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SEQUENTIAL IMPLANT STRATEGIES WITH SYNOVEX-S® AND TRENBOLONE ACETATE-CONTAINING IMPLANTS IN CALF-FED HOLSTEIN STEERS[1]

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Summary

In a commercial feedyard trial, 242 Holstein steer calves averaging 378 lb were used to compare effects of six alternative implant programs, consisting of sequential use of Synovex-S® or a combination of estradiol and trenbolone acetate (Revalor-S® or Finaplix-S® plus Synovex-S®), on feedlot performance and carcass characteristics. The calves were implanted three times at 78- to 90-day intervals while on feed an average of 252 days. The combination implant increased ($P < .05$) gain by .13 to .21 lb per day in all three implant periods compared to Synovex alone. Total feedlot gain was increased in direct relation to the number of times steers received the combination implant. However, marbling score and the percentage of carcasses grading USDA Choice tended to be reduced with repeated use of Revalor or Finaplix.

(Key Words: Revalor, Trenbolone Acetate, Finishing, Holsteins, Carcass Traits.)

Introduction

Large numbers of Holstein steer calves are fed in Kansas feedlots. Because these calves are on feed longer than the effective payout period of currently available implants, reimplanting is a common practice. Furthermore, the introduction of implants combining trenbolone acetate (TBA, a synthetic testosterone-like compound) and estradiol has raised questions regarding the optimum implant strategy for light-weight calves. This study was conducted to compare the relative effectiveness of six implant strategies on feedlot gain and carcass characteristics of Holstein steer calves.

Experimental Procedures

Holstein steer calves ($n = 242$) averaging 378 lb were assigned randomly within two pens to six sequential implant strategies. At the start of three consecutive implant periods, steers were implanted with either Synovex-S or a combination of TBA and estradiol. Revalor-S (120 mg TBA + 24 mg estradiol) was used in the first two implant periods, and the combination of Finaplix-S (140 mg TBA) plus Synovex-S (20 mg estradiol benzoate + 200 mg progesterone) was used at the start of the final period. The three implant periods averaged 84, 90, and 78 days, respectively. Individual calf unshrunk weights were used to calculate gains, except for final live weights, which were based on individual hot carcass weights and an average dressing percentage of 58.9%. Steers were slaughtered in a commercial packing plant, and individual hide-pull scores and carcass data were collected.

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Results and Discussion

Implanting with the combination of TBA + estradiol increased ($P < .05$) daily gain during each of the three implant periods by an average of 4.9, 4.0, and 7.9%, respectively, as shown in Table 1. Likewise, overall feedlot gain was increased in proportion to the number of times the implant combination was used. For example, steers receiving three combination implants gained faster ($P < .05$) than those receiving Synovex-S or the combination only once during the trial. The more rapid gains from repeated use of TBA and estradiol resulted in heavier ($P < .05$) final weights and carcasses.

Packing plant hide-pull scores were not influenced by implant treatment. Likewise, carcass backfat; the percentage of kidney, pelvic, and heart fat; and yield grade were similar for cattle on all implant strategies.

Ribeye area tended to be larger in steers that received the combination implant; however, most of that increase was explained by their more rapid gains and correspondingly larger carcasses, as shown by only small differences in ribeye area per 100 lb carcass weight. Both marbling score and the percentage of carcasses grading USDA Choice tended to be negatively influenced in direct proportion to the number of combination implants used. However, these quality differences were not significant ($P > .05$).

The combination of TBA and estradiol, either as Revalor or Finaplix + Synovex, presents the feedlot industry with a tradeoff between increased growth at the possible expense of carcass grade. Consequently, producers must evaluate the relative economic impact of these factors, considering the Holstein contract specifications commonly used by the beef industry.

Table 1. Comparison of Sequential Implanting Strategies with Synovex-S® and Trenbolone Acetate-Containing Implants in Fed Holstein Steer Calves

Item	Implant Treatment[1]					
Implant combination	A	B	C	D	E	F
No. of steers	41	42	41	40	38	40
ANIMAL PERFORMANCE						
First Implant	S	S	S	R	R	R
Period length - 84 days						
Period gain, lb	292	284	287	300	301	305
Daily gain, lb	3.49	3.40	3.44	3.59	3.60	3.65
Period 1 daily gain by implant, lb: S = 3.44[a] R = 3.61[b]						
Second Implant	S	S	R	S	R	R
Period length - 90 days						
Period gain, lb	291	292	300	296	294	319
Daily gain, lb	3.23	3.24	3.33	3.29	3.27	3.54
Period 2 daily gain by implant, lb: S = 3.25[a] R = 3.38[b]						
Third Implant	S	F&S	F&S	S	S	F&S
Period length - 78 days						
Period gain, lb	186	198	212	192	203	216
Daily gain, lb	2.42	2.59	2.79	2.52	2.67	2.84
Period 3 daily gain by implant, lb: S = 2.54[a] F&S = 2.74[b]						
Overall						
Total gain, lb	769[a]	774[a]	798[ab]	788[a]	794[ab]	840[b]
Daily gain, lb	3.09[a]	3.11[a]	3.21[ab]	3.17[a]	3.21[ab]	3.38[b]
Final wt., lb	1147	1152	1177	1167	1176	1218
CARCASS CHARACTERISTICS						
Hot carcass wt., lb	675[a]	678[a]	693[ab]	687[a]	692[ab]	717[b]
Backfat thickness, in.	.22	.21	.21	.24	.24	.23
KPH fat, %	2.5	2.5	2.5	2.5	2.5	2.7
Ribeye area, sq. in.	10.8	11.2	11.3	11.3	11.4	11.7
REA/cwt. HCW, sq. in.	1.61	1.66	1.63	1.64	1.65	1.64
Marbling score[c]	206	207	199	195	197	180
Yield grade	2.7	2.7	2.6	2.7	2.8	2.6
% Choice	68	60	59	63	45	40

[1]S = Synovex-S, R = Revalor-S (TBA plus estradiol), F + S = combination of Finaplix-S (TBA), and Synovex-S (estradiol + progesterone) implants.

[a,b]Values in the same row with unlike superscripts differ (P < .05).

[c]100 to 199 = Slight, 200 to 299 = Small degrees of marbling.