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Effects of Revalor-G®, Ralagro®, and Synovex-H® on the performance of stocker heifers grazing irrigated rye pasture

Abstract

A 151-day field study was conducted to compare three anabolic implants for promoting weight gain in stocker heifers grazing center pivot-irrigated pastures of winter rye. Three hundred previously nonimplanted heifers averaging 421 lb were allotted to one of four treatments: 1) no implant-control (NC), 2) Ralagro® (RAL), 3) Revalor-G® (REV-G) and 4) Synovex-H® (SYN-H). Heifers were weighed at monthly intervals to evaluate the growth response curve of each implant type over time relative to controls. Only during the first 32-day period after implantation did heifers implanted with REV-G gain significantly faster ($P < .05$) than NC. All implant groups responded similarly ($P > .05$) during the next three monthly weigh periods. During the last period (day 124- 151), SYN-H heifers gained faster ($P < .05$) than all other treatments. Over the entire 151-day study, daily gains (lb/day) averaged as follows: NC, 1.50; RAL, 1.58; REV-G, 1.64; and SYN-H, 1.79. All implant types except RAL significantly improved gain ($P < .05$) compared to NC. Although no significant difference ($P > .24$) occurred between RAL and REV-G, SYN-H-implanted heifers gained faster ($P < .05$) than the other implant groups over the 151-day grazing season.

Keywords

Kansas Agricultural Experiment Station contribution; no. 97-309-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 804; Cattlemen's Day, 1998; Beef; Growth implant; Revalor-G; Ralagro; Synovex-H; Heifers; Rye pasture

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**EFFECTS OF REVALOR-G[®], RALGRO[®], AND SYNOVEX-H[®]
ON THE PERFORMANCE OF STOCKER HEIFERS
GRAZING IRRIGATED RYE PASTURE¹**

D. A. Blasi and G. L. Kuhl

Summary

A 151-day field study was conducted to compare three anabolic implants for promoting weight gain in stocker heifers grazing center pivot-irrigated pastures of winter rye. Three hundred previously nonimplanted heifers averaging 421 lb were allotted to one of four treatments: 1) no implant-control (NC), 2) Ralgro[®] (RAL), 3) Revalor-G[®] (REV-G) and 4) Synovex-H[®] (SYN-H). Heifers were weighed at monthly intervals to evaluate the growth response curve of each implant type over time relative to controls. Only during the first 32-day period after implantation did heifers implanted with REV-G gain significantly faster ($P < .05$) than NC. All implant groups responded similarly ($P > .05$) during the next three monthly weigh periods. During the last period (day 124-151), SYN-H heifers gained faster ($P < .05$) than all other treatments. Over the entire 151-day study, daily gains (lb/day) averaged as follows: NC, 1.50; RAL, 1.58; REV-G, 1.64; and SYN-H, 1.79. All implant types except RAL significantly improved gain ($P < .05$) compared to NC. Although no significant difference ($P > .24$) occurred between RAL and REV-G, SYN-H-implanted heifers gained faster ($P < .05$) than the other implant groups over the 151-day grazing season.

(Key Words: Growth Implant, Revalor-G, Ralgro, Synovex-H, Heifers, Rye Pasture.)

Introduction

The use of estrogenic implants to enhance the performance of grazing stockers has been adopted widely by cattle producers. Revalor-G is a newly approved anabolic agent for grazing cattle containing trenbolone acetate (a potent testosterone analog) and estrogen. However, no published research is available comparing REV-G to traditional estrogenic implants for heifers grazing winter rye pasture. Our objective was to evaluate the relative effectiveness of Revalor-G (40 mg trenbolone acetate and 8 mg estradiol), Ralgro (36 mg zeranol), and Synovex-H (20 mg estradiol benzoate and 200 mg testosterone propionate), in improving weight gain of yearling heifers grazing irrigated, winter rye pasture.

Experimental Procedures

Three hundred and seventy-five predominantly British crossbred heifers were purchased in Mississippi and assembled near Pratt, KS for 4 weeks prior to trial initiation. Upon arrival, they were vaccinated against common viral and bacterial diseases. At trial initiation, all heifers were weighed individu-

¹Sincere appreciation is expressed to Great Plains Cattle, Pratt, Kansas for providing cattle, facilities, and assistance, and to Hoehst-Rouseel Vet for financial support.

ally (unshrunk) on 2 consecutive days, identified with a tag in each ear, dewormed, and checked for evidence of prior implants. Then, 300 uniform heifers were selected and allotted randomly to four treatments, within weight blocks, and implanted according to manufacturers' recommendations. The treatments were: 1) no implant-control (NC), 2) Ralgro (RAL), 3) Revalor-G (REV-G), and 4) Synovex-H (SYN-H). For each of the remaining weigh days (days 32, 60, 92, 123, and 151), heifers were gathered, placed in drylot, and fed hay and alfalfa/wheat middling (AWM) pellets for 1 day before individual weights were obtained.

All heifers grazed predominantly winter rye pasture during the 151-day trial. Heifers were assigned randomly to one of two rye pastures with center pivot irrigation. Equal pounds of live cattle were stocked per circle. However, inclement winter weather and insufficient rye forage necessitated feeding supplemental alfalfa and AWM pellets in addition to either rye or alfalfa hay during a 45-day period in December and January. Four heifers were removed because of health problems unrelated to implant treatment. Individual animal was the experimental unit for statistical analysis of weight gain data.

Results and Discussion

Table 1 presents heifer daily gains by implant treatment and monthly weigh

period. Performance of RAL heifers was not significantly different ($P>.05$) than that of NC or REV-G heifers at any weigh period. All implant types produced similar ($P>.05$) growth responses during the second (days 33-60), third (day 61-92), and fourth (days 93-123) weigh periods. SYN-H heifers gained significantly faster ($P<.05$) than heifers in all other implant treatments between days 124 and 151 and over the entire 151-day trial.

Figure 1 presents the cumulative growth response of heifers to each implant type relative to nonimplanted controls over the course of the 151-day study. Both the REV-G and SYN-H-implanted heifers gained rapidly early in the study relative to the NC treatment. However, the anabolic response from each implant was different over the course of the study. For SYN-H, a sustained growth response was observed above the NC treatment that did not vary much throughout the 151-day experiment. This suggests that the payout response of SYN-H implants may last at least 151 days. In contrast, the REV-G implant demonstrated a classic "half-life" response relative to the NC treatment over the 151-day study. Finally, the response of heifers implanted with RAL was initially very slow and never reached the growth trajectory demonstrated by the other two implants.

Table 1. Effect of Implant Types on Heifer Gains during Successive Weigh Periods on Rye Pasture

| Implant Treatment | No. Heifers | Heifer Daily Gain (lb) by Monthly Weigh the Period ^b | | | | | Overall (days 1-151) |
|-------------------|-------------|---|---------------------|--------------------|----------------------|----------------------|----------------------|
| | | First (days 1-32) | Second (days 33-60) | Third (days 61-92) | Fourth (days 93-123) | Fifth (days 124-151) | |
| NC | 75 | .98 ^c | 1.90 ^c | 1.44 ^c | 1.37 ^c | 1.94 ^c | 1.50 ^c |
| RAL | 75 | 1.02 ^{cd} | 2.01 ^{cd} | 1.58 ^{cd} | 1.45 ^{cd} | 1.95 ^c | 1.58 ^{cd} |
| REV-G | 73 | 1.23 ^{de} | 2.09 ^{cd} | 1.57 ^{cd} | 1.43 ^{cd} | 1.98 ^c | 1.64 ^d |
| SYN-H | 73 | 1.37 ^c | 2.11 ^d | 1.70 ^d | 1.58 ^d | 2.26 ^d | 1.79 ^e |

^aNC= Negative Control; RAL = Ralgro[®], REV-G = Revalor-G[®], SYN-H = Synovex-H[®]. All implants administered on day 1.

^bFirst = First 32-day weigh period from 11/18/96 to 12/20/96; Second = 28-day period from 12/20/96 to 01/17/97; Third=32-day period from 01/17/97 to 02/18/97; Fourth=31-day period from 02/18/97 to 03/21/97; Fifth = 28-day period from 03/21/97 to 04/18/97.

^{c,d,e}Values in columns not sharing a common superscript are different (P<.05).

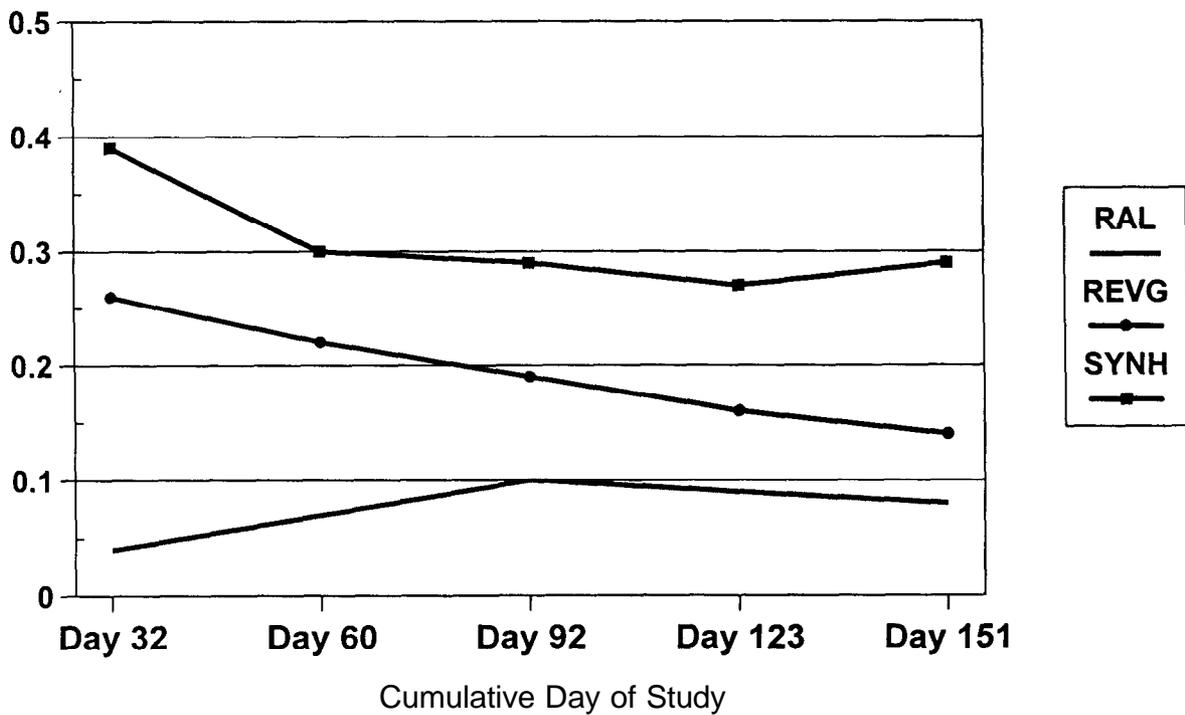


Figure 1. Cumulative Growth Responses of Heifers to Anabolic Implants Relative to Nonimplanted Controls during the Grazing Season.