

CHARACTERISTICS OF STEERS FED IN THE OK-STEER FEEDOUT

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Story in Brief

Data were collected on 350 fall born and 955 spring born calves in the OK-Steer Feedout from 1985 to 1990. This program provides cow-calf producers information about the performance and carcass merit of their calves. Groups of 5 steers from various ranches were assembled and fed together at a commercial feedlot. Steers were slaughtered when 3 out of 5 calves from a ranch were estimated to have .5 inches fat cover. Relationships among the measured performance and carcass traits were evaluated. Ranch weight was estimated by adding 5% to the weight on arrival at the feedlot. Kill weight was adjusted by subtracting 4% to account for fill. Average daily gain, age, days on feed, weight per day of age and off test frame score were measured on each steer. Carcass measurements of weight, ribeye area, fat thickness, yield grade, quality grade and dressing percentage were obtained. Ranch weight and kill weight were highly correlated indicating that heavier calves at the beginning of the finishing period tended to be heavier at the end. Although many producers feel that increasing weaning weights will increase rate of gain in a feedlot, ranch weight was poorly correlated with average daily gain. Frame score was moderately correlated with kill weight, weight per day of age, and carcass weight. Quality grade was not correlated with frame score and was poorly but positively correlated with slaughter weight.

(Key Words: Beef Cattle, Carcass, Feedlot.)

Introduction

Analysis shows that retained ownership improves economic returns to cow-calf operations. There are several reasons for this. First, from a management standpoint, calves retained as stockers provide a forage buffer for the cowherd. During drought years, these stockers can be sold to provide

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more grazing for the cows. Second, selling calves as feeder calves instead of weaned calves dilutes the proportion of sale weight from cull cows, thereby

increasing the average price of all cattle sold. Third, many ranch-raised calves out-perform put-together cattle and are worth more than the market price for stockers and feeders. Fourth, many weaned calves today are too big to fit into traditional stocker grazing programs. They would be much more efficiently utilized by sending them directly to the feedlot. The OK-Steer Feedout is a program that permits cow-calf producers to obtain feedlot and carcass data to help them determine the true value of their calves and to choose the most profitable marketing options for their cattle.

Methods and Materials

Data were collected on 350 fall-born and 955 spring-born calves in the OK-Steer Feedout from 1985 to 1990. The OK-Steer Feedout is a program in which ranchers send groups of steers (minimum of 5 per ranch) to a centrally located feedlot for evaluation. All weights and records were obtained by OSU Extension personnel. There were two feeding groups: spring-born and fall-born steer calves.

Spring-born steers, born from late January to April, were started on feed in early November. Fall-born steers, born between late August and November, were placed on feed in August. Steers were slaughtered when 3 out of 5 calves from a ranch were estimated to have .5 inches of backfat. All steers were slaughtered at a commercial plant with data obtained by OSU personnel.

The starting or "ranch" weight was estimated for each calf by adding back 5% to the weight of calves entering the feedlot. Ranch weight is used to estimate weaning weight. Final feedlot weight was reduced by 4% to account for fill. Feedlot gains were estimated using the ranch weight and adjusted final weight to simulate "pay-to-pay" performance in a commercial feedlot.

A total of 25 different breeds have been represented in the OK-Steer Feedout. When considering the crosses that have been included in the program, over 90 breed combinations have been fed. Where averages for different breeds are presented, only breeds having 20 or more steers in the Feedout are listed. These averages are not meant to represent nationwide performance of different breeds, but they show trends observed during the Feedout. Many of the steers on the Feedout Program have been from commercial herds. In cases where breed makeup was not known, the cattle were identified as crossbred.

Correlation coefficients (r) were calculated among several performance and carcass traits. Coefficients first were calculated among spring-born and

fall-born calves. Because these coefficients were very similar, the spring and fall data sets were merged.

Results and Discussion

Steer performance for each year of the feedout is shown in Table 1. Trait averages represent pooled data from both spring- and fall-born calves. Program participation was greater (2-3 times) for 1989 and 1990 than for previous years. Most of this increase was in the spring-born calves. This increase in percentage of spring-born calves by year affects the performance trends. Dressing percentage for steers in the Feedout has averaged 63.5. This is typical of cattle finished in commercial feedyards.

Table 1. Steer performance by year.

Trait	Year					
	85	86	87	88	89	90
No. of steers	126	100	118	102	308	216
Ranch wt, lb	643	644	659	653	648	630
Kill wt, lb	1113	1110	1165	1178	1150	1095
Carcass wt, lb	706	706	721	750	728	690
Dressing %	63.4	63.6	61.8	63.7	63.2	63.0
Daily gain, lb	2.88	2.84	2.96	3.13	3.07	2.73
Ribeye area, in ²	12.4	12.1	12.2	13.6	13.0	12.7
Quality grade ^a	8.7	8.1	9.1	9.7	9.6	9.3
Wt/day of age, lb	2.6	2.6	2.7	2.8	2.8	2.6
Frame score ^b	4.7	---	--	6.1	6.6	6.4
Days on feed	163	164	171	168	164	170
Yield grade	2.6	2.8	3.0	2.5	2.6	2.4
Fat thickness, in	.43	.48	.52	.40	.38	.33
Feed/day, lbs as fed	23.6	21.7	24.0	24.1	23.8	21.7

^a Quality grades: 8=Select; 9=Select+; 10=Choice-;

^b Frame scores not measured in 1986 and 1987.

Performance by season

Fall-born calves tended to be heavier when started on feed (Table 2) than spring-born calves. This was expected because fall-born calves were about 2 months older. Daily feed intake, ADG and quality grades for fall-born calves also were greater than for spring-born calves, probably because they were older (39 days at slaughter). Spring-born calves were fed 13 days longer than fall-born calves.

Performance by breeds

Averages for several performance and carcass traits for breeds having more than 20 steers in the Feedout are shown in Tables 3 and 4. These averages have limitations. First, different numbers of cattle from each breed are represented and cattle in the OK-Steer Feedout may not be fully representative of each breed. Second, the numbers of cattle from different breeds changed from year to year and season to season, limiting the value of

Table 2. Steer performance by season.

Trait	Season	
	Spring	Fall
No. of steers	728	242
Ranch wt, lb	630	690
Kill wt, lb	1119	1177
Carcass wt, lb	709	738
Dressing %	63.3	62.7
Daily gain, lb	2.89	3.10
Ribeye area, in ²	12.6	12.9
Quality grade ^a	9.18	9.29
Wt/day of age, lb	2.71	2.61
Frame score	6.27	5.70
Days on feed	170	157
Yield grade	2.57	2.75
Fat thickness, in	.38	.48
Feed/day, lbs as fed	22.8	24.2
Age at slaughter, days	414	453

^a Quality grades: 8 = Select; 9 = Select +; 10 = Choice-

Table 3. Breed Averages for production traits of steers on OK-Steer Feedout.

Breed	No.	Ranch wt	Kill wt	Carcass wt	ADG	YG	Back fat	Days Fed
Angus-Xbreed	30	655	1079	696	2.69	3.09	.50	158
Angus-Hereford	39	648	1134	718	3.06	2.86	.47	160
Angus-Simmental	48	675	1226	767	3.40	2.68	.41	162
Angus	89	648	1114	703	2.96	2.85	.44	158
Brangus-Xbreed	33	615	1090	693	2.92	2.78	.42	163
Brangus	38	575	1013	647	2.62	2.77	.41	167
Charolais-Xbreed	21	707	1197	765	2.85	1.95	.35	173
Hereford-Xbreed	20	622	1092	683	2.94	3.18	.57	160
Hereford-Angus	30	659	1080	675	2.64	3.05	.53	159
Hereford	71	639	1079	672	2.75	2.93	.49	160
Limousin-Xbreed	26	609	1089	713	2.75	2.24	.33	175
Salers-Hereford	22	666	1180	761	3.07	2.38	.39	169
Salers	35	654	1159	735	2.99	2.53	.40	169
Simmental-Xbreed	40	632	1174	733	3.03	2.08	.28	179
Simmental-Brangus	36	578	1089	675	3.03	2.53	.35	169
Simmental	92	666	1206	757	3.05	2.18	.25	178
Xbreed-Xbreed	25	702	1201	745	3.09	3.60	.69	162

Table 4. Breed Averages for carcass traits of steers on OK-Steer Feedout.

Breed	Age	WDA	Quality ^a	REA	Frame	Dressing %
Angus-Xbreed	412	2.62	9.3	11.8	5.9	64.4
Angus-Hereford	421	2.71	9.5	12.6	5.5	63.3
Angus-Simmental	432	2.84	9.6	13.2	6.4	62.5
Angus	411	2.72	9.9	12.3	5.9	63.0
Brangus-Xbreed	414	2.64	9.3	12.3	5.6	63.6
Brangus	405	2.51	9.2	11.5	6.1	63.9
Charolais-Xbreed	439	2.73	8.6	14.8	6.7	63.9
Hereford-Xbreed	405	2.70	8.6	11.5	5.7	62.5
Hereford-Angus	438	2.48	9.0	11.8	4.7	62.5
Hereford	446	2.42	8.6	11.5	5.0	62.2
Limousin-Xbreed	415	2.63	9.1	13.3	6.6	65.4
Salers-Hereford	442	2.67	9.4	13.9	6.7	64.4
Salers	443	2.62	9.1	13.0	6.2	63.4
Simmental X-breed	419	2.80	9.0	13.5	6.4	62.5
Simmental-Brangus	398	2.74	8.7	12.1	6.4	61.9
Simmental	426	2.84	9.3	13.5	7.0	62.7
XBreed-Xbreed	420	2.86	10.0	12.0	6.4	62.0

^a Quality grades: 8=Select; 9=Select +; 10=Choice-;

year-to-year averages. However, these data can suggest trends for steers placed directly on feed after weaning. Any of these breeds will reach acceptable slaughter weights when calves are placed directly on feed. In fact, for some breeds, slaughter weight averaged over 1200 lbs. Calves typically have lower daily gain in the feedlot than yearlings. Nevertheless, steer calves in the OK-Steer Feedout generally have gained rapidly, with many groups gaining over 3.0 lb/day.

Another concern about placing calves directly into the feedlot after weaning is whether the calves will be old enough at slaughter to grade choice. Although variation within and among breeds is large, many calves reached a choice grade. Certain larger framed breeds (Simmental, Simmental crosses and Charolais crosses) may have had higher quality grades if fed longer. At slaughter, some of these breeds averaged only .3 inches of backfat compared to about .5 for other breeds. However, if fed until backfat reached .5 inches, some breeds may have produced excessively heavy carcasses.

Correlations among traits

Ranch weight was highly correlated (Table 5) with slaughter weight ($r = .67$) and carcass weight ($r = .64$) indicating that heavier calves at the beginning of the finishing period tended to be heavier at the end. Many producers feel that increasing weaning weights automatically will increase feedlot gain. However, ranch weight was poorly correlated with feedlot average daily gain (ADG, $r = .1$). Slaughter weight was highly correlated with ADG ($r = .78$). Frame score receives a great deal of discussion among cattlemen. Frame score was poorly correlated with feedlot ADG ($r = .28$). Quality grade also was not highly correlated with any of the growth traits.

Variation is a major problem in the cattle industry and is illustrated by the wide ranges observed in the Feedout (Table 6). Ranch weights ranged from 488 to 982 lbs for fall-born and from 436 to 851 for spring-born calves. Slaughter weights ranged from 836, which is too small for the trade, to 1579, which is too large. Quality grades ranged from low standard to low prime.

Data from the Steer Feedout show that Oklahoma cattle producers are weaning many calves that are suitable for direct placement in the feedlot but that the true value of these calves is extremely variable. Acceptable feedlot performance and carcass quality for weaned calves are no problem for most calves produced by Oklahoma ranchers. The OK-Steer Feedout is an excellent tool for ranchers who want to learn what their calves are worth.

Table 5. Correlation coefficients^a for traits measured in the OK-Steer Feedout.

	Trait number									
	1	2	3	4	5	6	7	8	9	10
Ranch wt (1)	1.0									
Kill wt (2)	.67	1.0								
ADG (3)	.10	.78	1.0							
Carcass wt (4)	.64	.94	.70	1.0						
Fat thickness (5)	.15	.25	.24	.29	1.0					
Ribeye area (6)	.29	.44	.33	.51	-.10	1.0				
Yield grade (7)	.19	.28	.24	.29	.80	-.51	1.0			
Quality grade (8)	.09	.23	.23	.25	.28	0	-.31	1.0		
Frame score ^b (9)	.24	.37	.28	.36	.04	.09	-.13	-.05	1.0	
Dressing % (10)	.10	.12	.03	.26	.20	.34	.10	.16	.08	1.0

^a All correlations were significant ($P < .01$) except; Ranch weight - quality grade, frame score - ribeye area, frame score - dressing % ($P < .05$); ADG - dressing %, quality grade - ribeye area, frame score - fat thickness, frame score - quality grade (not significant).

^b N = 692.

Table 6. Ranges for ranch weights, slaughter weights, days fed and quality grades of calves on the OK Feedout.

	Smallest	Largest
Fall-born calves (N = 350)		
Ranch wt	488	982
Slaughter wt	874	1579
Days on feed	131	182
Quality grade	5	12
Spring-born calves (N = 954)		
Ranch wt	436	851
Slaughter wt	836	1459
Days on feed	154	183
Quality grade	4	14