# Effect of a Single Ralgro Implant on Conception Rates and Calving Difficulty in First Calf Beef Heifers[1]

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## Summary

Three hundred and seventy four heifers from two Kansas ranches were used to determine if a single Ralgro implant given either at two months of age or at weaning would influence pelvic development and subsequent calving difficulty or conception rates. The study involved two herds of Simmental (spring and fall calving) and one herd of fall calving Angus cattle. Ralgro did not influence conception rates as yearlings, or percentages of heifers requiring assistance with their first calf. Implanted heifers had larger pelvic areas as yearlings, but the advantage disappeared by two years of age. Pelvic area in assisted vs unassisted two year old heifers did not differ.


## Introduction

Pelvic area is a key factor associated with calving difficulty, especially with first calf heifers. A single Ralgro implant has been shown to increase daily gain of beef heifers but some studies have shown a depression in yearling conception rates of implanted heifers kept as replacements. The objective of this study was to determine if a single Ralgro implant could increase pelvic area and facilitate easier calving without reducing conception.

## Experimental Procedure

One hundred forty seven spring-born and 92 fall-born Simmental, and 135 fall-born Angus heifers were allotted to three treatments: 1) control, 2) single Ralgro implant at weaning, and 3) one-third of the fall calving Simmental heifers implanted once with Ralgro at 2 months of age. Data collected included birth, weaning and yearling weights; yearling and 2-year frame scores; pelvic areas measured with a Rice pelvimeter at weaning, yearling and precalving and precalving body condition scores. Yearling conception rates and degree of assistance required at first calving were recorded. Calving data was collected on 187 heifers (64 fall calving Simmental, 64 spring calving Simmental and 59 fall calving Angus heifers). Comparisons between herds and breeds is not intended.

[1]Appreciation is expressed to Henry Gardiner, Gardiner Angus Ranch, Ashland, KS and Roy Parsons, Ecco Simmental Ranch, Buffalo, KS.

## Results and Discussion

Implanting at 2 months improved preweaning daily gains of fall-calving Simmental heifers compared to controls. But, implanting at weaning did not increase average daily gain from weaning to yearling in any herd. Fall calving Simmental heifers implanted at weaning were taller as yearlings and as 2-year olds than heifers implanted at 2 months of age. Non-implanted fall calving Simmental heifers were in better condition at calving time than heifers implanted at weaning (Table 25.1).

Implanting at weaning increased yearling pelvic size in all herds. But control spring and fall-calving Simmental heifers had larger pelvic areas at 2 years of age than implanted heifers. Therefore, the advantage in yearling pelvic area due to implanting was reduced by two years of age. Pelvic areas were similar in calving assisted and unassisted two year old heifers (Table 25.2).

Ralgro implants did not influence overall yearling conception rate during the 63-day breeding season, or average conception date, percentage of heifers requiring assistance with their first calf, calf birth weight or gestation length (Table 25.3).

In summary, a single Ralgro implant increased pelvic area as yearlings, but this advantage disappeared by calving. Ralgro had no effect on conception rates or calving difficulty.

Table 25.1. Effect of Ralgro on Heifer Weight, Height and Condition

| | Simmental | | | | | Angus | |
|---|---|---|---|---|---|---|---|
| | Fall Calving | | | Spring Calving | | Fall Calving | |
| Item | Implanted at 2 months | Implanted at weaning | Controls | Implanted at weaning | Controls | Implanted at weaning | Controls |
| Weaning wt., lbs | 575 | 591 | 566 | 471 | 475 | 431 | 448 |
| Daily Gain, lbs birth-weaning | 2.45[b] | 2.17[a] | 2.25[a] | .98 | 1.01 | 1.60 | 1.68 |
| Yearling wt., lbs. | 822[ab] | 831[b] | 796[a] | 752 | 745 | 650 | 654 |
| Daily Gain, lbs weaning-yearling | 1.61 | 1.56 | 1.50 | 1.85 | 1.75 | 1.42 | 1.34 |
| 2 year wt., lbs | 927 | 951 | 943 | 956 | 978 | 963 | 985 |
| Yearling ht., in. | 48.4[a] | 49.3[b] | 48.8[ab] | — | — | 46.0 | 46 |
| 2 year ht., in. | 50.4[a] | 51.5[b] | 51.2[ab] | 50.7 | 51.2 | 47.8 | 48.2 |
| Condition score[c] | 5.0[ab] | 4.9[b] | 5.3[a] | 4.9 | 5.1 | 5.2 | 5.2 |

[ab]Values with different superscripts differ significantly (P<.05) within a trait and herd.

[c]1 = thin, 10 = fat

Table 25.2. Effect of Ralgro on Heifer Pelvic Area

| Item | Simmental | | | | | Angus | |
|---|---|---|---|---|---|---|---|
| | Fall Calving | | | Spring Calving | | Fall Calving | |
| | Implanted at 2 months | Implanted at weaning | Controls | Implanted at weaning | Controls | Implanted at weaning | Controls |
| Weaning pelvic area, $cm^2$ | 144.5 | 138.6 | 139.1 | 124.5 | 124.0 | 102.8 | 106.3 |
| Yearling pelvic area, $cm^2$ | 196.0[a] | 206.9[b] | 194.5[a] | 194.9[a] | 187.8[b] | 175.1[a] | 168[b] |
| Precalving pelvic area, $cm^2$ | 261.0[b] | 268.5[ab] | 272.4[a] | 233.4[a] | 245.8[b] | 236.3 | 231.9 |
| Precalving pelvic area, $cm^2$ | | | | | | | |
| assisted at calving | | 262.4 | | 242.9 | | 234.4 | |
| unassisted | | 269.41 | | 239.1 | | 233.9 | |

[ab]Values with different superscripts differ significantly ($P<.05$) within a trait and herd.

Table 25.3. Effect of Ralgro on Heifer Reproductive Perforance

| Item | Simmental | | | | | Angus | |
|---|---|---|---|---|---|---|---|
| | Fall Calving | | | Spring Calving | | Fall Calving | |
| | Implanted at 2 months | Implanted at weaning | Controls | Implanted at weaning | Controls | Implanted at weaning | Controls |
| Conception rate, % | 89.5 | 90.9 | 85.7 | 97.3 | 94.5 | 82.7 | 74.4 |
| Avg. calving date | Sept. 4 | Aug. 23 | Aug. 24 | Feb. 23 | Feb. 16 | Sept. 5 | Sept. 7 |
| Calving assistance, % | | | | | | | |
| unassisted | 79 | 86.4 | 81 | 55.6 | 59.5 | 64.5 | 57.1 |
| hand pull | 15.8 | 4.5 | 14.3 | 14.8 | 16.2 | 35.5 | 42.9 |
| calf jack | 5.2 | 9.1 | — | 25.9 | 21.6 | — | — |
| cesaerean | — | — | 4.7 | 3.70 | 2.70 | — | — |
| Calf birth wt., lbs | 69.7 | 67.6 | 70.9 | 79.1 | 78 | 67 | 71.8 |
| Gestation length, days | 283.6 | 282.0 | 285.3 | 286.0 | 287.1 | 279.9 | 281.3 |