

# PERFORMANCE OF STOCKER STEERS IMPLANTED WITH RALGRO<sup>®</sup>, SYNOVEX-S<sup>®</sup> OR REVALOR-G<sup>®</sup><sup>1</sup>

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## Story in Brief

Steer calves (317) were divided on the basis of initial weight (average 589 lb) into four treatment groups: 1, control; 2, implanted with Ralgro<sup>®</sup>; 3, implanted with Synovex-S<sup>®</sup>; and 4, implanted with Revalor-G<sup>®</sup>. The cattle grazed on Bermuda grass pastures for 90 days near Boswell, Oklahoma starting June 14, 1994 and concluding September 12, 1994. On average, the cattle gained 142 lb for the test period. Average daily gains for the four respective test groups were 1.44, 1.57, 1.65 and 1.71 lb per day. All groups responded to implant treatment with Ralgro<sup>®</sup> improving gain 9.49%, Synovex-S<sup>®</sup> 15.11%, and Revalor-G<sup>®</sup> 18.95%. All weights were taken following an overnight stand in a dry lot without feed or water so shrink averaged about 6%. Little weight was gained during the first 30 days following implanting; nearly all gain occurred in the last 60 days. Thirteen animals were removed from the test because of missing or abscessed implants, shipping fever or the buller syndrome. Implants increased incidence of the buller syndrome.

(Key Words: Stocker Cattle, Ralgro<sup>®</sup>, Synovex-S<sup>®</sup>, Revalor-G<sup>®</sup>.)

## Introduction

Anabolic implants have been used to increase gains of grazing cattle since the early 1950s. The products available are based on compounds which have estrogenic or estrogenic-like activity. In recent years trenbolone acetate, a potent androgenic compound, was introduced for use in feedlot cattle. This compound alone increased gain of feedlot cattle. Trenbolone acetate has been used most frequently in combination with estradiol. The two compounds increase gain and efficiency more than either compound used alone. Most feedlot cattle in the United States currently are implanted with these two compounds.

The use of combinations of estrogen and trenbolone for grazing animals has not been approved in the United States. This trial was one of several safety and efficacy trials conducted in the approval process for combination products.

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<sup>1</sup>The authors thank the cooperating producer, Jacob Jones, Boswell, OK, and his ranch hands for their interest and efforts in conducting this trial.

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## Material and Methods

Three hundred seventeen previously received, healthy stocker steers purchased from southeastern Oklahoma sale barns averaging 589 lb were used to evaluate the implant treatments. Cattle were shrunk overnight without feed or water, individually identified with numbered ear tags, weighed, stratified by weight and allocated to treatment groups of Control (no implant), Ralgro<sup>®</sup> (36 mg zeranol), Synovex-S<sup>®</sup> (200 mg progesterone and 20 mg estradiol benzoate) or Revalor-G<sup>®</sup> (40 mg trenbolone acetate and 8 mg estradiol). At initial treatment and subsequent 30 day weighings, all cattle were dewormed with Safeguard<sup>®</sup> (fenbendazole) drench. Cattle were of mixed breeding, being primarily exotic and English cross cattle with no more than approximately 10% Brahman genetics. Sick cattle and bullers were removed from the trial. General health of the cattle was excellent.

The trial began June 14, 1994. Steers were weighed at 30 day intervals until the end of the 90-day trial on September 12, 1994. Each weighing was conducted in early morning was preceded by a 12 hour overnight shrink. Implants were checked for loss or abscesses on day 30.

All cattle were grazed as one herd but were rotated through seven pastures. Time within any individual pasture was the discretion of the cooperating producer whose decision was based on recent rainfall, plant growth and condition and pasture size. Bermuda grass, the primary grass within the pastures, was mixed with dalisgrass, clovers, crabgrass and some fescue.

Beginning two weeks following the initiation of the trial, cattle received a daily supplement of approximately one pound per head of pelleted cottonseed meal containing 350 mg chlortetracycline (Oklahoma Gold cubes). This supplement was prorated to be fed every other day. Cattle also were allowed free access to a salt-dicalcium phosphate mix.

Treatment means were compared by analysis of variance for a completely randomized design (SAS, 1985) considering that each animal was an experimental unit. Means were compared using the Duncan's multiple range technique. In addition, effect of trenbolone acetate plus estrogen were compared with the two estrogen implants using an orthogonal contrast.

## Results and Discussion

Implanting steers with Ralgro<sup>®</sup> increased rate of gain 9.5%, Synovex-S<sup>®</sup> increased gain 15.1% and Revalor-G<sup>®</sup> increased gain 18.9% in this 90 day test (Table 1). Revalor-G<sup>®</sup> increased gain more ( $P<.01$  and  $P<.017$ ) than control and Ralgro<sup>®</sup>, respectively. Synovex-S<sup>®</sup> and Ralgro<sup>®</sup> increased gain more ( $P<.01$ ) over non-implanted controls. Comparing trenbolone plus estrogen (Revalor-G<sup>®</sup>) vs. estrogen only, an advantage was detected ( $P<.064$ ) for the combination implant over the mean of the two estrogenic implants.

Table 2 shows the period weight gains. Because this test was conducted during the hottest part of the summer, and because cattle in this area graze mainly during the night as the summer progresses, the increased shrink caused by changing feeding patterns possibly is responsible for the lack of gain during the first 30-day period.

Table 3 lists the cattle removed from the test and the reasons for removal. The incidence of cattle with the buller syndrome is expected to increase with implants. No bullers were detected with the controls; and incidence was 1.27% with Ralgro<sup>®</sup>, 2.6% with Synovex-S<sup>®</sup> and 3.75% with Revalor-G<sup>®</sup>. These differences were significant ( $P < .05$ ). Removal of cattle for other reasons was not related to treatments.

### **Literature Cited**

SAS Institute Inc. 1985. SAS Users Guide: Statistics Version 5 Edition. Cary NC: SAS institute Inc.

**Table 1. Effects of implant treatment on daily gain.**

Item	Control	Ralgro <sup>®</sup>	Synovex <sup>®</sup>	Revlaor-G <sup>®</sup>
Number of cattle	78	74	75	77
ADG, lb	1.44 <sup>c</sup>	1.57 <sup>b</sup>	1.65 <sup>ab</sup>	1.71 <sup>a</sup>

a,b,c values with different superscripts differ at the P<.05 level.

**Table 2. Cattle weights and weight gains (all weight units in pounds).**

Item	Control	Ralgro <sup>®</sup>	Synovex <sup>®</sup>	Revalor-G <sup>®</sup>
Number of cattle	78	74	75	77
Initial weight	587	586	587	590
30 Day weight	588 <sup>b</sup>	586 <sup>b</sup>	587 <sup>b</sup>	594 <sup>a</sup>
60 Day weight	671 <sup>b</sup>	678 <sup>b</sup>	688 <sup>a</sup>	693 <sup>a</sup>
90 Day weight	717 <sup>c</sup>	727 <sup>b</sup>	736 <sup>ab</sup>	743 <sup>a</sup>
Period 1 gain	0	0	0	5
Period 2 gain	84 <sup>c</sup>	93 <sup>b</sup>	101 <sup>a</sup>	98 <sup>ab</sup>
Period 3 gain	45	49	48	51
Total gain	129 <sup>c</sup>	141 <sup>b</sup>	149 <sup>ab</sup>	154 <sup>a</sup>
Bullers, %	0 <sup>d</sup>	1.27 <sup>c</sup>	2.60 <sup>b</sup>	3.75 <sup>a</sup>

a,b,c values with different superscripts differ at the P<.05 level.

**Table 3. Cattle removed from test and reason.**

Tag	Treatment	Reason
12	Synovex-S <sup>®</sup>	Buller
61	Control	Not found
106	Revalor-G <sup>®</sup>	Buller
151	Ralgro <sup>®</sup>	Not found
158	Synovex-S <sup>®</sup>	Missing implant
186	Ralgro <sup>®</sup>	Abcess at implant site
188	Synovex-S <sup>®</sup>	Implant in cartilage
209	Revalor-G <sup>®</sup>	Buller
211	Ralgro <sup>®</sup>	Bovine respiratory
241	Ralgro <sup>®</sup>	Buller
247	Revalor-G <sup>®</sup>	Buller
305	Ralgro <sup>®</sup>	Sick
314	Synovex-S <sup>®</sup>	Buller

<sup>a</sup> Three Revalor-G<sup>®</sup> steers removed due to bulling, 2 Synovex<sup>®</sup> steers removed due to bulling, 1 Ralgro<sup>®</sup> steer removed due to bulling; 2 Synovex<sup>®</sup> and 1 Ralgro<sup>®</sup> steer removed due to lost or abscessed implants, two cattle removed due to sickness (both Ralgro<sup>®</sup>), and two head of cattle (1 control and 1 Ralgro<sup>®</sup>) were missing.