BEEF CATTLE RESEARCH UPDATE

Britt Hicks, Ph.D., PAS
Area Extension Livestock Specialist
Oklahoma Panhandle Research & Extension Center

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Growth Implants for Nursing Calves

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 (mainly from the 1980s) that evaluated the effectiveness of implanting nursing beef calves showed that implanting steer calves with zeranol (Ralgro, Merck Animal Health; 23 trials reviewed) or estradiol-progesterone implants (13 trials reviewed) increased average daily gains (ADG) by approximately 0.1 lb/day from the time of implant insertion to weaning.[1] Hence, implanting suckling calves typically increase weaning weights by approximately 15 to 25 pounds.

However, 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.[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]

Even though, the use of implant technology has declined in cow-calf operations, research has clearly illustrated that the response to growth-promoting implants appears to be as efficacious as it was over 30 years ago. Two studies published in 2017 that evaluated implanting suckling calves have shown similar increases in weaning weights as that reported in the 1997 research review. In a South Dakota State University study implanting suckling steer calves increased weaning weight by 13 to 27 lb.[4] In a Oklahoma State University study, implanting resulted in a 17 lb increase in weaning weight.[5]

Two recently published implant studies have again demonstrated that the response of nursing calves to growth implants has not changed over time. These most recent studies are reviewed below.

<u>Effect of Growth Implant at Branding in Suckling Steers Prior to Weaning</u>

A 2018 University Arkansas study used 106 crossbred beef steers (average body weight and age of 212 lb and 74 days, respectively) to evaluate three implant treatments at branding: 1) Control; received no growth promoting implant, 2) Ralgro; 36 mg zeranol, and 3) Component E-C; 100 mg progesterone and 10 mg estradiol with 29 mg tylosin (Elanco Animal Health).[6] The calves were weaned 156 days after branding (average age of 230 days).

These researchers reported that weaning weights were similar ($P = 0.19$) between all treatments; however, there was a tendency ($P = 0.08$) for greater weaning weights in implanted calves (527 lb) compared to non-implanted calves (496 lb). Overall ADG from implanting to weaning (156 day period) was greater ($P = 0.03$) in Ralgro (2.01 lb/day) and Component E-C (1.98 lb/day) compared to Control (1.81 lb/day). Thus, implanting increased ADG by an average of 0.19 lb/day from implanting to weaning as compared to that reported in the 1997 review (0.10 lb/day).

Use of Anabolic Implants in Calves to Increase Weaning Weight and Backgrounding Gains

A 2018 Clemson University study determined how the use of anabolic implants in steer calves at 4 month of age and at weaning altered weight gain.[7] In this study, 160 steers from two locations were randomly allotted within 8 pasture replications to implant treatment: 1) no implant or 2) Ralgro implant at 4 month of age plus Revalor-G (Merck Animal Health) implant at weaning. Weights were obtained on steers at implanting, weaning and the end of a 70-day backgrounding.

These researchers reported that implanting increased ($P < 0.001$) ADG of the steer calves from implanting to weaning, weaning to end of the backgrounding, and overall by 0.19, 0.23, 0.20 lb/day, respectively, producing heavier steers for marketing. The increase in ADG of 0.19 lb/day from implanting to weaning is the same as that reported in the Arkansas study.

In summary both of these 2018 studies again illustrate that implantation of suckling male calves, regardless of implant type, increased growth performance prior to weaning. The increased weaning weight of 31 lb with implanting reported in the Arkansas trial is comparable to that reported in other trials. Even though, the use of implant technology has declined in cow-calf operations, growth-promoting implants appear to be as efficacious as they were over 30 years ago. The cost of an implant is about $1.25 to $1.75 per head. Yet, weaning weight is typically increased by 15 to 25 pounds.

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