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## Summary

*A commercial feedlot experiment was performed to compare the effects of a Component TE-IS/TE-S with Tylan (TE-IS/S) implant strategy to a Component TE-200 with Tylan (TE-200) or a Revalor XS (Rev-XS) single implant strategy on performance and carcass characteristics of feedlot steers. Cattle receiving the TE-IS/S implants and the Rev-XS implant had greater ( $P < 0.05$ ) final BW and lower F:G ( $P < 0.05$ ) than the cattle that received the TE-200 treatment. Daily gain was improved ( $P = 0.04$ ) when comparing TE-IS/S to TE-200, but intermediate for steers that received the Rev-XS treatment. Quality grade categories were unaffected by implant strategy. Cattle given TE-IS/TE-S had a greater number ( $P < 0.05$ ) of yield grade 1 and 2 carcasses than other implant treatments, while cattle receiving TE-200 had greater ( $P < 0.01$ ) yield grade 3 and 5 carcasses.*

## Introduction

Revalor XS (Intervet/Shering-Plough, Millsboro, Del.) is a new delayed release implant that contains 40 mg estradiol and 200 mg trenbolone acetate. This implant consists of a total of 10 capsules, 6 of which are coated with a polymer that begins to break down at approximately 80 days post implant administration. The Revalor-XS implant was developed to eliminate the need to reimplant cattle. Component TE-200 with Tylan (VetLife,

Overland Park, Kan.; 20 mg estradiol and 200 mg trenbolone acetate) has a 130-day pay-out period and is given once to feedlot steers during the feeding period. A common reimplant program utilized by feedlots is Component TE-IS with Tylan (VetLife; 16 mg estradiol and 80 mg trenbolone acetate) given on day 1, with the terminal implant Component TE-S with Tylan (VetLife; 24 mg estradiol and 120 mg trenbolone acetate) administered 80 days after the initial implant. Therefore, the objective of this commercial study was to evaluate and compare both feedlot and carcass performance for steers on a common reimplant program vs. single dose implant strategies.

## Procedure

In the current study, Revalor-XS and Component TE-200 with Tylan were compared against a common reimplant program. A commercial feedlot experiment was conducted at Ward Feedyard in Larned, Kan. Yearling steers ( $n = 2,095$ ; initial BW =  $760 \pm 11$  lb) from ranches and auction barns in Oklahoma, Missouri, Kansas, and South Dakota were utilized for this trial. Steers were allocated to pens by sorting every 3 steers into 1 of 3 pens prior to processing. Steers were weighed (pen basis) after sorting, but before processing for determination of initial BW. Pens were assigned randomly to 1 of 3 treatments (7 pens/treatment). The treatments for this trial involved a reimplant and 2 single implant strategies: Component TE-IS with Tylan given on day 1 followed by Component TE-S with Tylan on day 80 (placed in the opposite ear of the Component TE-IS implant; TE-IS/S); Component TE-200 with Tylan given on day 1 (TE-200); and Revalor XS also administered on day 1 (Rev-XS). Implants were injected in the upper middle third of the ear under the skin. During initial processing, along with an implant cattle were given 1 dose of

preresponse pasteurized, 1 dose Pyramid-5, 4cc Ivomec, and a visual identification tag. During reimplant time, cattle that received the terminal implant (Component TE-S with Tylan) were given a single dose of Titanium 3 which aids in the prevention of disease caused by bovine rhinotracheitis virus and bovine virus diarrhea virus, Type I and Type II. Revaccinating cattle at reimplant time is part of Ward's normal standard operating procedure.

A step-up period in which incremental percentages of steam-flaked corn replaced forage was used to acclimate cattle to the final finishing ration. The finishing ration consisted of 69% steam-flaked corn, 17% wet distillers grains with solubles, 5% liquid supplement, 3.5% mixed hay, 3.5% mixed silage, and 2% fat. The supplement was formulated to provide 320 mg/hd/day Rumensin (Elanco Animal Health; Greenfield, Ind.) and 90 mg/hd/day Tylan (Elanco Animal Health).

On day 1 after cattle were allocated to pens, individual lots were weighed on a pen scale, and individual weight was calculated by applying a 4% pencil shrink to the pen weight. Live performance was calculated from final BW shrunk 4% to account for gastrointestinal fill. Carcass performance was calculated using final BW based on HCW divided by a common dressing percentage of 63.5%. Cattle were slaughtered at a commercial abattoir (Tyson, Holcomb, Kan.) approximately 160 days after being placed on trial. On day 1 of slaughter, HCW measurements were recorded and used to calculate both carcass performance and dressing percentage. After allowing for a 48-hour carcass chill, both USDA quality and yield grades were recorded.

Seven animals from the Rev-XS, 6 animals from the TE-IS/S, and 13 animals from TE-200 treatment groups died from non-treatment related illnesses during the course of

**Table 1. Performance of yearling steers implanted with either Component TE-200 with Tylan (TE-200) or Revalor XS (Rev-XS) on day 1 compared to steers implanted with Component TE-IS with Tylan on day 1 followed by Component TE-S with Tylan (TE-IS/S) on day 80.**

	TE-200	TE-IS/S	Rev-XS	SEM	P-value
<i>Feedlot performance<sup>1</sup></i>					
<i>Carcass<sup>2</sup></i>					
Pens	7	7	7		
Steers	684	693	692		
Initial BW, lb	760 <sup>ab</sup>	766 <sup>a</sup>	753 <sup>b</sup>	4.29	0.02
Final BW, lb	1390 <sup>a</sup>	1418 <sup>b</sup>	1413 <sup>b</sup>	7.13	0.01
DMI, lb/d	22.5	22.7	22.4	0.27	0.67
ADG, lb/d	3.94 <sup>a</sup>	4.11 <sup>b</sup>	4.08 <sup>b</sup>	0.06	0.01
G:F	0.175 <sup>a</sup>	0.182 <sup>b</sup>	0.182 <sup>b</sup>	0.002	0.01
F:G <sup>3</sup>	5.71 <sup>a</sup>	5.50 <sup>b</sup>	5.50 <sup>b</sup>		0.01
<i>Live</i>					
Final BW, lb	1399 <sup>b</sup>	1419 <sup>a</sup>	1413 <sup>a</sup>	13.1	0.01
ADG, lb/d	3.98 <sup>b</sup>	4.10 <sup>a</sup>	4.06 <sup>ab</sup>	0.09	0.02
G:F	0.177	0.181	0.181	0.003	0.09
F:G <sup>3</sup>	5.66	5.52	5.54		0.09

<sup>1</sup>Due to differences in initial body weight ( $P = 0.02$ ), data were analyzed with initial BW as a covariant.

<sup>2</sup>Overall carcass performance calculated using 63.5% dressing percentage for all three treatments.

<sup>3</sup>P-value calculated from G:F.

<sup>ab</sup>Means with different superscript within column differ ( $P < 0.05$ ).

**Table 2. Carcass characteristics of yearling steers implanted with either Component TE-200 with Tylan (TE-200) or Revalor XS (Rev-XS) on day 1 compared to steers implanted with Component TE-IS with Tylan on day 1 followed by Component TE-S with Tylan (TE-IS/S) on day 80.**

	TE-200	TE-IS/S	Rev-XS	SEM	P-value
<i>Carcass characteristics<sup>1</sup></i>					
HCW <sup>2</sup>	883 <sup>a</sup>	902 <sup>b</sup>	896 <sup>b</sup>	3.83	0.01
% Yield	63.1 <sup>a</sup>	63.4 <sup>b</sup>	63.7 <sup>b</sup>	0.33	0.001
<i>USDA quality grade, as percentage of total<sup>3</sup></i>					
Prime	0.15	0.29	0.87		0.10
Choice	62.1	57.9	59.5		0.27
Select	34.9	38.6	37.4		0.35
Standard	2.34	3.03	1.59		0.21
Dark	0.00	0.00	0.29		0.14
Blood	0.00	0.00	0.00		
Commercial	0.44	0.14	0.29		0.60
<i>USDA yield grade, as percentage of total<sup>3</sup></i>					
YG 1	7.16	11.96	8.96		0.01
YG 2	26.8	33.3	31.2		0.03
YG 3	52.3	43.1	48.4		0.003
YG 4	10.4	11.0	9.68		0.74
YG 5	3.36	0.72	1.73		0.002

<sup>1</sup>Data were analyzed using the MIXED procedure of SAS.

<sup>2</sup>Hot carcass weight, lb.

<sup>3</sup>Data were compared using the  $\chi^2$  option of the frequency procedure of SAS.

<sup>ab</sup>Means with different superscripts within column differ ( $P < 0.05$ ).

this study. Three carcasses from the TE-200 treatment group and one carcass from the Rev-XS treatment group were condemned and removed from the study for reasons that were not related to implant treatment.

Both feedlot and carcass data were analyzed using the PROC MIXED procedure of SAS (SAS Inst. Inc., Cary, N.C.) with pen as the experimental unit. PROC FREQ of SAS was

used for the Chi Square distribution analysis for both quality and yield grade distributions.

## Results

On the last day of the study, VetLife representatives examined ears that received implants for possible abscesses or missing implants that may have occurred during implant-

ing. 14.7% of the cattle that received a Revalor-XS implant presented an ear that was either abscessed or missing an implant. Ears of cattle that received a Component TE-200 with Tylan or Component TE-IS with Tylan followed by a terminal Component TE-S with Tylan implant had 5.6 and 1.4% abscesses or missing implants. The difference in abscesses and missing implants between the Revalor-XS treatment and the two Component implant treatments may be due to the fact that Tylan is added to the Component implants to minimize infection.

There were no differences in DMI when comparing the reimplant treatment to the 2 single-dose implant treatments ( $P = 0.67$ ; Table 1). For feedlot performance calculated on a carcass basis, final BW ( $P < 0.01$ ), and F:G ( $P = 0.01$ ) were significantly different among the 3 treatments. The cattle that received either the single Rev-XS or the Component TE-IS followed by a TE-S implant had significantly larger final BW ( $P < 0.01$ ) than the Component TE-200 cattle. In addition to final BW, cattle that were placed on the Rev-XS or the reimplant treatment expressed lower F:G than cattle that received TE-200 ( $P = 0.01$ ). Cattle that were placed on the reimplant treatment or the Rev-XS treatment had significantly greater ( $P < 0.05$ ) ADG than cattle that were on the Component TE-200 treatment. Feedlot data calculated on a live basis produced results similar to those data analyzed on a carcass basis. Final BW was significantly greater ( $P < 0.01$ ) for both Rev-XS and TE-IS/S steers when compared to TE-200 treated cattle. Average daily gain was significantly ( $P = 0.02$ ) improved for cattle that were placed on the reimplant treatment compared to TE-200 cattle; Rev-XS steers were intermediate.

Carcass data are presented in Table 2. Cattle that received the TE-200 implant had lighter ( $P < 0.01$ ) HCW than both the Rev-XS and TE-IS/S treatments. Dressing percentage was significantly increased ( $P < 0.01$ ) for both TE-IS/S and Rev-XS when compared to the TE-200

(Continued on next page)

treatment group. Cattle in the Rev-XS treatment tended to have a greater ( $P = 0.10$ ) number of carcasses grade Prime than cattle assigned to TE-200 and TE-IS/S treatments. The other USDA quality grade categories taken at the plant were not significantly impacted by implant regimen. Cattle implanted with Component TE-IS on day 1 then reimplanted with TE-S 80 days later had a greater ( $P < 0.05$ ) number of car-

casses that graded USDA yield grade 1 and 2 than the other 2 single implant treatments. The TE-200 treatment had a greater ( $P < 0.01$ ) number of yield grade 3 and 5 carcasses than both the TE-IS/S and Rev-XS treatments.

### Summary

In conclusion, data from this study suggest feedlot and carcass perfor-

mance was relatively similar for cattle administered either a single Revalor XS implant or a combination of 2 implants during the feeding period.

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