Growth Promoting Implants for Calves Preweaning

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We are approaching the time that spring-born calves are routinely brought up for branding and the first round of shots. One management input that is very often overlooked is the use of growth-promoting implants preweaning. The USDA NAHMS Beef Cow-Calf Management Survey conducted in 2007 and 2008 showed that just under 10% of U. S. cow-calf operations use this management tool and only 3% of implant heifers are intended to be developed as replacement females. This is down from 14% of operations in the 1997 survey. In the current survey, only 3.6% of cow herds with less than 50 cows (representing 79% of beef farms and 29% of beef cows) use implants, while 11% of herds with 50 to 100 cows, 16% with 100 to 200 cows, and 18% with greater than 200 cows use implants. There is little evidence that implanting preweaning reduces prices of calves. In a study of sale lots in a large livestock video auction service, growth-promoting implants increased sale price in 1995 ($0.34/cwt) but had no significant effect on sale price in any other year of the study. The percentage of lots sold through the video auction service that had calves with growth-promoting implants decreased over the course of the study, from 64% in 1995 to 26% in 2009. There are several implants labeled for calves preweaning, costing from $1.30 to $1.55 per dose. With no discount for implanted calves and calves bringing more than $1.40 per pound for heifers and $1.50 per pound for steers, it would not take much added weight gain to provide a positive return on investment.

In 1996, Glenn Selk reviewed 78 previous experiments conducted from 1979 to 1994 and found that implanting calves during the suckling phase with either zeranol (Ralgro, Intervet/Merck Animal Health) or with a combination of progesterone and estradiol (Synovex C, Zoetis Animal Health or Component E-C with Tylan, Elanco Animal Health) increased gains of calves preweaning by about 0.1 pound per day for steers and 0.13 pound per day for heifers. For calves implanted in July and weaned in October, this would provide about 10 pounds of added weight gain per calf, worth more than $14 per head or $725 for every 50 calves.

One of the fears is the effect implanting would have on heifers destined to be replacements in the herd. Selk's review of the research also shed light on this topic. Research with replacement heifers implanted with zeranol preweaning at 1 to 3 months of age show no consistent effect on pregnancy rates later on (ranging from 11% less pregnancies to 19% more pregnancies with a single implant). Heifers implanted multiple times had greater reductions in fertility. Heifers implanted at birth had nearly 40% reduction in later pregnancy rates. It is apparent the timing of implanting and the number of implants given can impact fertility. We recommend that heifers can be implanted one time preweaning at about 3 months of age with little impact on subsequent fertility.

More recent research with preweaning implants provides some interesting results. Oklahoma State University's Corbit Bayliff conducted research to see if responses to implants has changed over time. The objectives of this experiment were to determine (1) the effect of a Ralgro implant (Merck Animal Health) administered at 30 to 90 days of age on suckling-phase growth rate and weaning weight and (2) the effect of reimplanting with a Revalor-G implant (Merck Animal Health) at weaning on post-weaning performance. In this experiment, a total of 194 suckling

steer calves weighing 245 pounds at branding (approximately 30 to 90 days of age) from 3 locations were used. Average daily gain (ADG) was 0.13 pounds per day greater for Ralgro implanted than non-implanted calves during the suckling period (2.47 vs. 2.34 pounds per day). As a result, implanting resulted in a 17-pound increase in actual weaning weight compared to non-implanted steers (564 vs. 547 pounds).

University of Arkansas research reported by Jase Ball in 2018 showed that either a zeranol (Ralgro) or combination progesterone/estradiol (Component E-C with Tylan) administered at 2 to 3 months of age increased preweaning gains by 0.2 pounds per day and weaning weight by 31 pounds. A Clemson University study found similar increases in average daily gain preweaning (0.19 pounds per day) and reimplanting steers during preconditioning further improved gains postweaning. These results indicate there is no loss in efficacy of preweaning implants. Furthermore, when calves are gaining weight rapidly, the improved genetics for growth in the modern cowherd may enhance the response to implants.

A new combination estradiol and trenbolone acetate implant (Synovex One Grass, Zoetis) has recently become available, and will increase the payout of the implant to around 200 days. Research from South Dakota State University looked at comparing this new offering to the standard estradiol/progesterone implant (Synovex-C) on performance of 30- to 60-day-old calves, both preweaning and postweaning. While Synovex-C increased weaning weights 176 days later by 13 pounds compared with unimplanted controls, Synovex One Grass further increased weaning weight by 14 pounds over Synovex-C and by 27 pounds over controls. The new implant appears to have benefits for calves implanted early in life due to the long payout of the product.

With calves worth $1.40 per pound at weaning, implanting during the time of preweaning vaccinations can be very profitable. Calves would be worth $14 to $30 per head more with an expense of $1.40 per dose. The return would be 10 to 20 times the investment.