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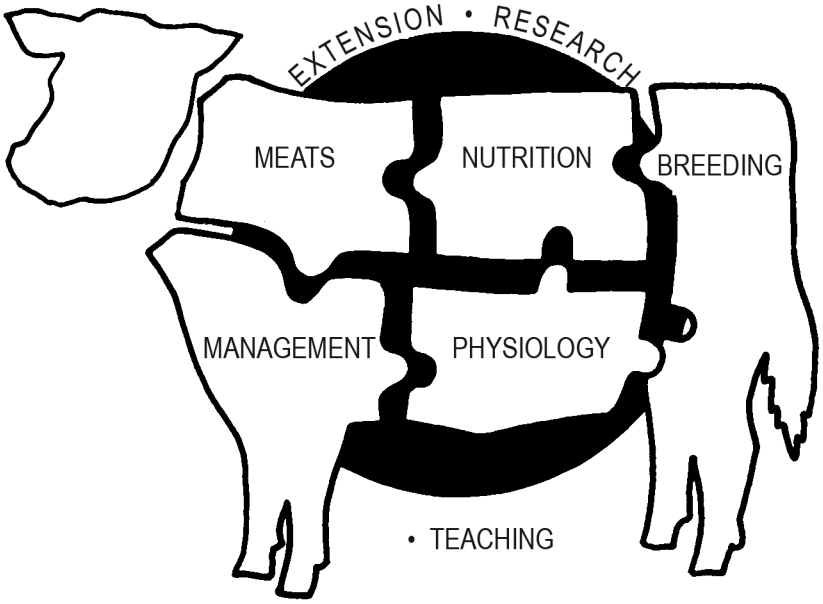

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A Comparison of Two Implant Protocols: Synovex-Choice/Synovex-Plus vs. Synovex-S/Revalor-S on Steer Feedlot Performance and Carcass Characteristics

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Summary

In a 2 year study, implant strategies were compared utilizing Synovex® Choice followed by Synovex Plus® or Synovex® S followed by Revalor® S. Spring-born crossbred steers were blocked by BW and randomly assigned to receive either Synovex Choice or Synovex S as the initial implant. Approximately 100 days later, steers were reimplanted with Synovex Plus or Revalor S. Steers were slaughtered after 205 days on feed. There was no difference in average daily gain or hot carcass weight between treatment groups. Furthermore, there were no differences in yield grade, marbling score, or proportion of steers grading USDA Choice. Both implant regimens resulted in similar feedlot and carcass characteristics.

Introduction

Implants are commonly used in the United States to increase muscling in cattle without adding excess backfat. However, the use of high potency implants has been linked to decreased marbling scores (*Journal of Animal Science,* 1995, 73: 2873-2881; *Journal of Animal Science,* 2000, 78: 1867-1874), resulting in lower quality grades and lost premiums when sold on a grid. The objective of this study was to compare the effects of using the higher potency implant strategy, Synovex Choice and Synovex Plus with the less potent strategy, Synovex S and Revalor S on steer feedlot and carcass characteristics.

Procedure

Over a 2-year period, 109 crossbred (5/8 Red Angus, 3/8 Continental) spring-born steers were blocked by BW and assigned randomly to pen, which received 1 of 2 implant protocols: Synovex Choice [100 mg of trenbolone acetate (TBA) and 14 mg of estradiol benzoate (EB)] implanted at the beginning of the feeding period (CHPL), or Synovex S (200 mg of progesterone and 20 mg of EB- SS) as initial implant. Steers were fed for approximately 100 days, and the CHPL treatment was reimplanted with Synovex Plus (200 mg of TBA and 28 mg of EB) while the SS treatment received Revalor S (120 mg of TBA and 24 mg of EB). Steers were housed in pens of nine by treatment with 2 and 4 pens per treatment in Year 1 and Year 2, respectively. Steers were fed a calf diet from the beginning of treatment in mid-December to early March at which time they were transitioned to a yearling diet (Table 1). At 209 and 213 (Year 1 and Year 2, respectively) days on feed, steers were shipped to a commercial abattoir for slaughter. Hot carcass weight was determined on day of slaughter; carcass characteristics were evaluated 24 hours following slaughter. Final BW was calculated from HCW, based on an average dressing percentage of 63%.

Economic Analysis

Individual expense and revenue was calculated for each steer. Treatment cost was $5.25/steer for CHPL and $3.92 for SS. Feed expense was based on the average pen DMI, feed cost was assumed to be $0.06/lb and a daily yardage charge of $0.50/steer was included. Revenue was calculated on the base grid price for the week that steers were slaughtered. Premiums and discounts for quality grade, yield grade, and HCW were also calculated for those weeks.

Statistical Analysis

The GLIMMIX procedure of SAS (SAS Institute, Inc., Cary, N.C.) was used to analyze all data with steer as the experimental unit, with the exception of average DMI, where pen was the experimental unit. The model

Table 1. Composition of calf and yearling diets.

	DM, %	
Item	Calf Diet	Yearling Diet
Dry-rolled corn	35	37
Prairie hay	10	6
Wet corn gluten feed	47	53
Supplement[1,2]	8	4

[1]Calf diet supplement included 71.74% dried distillers grain plus soluble, 14.90% limestone, 2.85% iodized salt, 2.35% ammonium chloride, and 1.06% trace mineral mix, Rumensin 90 (28g/ton), thiamine, Tylan 40 (10 g/ton), and Vitamin A, D, and E.
[2]Yearling diet supplement included 51.26% ground corn, 29.57% limestone, 5.59% iodized salt, 4.65% ammonium chloride, and 1.94% trace mineral mix, Rumensin 90 (28g/ton), thiamine, Tylan 40 (10 g/ton), and Vitamins A, D, and E.

Table 2. Feedlot performance of steers on CHPL[1] and SS[2] implant protocols.

Item	CHPL[1]	SS[2]	SEM	*P*-value
Initial BW, lb	534	533	24	0.94
Final BW,[3] lb	1,328	1,308	27	0.37
ADG, lb	3.85	3.75	0.18	0.39
DMI, [4] lb/day	21.82	21.51	0.58	0.59
F:G	5.75	5.78	0.23	0.89

[1]CHPL = steers received Synovex Choice as initial implant in mid-December and were re-implanted with Synovex Plus 100 days later.
[2]SS = steers received Synovex S as initial implant in mid-December and re-implanted with Revalor S 100 days later.
[3]Final BW calculated from HCW based on a common dressing percentage of 63%.
[4]F:G calculated as the average pen DMI.

Table 3. Carcass characteristics of steers on CHPL[1] and SS[2] implant protocols.

Item	CHPL[1]	SS[2]	SEM	*P*-value
HCW, lb	837	824	15	0.37
Yield Grade	2.52	2.70	0.26	0.16
LM Area, in^2	14.03	14.04	0.35	0.98
Marbling score[3]	501	525	13	0.19
Fat thickness, in	0.54	0.59	0.06	0.13
USDA Choice, %	93	96	4	0.42
Md[4] or greater, %	47	54	7	0.50

[1]CHPL = steers received Synovex Choice as initial implant in mid-December and were re-implanted with Synovex Plus 100 days later.
[2]SS = steers received Synovex S as initial implant in mid-December and re-implanted with Revalor S 100 days later.
[3]Marbling score: Slight^{00} = 400, Small^{00} = 500, etc.
[4]Md = Modest QG, USDA average Choice.

Table 4. Economic analysis of steers on CHPL[1] and SS[2] implant protocols.

Item	CHPL[1]	SS[2]	SEM	*P*-value
Implant, $	5.25	3.92		
Yardage,[3] $	105.50	105.50		
Feed expense,[4] $	264.90	261.22	1.80	0.08
Carcass return,[5] $	1,615.17	1,590.44	44.29	0.36
Net revenue,[6] $	1,245.64	1,227.18	37.24	0.49

[1]CHPL = steers received Synovex Choice as initial implant in mid-December and were re-implanted with Synovex Plus 100 days later.
[2]SS = steers received Synovex S as initial implant in mid-December and re-implanted with Revalor S 100 days later.
[3]Yardage calculated at $.50/head/day at 213 days (Year 1) and 209 d (Year 2).
[4]Feed Expense calculated at $0.06/lb of pen average DMI for 213 days (Year 1) and 209 days (Year 2).
[5]Carcass return calculated using the base grid price and premiums and discounts for quality grade, yield grade, and HCW for the weeks steers were harvested.
[6]Net revenue = carcass return – (implant expense + yardage + feed expense).

included year, pen, implant strategy, and year × implant strategy interaction. Differences in the proportion of Choice and upper two-thirds Choice USDA quality grade were analyzed using an odds ratio. Least squared means and SE of the proportion of Choice and upper two-thirds Choice by treatment were obtained using the ILINK function.

Results

Feedlot data are presented in Table 2. Steers began the feeding period at a similar ($P = 0.94$) BW, 534 vs. 533 ± 24 lb for CHPL and SS, respectively. Average daily gain was similar ($P = 0.39$) for CHPL (3.85 ± 0.18 lb/day) and SS (3.75 ± 0.18 lb/day) steers. There was no difference ($P = 0.59$) in average pen DMI for CHLP (21.82 ± 0.58 lb/day) and SS (21.51 ± 0.58 lb/day). Carcass characteristics are presented in Table 3. There was no difference ($P = 0.37$) in HCW for CHPL compared with SS steers (837 vs. 824 ± 15 lb, respectively). Yield grade was also not affected ($P = 0.16$) by treatment (2.52 and 2.70 ± 0.26 for CHPL and SS, respectively). Additionally, there was no difference in LM area ($P = 0.98$) between CHPL and SS (14.03 vs. 14.04 ± 0.35 in^2), and back fat was also similar ($P = 0.13$) between the treatments (0.54 vs. 0.59 ± 0.06 in, CHPL vs. SS, respectively). Marbling score was similar ($P = 0.19$) between treatments (501 vs. 525 ± 13, CHPL and SS, respectively) resulting in a similar percentage of steers grading USDA Choice (CHPL vs. SS, 93 vs. 96 ± 4%; $P = 0.42$) and upper 2/3 USDA Choice (CHPL vs. SS; 47 vs. 54 ± 7%; $P = 0.50$). Due to a numerical difference ($P = 0.59$) in pen average DMI (CHPL vs. SS, 21.82 vs. 21.51 ± 0.58), feed expense tends to differ ($P = 0.08$) between CHPL and SS ($264.90 vs. $261.22 ± 1.80). Although net revenue was similar ($P = 0.49$) between CHPL ($1,245.64 ± 37.24) and SS ($1,227.18 ± 37.24) steers, a numerical difference in net revenue of $18.46/steer is noted between the 2 treatments (Table 4). Both implant regimens utilized in the current study resulted in similar feedlot and carcass characteristics.

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