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Effects of growth stimulating implants and implanting sequence on steer performance

Abstract

Three trails used 264 steers to evaluate the effects of 36 mg zeranol (Ralgro) and 20 mg estradiol benzoate plus 200 mg progesterone (Synovex-S) implants on performance of steers during one growing and two finishing studies. Daily gain during the 105-day growth trial by steers implanted with Ralgro ®. Before a 151-day finishing trial, equal numbers from each implant group in the growth trial were re-implanted with either R or S so we had four implanting sequences each of two implants: SS; SR; RS; and RR. Implant sequences SR, RS, and RR all gave similar performances and produced faster ($P < .05$) gains than implant sequence SS. Combining the growing and finishing phases into a 256-day implanting program resulted in no significant differences in daily gain by implant sequence. In a second finishing trial, we compared a single implant of S or R in a 108-day trial. Rate of gain did not differ significantly. Also, carcass measurements did not differ significantly by implant.

Keywords

Cattlemen's Day, 1975; Report of progress (Kansas State University. Agricultural Experiment Station); 230; Beef; Implants; Steers; Performance

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Effects of Growth Stimulating Implants and Implanting Sequence on Steer Performance

J. G. Riley and G. Fink

Summary

Three trials used 264 steers to evaluate the effects of 36 mg zeranol¹ (Ralgro) and 20 mg estradiol benzoate plus 200 mg progesterone (Synovex-S)² implants on performance of steers during one growing and two finishing studies. Daily gain during the 105-day growth trial by steers implanted with Synovex-S (S) exceeded that of steers implanted with Ralgro (R). Before a 151-day finishing trial, equal numbers from each implant group in the growth trial were re-implanted with either R or S so we had four implanting sequences each of two implants: SS; SR; RS; and RR. Implant sequences SR, RS, and RR all gave similar performances and produced faster ($P < .05$) gains than implant sequence SS. Combining the growing and finishing phases into a 256-day implanting program resulted in no significant differences in daily gain by implant sequence. In a second finishing trial, we compared a single implant of S or R in a 108-day trial. Rate of gain did not differ significantly. Also, carcass measurements did not differ significantly by implant.

Introduction

Even though diethylstilbestrol (DES) has been re-instated at least temporarily, cattle feeders want more research data on Ralgro and Synovex-S as implants for growing and finishing steers. Additional information is also needed to determine whether implanting sequence is important. For example, do steers need to be re-implanted after a certain period on feed with the same type implant or a different implant?

Experimental Procedure

We randomly divided 168 steers averaging 501 lbs. into two groups of 84 and implanted with 36 mg zeranol (R) or 200 mg estradiol benzoate plus 200 mg progesterone (S) before a 105-day growing trial. Forty-two from each implant group were re-implanted with either R or S before a finishing trial 1 (151 days). A second finishing trial used 96 Angus and Angus cross yearling steers averaging 758 lbs. in a 108-day trial with equal numbers receiving R or S. A 40% concentrate ration was fed during the growing trial and an 80% concentrate ration during the two finishing trials. All rations were mixed twice daily and fed free choice. Initial and final weights were obtained after 15 hours without access to feed or water. Performance data

¹Ralgro provided by Commercial Solvents Corp., Terre Haute, Indiana.

²Synovex-S provided by Myzon Laboratories, Inc., Des Moines, Iowa.

were adjusted to a constant dressing percentage basis. Individual slaughter and carcass data were obtained at Wilson and Company, Kansas City, MO.

Results

Effects of implants on steer performance during the 105-day growing trial are shown in table 15.1. Daily gain was 9% greater ($P<.05$) by the Synovex-S treated steers. The effect of implanting sequence on steer performance during finishing trial 1 is shown in table 15.2. Implant sequences SR, RS, and RR produced similar and greater ($P<.05$) gains than sequence SS. The combined results for the 256 days are shown in table 15.3. Sequence SS produced slowest gains; however, not significantly slower. Results of finishing trial 2 (table 15.4) indicated no significant differences in daily gain. Effect of implants and implanting sequence on carcass characteristics are shown in tables 15.4 and 15.5. Again no significant differences were observed.

Table 15.1. Effects of Indicated Implants on Steer Performance, Growing Phase, 105 Days.

| Item | Implant | |
|-----------------------|-------------------|-------------------|
| | Ralgro | Synovex-S |
| No. steers | 84 | 84 |
| Avg. initial wt., lb. | 498.6 | 504.3 |
| Avg. final wt., lb. | 720.2 | 745.7 |
| Avg. gain, lb. | 221.6 | 241.4 |
| Avg. daily gain, lb. | 2.12 ^a | 2.29 ^b |

^{a,b}Significantly different ($P<.05$).

Table 15.2. Effects of Implanting Sequence on Steer Performance, Finishing Phase, 151 Days, Trial 1.

| Item | Period | Implant | | | |
|-----------------------|-----------|-------------------|-------------------|-------------------|-------------------|
| | Growing | Synovex | | Ralgro | |
| | Finishing | Synovex | Ralgro | Synovex | Ralgro |
| No. steers | | 42 | 42 | 42 | 42 |
| Avg. initial wt., lb. | | 738.2 | 753.2 | 717.3 | 723.0 |
| Avg. final wt., lb. | | 1030.0 | 1077.4 | 1054.6 | 1062.6 |
| Avg. gain, lb. | | 291.7 | 324.1 | 337.4 | 339.6 |
| Avg. daily gain, lb. | | 1.94 ^a | 2.14 ^b | 2.23 ^b | 2.25 ^b |

^{a,b}Significantly different ($P < .05$).

Table 15.3. Effects of Implanting Sequence on Overall Performance, 256 Days, Growing Phase & Finishing Trial 1.

| Item | Period | Implant | | | |
|-----------------------|-----------|---------|--------|---------|--------|
| | Growing | Synovex | | Ralgro | |
| | Finishing | Synovex | Ralgro | Synovex | Ralgro |
| No. steers | | 42 | 42 | 42 | 42 |
| Avg. initial wt., lb. | | 499.4 | 507.2 | 495.9 | 498.1 |
| Avg. final wt., lb. | | 1030.0 | 1077.4 | 1054.6 | 1062.6 |
| Avg. gain, lb. | | 530.5 | 570.2 | 558.7 | 564.5 |
| Avg. daily gain, lb. | | 2.07 | 2.23 | 2.18 | 2.20 |

No significant differences.

Table 15.4. Results from Synovex-S and Ralgro Implants During Finishing Trial 2, 108 Days.

| Item | Synovex-S | Ralgro |
|-----------------------------|-----------|--------|
| No. of steers | 48 | 48 |
| Avg. initial wt., lb. | 757.5 | 758.5 |
| Avg. final wt., lb. | 1098.8 | 1095.5 |
| Avg. gain, lb. | 341.3 | 338.0 |
| Avg. daily gain, lb. | 3.16 | 3.13 |
| Carcass characteristics: | | |
| Fat thickness, in. | 0.77 | 0.74 |
| Loin eye area, sq. in. | 11.31 | 11.25 |
| U.S.D.A. grade ^a | 12.40 | 12.10 |
| Yield grade | 3.95 | 3.88 |

^aLow choice = 12, high good = 11.

Table 15.5. Effects of Implanting Sequence on Carcass Characteristics of Finishing Steers, Trial 1.

| Item | Period | Implant | | | |
|-----------------------------|-----------|---------|--------|---------|--------|
| | Growing | Synovex | | Ralgro | |
| | Finishing | Synovex | Ralgro | Synovex | Ralgro |
| No. steers | | 42 | 42 | 42 | 42 |
| Dressing % | | 61.52 | 61.82 | 61.60 | 61.81 |
| Fat thickness, in. | | 0.52 | 0.63 | 0.56 | 0.62 |
| Loin eye area, sq. in. | | 11.12 | 12.10 | 11.70 | 11.66 |
| Yield grade | | 3.28 | 3.35 | 3.34 | 3.49 |
| U.S.D.A. grade ^a | | 11.67 | 12.15 | 11.97 | 12.25 |

^a11 = high good; 12 = low choice; etc.