

# Evaluation of Dietary Laidlomycin Propionate and Synovex Plus Implants for Enhancing Performance of Feedlot Steers

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Allen Trenkle, professor of animal science

## Summary

One hundred fifty crossbred yearling steers with an average weight of 876 pounds were used in a 111-day experiment. Steers received either 1) no implant and no ionophore, 2) Synovex Plus<sup>®</sup> and no ionophore, 3) Cattlyst<sup>®</sup> and no implant, 4) Synovex Plus<sup>®</sup> and Cattlyst<sup>®</sup>, or 5) Revalor S<sup>®</sup> and Rumensin<sup>®</sup>. Implanting steers with ) Synovex Plus<sup>®</sup> increased gain and improved feed efficiency compared with control steers. Compared with steers not implanted, steers implanted with Synovex Plus<sup>®</sup> had heavier carcasses and larger ribeye areas, but similar fat thickness and yield grades. Feeding Cattlyst<sup>®</sup> alone did not increase gain or

improve feed conversion, but there was some improvement in feedlot performance when Cattlyst<sup>®</sup> was fed to steers implanted with Synovex Plus<sup>®</sup>. Steers implanted with Synovex Plus<sup>®</sup> and fed Cattlyst<sup>®</sup> had superior gains to steers implanted with Revalor S<sup>®</sup> and fed Rumensin<sup>®</sup>.

## Introduction

Hormone implants containing estrogen or estrogen-like compounds have been extensively used for over 30 years in finishing cattle to increase rate of gain and improve efficiency of feed utilization. Recent changes in implants have included the addition of trenbolone acetate, an androgen-like compound, and some changes in dosages. Recently the Synovex implant for steers has been modified by the addition of trenbolone acetate and the removal of progesterone. Ionophores have been added to feedlot-cattle

**Table 1. Performance and carcass measurements from steers with different implants and fed no ionophore, Cattlyst<sup>®</sup> or Rumensin<sup>®</sup>.**

Implant: Ionophore:	None None	SynPlus None	None Cattlyst	SynPlus Cattlyst	Revalor Rumensin	SE <sup>a</sup>
No. steers	30	30	30	30	30	
No. days	111	111	111	111	111	
Initial wt, lb	878	877	878	876	877	1.3
Final wt, lb	1289 <sup>x</sup>	1363 <sup>y</sup>	1286 <sup>x</sup>	1369 <sup>y</sup>	1327 <sup>z</sup>	16.9
Daily gain, lb	3.70 <sup>x</sup>	4.38 <sup>y</sup>	3.67 <sup>x</sup>	4.44 <sup>y</sup>	4.05 <sup>z</sup>	.14
Feed DM, lb/d	21.6 <sup>x</sup>	22.9 <sup>y</sup>	21.5 <sup>x</sup>	22.7 <sup>yz</sup>	21.7 <sup>xz</sup>	.46
Feed/gain	5.84 <sup>x</sup>	5.23 <sup>y</sup>	5.87 <sup>x</sup>	5.10 <sup>y</sup>	5.37 <sup>y</sup>	.14
<b>Carcass</b>						
Carcass wt, lb	769.8 <sup>x</sup>	812.9 <sup>y</sup>	764.5 <sup>x</sup>	816.4 <sup>y</sup>	791.0 <sup>y</sup>	9.7
Dressing % <sup>b</sup>	59.7	59.7	59.5	59.7	59.6	.41
Ribeye area, in <sup>2</sup>	13.4 <sup>x</sup>	14.4 <sup>y</sup>	13.5 <sup>x</sup>	14.4 <sup>y</sup>	13.6 <sup>x</sup>	.27
Fat thickness, in	.35	.32	.32	.35	.35	.04
KHP, %	2.4	2.4	2.5	2.3	2.3	.10
Marbling score <sup>c</sup>	4.52 <sup>x</sup>	4.02 <sup>y</sup>	4.44 <sup>x</sup>	4.30 <sup>xy</sup>	4.35 <sup>xy</sup>	.18
Percent Choice	73	53	70	70	67	5
Choice	22	16	21	22	20	
Select	8	14	9	8	10	
Yield grade	2.46	2.23	2.34	2.33	2.45	.13
1	2	1		2		
2	20	22	20	17	17	
3	8	7	10	11	13	

<sup>a</sup>Standard error of the mean.

<sup>b</sup>Based on unshrunk weights taken at the research farm.

<sup>c</sup>Marbling score: 4 = small, 5 = modest.

<sup>xyz</sup>Means in the same row differ (p < .05) if they have no letter in common.

diets for about 20 years. The most recent addition to the approved list of ionophores was laidlomycin propionate sold under the trade name Cattlyst<sup>®</sup>. It has been known for many years that the responses of feedlot cattle to implants and ionophores are additive. The purpose of this experiment was to compare the responses of Synovex Plus<sup>®</sup> and Cattlyst<sup>®</sup> alone and in combination with control steers and steers implanted with Revalor<sup>®</sup> and fed Rumensin<sup>®</sup>.

### Materials and Methods

One hundred fifty steers, with an average weight of 876 pounds, were selected from 166 steers purchased at an Iowa auction. The steers were British x Continental crossbreeds, predominantly black and blond in color. The steers were immunized and treated for internal and external parasites before starting on test. Ears of all cattle were palpated and previous implants were surgically removed. The steers were divided into five weight groups and allotted at random to five pens for each weight group. One experimental treatment was then allotted at random to one pen within each of the five weight groups. The experimental treatments were: 1) control, no implant and no ionophore, 2) Synovex Plus<sup>®</sup> (28 mg estradiol benzoate + 200 mg trenbolone acetate) and no ionophore, 3) Cattlyst<sup>®</sup> (10 g per ton 90% dry matter feed) and no implant, 4) Synovex Plus<sup>®</sup> and Cattlyst<sup>®</sup>, or 5) Revalor S<sup>®</sup> (24 mg estradiol + 120 mg trenbolone acetate) and Rumensin<sup>®</sup> (30 g per ton 90% dry matter feed). The cattle were implanted on the first day of the experiment.

The steers were weighed individually in the morning, before feeding, on two consecutive days at the start and end of the experiment, and at 30-day intervals during the experiment. The experiment was started the middle of October and the cattle were fed 111 days. All cattle were fed twice per day a diet containing, on a dry basis, 74.4% cracked corn, 12.0% corn silage, 1.5% cane molasses, 10.0% soybean meal, 0.65% urea, 0.85% ground limestone, 0.30% sodium chloride, 0.17% potassium chloride, 0.020% elemental sulfur, 0.024% trace mineral premix, and vitamin A (to provide 1,400 IU per pound dry matter).

The cattle were sold when they were judged by visual appraisal to grade low Choice. All cattle were slaughtered as a group at a commercial beef-packing plant. Weights of hot carcasses were taken after slaughter, and measurements on the carcasses were obtained after 24 hours in the cooler.

### Results and Discussion

The results of the experiment are summarized in Table 1. Steers implanted with Synovex Plus<sup>®</sup> compared with control steers without implants had greater feed intake, faster gains, improved feed conversion, heavier carcasses, larger ribeye areas, reduced marbling, and no difference in fat thickness or yield grade. Feeding Cattlyst<sup>®</sup> did not affect feed intake or feed conversion compared with control steers. In other experiments with finishing steers and heifers, feeding Cattlyst<sup>®</sup> at this level improved gain and feed efficiency. It is not clear why the steers in the current experiment did not respond to the ionophore. Feeding Cattlyst<sup>®</sup> to steers implanted with Synovex Plus<sup>®</sup> did not affect feed intake or gain, but numerically improved feed conversion. Steers implanted with Revalor<sup>®</sup> and fed Rumensin<sup>®</sup> did not consume as much feed and did not gain as well as those implanted with Synovex Plus<sup>®</sup> and fed Cattlyst<sup>®</sup>. The steers fed Rumensin<sup>®</sup> and implanted with Revalor<sup>®</sup> did not consume as much feed, which might have been the result of feeding Rumensin<sup>®</sup> at 30 grams per ton, a level that is known to depress feed intake. The Revalor<sup>®</sup> implant also contains less trenbolone acetate, 120 mg compared with 200 mg in Synovex Plus<sup>®</sup>. It has not been conclusively demonstrated, however, that all feedlot steers will respond to the higher dose of trenbolone acetate.

### Implications

**The results of this experiment demonstrated that Synovex Plus<sup>®</sup> was an effective implant for finishing steers fed or not fed an ionophore. Carcass weight was significantly increased and feed utilization was improved in steers with this implant. Carcass ribeye area was increased with no significant effect on carcass yield grades.**

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