Effect of Three Initial Implant Programs with a Common Terminal Revalor®-200 on Feedlot Performance and Carcass Traits of Weaned Steers

Key Highlights

- Steers averaging 625 lbs. and 215 days on feed were randomly assigned to one of three implant protocols – Revalor-IS/ Revalor-200, Revalor-XS/ Revalor-200 or Revalor-IS/ Revalor-200/Revalor-200.
- Increasing the level of trenbolone acetate and estradiol 17β above the levels supplied by Revalor-IS followed by Revalor-200 has no effect on growth performance, live or carcass, or carcass composition as measured by USDA Quality and Yield Grade.

INTRODUCTION

Providing increasing quantities of supplemental trenbolone acetate (TBA) and estradiol 17β to steers should result in increased live and carcass performance and leaner carcasses as measured by a reduction in carcasses grading USDA Choice or above and a decrease in average USDA Yield Grade. Implementing re-implant programs where an implant is provided every 60 to 90 days throughout the feeding period has become more common. However, studies evaluating implant programs with more frequent re-implantation have not been reported. The objective of this study was to evaluate the impact of three implants, roughly evenly spaced throughout the feeding period, versus a more traditional two implant protocol on feed yard performance and carcass characteristics of weaned steer calves on feed for 215 days.

IMPLICATIONS

Implanting steers with an initial Revalor®-IS (trenbolone acetate and estradiol) followed by Revalor®-200 on day 67 and a terminal Revalor-200 on day 133 did not improve live or carcass adjusted performance when compared with either an initial Revalor-IS followed by a terminal Revalor-200 on day 133 or an initial Revalor®-XS (trenbolone acetate and estradiol) followed by a terminal Revalor-200 on day 133. Carcass characteristics were also not different among the three implant treatments. Providing trenbolone acetate and estradiol 17β levels above that supplied by Revalor-IS followed by Revalor-200 or Revalor-XS followed by Revalor-200 does not result in improved live or carcass performance.

MATERIALS AND METHODS

The study was conducted at a commercial feed yard in central Nebraska with steers arriving from April 1 to May 27, 2015 averaging 625 lbs. on day one of the study. Arrival groups remained separate until randomized two by two into one of three allocation pens. Once completed, each pen was weighed on a platform scale with this weight serving as the initial pen weight. Pens were randomly assigned to one of three implant protocols (Table 1). At the time of initial processing, all steers received Vista® 3, Safe-Guard® (fenbendazole) per label dose, an injectable avermectin per label dose and the respective initial implant treatment. The study was conducted as a randomized block design with 6 – 75 head pens per treatment and arrival group serving as the blocking factor.

TABLE 1: Experimental treatments[1]

TREATMENT	DAY 1	DAY 67	DAY 133
Revalor-IS/200	Revalor-IS	—	Revalor-200
Revalor-XS/200	Revalor-XS	—	Revalor-200
Revalor-IS/200/200	Revalor-IS	Revalor-200	Revalor-200

All pens were weighed at each re-implant time regardless of re-implant status of the specific treatment group, allowing for the determination of interim performance for all treatments. Steers were shipped to a commercial processing facility on October 29, November 13 and December 17, 2015 with two blocks being processed at each time point. Hot carcass weight and USDA stamped Quality and Yield Grade were collected.

TABLE 2: Effects of three initial implant protocols with a common terminal Revalor-200 on feed yard performance[1]

ITEM	REVALOR-IS/200	REVALOR-XS/200	REVALOR-IS/200/200	*P*-VALUE
Pens	6	6	6	—
Cattle	451	450	449	—
Initial weight, lb	625	624	621	0.47
LIVE PERFORMANCE*				
Final weight, lb**	1460	1463	1459	0.91
DMI, lb/day	22.9	22.8	22.7	0.19
ADG, lb/day	3.89	3.92	3.91	0.95
Feed:Gain	5.88	5.84	5.81	0.55
CARCASS ADJUSTED LIVE PERFORMANCE***				
Final weight, lb	1457	1462	1461	0.60
ADG, lb/day	3.88	3.91	3.92	0.38
Feed:Gain	5.90	5.83	5.80	0.16

*Live performance was calculated with deads and rejected animals removed.
**Final body weight is the average of pen weight shrunk 4%.
***Calculated as HCW divided by the average dressing percentage of 64.25%. Subsequent ADG and F:G were calculated based on carcass adjusted final weight.

TABLE 3: Effect of implant protocol on interim live feed yard performance[1]

ITEM	REVALOR-IS/200	REVALOR-XS/200	REVALOR-IS/200/200	*P*-VALUE
Day 1 to 67				
Initial weight, lb	625	624	621	0.47
Day 67 weight, lb	922	923	911	0.06
DMI, lb/day	21.9	21.9	21.6	0.06
ADG, lb/day	4.43	4.43	4.35	0.49
Feed:Gain	4.94	4.94	4.97	0.87
Day 67 to 133				
Day 133 weight, lb	1139	1162	1165	<0.01
DMI, lb/day	22.4	22.7	22.4	0.62
ADG, lb/day	3.42	3.76	4.01	<0.01
Feed:Gain	6.56	6.06	5.59	0.02
Day 133 to 215				
Day 215 weight, lb	1460	1463	1459	0.91
DMI, lb/day	24.5	24.5	24.2	0.78
ADG, lb/day	3.53	3.21	3.21	0.11
Feed:Gain	6.85	7.58	7.52	0.21

TABLE 4: Carcass characteristics of steers implanted with either Revalor-IS, IS and 200, or XS followed by a terminal implant of Revalor-200[1]

ITEM	REVALOR-IS/200	REVALOR-XS/200	REVALOR-IS/200/200	*P*-VALUE
Hot carcass weight, lb	936	940	939	0.59
Dressed yield, %	64.17	64.24	64.34	0.93
USDA Quality Grade*				
Prime, %	2.0	0.0	0.5	0.21
Choice, %	67.2	68.7	68.8	0.85
Select, %	29.0	28.0	28.6	0.95
Standard, %	0.9	2.4	0.9	0.21
Commercial, %	0.9	0.9	1.2	0.95
USDA Yield Grade**				
1, %	2.1	1.2	1.8	0.71
2, %	15.9	15.1	19.8	0.22
3, %	57.2	61.9	60.6	0.48
4, %	23.9	20.9	16.5	0.19
5, %	0.9	1.0	1.3	0.88

*Stamped USDA Quality Grade
**Stamped USDA Yield Grade

TABLE 5: Effect of initial implant protocol on interim and total health outcomes of weaned steer calves[1*]

ITEM	1 BRD TREATMENT	2 OR MORE BRD TREATMENTS	NON-BRD MORBIDITY**	BULLERS
Revalor-IS/200				
0 to 215	15	5	10	1
0 to 67	11	4	6	0
68 to 133	4	1	0	0
134 to 215	0	0	4	1
Revalor-XS/200				
0 to 215	21	1	9	2
0 to 67	15	0	5	0
68 to 133	2	1	1	1
134 to 215	4	0	3	1
Revalor-IS/200/200				
0 to 215	28	4	6	4
0 to 67	23	3	2	0
68 to 133	3	1	2	1
134 to 215	2	0	2	3

*Morbidity values are number of individuals.
**Non-BRD morbidity includes bullers, diphtheria, heat stress, digestive, lameness and physical injury.

SUMMARY

The objective of this study was to evaluate the impact of three implants, roughly evenly spaced throughout the feeding period, versus a more traditional two implant protocol on feed yard performance and carcass characteristics of weaned steer calves on feed for 215 days. Revalor-IS/Revalor-200 (IS/200), Revalor-XS/Revalor-200 (XS/200) and Revalor-IS/Revalor-200/Revalor-200 (IS/200/200) were not different for dry matter intake, live or carcass adjusted ADG and feed efficiency and live or carcass adjusted final weight. Interim live performance was not different between implant treatments for the first 67 days on feed when all treatments effectively experienced the same implant, Revalor IS. From day 68 to 133 on feed, dry matter intake did not differ but performance, ADG and feed efficiency followed the implant dose with performance being greatest for IS/200/200, intermediate for XS/200 and poorest for IS/200. During the final interim period, day 134 to 215, differences in dry matter intake, ADG and feed efficiency were not detected. However, ADG and feed efficiency tended to be greatest for IS/200 compared with XS/200 or IS/200/200. Hot carcass weight and dressing percentage were not different due to implant treatment. Previously, when greater dosages of growth promoting implants have been used in re-implant situations, performance and hot carcass weight differences were not observed. However, differences in USDA Quality Grade distribution, marbling score, average USDA Yield Grade and USDA Yield Grade distribution have been noted. In the current study, differences in stamped USDA Quality and Yield Grade were not detected. Differences in health outcomes and buller incidence were not observed due to implant treatment.

CONCLUSIONS

Increasing the level of trenbolone acetate and estradiol 17β above the levels supplied by Revalor-IS followed by Revalor-200 had no effect on growth performance, live or carcass, or carcass composition as measured by USDA Quality and Yield Grade.

IMPORTANT SAFETY INFORMATION: A withdrawal period has not been established for Revalor in pre-ruminating calves. Do not use in calves to be processed for veal. For complete product information, refer to product labels.

1. Oney CR, Erickson GE, Watson AK, et al. Effect of three initial implant programs with a common terminal Revalor-200 on feedlot performance and carcass traits of weaned steers. Nebraska Beef Cattle Report. 2017:81-83.

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