

Effect of Synovex Choice Implant on Performance and Carcass Traits of Steer Calves

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Summary and Implications

A study was conducted at the Iowa State University Armstrong Research Farm to evaluate two intermediate dosage, combination implant systems. Two of four pens were implanted with Synovex Choice on day one and reimplanted on day 86 in the feedlot (Choice/Choice). The remaining two pens were implanted with Synovex-S on day one and reimplanted with Revalor-IS on day 86 (Syn/Rev). Steers were stepped up to a .60 Mcal/lb of DM finishing diet, and harvested in one of two groups based on real-time ultrasound evaluation. Total days on feed were 166 for the Choice/Choice cattle and 164 days on feed for the Syn/Rev cattle. All cattle performed very well averaging 3.74 lb per day gain on less than 6 lb. of dry matter per lb. of gain. Carcass quality was high for both treatments, averaging nearly 90% USDA Choice. There were no differences between the implant treatments in feedlot performance or carcass measurements, other than percent rib fat. Cattle implanted with Syn/Rev had a slightly higher percent rib fat than the Choice/Choice cattle. This is consistent with a trend towards more carcass fatness for the Syn/Rev cattle in this study. Overall, it was determined that the two implant treatments yield similar performance and carcass effects in high quality steer calves.

Introduction

As marketing of fed cattle has evolved over the past few years, technologies that improve performance and lower cost with the least effect on carcass quality have become more important. One such technology is the intermediate dosage combination implant. These implants combine TBA and estrogen for additive growth response, but at a lower dosage that may reduce potential negative effects of combination implants on carcass quality. Intermediate dosage implants have been used to provide a more aggressive arrival implant for feedlot cattle, or a more conservative terminal implant depending on the goals of the manager. With the recent clearance of Synovex Choice for feedlot steers, the cattle feeder now has two options relative to intermediate dosage combination implants, Synovex Choice and Revalor IS. This study was designed to

compare two practical implant combinations -- Synovex Choice implanted initially and reimplanted, and Synovex-S implanted initially and reimplanted with Revalor IS.

Materials and Methods

One hundred thirty four steers were implanted on day 1 with Synovex Choice or Synovex-S and day 86 with either Choice or Revalor IS, respectively. The study was conducted at the Armstrong Research Farm in Lewis, Iowa. The facility contains four pens designed to accommodate 40 head each. Two pens were implanted and reimplanted with Synovex Choice and two pens were implanted with Synovex S and re-implanted with Revalor IS. The steers used were sourced from the Iowa State University McNay Research Farm and were received in October 2002. The steers were on a 60% concentrate ration and were stepped up to the finishing ration (Table 1) over a 28-35 day period. The ration used in this study averaged 12.05% crude protein, 1.00% Ca, .37% P, .87% K, and NEg of .60 mcal/lb. on a dry matter basis. On November 6, 2002 steers were weighed. Steers were stratified by sire and weight and randomly allotted to the four pens. Steers were weighed, body condition scored, and received their initial implant on November 7. The weights taken on November 6 and November 7 were averaged to determine the on-test weight. All cattle were reimplanted at 86 days on feed. Cattle were weighed at 28-day intervals. For each replication, cattle were marketed in two groups. The first group was marketed when 50% of the pen exceeded .4 inches external fat as measured by real-time ultrasound. The remaining cattle were marketed after an additional 35 days on feed.

Data collected on all cattle at harvest included hot carcass weight, fat thickness, ribeye area, kidney, heart, and pelvic fat percentage, marbling score and USDA Quality Grade. Estimates of carcass trim loss were also obtained. Rib facings were obtained from each carcass and brought to the Iowa State University Meats Laboratory. All rib samples were assayed for fat content.

Individual performance and carcass data were analyzed using the GLM procedure of SAS. The initial model included implant treatment, sire, and the implant*sire interaction. Since there were no significant sire or implant by sire effects these parameters were subsequently dropped from the model. Pen data was used as the experimental unit for feed intake and efficiency analyses. The effect of implant treatment was the only main effect included in this model.

Table 1. Finishing diet^a.

<u>Ingredient</u>	<u>% of</u>
Corn grain	67.08
Soybean Oil Meal	4.61
Water	7.90
Ground alfalfa hay	15.92
<u>Supplement^a</u>	<u>3.77</u>

^a Supplement provided by Cargill, Inc, Minneapolis, MN. Contained 10% crude protein, 17% Ca, 3.5% Salt 70,000 IU/lb. Vitamin A and 600 mg/lb. monensin (as-fed).

Results

Dry matter intake and feed efficiency effects by implant treatment are shown in Table 2. Feed intake and feed efficiency are nearly identical for the first 85 days, suggesting no difference between Synovex Choice and Synovex-S as an initial implant in this study. No differences were noted for days 86 until harvest, comparing the terminal implants as well. Overall there were no differences in dry matter intake or feed efficiency between the two implant systems.

Results of the individual performance analysis are shown in Table 3. Generally, performance was excellent

with daily gains exceeding 5 lb. per day for the first 85 days. Daily gains from day 86 until harvest averaged approximately 3.5 lb. per day. Overall daily gains exceeded 3.7 lb. per day for all treatments. No significant differences were noted for daily gains between the implant systems.

Carcass effects of the implant systems are shown in Table 4. Cattle in this study were of very high quality averaging nearly 90% USDA Choice with over 60% Yield grade 2s and no yield grade 4s. None of the carcass measurements, with the exception of percent rib fat, were significantly different among implant treatments. Cattle implanted with the Syn/Rev treatment did have higher rib fat percentage ($P < .05$) than cattle implanted with Synovex Choice. This difference is consistent with the trend that was noted in the carcass measurements. The Synovex Choice implanted steers tended to be numerically leaner in several of the carcass measurements.

Overall, this study would suggest that for high quality steer calves fed 165 days, an implant treatment consisting of Synovex Choice initially, reimplanted with Synovex Choice at 85 days, is comparable to an implant treatment consisting of Synovex-S initially, reimplanted with Revalor-IS at 85 days.

Table 2. Intake and efficiency of pens with Synovex-Choice Re-implant or Synovex-S /Revalor IS.

	Choice/Choice	Syn/Rev	<u>SE</u>
No pens	2	2	
First period (85 days)			
Dry matter intake, lb.	19.01	19.02	.04
Feed/gain	4.90	4.81	.02
Second period			
Dry matter intake, lb.	24.2	23.9	.23
Feed/gain	6.95	6.87	.23
Overall			
Dry matter intake, lb.	21.53	21.37	.12
Feed/gain	5.84	5.74	.09

Table 3. Effect of implant system on performance.

	Choice/Choice	Syn/Rev	SE
Number of head	67	67	
Days on Feed	165.7	164.4	2
On Test Weight	557	561	9.5
86 - Day Weight	886.5	897.8	11.7
86 - Day ADG	5.15	5.17	.06
Final Weight	1172.8	1175	9.1
ADG, day 86 to slaughter	3.54	3.48	.06
Overall ADG	3.73	3.74	.04
Weight/day of age	3.17	3.18	.03
Carcass Adjusted Final Weight	1167.3	1180.9	9.2
Overall ADG (Std Dress %)	3.70	3.76	.04

Table 4. Effect of implant system on carcass characteristics.

	Choice/Choice	Syn/Rev	SE
Hot Carcass Wt.	730.7	739.3	5.5
Dressing %	62.3	62.8	0.2
Fat thickness	.42	.45	.02
KPH, %	2.18	2.20	.04
REA	12.2	12.2	.11
Marbling Score	Sm 54	Sm 83	11.5
Yield Grade	2.85	2.98	.06
% Fat ^a	4.14	4.72	.19
Carcass Price \$/cwt	\$128.68	\$129.81	\$.70
Quality Grade Distribution			
	Choice/Choice	Syn/Rev	
	%	%	
Prime	1.5	4.5	
Upper 2/3 Choice	20.9	30.3	
Low Choice	64.2	56.1	
Low Choice or better	86.6	90.9	
Select	13.4	7.6	
Standard	0.0	0.0	
Dark Cutters	0.0	1.5	
Yield Grade Distribution			
	Choice/Choice	Syn/Rev	
	%	%	
Yield Grade Distribution			
1	0.0	0.0	
2	76.1	54.5	
3	23.9	45.5	
4	0.0	0.0	

^aMeans differ (P<.05).