touted as less stressful method of castration for older animals. Yet, even using this method, castration of bulls at greater than six months of age decreases average daily gains for at least the next 30 days.

Castrating feeder bulls prior to weaning may be the best strategy. Older bulls show more behavioral signs of discomfort from castration and have higher levels of a stress hormone. One study showed at least 0.11 pounds per day additional gain during a 50-day period after weaning in calves castrated by either surgical or banding methods and implanted at three months of age or younger over implanted calves banded at weaning. A more recent trial found that steers castrated before feedlot arrival outperformed bulls castrated after arrival by over 0.35 pounds per day. More days on feed, lower hot carcass weights, lower dressing percentage, and possibly even reduced marbling score and decreased tenderness are other consequences of late castration as opposed to early castration.

Although after puberty intact bulls may grow faster than steers, this difference can be negated by use of growth stimulant implants in steers. An Oklahoma research effort discovered that from two months of age to weaning, the average daily gains of calves steered at three months of age or younger and then implanted with an estrogenic growth stimulant were comparable to those of bulls of the same age remaining intact and also implanted. In this case, pre-weaning growth was not reduced when calves were castrated at younger ages. Thus, the argument by some cow-calf producers to leave feeder bulls intact for fear of reduced weight gains as steers is not valid when growth-promoting implants are used.

According to research done in Kansas, calves arriving as steers had a 3% greater chance of never needing medical treatment for bovine respiratory disease versus calves arriving as bulls. In addition, it was more likely for the calves castrated after arrival to need multiple medical treatments as compared with the incoming steers. Other researchers have observed anywhere from 29% to 92% more late-castrated steers needing respiratory disease treatment than early-castrated steers. One estimate is that

the combined effects of castration and morbidity reduce overall weight gain of bull by 25%.

Castration of male calves is one of several important practices that contribute to preconditioning. Based on average daily gain differences, calves perform better if the stress from dehorning, castration, and vaccination occurs at the same time. It may be that calves stressed less frequently perform better. So, consider performing stress-inducing management practices simultaneously.

Methods of castration include “cutting” or surgical removal of the testes with a scalpel, banding of the scrotum with rubber bands, and crushing of the testicular cords with an emasculator. Some preconditioning programs and cattle buyers prefer knife cutting over the other methods because it is a more certain method of castration. Missing a retained testicle or not effectively crushing the cord are risks associated with the latter two methods. Regardless of method used, be sure to use proper technique and management. Make sure calves are current on vaccinations and that external parasites are controlled to minimize risk of infection.

A slight (less than a tenth of a pound) advantage in average daily gain in nursing calves that are banded versus surgically castrated has been documented, but post-weaning average daily gains are reported to be similar between surgically castrated and banded calves. Importantly, for every two banded bulls that become ill, approximately three surgically castrated bulls will need medical treatment. However, no differences in death loss are expected between these two castration methods. Thus, the major difference among castration methods is that banded bulls are a lower health risk than surgically castrated bulls.

Arkansas researchers showed that a higher percentage of male calves were sold as steers through Arkansas livestock auction markets in 2005 than in 2000. At the same time, the price spread between steers and bulls widened during this period. So while implementation of on-farm castration was on the rise, the economic incentive to castrate was also increasing over time. A Kansas study published in 2011 indicated that appropriate price discounts for bulls relative to steers were somewhere between $0.09 to $0.37 per pound but could go higher if cattle are held longer periods beyond the traditional stocker phase. Because castration is more stressful and has potentially larger negative production implications for heavier cattle, the discount to break even on bulls should be smaller for lighter weight bulls compared with heavier weight bulls. However, the opposite of this is sometimes observed in the marketplace.

Discounts applied to feeder bulls compared to steers are justified based on expected lower weight gains and higher morbidity. Furthermore, use of growth-promoting implants is effective in increasing body weight gains in steers and can produce growth rates similar to intact bulls. Castrating suckling calves as young as possible is preferable to minimize stress and production losses. Banding typically produces fewer sick calves than surgical castration but must performed properly. From a breakeven standpoint, discounts for intact feeder bulls should be applied accordingly, with particular consideration given to weight gain and morbidity expectations. For more information about stocker cattle production, contact an office of the Mississippi State University Extension Service.