BEEF CATTLE RESEARCH UPDATE

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

October 2015

Effect of Suckling Calf Implant on Weaning Weight and Subsequent Feedlot Performance

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] Hence, implanting suckling calves typically increase weaning weights by approximately 15 to 25 pounds. Sometimes feedyards discourage administering growth implants to suckling calves based on the idea that calf implants reduce the response to feedlot implants. Does research support this argument? Some recent research from South Dakota State University (SDSU) examines this issue.[2]

This SDSU research evaluated the efficacy and timing of suckling calf implants on weaning weight, post-weaning performance and subsequent carcass traits in steer calves. This study was repeated over two consecutive years using steer calves from a ranch located in western SD. Calves on this ranch were born in March and April of each year and were reared on native range prior to weaning. Three implant treatments were evaluated using 194 calves in year 1 and 196 calve in year 2: 1) no implant, 2) calves implanted in May with Synovex C (Zoetis, Florham Park, NJ), or 3) calves implanted with Synovex C in August. In this study, the dams (cows) were classified as immature (< 4 years of age) or mature (≥ 4 years of age). These dam age groups were managed separately on the ranch through the breeding season each year on native range (without creep feed).

In late October of each year, the steers were weaned and immediately shipped 360 miles to the SDSU Ruminant Nutrition Center research feedlot where the steers were sorted into feedlot pens by suckling implant (8 or 9 steers/pen; 8 pens/treatment; 24 pens/year). The steers were treated the same during backgrounding and finishing phases with all steers being implanted with Synovex S shortly after arrival (5 to 6 days) followed by a re-implant at the beginning of the finishing phase (about 70 days) with either a Revalor S (Merck, Summit, NJ) or a Ralgro (Merck, Summit, NJ) implant. Steers that received a Ralgro implant at the beginning of the finishing phase were re-implanted with Revalor S about 130 days after the initial implant. The cattle were marketed when the majority of the cattle were estimated to average 0.4 inches of backfat (221 and 208 days on feed in years 1 and 2, respectively).

The effects of suckling implant treatment on weaning weights, and subsequent backgrounding and finishing performance are shown in Table 1. Both the May and August implant treatments increased weaning weight by an average of 22.5 lb ($P < 0.05$) compared to non-implanted calves. The magnitude of this response interacted with the age of the cows. Steers nursing mature cows and implanted in May had the greatest increase in weaning weight compared to non-implanted calves (40 lb; $P < 0.05$). The weaning weight advantage for steers nursing mature cows and implanted in August was reduced to 17 lb ($P < 0.05$). In contrast, the steers on immature cows benefited most from the August implant compared to non-implanted calves (25 lb, $P < 0.05$) and the May implant only increased weaning weight by 9 lb.

The suckling implant treatment had no effect on daily gains or feed efficiency (Feed/Gain) in the backgrounding or finishing phases. The steers receiving suckling implants were still heavier at the end of backgrounding phase (16.5 lb; $P <0 .05$). In addition, implant treatment did not impact the carcass characteristics of the steers (data not shown). However, implanted calves tended to yield heaver carcasses (8.5 lb; $P = 0.10$). These authors estimated that if all 22.5 lb of weaning weight

has been retained, the additional carcass weight would have been 12 lb (assuming 55% dressing percent at weaning). Thus, about 70% of the weight advantage was maintained over the 200+ days of post-weaning growth through slaughter.

Table 1. Impact of suckling calf implant on weaning weight and post-weaning steer performance.

	Suckling Implant Treatment		
Item	None	May	August
Weaning weight, lb[1]	540[a]	564[b]	561[b]
Backgrounding Phase:			
Daily Gain, lb	3.46	3.49	3.45
DM Intake, lb	15.27	15.76	15.48
Feed/Gain	4.44	4.54	4.50
End weight, lb	759[a]	779[b]	772[b]
Finishing Phase:			
Daily Gain, lb	3.77	3.73	3.75
DM Intake, lb	21.70	21.66	21.98
Feed/Gain	5.77	5.83	5.88
Final weight, lb[2]	1265	1280	1276

[1] Weaning weight measured as feedlot arrival weight.
[2] Final weight calculated as hot carcass weight/0.625 (dressing percentage) to correct for fill and mud effects.
[a,b] Means lacking a common superscript differ ($P < 0.05$).
Adapted from Pritchard et al., 2015.

These researchers concluded that administering suckling implants causes a significant increase in the weaning weight of steer calves. The data also suggested that this response can be maximized by using an implant strategy that considers the age of the dam. The use of implants in suckling steer calves did not have any adverse effects on post-weaning performance or subsequent carcass traits refuting the idea that calf implanting always negatively affects feedlot performance or subsequent carcass value.

A 2007-08 USDA survey of U.S. beef cow operations found that only 11.9% of operations implanted any calves with a growth promotant prior to or at weaning during the previous 12 months.[3] The percentage of operations that implanted any calves prior to or at weaning increased as herd size increased (7.0, 19.9, 27.3, and 31.1% of operations, respectively, for herd size of 1-49, 50-99, 100-199, and 200 or more beef cows). The results of this South Dakota study suggest that many cow/calf producers are leaving about $45 dollars on the table by not implementing this management practice (assumed sell price of $2/lb at weaning).

---

[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] Pritchard, R. H., A. R. Taylor, S. M. Holt, K. W. Bruns, and H. M. Blalock. 2015. Time of suckling implant influences on weaning weight, post-weaning performance, and carcass traits in steer calves. South Dakota Beef Report BEEF 2015-08: 40-45. Available: http://www.sdstate.edu/ars/species/beef/beef-reports/upload/08-Pritchard-Time-of-suckling-implant-influences-on-weaning-weight.pdf.

[3] USDA-APHIS. 2008. Pages 44-50 in 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: http://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef0708/Beef0708_dr_PartI_rev.pdf.