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Effects of preweaning and post weaning implants on suckling, growing, and finishing steer performance

Abstract

One hundred and ninety-five crossbred steers were used to compare lifetime implant strategies and study the effects of implanting during the suckling period on performance in the growing and finishing periods. There were no differences in growing period gains when both groups were implanted in the suckling period and the growing period. However, steers implanted in the suckling period but not implanted in the growing period had significantly lower gains than all other treatments including controls. Steers implanted only in the growing period had better feed efficiency in the growing period than both controls and steers implanted only in the suckling period. Steers reimplanted during the finishing period had similar finishing gains regardless of prior implant treatment, and all implanted cattle gained faster than controls in the finishing period. Steers not reimplanted during the finishing period had lower gains than those reimplanted. Implanting in the finishing period resulted in better feed efficiency. All implanted cattle that were reimplanted in the finishing period had higher lifetime gains than controls, but there was no difference between implant combinations. The only carcass characteristic changed by implanting was quality grade, which was reduced by all implant combinations with the exception of implanting only in the finishing period. Implanting during the suckling period did not reduce cattle performance during the growing and finishing periods when the steers were also implanted during these periods. This study emphasizes the importance of implanting twice in the finishing period to maximize finishing gain and final weight.

Keywords

Cattlemen's Day, 1986; Kansas Agricultural Experiment Station contribution; no. 86-320-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 494; Beef; Implants; Suckling; Growth; Steer performance

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**Effects of Preweaning and Postweaning Implants
on Suckling, Growing, and Finishing Steer Performance¹****S**D.D. Simms,² R.W. Lee,³**U**S.B. Laudert,⁴ and J. Higgins⁵

Summary

One hundred and ninety-five crossbred steers were used to compare lifetime implant strategies and study the effects of implanting during the suckling period on performance in the growing and finishing periods. There were no differences in growing period gains when both groups were implanted in the suckling period and the growing period. However, steers implanted in the suckling period but not implanted in the growing period had significantly lower gains than all other treatments including controls. Steers implanted only in the growing period had better feed efficiency in the growing period than both controls and steers implanted only in the suckling period.

Steers reimplanted during the finishing period had similar finishing gains regardless of prior implant treatment, and all implanted cattle gained faster than controls in the finishing period. Steers not reimplanted during the finishing period had lower gains than those reimplanted. Implanting in the finishing period resulted in better feed efficiency.

All implanted cattle that were reimplanted in the finishing period had higher lifetime gains than controls, but there was no difference between implant combinations. The only carcass characteristic changed by implanting was quality grade, which was reduced by all implant combinations with the exception of implanting only in the finishing period.

Implanting during the suckling period did not reduce cattle performance during the growing and finishing periods when the steers were also implanted during these periods. This study emphasizes the importance of implanting twice in the finishing period to maximize finishing gain and final weight.

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Introduction

While numerous implanting trials have been conducted, very few have studied the long-term effects of implanting during the suckling and growing periods on performance in the finishing period. Some research has indicated that implanting in the suckling period reduces performance during the finishing phase. The present trial was conducted to help answer this critical question.

Experimental Procedures

Approximately 100 exotic crossbred, suckling, steer calves on each of two Kansas ranches were assigned at branding (1-2 mo old) to receive either no implant (Control) or a 36 mg Ralgro® implant. Non-shrunk weights were taken at branding and weaning.

Calves at one ranch were weaned and backgrounded for approximately 1 month before being transported to the feedlot. Calves at the other ranch were weaned and shipped directly to the lot. All calves were grown and finished at the Garden City Experiment Station. The cattle were at the experiment station about 30 days before the growing period started. Calves were then allotted to implant treatments shown in Table 19.1.

Table 19.1. Experimental Design of the Long-Term Implant Trial

Treatment No.	No. Steers	Phase		
		Suckling	Growing	Finishing
1	32	- ¹	-	-
2	33	-	-	++
3	32	-	+	++
4	32	+	-	++
5	32	+	+	+
6	34	+	+	++

¹- = no implant, + = implanted, ++ = implanted twice during the finishing period.

Cattle in each treatment group were allotted to four pens of approximately 8 head each. Non-shrunk beginning and ending weights were the average of two weights taken on consecutive days at the start and end of the growing and finishing periods.

The growing and finishing periods lasted 59 and 121 days, respectively. All Ralgro® implants were 36 mg. Reimplanting occurred on day 57 of the finishing period. Least Squares Means Procedures were used to analyze the data.

Results and Discussion

Suckling Period

As can be seen in Table 19.2, implanting at branding time tended to increase average daily gain during the suckling period, increasing weaning weight at both ranches about 7 lb. However, this increase was not statistically significant. Implanted suckling calves also had slightly higher average daily gains up to the start of the growing trial.

Growing Period

Calves not implanted in the suckling phase but implanted in the growing phase (Trt. 3) gained faster ($P < .05$) than control calves (Trt. 1 and 2) and calves implanted in the suckling period but not in the growing period (Trt. 4). Calves implanted in both suckling and growing periods had intermediate gains between controls and calves implanted only in the growing period. Calves implanted in the suckling period but not in the growing period gained significantly slower in the growing period than all other treatments, including controls (Trt. 1). It appears that once an animal has been implanted, implanting must be repeated to avoid marked performance decreases.

Calves implanted in the growing period, but not in the suckling period, were more efficient than controls (Trt. 1 and 2) and calves implanted only in the suckling phase (Trt. 4), but performed similarly to calves receiving implants in both periods (Trt. 5 and 6).

Finishing Phase

All implanted cattle gained significantly faster in the finishing period; however, steers not implanted twice during finishing (Trt. 5) gained significantly slower than treatments 2, 3, and 4. This emphasizes the importance of implanting twice during a long finishing period. Steers implanted twice prior to the finishing period (Trt. 6) gained essentially the same as steers that had never been implanted until the finishing phase or those implanted only once prior to the finishing period. In addition, all implanted cattle tended to have better feed conversions than controls, but only in treatments 2 and 5 were the differences significant ($P < .05$).

Lifetime Performance

Lifetime average gain was increased by all implant combinations. Furthermore, final weight was increased ($P < .05$) over controls in all treatments implanted twice during finishing. There were no differences in cattle gains from birth to slaughter or in final weights among any of the implant combinations.

Carcass Characteristics

Quality grade was the only carcass characteristic influenced ($P < .05$) by implanting. Implanting reduced the quality grade in all treatments except implanting only in the finishing period.

According to our data, implanting during the suckling phase does not reduce subsequent performance if implanting is repeated. Moreover, this trial indicates the importance of implanting twice during finishing.

Table 19.2. Effects of Implant Combinations on Steer Performance During the Suckling, Growing, and Finishing Periods, and on Lifetime Performance and Carcass Characteristics

Item	Treatment No.					
	1	2	3	4	5	6
Average Daily Gain, lb:						
Branding to Weaning	1.77	1.78	1.78	1.85	1.82	1.83
Branding to Start of Growing Period	2.20	2.19	2.15	2.30	2.21	2.25
Growing Period	2.20 ^a	2.17 ^a	2.43 ^b	1.95 ^c	2.30 ^{ab}	2.34 ^{ab}
Branding to End of Growing Period	2.19	2.18	2.21	2.22	2.22	2.26
Finishing Period	2.61 ^a	3.07 ^c	3.06 ^c	3.07 ^c	2.86 ^b	2.98 ^{bc}
Branding to Slaughter	2.32 ^a	2.45 ^b	2.47 ^b	2.48 ^b	2.42 ^b	2.48 ^b
Feed/Gain, lb:						
Growing Period		8.01 ^a	6.99 ^b	8.83 ^a		7.48 ^{ab}
Finishing Period	7.22 ^a	6.44 ^b	6.50 ^{ab}	6.53 ^{ab}	6.47 ^b	6.61 ^{ab}
Final Weight, lb	1094.6 ^a	1147.7 ^b	1152.3 ^b	1154.1 ^b	1132.3 ^{ab}	1157.5 ^b
Total Gain, lb	921.4 ^a	974.5 ^b	979.1 ^b	980.9 ^b	959.1 ^{ab}	984.3 ^b
Gain Over Controls, lb		53.1	57.7	59.5	37.7	62.9
Carcass Characteristics:						
Dressing % ¹	63.1	62.9	63.2	63.2	63.6	62.9
Quality Grade ²	9.8 ^a	9.1 ^{ab}	9.1 ^{ab}	9.0 ^b	9.0 ^b	8.6 ^b
Yield Grade	2.32	2.33	2.25	2.32	2.21	2.42
Fat Thickness, in	.31	.30	.30	.30	.30	.33
Ribeye Area, sq in	11.7	12.0	12.2	12.1	12.0	12.0

^{abc} Values with different superscripts in the same row differ significantly ($P < .05$).

¹ Calculated after shrinking final weights 4%.

² 8 = Average Good, 9 = High Good, 10 = Low Choice.