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L. B. Embry
South Dakota State University

M. J. Goetz

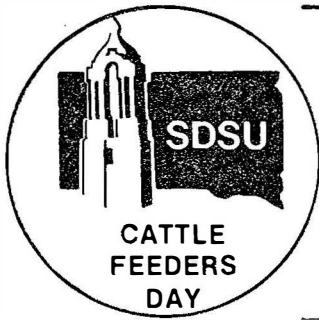
R. W. Rosenboom

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IMPLANTING SITE FOR ZERANOL COMPARED TO SYNOVEX-S FOR FINISHING STEERS

L. B. Embry, M. J. Goetz and R. W. Rosenboom
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Summary

Zeranol (Ralgro) implants at the recommended and shallow site between the skin and cartilage of the ear and at an alternate and deep site at base of the ear were compared to Synovex-S and nonimplanted controls in two experiments. Ralgro at each implanting site and Synovex improved weight gain and feed efficiency in each experiment. The average improvement over nonimplanted controls in weight gain for the two experiments was 8.3, 11.1 and 12.0%, respectively, for the zeranol at the recommended and shallow site, zeranol at the alternate and deep site and Synovex-S. Average improvements in feed efficiency over controls for the three implant treatments in order listed above were 7.1, 4.8 and 5.6%. There appeared to be no important differences between implant treatments in carcass characteristics of the steers.

Zeranol at the alternate and deep site appeared to give results similar to Synovex-S. While any apparent advantage over the usual recommended site of implanting for zeranol was small, implanting deep at the base of the ear is easier, faster and likely to be a more uniform method between animals.

Introduction

Numerous experiments during the past several years have shown that ear implants of diethylstilbestrol (DES and DES also as a feed additive), Synovex or zeranol (Ralgro) improve weight gain and feed efficiency of growing and finishing steers and heifers. The improvement has been reported from an early age throughout growing and finishing by reimplanting of the products at appropriate intervals. Improvement has been reported with numerous types of rations, but the degree of response may vary with the nutritional adequacy.

DES has been more widely used because of the greater amount of information on the product and lower cost in comparison to Synovex and zeranol. Since the banning of DES, there has been more interest in the response that might be expected from Synovex and zeranol. Implanting technique has also received considerable emphasis as to the effects on degree and uniformity of response from implants.

We have completed two experiments with finishing steers where responses to Synovex-S and zeranol were compared to nonimplanted controls. Two implanting sites were used for zeranol in each experiment.

Procedures

Experiment 1

This experiment was initiated on July 18, 1979, with 72 steers of Hereford, Hereford-Angus or Limousin crossbreeds. They were allotted into 12 pens of six each on basis of weight and breed group (four Hereford, one Hereford-Angus and one Limousin per pen). Implant treatments were as follows:

1. Nonimplanted control
2. Synovex-S
200 mg. progesterone and 20 mg. estradiol benzoate
3. Zeranol (Ralgro)
36 mg. implanted at recommended location--shallow between skin and cartilage of ear about 1 inch from base of the ear for the inner edge of implants
4. Zeranol (Ralgro)
36 mg. implanted at alternate site--deep and at base of ear.

The steers were fed a ration of 5 lb. corn grain and a full feed of oat hay for 6 weeks before being put on the experiment. After allotting and sorting for the experiment, they were implanted according to the experimental treatments. They were injected with clostridium chauvoei-septicum-novyi-sordelli bacterin and given a Warbex pour-on treatment.

The experimental rations (dry basis) were 85% whole corn grain, 10% alfalfa as haylage and 5% supplement. The supplement was a corn-soybean base with minerals, vitamin A and monensin. It was formulated to contain 20% protein, 4% calcium, 6% potassium and 6% trace mineral salt. Vitamin A was added at 30,000 I.U. and monensin at 300 mg. per pound of supplement.

Corn stored as high-moisture grain at harvest from the 1979 crop, dry corn reconstituted to high moisture or dry corn was fed to one of the three pens of cattle from each implant treatment group. The proportions of grain, haylage and supplement on a dry basis were converted to proportions as fed for each type of corn. Rations were batch mixed on these bases for each pen and fed once daily in amounts to be nearly consumed by the next feeding. A 10-day period was used to get on full feed of the high-grain rations.

The experiment was terminated on November 26 after 131 days. The cattle were marketed through a local packing plant and carcass data were obtained.

Experiment 2

This experiment was initiated on December 5, 1979, with 120 steers. They were allotted to 12 pens of 10 each on the basis of weight and breed group (eight Angus, one Hereford and one Hereford-Angus per pen). Experimental treatments and rations were as for experiment 1. Feeding and management were also essentially as for experiment 1.

This experiment was terminated on March 18, 1980, after 104 days. The cattle were marketed and carcass data obtained as for experiment 1.

Results

The experiments were to be conducted as replications over time. In view of the differences in time of year conducted, length of experiments and number of cattle, results are presented separately for each experiment. In order to eliminate the influence of manure carried by the cattle on the apparent weight gain, final weights were adjusted on basis of carcass weight and a yield of 62%. The cattle in each experiment graded about low choice and this yield was considered to be an appropriate one. The performance on basis of carcass weight was considered to more accurately represent animal performance, especially for experiment 2 terminated in March.

Experiment 1

Results for experiment 1 are shown in table 1. Each implant treatment resulted in an increase in weight gain. Improvements over the control group amounted to 9.9, 14.8 and 13.0%, respectively, for zeranol at the recommended and shallow site, zeranol at the alternate and deep site and Synovex-S.

Implant treatments increased feed consumption. The increase was more than the increase in rate of gain, resulting in less improvement in feed efficiency than for weight gain. Improvement in feed efficiency in comparison to the control group amounted to 4.2, 5.0 and 2.9 for treatments in the same order as given for weight gain above.

There were no important differences in the carcass characteristics measured. Differences in carcass weights would be expected to affect some of the characteristics shown. However, there are some inconsistencies indicated and probably represent usual variation for the number of animals involved.

Experiment 2

Results of experiment 2 are shown in table 2. Weight gain was also improved in this experiment from the implant treatments. The improvement was less than for experiment 1 and amounted to 6.7, 7.5 and 11.0%, respectively, over the control group for zeranol at the shallow and recommended site, zeranol at the deep and alternate site and Synovex-S. Feed efficiency was improved by 10.0, 4.6 and 8.4%, respectively, over the control group for the three implant treatments.

Carcass characteristics shown in the table varied only slightly and less than in experiment 1.

Table 1. Ralgro and Synovex-S Implants for Feedlot Steers
(Experiment 1 - July 18 to November 26, 1979 - 131 Days)

Treatment	Control	Zeranol		Synovex-S
		(recommended shallow site)	Zeranol (alternate deep site)	
No. of animals	18	18	18	18
Init. shrunk wt., lb.	759	747	760	754
Final wt., lb. ^a	1132	1155	1186	1174
Avg. daily gain, lb.	2.84	3.12	3.26	3.21
Avg. daily ration (dry), lb.	19.82	20.84	21.52	21.69
Feed/100 lb. gain (dry), lb.	697	668	662	677
Hot carcass wt., lb.	701	716	736	727
Marbling ^b	5.00	5.33	5.67	5.00
Maturity ^c	23.7	23.3	23.3	23.0
Carcass quality grade ^d	19.0	19.3	19.3	18.3
KHP fat, %	2.03	1.80	1.73	1.90
Rib eye area, sq. in.	12.40	11.74	11.96	12.54
Fat thickness, in.	.56	.68	.60	.66

- ^a Final weight based on carcass weight and a carcass yield of 62%.
^b Marbling scores: 5 = small amount; 6 = modest amount.
^c Maturity scores: 23 = A maturity; 24 = A- maturity.
^d Carcass grade scores: 18 = Good +; 19 = Choice -; 20 = Choice.

Table 2. Ralgro and Synovex-S Implants for Feedlot Steers
(Experiment 2 - December 5, 1979, to March 18, 1980 - 104 Days)

Treatment	Control	Zeranol		Synovex-S
		(recommended shallow site)	Zeranol (alternate deep site)	
No. of animals	30	30	30	30
Init. shrunk wt., lb.	785	778	789	785
Final wt., lb. ^a	1050	1061	1074	1079
Avg. daily gain, lb.	2.55	2.72	2.74	2.83
Avg. daily ration (dry), lb.	19.94	19.15	30.44	20.27
Feed/100 lb. gain (dry), lb.	782	704	746	716
Hot carcass wt., lb.	651	658	666	669
Marbling ^b	5.0	5.1	5.0	5.4
Maturity ^c	23.2	23.1	23.3	23.3
Carcass quality grade ^d	18.8	18.8	18.8	19.3
KHP fat, %	2.1	2.0	1.9	1.9
Rib eye area, sq. in.	11.12	11.49	11.84	11.70
Fat thickness, in.	.51	.51	.48	.46

- ^a Final weight based on carcass weight and a carcass yield of 62%.
^b Marbling scores: 5 = small amount; 6 = modest amount.
^c Maturity scores: 23 = A maturity; 24 = A- maturity.
^d Carcass grade scores: 18 = Good +; 19 = Choice -; 20 = Choice.