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## COMBINATION OF SYNOVEX-S<sup>1</sup> AND FINAPLIX-S<sup>2</sup> FOR YEARLING STEERS

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### Summary

Two hundred seventy-seven crossbred yearling steers (719 lb) were utilized in a 3-year study to determine the effect of combinations of Synovex-S and Finaplix-S on daily gain and carcass merit. Treatments included no implant (C), implanted with Synovex-S on day 1 and Synovex-S on about day 60 (SS), and implanted with Synovex-S on day 1 and the combination of Synovex-S and Finaplix-S on about day 60 (SSF). In year 1, all steers were slaughtered after 124 days on feed. In year 2, steers were slaughtered after 120, 134, or 148 days on feed. In year 3, steers were slaughtered after 121, 140, or 156 days on feed. Implanting increased ( $P < .001$ ) average daily gain by 19.9% (4.00 vs 3.34 lb per head daily). Cattle implanted with the combination of Synovex-S and Finaplix-S gained weight more rapidly ( $P < .05$ ) than cattle implanted only with Synovex-S (4.08 vs 3.93 lb per head daily). Implanted steers had heavier ( $P < .01$ ) hot carcass weights, larger rib eye areas ( $P < .01$ ), lower ( $P < .05$ ) marbling scores, and more ( $P < .01$ ) fat over the 12th rib than nonimplanted steers. There were no significant differences in any of the carcass traits between implants. Percentage choice carcasses were 76.6, 73.0, and 75.2 for the C, SS, and SSF treatments, respectively. One time use of the combination of Finaplix-S and Synovex-S with a minimum of 60 days prior to slaughter did not reduce carcass marbling score or quality grade.

(Key Words: Estradiol, Trenbolone Acetate, Steers, Carcass Quality.)

### Introduction

Finaplix-S was approved for use in feedlot steers in 1987. When used as the sole implant, performance appears to be increased slightly as compared to nonimplanted controls. Using Finaplix-S in combination with an estrogenic implant has resulted in significant improvements in performance of feedlot cattle and has become a common practice in the commercial cattle feeding industry.

Several reports have indicated that the percentage of cattle grading choice is reduced when the combination of Finaplix-S and an estrogenic implant is used. Depending upon when and how the cattle are sold, reduced propensity to grade choice would have serious economic consequences for cattle feeders. It has been proposed that the negative effects of Finaplix-S on quality grade can be lessened if the combination is administered once with 60 to 90 days prior to slaughter.

The objective of this research was to investigate the effect of Finaplix-S in combination with Synovex-S on average daily gain and carcass merit in yearling steers.

### Materials and Methods

Crossbred yearling steers that had been grazing summer pastures at the Range and Livestock Research Station located near Philip, SD, were used in a 3-year study to investigate the impact of Finaplix-S in combination with Synovex-S on feedlot average daily gain and carcass merit. Treatments used included a

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<sup>1</sup>Product of Syntex Animal Health, West Des Moines, IA.

<sup>2</sup>Product of Hoescht Roussel, Sommerville, NJ.

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nonimplant negative control (C), implanted with Synovex-S on day 1 and approximately day 60 (SS), and Synovex-S on day 1 and the combination of Synovex-S and Finaplix-S on approximately day 60 (SSF). Table 1 displays the treatments and numbers of cattle used in each year of the study.

Data from 1989 and 1990 appeared in previous issues of this report (CATTLE 90-10 and 91-15, respectively). Details of how the studies were

completed and how the data were collected for the first 2 years of the study may be found in those reports. In year 3 of the study, 133 steers were transported to a commercial feedlot<sup>4</sup> located near Kimball, SD, and weighed and processed following overnight withdrawal of feed and water. All cattle were then fed in a common pen. Diets fed to the steers are shown in Table 2. Steers were adjusted to the finishing diet by feeding diet 1 for 10 days and diet 2 for 7 days.

Table 1. Number of observations for each implant treatment

Treatment	Number of cattle			
	1989	1990	1991	Total
Control	17	30	45	93
Synovex-Synovex	18	30	45	93
Synovex-combination	18	30	43	91

Table 2. Composition of diets fed to steers in year 3

Ingredient <sup>a</sup>	Diet		
	1	2	Finish
Cracked corn	33.15	43.92	68.78
Alfalfa hay	9.00	3.00	-
Mixed silage <sup>b</sup>	54.21	49.11	26.37
Mineral supplement	.19	.19	.19
Supplement <sup>c</sup>	3.45	3.78	4.66
<u>Nutrient composition<sup>d</sup></u>			
Dry matter, %	57.59	60.07	71.74
Crude protein, %	12.79	12.33	12.40
Calcium, %	.76	.64	.55
Phosphorus, %	.35	.36	.37
NE <sub>m</sub> , Mcal/cwt	82.98	88.18	94.59
NE <sub>c</sub> , Mcal/cwt	51.00	56.00	62.23

<sup>a</sup> Percentage as fed.

<sup>b</sup> Approximate composition: Corn 33.33%, cane 33.33%, and alfalfa 33.33%.

<sup>c</sup> Sup-R-Lix, Purina Mills, Inc., St. Louis, MO.

<sup>d</sup> Dry matter basis.

<sup>4</sup>R and L Feedyard, Kimball, SD.

Approximately 15 randomly selected steers from each treatment were slaughtered after 121, 140, or 156 days on feed. Days on feed were 124 for all steers in year 1 and 120, 134, or 148 in year 2. Final weight used to compute performance data was calculated by dividing hot carcass weight by the mean dressing percentage for each slaughter date. Carcass data were collected 24 hours postslaughter. The USDA grader called marbling scores and estimated kidney, heart and pelvic fat. Rib fat was measured with a steel probe and rib eye area was measured with a grid. Carcass regrades were not considered in the analysis.

Data were analyzed according to analysis of variance procedures for a completely randomized design. Data from years 2 and 3, that included multiple slaughter dates, were used to test for treatment x day and treatment x day x year interactions. These were not significant. Consequently, data from all 3 years were pooled for the final analysis of variance. Differences in percentage choice carcasses were tested by Chi-square analysis procedures. Means were separated using orthogonal contrasts. Comparisons of interest were (1) C vs SS and SSF and (2) SS vs SSF.

### Results and Discussion

Table 3 shows average daily gain and the initial and final weights for the steers. Implanting improved ( $P < .001$ ) average daily gain (3.93 and 4.08 vs 3.34 lb per head daily for SS and SSF vs C, respectively). Steers implanted with SSF gained faster ( $P < .05$ ) than steers implanted with SS (4.08 vs 3.93 lb per head daily).

Table 4 shows carcass data for steers. Implanting increased ( $P < .01$ ) hot carcass weight (HCW), fat thickness, and rib eye area. However, if rib eye area is expressed on a per cwt of carcass basis, no increase in muscularity was apparent. Implanting also reduced ( $P < .05$ ) marbling score by 3.2%. This reduction did not correspond to a significant reduction in the percentage choice carcasses. Approximately 75% of the steers on all treatments graded choice. There were no differences detected for any carcass traits between the SS and SSF treatments.

Analysis of these data showed that each day on feed corresponded to .0064 units of marbling ( $P < .05$ ) and that marbling scores were .175 units lower for implanted cattle. We can, therefore, estimate that 27 additional days on feed would be required for implanted cattle to achieve similar marbling scores as nonimplanted cattle. Each day on feed resulted in a 1.6976 lb increase in hot carcass ( $P < .0001$ ). Implanted steers fed for an additional 27 days would be projected to produce carcasses that are 46 lb heavier at a similar marbling score. On a live basis, cattle would have to be about 74 lb heavier, assuming a 62.5% yield.

Finaplix-S used in combination with Synovex-S can improve average daily gain without depressing carcass quality grade when compared to using only Synovex-S. These steers were implanted only once with the combination and 60 to 96 days remained between implanting and slaughter. Proper use of these products can enhance feedlot profitability.

Table 3. Effect of implant combination on weight gain

Item	Treatment		
	Control	Synovex	Combination
Initial wt, lb	788	794	790
Final wt, lb <sup>a</sup>	1238	1321	1336
Avg daily gain, lb/head <sup>ab</sup>	3.34	3.93	4.08

<sup>a</sup> Implant vs control (P<.001).

<sup>b</sup> Synovex vs combination (P<.05).

Table 4. Effect of implant combination on carcass characteristics

Item	Treatment		
	Control	Synovex	Combination
Hot carcass wt, lb <sup>a</sup>	772	824	833
Fat thickness, in. <sup>a</sup>	.47	.53	.56
Rib eye area, in. <sup>2a</sup>	12.80	13.36	13.54
Muscling <sup>b</sup>	1.66	1.63	1.63
Yield grade	3.03	3.16	3.23
Marbling score <sup>c</sup>	5.43	5.28	5.23
Percent choice	76.6	73.0	75.2

<sup>a</sup> Implant vs control (P<.01).

<sup>b</sup> Rib eye area + hot carcass weight (cwt).

<sup>c</sup> Implant vs control (P<.05).