



CATTLE PERFORMANCE ENHANCEMENT COMPANY

# The Sortin' Stick

---

May 2004

Volume 3, Issue 2

## **Economics of Implant Strategies at Re-implant Time**

**Roundup 2004**

**John R. Brethour**

**KSU Agricultural Research Center—Hays**

Thirty years ago research at this center showed that re-implanting feedlot cattle to increase gains also indicated that this extra implant application also adversely affected carcass quality grade. Because of the preponderance of grid pricing and the increase in premiums for USDA Choice and higher grading carcasses, there is substantial concern that the tradeoff of extra gain for lower grade may negate the benefits of re-implanting.

Cattle may be evaluated and clustered into marketing groups at re-implant time. This provides both the opportunity and the challenge to develop economic and performance models to aid in decisions of whether or not to implant and a choice among implants differing in potency. In the research presented here mere qualitative responses are not of interest. The objective is to estimate quantitative effects as precisely as possible in order to fit parameters to an economic decision model.

Some factors that might affect implant strategy include the price differential among quality grades, e.g., the Choice – Select spread, along with knowledge of the effect of the various implant selections on carcass grade. Also, it is necessary to know the amount of weight gain response from different implants in order to judge the trade off between reduced grade and increased gain. The value of the improved performance from implanting will also be affected by feed costs. When cattle are clustered at re-implanting time there will be variations in the time interval until harvest date which will vary from groups projected to be marketed in as little as 40 days and as long as over 100 days. Assignment of individual animals to these different outcome groups may affect implant decisions.





## Economics of Implant Strategies

Ultrasound provides a technology to estimate marbling at re-implant time. An objective of this research was to determine if implant effects might differ according to the marbling potential of individuals. In particular, if the ultrasound evaluation indicated that an animal had potential to grade well, would re-implanting have as much adverse effect on future quality grade as it would on a more mediocre individual (or vice versa)?

Although this progress report contains sufficient information to assist cattle feeders, the project continues in order to expand the data and to obtain even more precise information.

This report includes results from 548 steers used in four replications with 5 pens of about 28 animals per pen. The experiment lasted from re-implanting until harvest with an average duration of 71 days. Native yearling steers that were predominately Angus were used in this study. They averaged 1158 pounds at re-implant time and 1408 at the end of the trials. Prior to allotment, each animal was evaluated with ultrasound to obtain initial backfat and marbling. Initial weights were taken after an overnight shrink. Cattle were fed a high energy diet that was primarily rolled milo.

All cattle had been implanted with Synovex Choice upon arrival, about 80 days before the beginning of the trials. Synovex Choice contains 100 mg trenbolone acetate and 14 mg estradiol which is half the dose of Synovex Plus. Implants for this research were provided by Fort Dodge Laboratories, Overland Park, Kansas.

The five experimental treatments were:

1. Control (No Implant)
2. Synovex Choice 70 days before harvest (Choice 70)
3. Synovex Choice 40 days before harvest (Choice 40)
4. Synovex Plus 70 days before harvest (Plus 70)
5. Synovex Plus 40 days before harvest (Plus 40)

The 70-day treatments were implanted when the cattle were initially allotted for the study; the 40 -day treatments were implanted 30 days later and all cattle were harvested at the same time. The purpose of the 40-day treatment was to mimic cattle that might be projected to be marketed that soon after re-implanting.

Implanting reduced the proportion of cattle grading Choice or better from 80% among the control group to an average of 62% among the implanted groups. Steers implanted with Synovex Choice averaged 67% USDA Choice and those that received Synovex Plus averaged 58% USDA Choice.



## Economics of Implant Strategies

There were also reductions in the proportion grading Premium Choice (Average and High Choice) from 37% in the control group to 24% among the implanted cattle.

When the third of the group with the lowest initial ultrasound marbling scores were analyzed, there were similar reductions in the proportion grading Choice, but there were very few cattle grading Premium Choice in this group. The average percent Choice among this set was 63% and 31% for non-implanted and re-implanted cattle, respectively.

Likewise, re-implanting reduced the proportion of USDA Choice among the third of those steers with the highest grading potential, from 96% to 86%. Among this set, the reduction in Premium Choice was even more pronounced falling from 74% to 53%. Only among the cattle with very low potential to grade Choice (initial marbling score of Traces 50 or less) was there little adverse implant effect.

On the other hand implant treatments increased average gain during the 70-day trial by 38 pounds. This response was not affected by initial marbling score. Cattle implanted with Synovex Plus gained 10 pounds more during this period than those implanted with the less potent Synovex Choice. There was little difference in the 70-day gains between cattle implanted at the start of the period and those implanted 30 days later with an interval to harvest of 40 days. **This suggests that most of the response to implants occurs within 40 days of implanting.**

One might exploit these results to calculate the economic tradeoff between increased gain and lowered grade. If live cattle price is \$80 per cwt, the value of the extra 38 pounds would be \$30.40. On the other hand, if the Choice – Select spread is \$16, the penalty for reduced grade is \$24.48 ( $850 * \$0.16 * 0.18$ ) where 850 is an assumed carcass weight, \$0.16 is the spread and 0.18 is the reduction in percent Choice from implanting. In addition a similar penalty for reduction in Premium Choice might be \$5.52 ( $850 * \$0.05 * 0.13$ ). Using USDA Choice and CAB premiums of \$16 and \$5 appears to be necessary to offset the value of the additional gain from reimplanting.

One might consider feeding non implanted cattle longer to recover the additional gain from implanting, but the carcass backfat and rib eye area results suggest that USDA Yield grade penalties might prevent that because the non implanted cattle had as much back fat and less rib eye area than those that had been implanted. (There were almost no Yield Grade #4 cattle at harvest because animals that would have become that fat were culled and not used in these studies.)

There was virtually no difference in feed intake among treatments. Consequently, feed efficiency averaged 19 percent better among implanted cattle.



## **Economics of Implant Strategies**

### **Conclusions**

- The economic importance of extra gain in relation to reduction in quality grade, was greater than expected.
- The adverse effect of implanting on grade prevailed among both cattle with high and low marbling potential.
- There were similar results from implanting 40 or 70 days before harvest. This suggests that most of the implant effect occurs within 40 days.
- Effects of Synovex Plus were greater than Synovex Choice, but more data is needed to completely evaluate the difference between these two implants, (differences were small).

### **Equipment Protection**

A couple of our newer ultrasound clients have requested transport boxes for their equipment. In response to that request I have found a series of transport boxes manufactured by Thermodyne International, LTD, Ontario, California, 909-923-9945. Their website is [www.thermodyne-online.com](http://www.thermodyne-online.com)

The boxes that I have ordered are called Shock-Stop cases and the sizes are: #102070 14 x 13 x (13 + 4) for the Aloka machine and #102837-2, 34 x 25 x (7 + 7) for computer, monitors, cables and probe. The two boxes are full foam filled so one can cut out to fit the equipment. They are constructed of a flexible polyethylene material, completely weatherproof and non-corrosive. Shok-Stop's unique ribbed design absorbs shock on impact, actually flexing to cushion against shocks. Precisely engineered ribbing and corner bumpers on each Shok-Stop case help protect the equipment. They have spring-loaded handles and recessed hinges. The smaller box is \$245 and the larger box is \$437, plus freight.

### **Silencer Squeeze Chutes from Moly Manufacturing**

As most of us are aware, a good squeeze chute with scales is essential for our ultrasound process. Unfortunately, most chutes are not designed to accommodate both the animal and the human operator. With that in mind, we have realized that the Silencer line of chutes from Moly Manufacturing are one of the few squeeze chutes which are both animal friendly and human operator friendly. Currently, we are working with Moly Manufacturing in the sale and distribution of these quality chutes which have simple design changes especially for our ultrasound process. CPEC is proud to recommend this company to all our customers. If you need information about one of their chutes, please feel free to call me, or their manufacturing plant at 785-472-3388.



## **New Technicians**

Since our last annual meeting there have been a number of additional systems purchased and put into operation. They are:

Bluestem Veterinary Service	Al Meyers, DVM & Matt Barten	Abilene, KS
Caprock Feedyard #4	Rick Posichal	Dalhart, TX
Caprock Feedyard #5	Jason Floyd	Bovina, TX
Caprock Feedyard #6	Tony Thomas	Lockney, TX
Dale Bumpers Small Animal Research Center	Michael Looper & Sam Tabler	Boonville, AR
Freeman Feedyard, INC	Serapio & Luis Rodriguez	Texhoma, OK
Randy Heiser		Ruso, ND
Justin Gleghorn	Levi Berry	Clayton, NM
Morehead University	Troy Wistuba	Morehead, KY
Quality Feeders	Dan LaTourell & Adam Stubbs	Great Bend, KS
Renaissance Nutrition	Travis Reid	Dallastown, PA
University of Kentucky	Dr. Kyle McLeod	Lexington, KY
USDA-ARS-MSA	Dr. Glen Aiken	Lexington, KY

*This newsletter is a service of Cattle Performance Enhancement Co. with offices in Oakley and Hays, Kansas . It is provided at no cost to our licensed technicians, customers and friends for education and information. Comments may be submitted to Lynn Allen, Sales & Marketing Manager, 3312 Sunlite, Amarillo, Texas 79106 or email [lallen6423@aol.com](mailto:lallen6423@aol.com)*