EVALUATION OF RALGRO® ON PASTURE AND SUBSEQUENT FEEDLOT PERFORMANCE AND CARCASS MERIT OF MEXICAN CROSSBRED STEERS[1]

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Summary

A pasture/feedlot field study was conducted to evaluate the effects of a single Ralgro® implant during the stocker phase on steer grazing performance and subsequent feedlot performance and carcass merit. A total of 2,764 steers of Mexican origin averaging 449 lb were assembled in Texas and shipped to Kansas, where they grazed on three intensively-early-stocked Flint Hills pastures. At initial processing, the steers were individually weighed and randomly assigned to either a non-implanted control group or a Ralgro implant group. Ralgro steers gained more (23 lb; P<0.01) than controls during the 82- to 93-day grazing phase. Following the grazing phase, all steers were shipped to a commercial feedlot in southwestern Kansas where steers from each pasture were individually weighed and given a single Component E-S® implant. Immediately after processing, steers from each pasture were sorted into either a light- or heavy-weight pen, regardless of pasture implant treatment, resulting in six feedlot pens. Days on feed ranged from 127 to 197. Control steers gained faster (P<0.01) during the feedlot phase; however, Ralgro steers had higher cumulative weight gains across the combined pasture and feedlot phases (P<0.01) and averaged three fewer days on feed (P<0.05). There were no significant differences for marbling, fat thickness, rib-eye area, KPH fat, or yield grade. Ralgro steers had lower (P<0.05) quality grades because of a higher incidence (P<0.001) of steers with B and C carcass maturities.

(Key Words: Growth Implant, Ralgro, Steers, Pasture, Feedlot, Carcass Traits.)

Introduction

Previous studies have demonstrated that the growth benefit obtained with pasture implants is generally retained through the finishing phase, provided sufficient hormonal stimulation is maintained by a feedlot implant program. Our objective was to evaluate the effects of a single Ralgro implant administered during the stocker phase on steer grazing performance and subsequent feedlot performance and carcass merit.

Experimental Procedures

A total of 2,764 steers from Mexico were assembled, vaccinated against common viral and bacterial diseases, and backgrounded in Texas until shipment to Kansas. The study was initiated during April, 1999, using three Flinthills pastures, and concluded with the feedlot phase ending Jan./Feb., 2000.

Pasture phase - As cattle were delivered to facilities adjacent to designated pastures, they were individually identified with two

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numbered ear tags, alternately allotted to one of two treatments (Ralgro or no implant) and weighed. Steers averaged 449 lb initially across all pastures, and they grazed burned or unburned native grass Flint Hill pastures for 82 to 93 days (Table 1). Uniform health and management procedures were used throughout the study. Grazing performance was calculated using individual weights taken immediately prior to turnout and during initial processing at the feedlot.

Feedlot phase - Steers from each pasture were shipped to a single feedlot in southwestern Kansas. All were dewormed and implanted with one Component E-S implant, and individually weighed and sorted into either a heavy or a light pen based on desired out-weight (total of six pens). Feedlot gain was based on a carcass-adjusted final weight using the average dressing percentage determined for each pen.

Results and Discussion

Table 2 presents steer performance by treatment during the successive phases. Initial pasture weights were similar (P=0.71) for both treatments. The increased weight gain (P<0.01) observed for Ralgro vs. control calves (+23 lbs/11.44%) is consistent with previously reported Kansas results. Sorting steers from each pasture into two pens (heavy and light) based on initial feedlot weight, created 100 lb difference in initial average pen weights. This difference in on-test weights translated into an added 21 to 31 days on feed for the lighter pens. Daily gains in the feedlot ranged from 2.78 to 3.12 lb/day for the feeding period for all pens.

During the feedlot phase, the steers not implanted on pasture gained about 16 lb more than the Ralgro-implanted steers. But at least 9 lb of that difference could be attributed to the fact that the controls were fed an average of 3 days longer (160 vs. 163 days). Nevertheless, the steers implanted during grazing had higher cumulative (pasture plus feedlot) weight gains (P<0.05).

Carcass weights of Ralgro-implanted steers tended to be greater (P<0.10) than controls. There were no significant differences in marbling, ribeye area, KPH fat, fat thickness, or yield grade. There was a decrease (P<0.05) in quality grade in pasture-implanted steers. However, much of that difference may have been due to severe quality grade discounts of a few cattle due to maturity. There were more (P<0.01) pasture-implanted cattle with B maturity carcasses. Thus carcasses with slight and small marbling (Select and low Choice quality grades for A- maturity carcasses) are downgraded to Standard for B maturity.

Table 1. Grazing Performance of Ralgro-Implanted Steers[a]

	Flint Hills Native Pasture[b]			
Item	A	B	C	P-value
No. steers on test	796	583	1385	
Prescribed burn	Yes	Yes	No	
Grazing days	87	93	82	
Starting date	April 23, 1999	April 20, 1999	April 7, 1999	
Ending date[b]	July 18/19, 1999	July 21/22, 1999	June 24/28, 1999	
Stocking rate, acres/steer	1.76	1.89	0.92[c]	
Animal Performance[d]				
Initial wt, lb	466[e]	462[e]	414[f]	<0.01
Final wt, lb	684[e]	721[f]	574[g]	<0.01
Pasture weight gain, lb	217[e]	258[f]	161[g]	<0.01
Daily gain, lb/day	2.50[e]	2.78[f]	1.96[g]	<0.01

[a]One-half of the steers from each pasture received one Ralgro implant at the initiation of grazing.
[b]Ending weights were taken upon arrival at S-Bar feedlot, Sublette, KS. Dates reflect the dates that cattle were removed from pasture, and weighed at the feedlot, respectively. [c]Stocking rate does not account for adjacent brome pasture in C pasture. [d]Least squares means for each pasture. [e,f,g]Means with unlike superscripts within rows differ (P<0.05).

Table 2. Effect of Ralgro Implants During Grazing on Subsequent Feedlot Performance and Carcass Merit[a]

Item	Pasture Implant Treatment[b]		SE	P-value
	Control (no implant)	Ralgro®[c]		
Grass Phase:				
No. steers	1316	1321		
Initial wt, lb	448	447	1.6	0.71
Final wt, lb[d]	649	671	1.8	<0.01
Pasture weight gain, lb	201	224	1.1	<0.01
Daily gain, lb/day	2.28	2.54	0.013	<0.01
Feedlot Phase:				
Initial wt, lb[d]	649	671	1.6	<0.01
Final wt, lb[e]	1132	1139	2.7	0.08
Feedlot days on feed[f]	163	160	0.3	<0.01
Feedlot weight gain, lb	484	468	2.3	<0.01
Daily gain, lb/day	2.99	2.94	0.015	<0.01
Cumulative (grass plus Feedlot) weight gain, lb	685	692	2.5	<0.05
Carcass Merit:				
Carcass wt, lb	730	734	1.7	0.10
Dressing %	64.50	64.50	--	--
Marbling[h]	372	368	2.3	0.13
Fat thickness, in	0.47	0.48	0.005	0.25
Ribeye area, in^2	12.68	12.67	0.041	0.81
KPH fat, %	2.12	2.11	0.012	0.85
Carcass Maturity[g], actual head				0.0024
A	1296	1283		
B	19	36		
C	1	2		
Yield grade	2.81	2.84	0.02	0.17
Quality grade[i]	460	451	3.1	0.05

[a]Steers grazed 3 intensive early stocked (IES) Flint Hills pastures for 82, 87, or 93 days.
[b]Least squares means.
[c]Steers received one Ralgro® implant at the initiation of the grazing phase. All steers received one Component E-S® implant at initial feedlot processing.
[d]Ending weights for all steers were taken upon arrival at S-Bar Ranch feedlot near Sublette, KS.
[e]Final weight calculated using hot carcass weight divided by pen average dressing percent.
[f]During initial processing at the feedlot, cattle from each pasture were sorted by weight into heavy and light pens. Due to the additional weight gain while on pasture, implanted cattle were placed primarily in heavy pens, resulting in differences in days fed between control and implanted steers.
[g]Carcass maturity scores: A maturity = approx. 9 to 30 mo. of chronological age at slaughter, B maturity = approximately 30 to 42 mo., C maturity = approximately 42 to 72 mo. (USDA 1997). Chi-square exact methods used.
[h]Marbling score: 100 = Practically devoid^{00}; 200 = Traces^{00}; 300 = Slight^{00}; 350 = Slight^{50}; 400 = Small^{00} 500 = Modest^{00}; 600 = Moderate^{00}
[i]Quality grade: 300 = Select, 400 = Select, 500 = Choice^{-}, 600 = Choice^{0}, 700 = Choice^{+}.