

Effect of Implant Timing on Feedlot Gain and Carcass Traits

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Summary and Implications

One hundred sixty one steers were finished in a total confinement deep-bedded system at the Armstrong Research Farm, Lewis, IA during 2008. The three treatment groups were implanted with Synovex-Choice 112, 82 and 56 days prior to harvest. The implant resulted in an immediate and significant improvement in average daily gain. In the weigh period immediately after receiving the implant average daily gains increased from .72 to 1.35 lb/day compared to treatment groups or group that had not yet received their implant. The overall average daily gain of steers implanted 112 days (3.76 lb/day) and 82 days (3.70 lb/day) prior to harvest was significantly more than steers implanted 56 days (3.44 lb/day) prior to harvest. The 112 day implant group produced significantly heavier carcasses than the 56 day implant group. While the 82 day implant group average carcass weight was intermediate and not significantly different from the other treatment groups. There was no significant difference in carcass fat cover, however, steers implanted 112 and 82 days had significantly larger ribeyes than steers implanted 56 days prior to harvest. Numerically the 53% low Choice or better was lower for the steers implanted 56 days prior to harvest compared to 60% low Choice or better for the other two treatments. The increase in carcass weights resulted in incremental, non-significant increases in carcass value.

Introduction

Implants are widely used in the feedlot industry. Producers and veterinarians attending the 2008 SW Iowa Feedlot Short Course raised questions and concerns about the impact of implanting cattle more than 100 days prior to harvest or less than 70 days prior to harvest on gain and carcass quality grades and selected this strategy comparison for an implant trial.

Materials and Methods

One hundred sixty one steers were finished in a total confinement deep-bedded system at the Armstrong Research Farm, Lewis, IA during 2008. Steers were obtained from three sources on April 15, April 17 and May 2. All cattle were individually identified and weighed by source group on May 5. Cattle were allocated by weight to one of three implant treatments. Cattle were weighed and sorted into one of four pens on May 14. The on-test weight is the average of the weights collected on May 5 and 7.

One third of each pen was implanted with Synovex-Choice on either May 14, June 13 or July 9 which was 112, 82 and 56 days prior to harvest, respectively. Steers were bedded with corn stover as needed. Steers were harvested on September 3 with full carcass data collected.

Feed ingredients and ration percentages on a dry matter basis are presented in Table 1. Individual performance and carcass data were analyzed using the General Linear Models procedure of SAS. The initial model included implant treatment, source of feeder cattle, and the implant treatment by cattle source interaction. Implant treatment by cattle source interaction was not significant for any of the growth or carcass traits measured and analyzed. Cattle source significantly impacted a number of the traits measured, therefore, least square means which account for this are provided in this report.

Results and Discussion

Steer performance by implant treatment is shown in Table 2. Interim weight gains reveal a significant improvement due to implant immediately following that practice. For instance, during the first period the May 14th implanted treatment group out gained the other two treatment groups, but during the second 26 day period the June 13th implanted group significantly outgained the non-implanted group (July 9th implant group) while also non-significantly out gaining the first implant treatment group. Then when the third group is implanted on July 9th that group had a compensatory increase in ADG during the last 50 days on feed, however, this increase was not significantly sufficient to equalize the performance of the other two implant groups. At the end of the feeding period steers implanted earliest gained the fastest (although not significantly different than the second implant group) and the poorest gaining steers were not implanted until late in the feeding period.

The steers implanted 112 days prior to harvest produced carcasses significantly heavier than steers implanted 56 days prior to harvest, but not significantly heavier than those implanted 82 days before harvest. The group implanted 82 days prior to harvest had an average hot carcass weight of 797 lb which was intermediate to both of the other treatments, but not significantly different than either of the other implant treatment groups.

Implant treatment had no significant impact on fat cover at harvest, however, 112 and 82 day implant treatment groups had significantly larger ribeyes than the 56 day implant group. No significant difference was observed in ribeye area per cwt. between the treatment groups. Neither marbling score nor percent USDA Choice⁺ or higher were significantly impacted by timing of the implant prior to harvest. The marbling scores average close to Small 0 (the minimum marbling score for Choice⁺) and a slight change in

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marbling score can impact the percent Choice⁺ or better, but that was not significant in this trial.

The base price for Choice⁺, Yield Grade 3 carcasses was \$156.79/ cwt.; Select, Yield Grade 3 price was \$150.81/cwt.; and Standard, Yield Grade 3 price was \$144.57/cwt. Premiums for Yield Grade 1 and 2 was \$ 4.00/cwt and \$2.00/cwt, respectively, and a discount for Yield Grade 4 was -\$13.50/cwt. Carcass price received for the three implant treatment groups was not statistically different. However, the 112 day implanted cattle produced

heavier carcass resulting in a numerically higher carcass value (\$1,254.65) compared to the 56 day implanted cattle carcass value of \$1,231.89.

Acknowledgements

This project was chosen by producers and veterinarians involved in the 2008 SW Iowa Feedlot Short Course as their highest priority project. Ft Dodge Animal Health supplied the implants for the project.

Table 1. Feed ingredients on a dry matter basis.

<u>Item</u>	<u>Ration</u>
Corn	44.2%
Modified DDG	38.5%
Supplement	3.0%
Limestone	0.5%
Ground hay	13.8%

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Table 2. Performance and carcass traits.

Item	Implant Treatment		
	112 Days Prior to Harvest	82 Days Prior to Harvest	56 Days Prior to Harvest
No of steers	55	53	53
On test weight	864	859	866
Weight on May 14	898	891	901
Weight on June 13	1028	999	1008
ADG On-test to June 13 – 30 Days	4.49 ^a	3.77 ^b	3.62 ^b
Weight on July 9	1138	1116	1098
ADG June 13 to July 9 – 26 Days	4.29 ^a	4.58 ^a	3.28 ^b
Weight on August 28	1325	1314	1304
ADG July 9 to August 28 – 50 days	3.72 ^a	4.01 ^{ab}	4.10 ^b
Adj. final weight	1321	1310	1300
Average daily gain, 119 Days	3.76 ^a	3.70 ^a	3.44 ^b
Hot Carcass Wt, lb	814 ^a	797 ^{ab}	785 ^b
Fat Cover, in.	.48	.47	.47
Ribeye Area, sq. in.	13.5 ^a	13.0 ^a	12.7 ^b
Ribeye Area/cwt of Hot Carcass Wt	1.66	1.63	1.62
Marbling Score	SM 05	SM 15	SM 02
% low Choice or Better	60%	60%	53%
% Premium Choice	2%	8%	0%
% Select	35%	36%	45%
% Standard	5%	4%	2%
% Yield Grade 1 & 2's	40%	36%	40%
% Yield Grade 4's	2%	8%	2%
Carcass price \$/cwt	\$154.28	\$154.19	\$154.39
Carcass value \$/hd	\$1,254.65	\$1,241.37	\$1,231.89

^{ab} Means with different superscripts in the same line differ (P<.05).