IMPLANTING SUCKLING HEIFER CALVES: GROWTH AND SUBSEQUENT PERFORMANCE [1]

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Summary

A total of 361, suckling, heifer calves was used over a 2-year period to assess the effects of implanting with either Ralgro® or Synovex-C® on growth and subsequent performance as replacement females. Both implants increased (P<.01) weaning weights over that of controls, with the weight increase being retained by yearlings. Pelvic area also was increased at 1 year of age by both implants, with Synovex-C producing larger (P<.01) pelvic areas than Ralgro. However, just prior to calving, body weight and pelvic area were similar among treatments. Uterine scores, cycling activity prior to breeding, percentage exhibiting estrus, and pregnancy percentage were similar for all treatments. Implanting tended to reduce first-service conception rates. Synovex-C-implanted heifers calved later (P<.05) than Ralgro-implanted heifers and, consequently, their calves tended to be lighter at weaning. Levels of calving difficulty were similar for all treatments. In summary, implanting suckling heifer calves at 2-4 months of age will increase growth rate, but this research indicates some potential for reduction in reproductive performance.

(Key Words: Beef Heifers, Implants, Ralgro®, Synovex-C®, Calving Difficulty.)

Introduction

Implanting suckling heifer calves significantly increases weaning weight. However, because some heifers will be retained as replacements, the effect of implanting on subsequent reproduction and/or production is cause for concern. Consequently, this research was conducted to compare the effects of Ralgro and Synovex-C on the growth rate of suckling heifer calves and their subsequent performance as replacement females.

Experimental Procedures

Over a 2-year period, a total of 361, suckling, heifer calves were allotted by order of birth and pasture to the following treatments: 1) controls - nonimplanted, 2) Ralgro - a single 36-mg implant, or 3) Synovex-C - a single implant containing 100 mg Progesterone + 10 mg Estradiol.

The heifers were individually weighed at implantation (3 month old, n=120/trt), at weaning (n=120/trt), at approximately 1 year-of-age (n=95/trt), and at approximately 1 month prior to the start of calving (n=68/trt). As heifers were culled from the herd, every effort was made to retain equal numbers in each treatment group. From weaning through calving, the heifers were managed as one group.

Pelvic area was measured as yearlings and at precalving, and uterine scores were taken at the same time as the yearling weight.

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Blood samples, collected 10 days apart prior to initiating a synchronization program, were analyzed for progesterone to establish cycling activity. Thirty-two days prior to the start of breeding, 0.5 mg melengestrol acetate (MGA) per day was fed for 14 days. Seventeen days after removal of MGA from the ration, the heifers were injected with prostaglandin. Those visually detected in heat following synchronization were artificially inseminated with semen from low-birth-weight EPD Angus bulls. After approximately 5 days of breeding, low-birth-weight EPD Angus bulls were placed with the heifers for an additional 40 days.

Results and Discussion

Results are summarized in Table 1. Both implants increased (P<.01) weaning weight over that of controls, and this increase was still present at 1 year of age. However, shortly before the start of calving, body weights were all similar.

Both implants increased (P<.01) pelvic area over that of controls at 1 year of age, and Synovex-C-implanted heifers had larger pelvic areas than Ralgro-implanted heifers. However, shortly before calving, all three treatment groups had similar pelvic areas.

Prior to breeding, no difference occurred among treatments in uterine scores or in the percentage of heifers with blood progesterone levels high enough (> 1 µg/ml) to indicate cycling activity.

Implanting tended to reduce first-service conception rates, but pregnancy rates at the end of the 45-day breeding season were similar among treatments.

As might be expected from the pelvic areas, calving difficulty scores were all similar. However, that may be misleading, because calving difficulty was low in all treatments.

The average calving date was earlier (P<.05) for the Ralgro-implanted heifers than for the Synovex-C-implanted heifers, with the control heifers intermediate. The older calves produced by the Ralgro-implanted heifers were slightly heavier at weaning than those from the Synovex-C-implanted heifers, but the difference wasn't significant. The ADG of the calves from birth to weaning was the same for all treatments, which we interpreted as indicating similar levels of milk production.

Apparently, producers can implant suckling heifer calves at branding with either Ralgro or Synovex-C and obtain increased weaning weights; however, this research indicates a slight negative impact on reproduction. For example, implanting tended to reduce first-service conception rates, which could be significant in an AI program, especially when using expensive semen. Additionally, later calving dates for Synovex-C-implanted heifers compared to those implanted with Ralgro translate into lighter calf weaning weights. Also, this research shows that the claims that implanting suckling heifers will reduce subsequent calving difficulty are not justified.

Table 1. Effects of Implanting Suckling Heifers with Ralgro or Synovex-C on Growth and Subsequent Reproductive Performance

	Treatment		
Item	Controls	Ralgro	Synovex-C
Growth			
Weaning wt, lb	441[f]	452[g]	455[g]
Yearling wt, lb	689[f]	701[g]	712[g]
Precalving wt, lb	993	993	1002
Pelvic area			
Yearling, cm^2	142[f]	152[g]	156[h]
Precalving, cm^2	230	233	234
Reproduction			
Uterine scores[a]	4.5	4.5	4.5
Cycling, %[b]	72	67	63
Exhibited estrus, %[c]	95	77	92
1st service conception, %	78	66	55
Pregnant, %[d]	87	85	89
Average calving date	3/9[ij]	3/6[i]	3/12[j]
Calving difficulty			
Average calving scores[e]	1.3	1.2	1.4
First calf performance			
Birth wt, lb	73.4	72.1	74.2
Weaning wt, lb	394	401	391
ADG, lb	1.63	1.65	1.64

[a]1 = infantile tract, 5 = large tract with evidence of cycling activity.
[b]Based on circulating progesterone levels (>1 µg/ml) with the last blood sample taken 32 days prior to the start of breeding.
[c]% exhibiting estrus following synchronization.
[d]% pregnant following the 45 day breeding season.
[e]1 = no difficulty, 5 = Caesarean section.
[f,g,h]Values with different superscripts are significantly different (P<.01).
[i,j]Values with different superscripts are significantly different (P<.05).