

## COSTS OF REWORKING CATTLE

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### ABSTRACT

Working cattle requires effort and probably reduces performance, but estimates of reduced performance due to reworking cattle are not found in the literature. Two studies suggest that working cattle temporarily reduces performance; however, in most trials, reworking is confounded with implant longevity. The benefits from reimplants probably are slightly under-estimated due to the impact of reworking cattle. Costs of sorting for carcass grade was estimated from performance of two groups of individually fed cattle. Lost yardage from removing loads of cattle from a 300 head pen on a weekly basis also were calculated. Additional costs were discussed and compared to premiums of \$4 to \$8 per head when all carcass guarantees were met. It appears that the sorting cost (\$20-26/head) will not be off-set by the carcass premium (\$4 to \$8/head) being offered.

### INTRODUCTION

The value of reimplanting cattle has been estimated at \$13.88/head for steers and \$5.67 for heifers (Marshall et al., 1983) excluding the cost of the implant. However, certain risks are associated with reimplanting. Concern about injury, death, reduced feed intake and gain, poor feed efficiency, increased health problems and an increased incidence of bullers all have been raised as potential risks.

Feedlot owners and managers are being pressured to consider securing a contractual or formula agreement with packers in order to sell their cattle in a timely fashion. The incentive for this contractual arrangement can range from a 50¢/45.5 kg premium (\$4/hd on an 364 kg carcass) up to \$8/hd (\$1/45.5 kg premium if all specifications are met) depending on the packer involved. To secure this premium, cattle must be sorted to fulfill agreed upon specifications and not receive any discounts. In commercial feedyards, however, this process of sorting may involve several hidden costs. The purpose of this review was to estimate the impact of reworking cattle for reimplanting and(or) sorting to target a specific market goal.

### DISCUSSION

#### *Reimplanting*

In a study by Gill et al. (1983), bull calves were implanted with nothing, Compudose, Synovex-S or Ralgro at the beginning of the 112 day trial. Cattle in the Synovex and Ralgro treatments were reimplanted day 75 with Synovex or Ralgro; in contrast, the control and Compudose cattle were not removed from their pens on day 75. If one assumes that Compudose and Synovex/Synovex give the same implant response, as suggested by the Compudose technical manual, then the difference between these two treatments can serve as an estimate of the cost of reworking cattle. Average daily gain was reduced .1 kg/day (5.6%) and feed efficiency was .16 units (6.9%) poorer. Hot carcass weight was 7.7 kgs lighter for the reimplanted bulls (Table 1). This means that reworking these cattle reduced total gain by 11.2 kg while increasing feed intake by 9.4 kg. Does the implant response in bulls mirror that in steers? Does the social interaction of a small pen of bulls (8 head) represent what happens in a large pen (>300 head) of steers?

Table 1. Bull calf performance (96) head with different implants

| 0-112 days       | None | Compudose | Synovex <sup>a</sup> | Ralgro <sup>a</sup> |
|------------------|------|-----------|----------------------|---------------------|
| Feed intake, kgs | 8.5  | 9.3       | 9.4                  | 8.7                 |
| ADG, kgs/day     | 1.60 | 1.78      | 1.68                 | 1.74                |
| Feed Efficiency  | 5.32 | 5.21      | 5.57                 | 5.03                |

<sup>a</sup> Reimplanted on day 75.

Hicks et al. (1985), evaluated Finaplix alone or in combination with Compudose. Compared to controls, Finaplix implanted on days 1 and 63, reduced feed intake by .32 kg/day, and ADG by .1 kg (carcass adjusted basis) (Table 2). Finaplix alone hurt efficiency 3.9% on a carcass basis, although Finaplix alone improved feed efficiency 2% on a live weight basis. This study suggests that reworking cattle depressed feed intake. Growth performance may not have been affected depending on whether gain and efficiency are expressed on a live or carcass weight basis (Table 2).

If reworking cattle has a negative impact on growth

performance, then the response to reimplants (Duckett et al., 1996) may be underestimated.

### Sorting

The first cost that a custom feedyard encounters is the loss of yardage or pen rent from not having each pen full through the entire feeding period. For example, one can assume 300 animals are in a pen (Table 3) and one load of 43 head is sorted out and marketed every week after 100 days on feed. If the feedyard charges 25¢ per head per day, for 300 animals the daily charge would be \$75/day or \$525/week for yardage.

**Table 2. Performance and Carcass Data**

|                            |              | Control | TBA Days, 1 & 63 |
|----------------------------|--------------|---------|------------------|
| Weights, kg                | Initial      | 346     | 346              |
|                            | 126 days     | 525     | 523              |
| Daily Feed, kg             | 0-126 days   | 8.0     | 7.7              |
| Daily Gain, kg             | 0-126 days   | 1.25    | 2.18             |
|                            | 0- slaughter | 1.78    | 1.28             |
| Feed/Gain                  | 0- 126 days  | 6.41    | 6.28             |
|                            |              | 5.84    | 6.07             |
| Carcass Wt, kg             | 0- slaughter | 322     | 314              |
| Dressing %                 |              | 61.3    | 60.1             |
| Quality Grade <sup>a</sup> |              | 11.1    | 10.5             |

<sup>a</sup> Average Select = 10; Select Plus = 11

**Table 3. Sorting and Yardage Costs.**

|                           | Sorted Pen        | Full Pen = 300 hd  | Lost Yardage      |
|---------------------------|-------------------|--------------------|-------------------|
| 300 hd x 100 days x 25¢ = | \$7500            | \$7500             | \$0               |
| 257 hd x 7 days x 25¢ =   | 449.75            | 525                | 75.25             |
| 214 hd x 7 days x 25¢ =   | 374.50            | 525                | 150.50            |
| 171 hd x 7 days x 25¢ =   | 299.25            | 525                | 225.75            |
| 128 hd x 7 days x 25¢ =   | 244.00            | 525                | 301.00            |
| 85 hd x 7 days x 25¢ =    | 148.75            | 525                | 376.25            |
| 42 hd x 7 days x 25¢ =    | 73.50             | 525                | 451.50            |
| <b>Total</b>              | <b>\$9,069.75</b> | <b>\$10,650</b>    | <b>\$1,580.25</b> |
|                           |                   | \$1580.25/300 hd = | \$5.25/hd         |

If custom feeding charges are split between yardage and feed mark-up, one also needs to calculate the cost of not feeding a full pen. For this example, mark-up on feed was not considered. If the first load is marketed after 100 days and each week thereafter another load of 43 head is pulled out, the net result is a loss of \$1580.28 to the feedyard or \$5.26/hd that the feedyard is subsidizing the cattle owner. Custom feedyards must pass this cost on to cattle owners to recoup their loss of margin in the feedyard. In this case, for equal income, the feedyard would need to charge 29.4 cents per day, not 25¢ for yardage.

Numerous sorting strategies are being used in feedyards. Sorting costs can range from an additional \$1/hd if animals are put through an alley or through the squeeze chute to \$6.50 per head if high tech scanning or ultrasound equipment is used 3 times during the feeding period.

One of the hidden costs not apparent when cattle are sorted is the cost of owning the bottom end, slower gaining animals of the pen longer; the better performing cattle are no longer helping offset lower performance. An illustration of this comes from a group of steers fed at Colorado State University in 1994. These animals were individually fed and had feed intake and feed efficiency recorded individually for the 147 day study. Because treatment differences were not significant with this group of steers (Cosby et al., 1996), off-test weight was used to sort cattle into top, middle and bottom groups (Table 4). The top group ate 12% more dry

matter and gained 20% more than the bottom third. Conversion by the top and middle third was 10% better than the bottom third. Although cattle all were slaughtered at the same time on this study, it would take a one month longer to make the bottom third equal in off-test weight to the middle group. The cost of the additional feed is approximately \$15/head based on their projected cost of gain; consequently that results in \$5/head additional cost for the entire group of steers. Sorting out the best performing, most efficient cattle early in the feeding period and retaining cattle that aren't as efficient is an indirect cost to the cattle owner; consequently it must be considered when sorting cattle. Ideally it is preferable to identify animals before they enter the feedyard and not include them in the group. This probably would do more than sorting to enhance the performance in the feedyard and uniformity on the rail.

Similar calculations were made with a group of 50 heifers that were fed individually for 147 days. Again, treatment differences for this group of 50 heifers (Cosby et al., 1996) were not significant. They were sorted by off-test weight, heaviest to lightest and grouped into top, middle and bottom groups (Table 5). Dry matter intake was higher for the top than the bottom group. Gain was 19% faster for the top and middle groups than the bottom group and the top and middle groups had about a 5% better feed efficiency than the bottom group. Economic analysis data indicates that the economic impact of sorting would be the same for heifers as for steers.

Table 4. 147 Day Individual Steer Performance -- 62 Head

| Item                | Top   | Middle | Bottom |
|---------------------|-------|--------|--------|
| No Steers           | 21    | 21     | 20     |
| Off Test Wt., kgs   | 655   | 617    | 575    |
| Feed Intake, DM kgs | 9.0   | 8.3    | 8.0    |
| ADG, kgs/day        | 1.98  | 1.82   | 1.58   |
| Feed Efficiency     | 4.55  | 4.55   | 5.08   |
| Unshrunk Dressing % | 61.51 | 61.26  | 61.41  |
| Hot Wt., kgs        | 403   | 378    | 351    |
| Yield Grade         | 2.32  | 2.27   | 2.47   |
| Percent Choice      | 59    | 59     | 53     |

Table 5. 147 Day Individual Performance -- 50 Head

|                     | Top   | Middle | Bottom |
|---------------------|-------|--------|--------|
| No. Heifers         | 16    | 17     | 17     |
| Off Test Wt.        | 563   | 521    | 476    |
| Feed Intake, kgs DM | 8.4   | 7.5    | 7.1    |
| ADG, kgs/day        | 1.59  | 1.43   | 1.29   |
| Feed Efficiency     | 5.29  | 5.31   | 5.59   |
| Unshrunk Dressing % | 61.93 | 61.65  | 61.42  |
| Hot Wt. (Kgs)       | 348   | 321    | 293    |
| Yield Grade         | 2.18  | 2.12   | 2.00   |
| Percent Choice      | 53    | 53     | 41     |

When sorting is managed so that pens are topped at the end of the feeding period, there is a very real risk of upsetting an established pecking order in the pen of cattle. Generally, the better performing (and probably most aggressive) cattle will end up in the first sort groups. The remaining animals in the pen must re-establish a pecking order. This behavior may be costly in terms of reduced intake and performance.

Other sorting costs that are more difficult to measure relate to increased stress on animals that may increase the incidence of dark cutters. One dark cutter can cost an additional \$2.27/hd across a group of 100 animals. Cattle that break legs or are injured during sorting (using

a realizer price of \$154/100 kg hot carcass basis) will add an additional \$3.40/hd based on a group of 100 animals. Summing all these numbers (Table 6) gives a \$20 to \$26 cost against a potential benefit of \$4 to \$8 per head (depending on the formula); economics does not favor sorting. By exceeding the minimum contract specifications cattle owners can improve the premium received from \$4-8/head up to \$12-14/head above base price. However, if this base price is eroded because fewer cattle have cash trades reported, then it becomes even more difficult to maintain a positive return from sorting cattle. Cattle feeders need to use their own numbers and judge for themselves if sorting is an activity that benefits them economically.

Table 6. Sorting Costs vs. Benefits (\$/head)

|                                       | Benefit   | Potential Cost |
|---------------------------------------|-----------|----------------|
| Premium (\$.50 - 1.00/cwt of carcass) | \$4 - \$8 |                |
| Lost yardage to feedyard from sorting |           | -5.26          |
| Additional handling                   |           | -1 to 6.50     |
| Owning bottom 1/3 for 1 month longer  |           | -5.00          |
| Pecking order; lost performance       |           | -3.00          |
| Dark cutters                          |           | -2.27          |
| Realizer                              |           | -3.40          |
|                                       | \$4 to 8  | \$20 to 26     |

#### LITERATURE CITED

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## QUESTIONS AND ANSWERS

Q: What is a "realizer"?

A: A "realizer" is an animal with some severe problem from which feedyards try to recover or realize some revenue. If a steer has a broken leg or persistently sick, feedyards try to sell this animal wherever they can, probably to a locker plant rather than to a large packing plant.

Q: Did you evaluate effect of time of day on reimplanting? By conventional wisdom, implanting should be moved to the afternoon or evening when practical so we don't interrupt the normal feeding behaviors and adversely alter performance.

A: Several years ago we conducted a study on working cattle in the morning vs. the afternoon. We fed these cattle just once in the morning, not twice as many feedyards do. We saw some scatter in early performance, but for the entire feeding period, we detected no difference in the feed intake from processing cattle in the morning vs. the afternoon.

Q: Do you examine effects of reimplanting on carcass quality?

A: Literature studies indicate that reimplanting with Synovex-like products can reduce carcass quality (choice grades) by 3 to 7% compared with TBA reimplant that may cause as much as a 20% reduction from unimplanted controls. Response depends on how many days after implants that cattle are marketed.

Q: Is that versus a single implant or non-implanted control cattle?

A: That's compared to a single implant.

Q: Is that change in points or in percentage of cattle grading choice?

A: That's a percentage change, not points. A reduction from 80% choice to 64% choice is a 20% reduction.