



# *Beef Cattle Management Update*

**FIELD STUDIES OF VARIOUS REIMPLANT STRATEGIES USING FINAPLIX-S AND SYNOVEX-S<sup>1</sup>**

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## Introduction

Since its approval in 1987, trenbolone acetate (TBA), the active compound in Finaplix implants, has been the subject of much discussion among cattle feeders. Anderson (1990) summarized 24 comparisons from 15 experiments and reported that TBA, when administered to steers in combination with an estrogen(E)-containing implant (Synovex, Ralgro, Compudose or Steer-oid) improves ADG 24.2%, reduces F/G 15.4% and increases muscle deposition 8.9% in comparison to nonimplanted controls.

Since no implants that are currently on the market contain both TBA and E, the TBA+E combination can only be administered through combined use of two separate implants. An unfortunate aspect of this is that according to label directions, Finaplix implants should be reimplanted after 63 days, while duration of the E-containing implants ranges from 80 to 200 days. The effects of gaps or overlap in hormonal delivery are not well understood. This makes designing implant and reimplant strategies difficult.

While the TBA+E combination is a potent growth stimulator, there are some potential drawbacks. In most research studies, quality grade of the TBA+E cattle was reduced. Usually 10 to 20% fewer cattle in a pen will grade choice if implanted with TBA+E compared to cattle implanted with E alone if fed the same number of days. In rare instances, cattle feeders have reported reductions in percent choice of as great as 50 percentage units (i.e. from 80% to 30%) when cattle were marketed shortly (within 40 to 50 days) after receiving TBA+E.

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<sup>1</sup> Appreciation is expressed to Howard and Brian Mogler, Alvord, IA and Loyd and Gary Fehr, Morris, MN for supplying the data in this report.

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Current information available from University of Minnesota Extension: <http://www.extension.umn.edu>.

TBA+E offers potential to improve performance and profitability but must be used properly. Implant and reimplant strategies designed for most effective use of the TBA+E combination are unclear.

Following are descriptions of four field studies which examined different implant/reimplant strategies. These studies were conducted at two feedyards, by the owners (Howard and Brian Mogler, Alvord, IA; Loyd and Gary Fehr, Morris, MN), with no involvement by University of Minnesota personnel. These data are reported with permission from the operators and are not meant to be considered reports of University of Minnesota research. Studies are reported in this manner in order to disseminate information gained by these cattle feeders to others who might benefit. It is the opinion of the author that the studies were well designed and conducted in a manner that allows confidence to be placed in the results.

### Experimental Procedures

Trial 1. Mixed crossbred steer calves (288 head, 575 lb initial weight) were fed a moderate energy diet from November until January 1, then fed a diet containing 60 Mcal/lb diet dry matter until the trial began. All cattle received Synovex-S upon arrival. On February 17, 99 days after receipt, steers were mixed, reweighed and randomly assigned to reimplant with Finaplix-S and Synovex-S, or Synovex-S alone. Two pens per treatment with 72 head per pen were used. Average weight on February 17 was 856 lb. After reimplant, cattle were fed a diet containing 61 Mcal NEg/lb for 94 days and slaughtered in May.

Trial 2. Mixed crossbred yearling steers (135 head) were purchased in March and received both Finaplix-S and Synovex-S upon arrival. After 64 days, the group was randomly divided into two pens of 67 and 68 head each, average weight was 1076 lb. One pen was reimplanted with Finaplix-S, the other received no reimplant. Both pens were fed a diet containing 63.8 Mcal NEg/lb and slaughtered in July after 66 additional days on feed.

Trial 3. Crossbred yearling steers (222 head; 2/3 contained Brahman blood) were purchased in May. Each received both Finaplix-S and Synovex-S upon receipt. Cattle were fed for 75 days at which time they were divided into three experimental pens of 74 head each (average weight 1057 lb). An equal number of Brahman-crossbred steers were placed in each pen, all other assignments were random. One pen was reimplanted with both Finaplix-S and Synovex-S, one pen was reimplanted with Finaplix-S alone, the other pen was not reimplanted. Cattle were fed a diet containing 63.4 Mcal NEg/lb for 74 additional days and slaughtered in October.

Trial 4. Two groups of large framed crossbred steer calves were assembled in early fall. One group included 864 calves with an average initial weight of 583 lb, the other group included 515 calves, initial weight 546 lb. The groups were similar in color pattern and frame size but did not have the same origin. The larger group also received Synovex-S and Finaplix-S after 55 days on feed. Each group received Synovex-S upon receipt and Synovex-S and Finaplix-S after 110 days on feed. Both groups were marketed in April and May after approximately 200 days on feed.

## Results

Only pen means are reported; no statistical analyses have been performed. Thus, it cannot be discerned whether apparent differences are due to treatments administered, due to some unreported variable (such as a difference in mud or diet mixing between pens, etc.) or simply due to chance. Interpretation of these results as well as the discussion that accompanies them is the responsibility of the reader. This is particularly critical in the case of Trial 4, since cattle in the treatment groups were purchased separately.

In Trial 1 steers implanted with TBA+E gained an average of 328 lb, while those implanted with E alone gained 294.5 lb. The 33.5 lb advantage in gain represents a difference in ADG of .36 lb, (3.49 vs 3.13) or 11.3%. Feed conversion was improved by 10% (5.84 vs 6.44). Feed cost was reduced by \$2.19/cwt of gain (\$21.36 vs \$23.55) and all costs were reduced by \$2.53/cwt of gain (\$32.19 vs \$34.72). The reduction in total cost occurred despite a higher yardage charge assigned to the TBA+E cattle to reflect the cost of the Finaplix-S implant. No differences in carcass data occurred as a result of the implant treatments.

In Trial 2, reimplantation with Finaplix-S for the final 66 days of a 130 day feeding period increased ADG and improved F/G, both by 13%. Feed cost was reduced by \$5.01/cwt of gain but total costs were reduced by only \$1.61. This reflects the greater non-feed costs (\$21.83 vs \$18.43) of the reimplanted group. Quality grade may have been reduced by inclusion of Finaplix-S. In the reimplant group, 57% (39 of 68) steers graded choice while 69% (46 of 67) steers that were not reimplanted reached choice. Other carcass measurements apparently were not affected.

In Trial 3, cattle that received Finaplix-S and Synovex-S initially grew faster when reimplanted with Finaplix-S and Synovex-S for the final 74 days of a 149 day feeding period, compared to cattle that were reimplanted with Synovex-S alone or not reimplanted. F/G was also improved and feed and total costs were lower, despite increased nonfeed costs. Reimplantation with Finaplix-S, with or without Synovex-S, seems to have reduced quality grade and improved yield grade.

Results of Trial 4 indicate that use of 2 Finaplix-S and 3 Synovex-S resulted in similar performance to use of 1 Finaplix-S and 2 Synovex-S, over an approximately 200 day feeding period. The only variable that appears to be different is the percentage of choice cattle, which was reduced with the greater number of implants.

## Discussion

Combined results of these four trials can be used to conclude that proper use of TBA+E can result in improved performance by as much as 15% over implanted controls. It should also be noted that use can cause problems in some cases. An example of this is Trial 4 in which the added expense, shrink and labor required for an additional reimplant resulted only in a reduction in quality grade of the cattle. Defining proper use of TBA+E in reimplantation programs is difficult.

Based on these and other data, the author has made the following suggestions:

1. Once cattle have been implanted with TBA, continue use of TBA until slaughter. Reimplant every 60-80 days. However, use of three successive TBA+E implant combinations may not be wise.
2. Feed cattle implanted with TBA+E to heavier weights than cattle implanted with other products or non-implanted cattle. Research at the University of Minnesota and at Cornell University has shown that cattle implanted with TBA+E must weigh from 40 to 200 lb (amount depends on cattle type) more than non-implanted cattle to attain the same quality grade.
3. Timing of marketing is critical. TBA+E implanted cattle should not be marketed within 60 days of receiving implants but should be marketed within 110 days, or much of the implant benefit may be lost. The 60 to 110 day window is likely too wide for typical market conditions, 90 to 105 is recommended in most cases. Further research will allow more specific recommendations but use of TBA+E limits marketing options.
4. Consider cattle type and sex in TBA implant programs. Small frame steers and heifers are best suited to TBA+E use. Heifers and smaller frame exotic steers are well suited to TBA+E use. Very large frame steers may not be well suited to TBA+E use. Performance and muscling of large frame steers will be improved, but quality grade may be poor at acceptable market weights. While use of TBA+E in small frame cattle may allow a feeder to avoid discounts for carcasses that are too light, TBA+E will increase the possibility that large frame cattle will produce carcasses that are discounted because they are too heavy.
5. Consider marketing programs. TBA+E may be the wrong choice for cattle that will be marketed when the discount for select grade carcasses is great. Cattle that will be marketed when the penalty for failure to grade choice is reduced, should receive TBA+E. Specialty programs such as Certified Angus Beef or Limousin Supreme, which have specific marbling requirements, may dictate use or nonuse of TBA+E.
6. Consider the effects of TBA+E when projecting breakevens and marketing dates.

For the most part, data contained herein support these suggestions. Reimplantation improved performance in all cases but the most effective implant/reimplant combination is still unclear. It is possible to use more implants than necessary, more implants does not always mean improved performance (Trial 4). Cattle implanted with TBA should be reimplanted with TBA until slaughter. Cattle slaughtered between 90 and 105 days of receiving final TBA-containing implants were more likely to grade than those slaughtered outside of that window.

If a single Finaplix implant is used, it should be the final implant in the program. The implant strategy used in University of Minnesota feedlot research, for cattle that will be fed approximately 190 days, is to administer an E-containing implant when cattle are received, and TBA+E 100 days before slaughter. This is a low risk/high benefit program that many cattle feeders have adopted.

**TABLE 1. COMPARISON OF TBA + E vs E IMPLANTS<sup>a,b</sup>**

	Finaplix-S Synovex-S	Finaplix-S Synovex-S	Synovex-S	Synovex-S
No. of head	72	72	72	72
Days on feed	94	94	94	94
Start wt. <sup>c</sup>	869	867	863	863
Final wt. <sup>d</sup>	1194	1198	1163	1154
ADG	3.46	3.52	3.19	3.07
DM - conv.	5.89	5.79	6.30	6.57
Feed \$/lb gain <sup>e</sup>	21.54	21.17	23.08	24.02
Total \$/lb gain <sup>f</sup>	32.43	31.94	34.10	35.33
Diet energy, Mcal	61	61	61	61
% choice	90	89	89	82
% YG 1 + 2's	56	50	52.8	51.4
% YG 3's	42.5	50	45.7	47.1
% YG 4's	1.5	0	1.5	1.5

<sup>a</sup>Crossbred steer calves.

<sup>b</sup>Steers on feed February through May.

<sup>c</sup>Processed following AM feeding - weighed and shrunk 3%.

<sup>d</sup>Adjusted to 63% yield.

<sup>e</sup>\$1.90 bu #2 corn - \$12/ton sorghum silage - \$175/ton supp.

<sup>f</sup>Yardage = 35¢/hd/d for Synovex-S pens, 38¢/hd/d for Finaplix-S + Synovex-S pens.

**TABLE 2. EVALUATION OF A TBA REIMPLANT<sup>a,b,c</sup>**

	<b>Reimplanted with Finaplix-S</b>	<b>No reimplant</b>
No. of head	68	67
Days on feed	66	66
Starting wt. <sup>d</sup>	1071	1081
Final wt. <sup>e</sup>	1283	1269
ADG	3.22	2.84
DM - conv.	6.62	7.59
Feed \$/lb gain <sup>f</sup>	33.75	38.76
Total \$/lb gain <sup>g</sup>	55.58	57.19
Diet energy, Mcal	63.8	63.8
% choice	57	69
% YG 1 + 2's	69	70
% YG 3's	31	28.5
% YG 4's	0	1.5

<sup>a</sup>Crossbred steer calves.

<sup>b</sup>Steers on feed May through July.

<sup>c</sup>All cattle received Synovex-S 64d before start of experiment.

<sup>d</sup>Processed after AM feeding - weighed and shrunk 3%.

<sup>e</sup>Adjusted to 63% yield.

<sup>f</sup>\$2.50 bu #2 corn - \$23/ton corn silage - \$205/ton supp.

<sup>g</sup>Yardage = 46¢/hd/d for no reimplant, 50¢/hd/d for reimplant group.

TABLE 3. COMPARISON OF REIMPLANT STRATEGIES<sup>a,b,c</sup>

	No reimplant	Reimplant with Finaplix-X Synovex-S	Reimplant with Finaplix-S
No. of head	74	74	74
Days on feed	74	74	74
Starting wt. <sup>d</sup>	1062	1051	1058
Final wt. <sup>e</sup>	1274	1276	1263
ADG	2.86	3.05	2.77
DM - conv.	7.26	6.53	7.13
Feed \$/lb gain <sup>f</sup>	34.97	31.47	34.36
Total \$/lb gain <sup>g</sup>	51.93	48.80	53.02
Diet energy, Mcal	63.4	63.4	63.4
% choice	72	58	51
% YG 1 + 2's	57	69	65
% YG 3's	40	31	32
% YG 4's	3	0	3

<sup>a</sup>Crossbred yearling steers.

<sup>b</sup>Steers on feed July through September.

<sup>c</sup>All cattle received Synovex-S and Finaplix-S 75d before start of experiment.

<sup>d</sup>Processed following AM feeding - weighed and shrunk 3%.

<sup>e</sup>Adjusted to 63% yield.

<sup>f</sup>\$2.25 bu #2 corn - \$22.50/ton corn silage - \$220/ton supp.

<sup>g</sup>Yardage = no implant, 48¢/hd/d; single reimplant, 52¢/hd/d; double reimplant, 53¢/hd/d.



**TABLE 4. COMPARISON OF TWO REIMPLANT STRATEGIES<sup>a</sup>**

	Strategy	
	<u>2S + 1F<sup>b</sup></u>	<u>3S + 2F<sup>c</sup></u>
Number of cattle	864	515
Start wt, lb	583	546
Sale wt, lb	1228	1220
Days on feed	191	201
ADG, lb	3.38	3.37
ADFI, lb	20.2	20.1
F/G	5.97	5.96
Percent YG 1+2	69.7	69.7
Percent YG 4	1.16	0.78
Percent choice	57.8	40.4

<sup>a</sup>Large frame crossbred steer calves feed October through April or May.

<sup>b</sup>Synovex-S on d 0 and d 110, Finaplix-S on d 110.

<sup>c</sup>Synovex-S on d 0, d 55 and d 110, Finaplix-S on d 55 and d 110.

For additional information regarding implant use, see Beef Cattle Management Update #10.