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Summary

Three hundred seventy-four calves representing 44 cow-calf producers were consigned to a custom feedlot. Steer calves (254 head) consigned in October weighed 522 lb initially, gained 2.91 lb per head daily, and averaged 1,100 lb at slaughter after an average of 200 days on feed. Average cost of gain and profitability were $48.94 per cwt and -$12.03 per head, respectively. Steers consigned in January weighed 711 lb initially, gained 3.07 lb per head daily, and averaged 1,135 lb at slaughter after 141 days on feed. Average cost of gain and profitability were $43.59 per cwt and -$64.22 per head, respectively. Losses observed for 1994-95 were due to low carcass beef prices relative to the price of feeder cattle in fall of 1994 and January of 1995. As in previous years, average daily gain, days on feed, and quality grade appear related to differences in profit between cattle.

Key Words: Retained Ownership, Feedlot Performance, Feedlot Profitability

Introduction

Retained ownership of feeder calves has been shown to improve profitability of cow-calf operations when examined over many years. Average profit for cattle enrolled in October the first 3 years of the South Dakota Retained Ownership Demonstration were about $50 per head. Profits for cattle consigned in the fall of 1993 averaged -$86.61 per head. The range in profitability throughout the first 4 years for all of the groups of five calves was from -$173.03 to $177.36. An understanding of the factors influencing the profitability of retained ownership is essential in order to successfully use retained ownership as a market alternative.

The objective of this multi-year program is to evaluate retained ownership as a marketing alternative for cow-calf producers. This report summarizes data from the fifth year of the project.

Materials and Methods

Twenty-six cow-calf producers consigned 254 steer calves to a custom feedlot[6] in mid-October of 1994. Nineteen cow-calf producers consigned 120 steer calves to the feedlot at the end of January 1995. Cattle that were placed in January had been weaned in the fall and backgrounded at home prior to feedlot arrival.

Processing procedures included weighing, measuring hip height, and ultrasound[7] determination of initial fat thickness and rib eye area at the 12th rib for all steers arriving in the fall or winter. All cattle were treated for parasites, vaccinated, implanted and started on feed in the same manner as described in Beef Report articles from previous years describing the Retained Ownership Demonstration. Individual feed, yardage and veterinary bills were

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also allocated as described in previous years. Cattle were sold as individuals on a grade and yield basis as each calf appeared to reach .4 in. rib fat.

Results and Discussion

A wide variety of cattle types were represented in the program. Initial weight, hip height, rib fat, and rib eye area are displayed in Table 1. Cattle placed on feed in October averaged 522 lb and ranged from 308 to 802 lb. Steers placed in January averaged 711 lb, were 46.86 inches tall at the hip, carried .19 in. of backfat, and had an average rib eye area of 8.20 inches.

Feedlot performance information is shown in Table 2. Cattle were weighed full the day prior to slaughter. Slaughter weight for each steer was computed by applying a 4% pencil shrink to this full weight. Slaughter weight was greater for the January steers as compared with October steers (1135 vs 1100 lb). Average daily gain was also greater for January steers than for the October steers (3.07 vs 2.91 lb per head daily). January steers were fed fewer days than October steers (141 vs 200 days).

Average dry matter intake was 19.23 and 20.29 lb per head daily for the October steers and January steers, respectively. Feed to gain ratios were 6.63 and 6.69 lb dry matter per pound gain for the October steers and January steers, respectively. Performance observed for the October calves was greater this year than in 1993-94 and similar to the first 3 years of the project. Feed to gain and average daily gain for the January steers were poorer this year than in previous years.

Table 1. Initial data for retained ownership cattle

	Weight, lb	H.p height, in.	Initial fat, in.	Initial rib eye area, in.^{2}
October steers				
Average	522	44.10	.15	7.36
Range	308-802	38.50-50.00	.01-.28	4.91-9.93
Standard deviation	62	1.86	.03	.87
Range (5 head)	414-682	42.00-47.10	.11-.23	6.30-8.16
January steers				
Average	711	46.68	.19	8.20
Range	512-1055	43.00-52.50	.03-.41	5.81-10.67
Standard deviation	108	1.89	.06	.99
Range (5 head)	579-1019	44.10-49.20	.14-.34	6.93-9.56

Table 2. Feedlot performance for retained ownership cattle

	Slaughter weight, lb	Average daily gain, lb	Days fed
October steers			
Average	1100	2.91	200
Range	862-1432	1.51-4.04	166-227
Standard deviation	90	.41	23
Range (5 head)	943-1259	2.43-3.59	171-227
January steers			
Average	1135	3.07	141
Range	874-1392	.97-4.33	97-155
Standard deviation	94	.53	19
Range (5 head)	999-1300	2.52-3.73	104-155

Table 3 shows carcass data collected for the cattle. Carcasses of the January steers were heavier than carcasses of the October steers. Percentage choice carcasses for the October and January steers were 62.95 and 43.70, respectively. Both sets of carcasses were somewhat leaner than the target fat thickness of .4 inch. This reflects our desire to market these cattle prior to a greater reduction in the carcass beef price that the industry expected.

Table 4 shows the feeding period costs for the cattle. Feed and yardage expenses were greater for the October steers than the January steers due to additional time on feed. Veterinary and death loss costs were much higher for the October steers than for the January steers. January cattle were backgrounded at the home ranch and probably experienced additional death loss and veterinary expenses at home prior to feedlot arrival. Feed and total cost of gain are expressed on an initial weight to slaughter weight basis. Feed cost of gain was similar for both sets of steers, yet total cost of gain was greater for the October steers than that observed for the January cattle. Break-even sale prices were $65.93 and $68.04 per cwt for the October and January steers, respectively.

Table 5 shows the initial and sale values and profitability of cattle fed in the program. Initial price for the October steers was established by using numerous sale barn reports for the last 3 weeks in October and regressing price on pay weight (Figure 1). The same technique was used for predicting the January prices (Figure 2). Equations predicting price are displayed in Table 6. No attempt was made to adjust the initial prices for breed type, frame size, initial condition, or location.

All cattle were sold on a grade and yield basis. Table 7 displays the steer carcass prices that were obtained for the cattle. A seasonal decline in the base choice price and a widening of the choice-select spread was observed. A greater number of the October steers were sold at the earlier marketing dates, resulting in a higher price being paid for these cattle as compared with the January steers. A higher percentage of the October steers graded low choice or higher as compared with the January cattle. This also contributed to a higher carcass price for the October steers as compared with the January steers.

Profits, excluding calf interest and trucking to the lot, were -$12.03 and -$64.22 per head for the October and January steers, respectively. The variability in profitability between individual cattle and between groups of five head was tremendous (Table 8). The poorest profitability group of five cattle among the October calves lost $181.80 per head. The most profitable group of five cattle made $33.74 per head. Annual return on investment for all of the groups of five ranged from -77.82 to 16.39%.

Table 3. Carcass data for retained ownership cattle

	Hot carcass wt, lb	Dressing percent	Fat thickness, in.	Rib eye area, $in.^2$	Kidney, heart, and pelvic fat, %	Calculated yield grade, units	Marbling score, units[a]	Percent choice
October steers								
Average	686	62.34	.37	12.23	2.23	2.55	5.10	62.95
Range	524-893	57.33-69.09	.10-.90	9.30-17.00	.00-4.00	1.00-4.15	3.40-7.50	
Standard deviation	59	1.81	.15	1.30	.81	2.55	.67	
Range (5 head)	587-805	60.69-64.32	.14-.57	10.78-14.40	1.4-2.8	1.68-3.44	4.23-5.99	0-100
January steers								
Average	704	62.03	.33	12.43	2.17	2.46	4.83	43.70
Range	548-888	52.50-68.60	.10-.70	10.0-16.4	.00-4.00	.99-3.72	3.80-6.00	
Standard deviation	61	1.98	.12	1.32	.62	.52	.47	
Range (5 head)	613-810	60.08-64.23	.20-.51	10.76-14.92	1.5-2.5	1.88-3.11	4.44-5.47	0-80

[a]4.00 = Slight°, 5.00 = Small°.

Table 4. Feeding period costs[a]

Item	October steers	January steers
Feed	216.05	154.28
Yardage	30.17	20.73
Veterinary	13.87	8.42
Interest[b]	6.24	3.13
Trucking[c]	7.70	7.94
Marketing	1.47	1.47
Death loss	6.25	5.74
Total	281.75	201.71
Feed cost of gain[d], $/cwt	37.44	36.54
Total costs of gain[d], $/cwt	48.94	43.59
Break-even sale price, $/cwt	65.93	68.04

[a]Average dollars per head.
[b]Interest on feed, yardage, and veterinary expenses only.
[c]Trucking to packing plant only.
[d]Initial weight to slaughter weight basis.

Table 5. Profitability of retained ownership steers and heifers

Item	October steers	January steers
Initial pay weight, lb	544	740
Price, $/cwt	81.73	77.28
Initial value, $	442.82	570.21
Hot carcass wt, lb	686	704
Carcass price, $/cwt	103.94	100.56
Sale value, $	712.54	707.70
Profit, $/head[a]	-12.03	-64.22
Annual return on investment, %	-3.93	-29.93

[a]Excludes calf interest and trucking to the feedlot.

Table 6. Equations predicting initial price

Cattle	n	Equation[a]	R^2	Sy.x
October steers	2386	123.6763 - .10855 x lb + .000057 x lb^2	.7319	3.27
January steers	470	153.624 - .18265 x lb + .000105 x lb^2	.8117	3.11

[a]Weight = pay weight in lb.

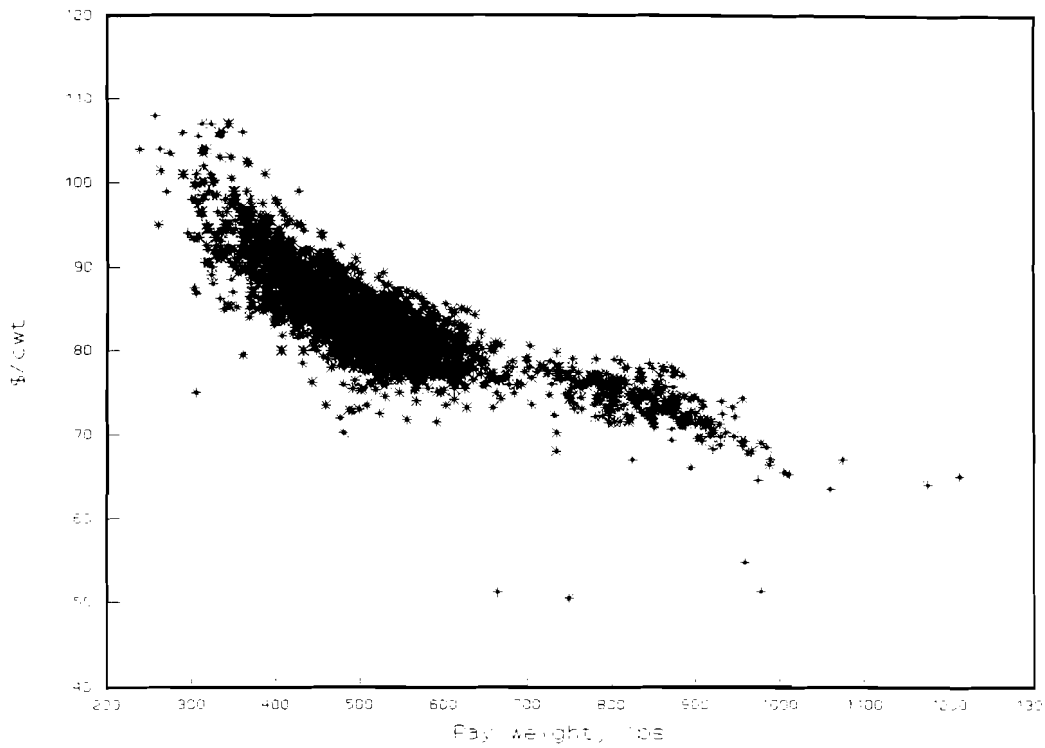

Figure 1. Relationship between price and pay weight of steers for late October 1994.

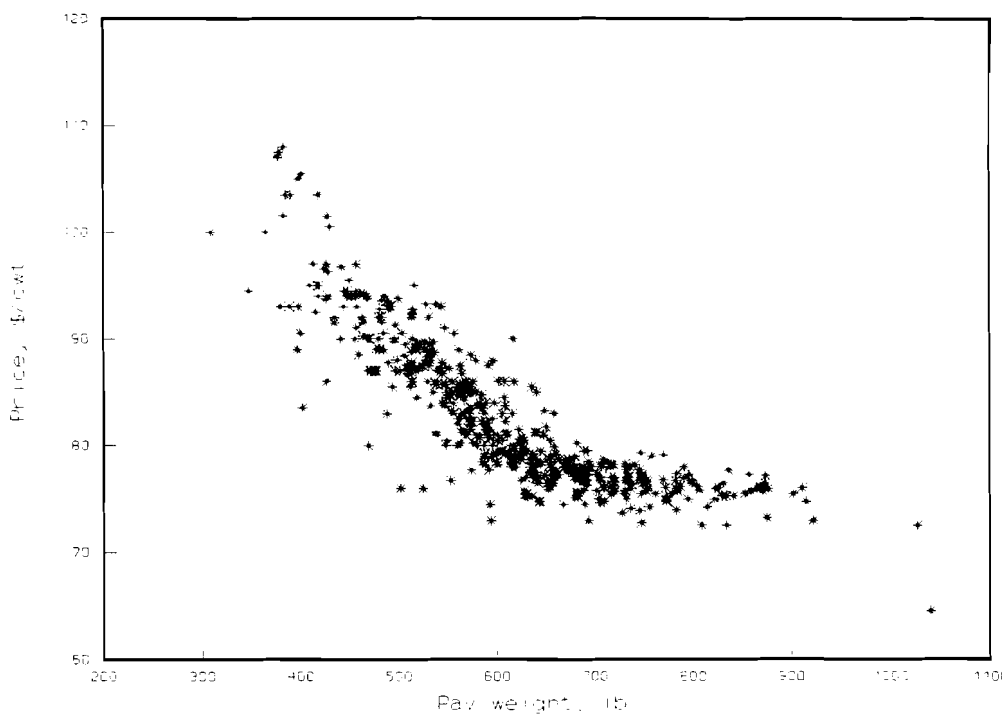

Figure 2. Relationship between price and pay weight of steers for late January 1995.

Table 7. Market dates of the cattle and carcass prices paid for cattle

Market date	Number of cattle sold: October steers	Number of cattle sold: January steers	Base choice price[a]	Select discount[a]
March 30	45	—	111.00	4.00
April 27	113	16	107.00	4.00
May 31[b]	93	31	104.00	10.00
June 21[c]	—	72	106.00	9.00

[a]$ per cwt carcass.
[b]One carcass was discounted $22/cwt for weighing <550.
[c]One stag carcass discounted $28/cwt.

Table 8. Variation in profitability

	Profit, $/head	Annual return, %	Initial calf value, $/cwt
October steers			
Average	-12.03	-3.93	79.49
Range	-292.17-88.49	-100.73-39.99	29.78-101.02
Standard deviation	46.30	18.13	8.99
Range (5 head)	-115.10 - 33.74	-40.32 - 16.39	60.27-89.59
January steers			
Average	-64.22	-29.93	68.88
Range	-278.06 - 36.87	-119.45 - 16.59	47.22-84.06
Standard deviation	52.56	23.81	6.89
Range (5 head)	-181.80 - -25.24	-77.82 - -9.37	61.07-75.49

Another way to express retained ownership profitability is to use slaughter value and feedlot costs to back calculate the value of the calves when they entered the feedlot. October and January steers were worth $712.54 and $707.70 per head at slaughter, respectively. Total feeding costs were $281.75 and $201.71 per head for the October and January steers, respectively. Therefore, the calves were worth $430.79 and $505.99 at feedlot arrival for the October and January steers, respectively. Average pay weights on the calves were 544 and 740 lb for the October and January steers, respectively. Thus, October steers were worth $79.49 per cwt and the January steers were worth $68.88 per cwt. These calf values represent no interest charge on the calf and no feedlot profit. If one assumes calf interest at 9.5%, breakeven calf values are $75.37 and $66.37 per cwt.

Tables 9 and 10 show the value of select variables for low, middle, and high profitability groups for the October and January steers, respectively. Average daily gain, days on feed, and percentage of choice appear to be important factors determining profitability for cattle placed on feed in October. High profit cattle had lower cost of gain than low or middle profit cattle ($46.93 vs $50.54 and $49.32 per cwt, respectively).

For the January steers, high cost of gain appeared to sort cattle into the low profit group. Cattle in the high profit group appeared to be of higher quality. Over 97% of the cattle in the high profit group graded low choice or higher as

Table 9. Value of select variables for low, middle, and high profit groups of October placed calves

	Profit group		
Variable	Low 1/3	Mid 1/3	High 1/3
Profit, $/head	-62.15	-4.92	31.50
Average daily gain, lb	2.65	2.87	3.21
Initial weight, lb	522	530	514
Finished weight, lb	1082	1102	1116
Dressing percent	61.87	62.32	62.83
Days fed	212	200	188
Total cost of gain, $/cwt	50.54	49.32	46.93
Percentage choice	24.81	79.8	85.5
Dry matter intake[a]	17.86	19.19	20.68
Feed/gain	6.76	6.68	6.43

[a]Calculated from body weight and gain using net energy relationships.

Table 10. Value of select variables for low, middle, and high profit groups of January placed steer calves

	Profit group		
Variable	Low 1/3	Mid 1/3	High 1/3
Profit, $/head	-120.98	-60.67	-12.42
Average daily gain, lb	2.94	3.22	3.05
Initial weight, lb	783	661	691
Finished weight, lb	1154	1117	1133
Dressing percent	61.28	62.01	62.79
Days fed	130	145	148
Total cost of gain, $/cwt	47.49	40.87	42.49
Percentage choice	15.4	17.5	97.5
Dry matter intake[a]	20.86	20.20	19.83
Feed/gain	7.28	6.28	6.52

[a]Calculated from body weight and gain using net energy relationships.

compared with 15.4 and 17.5% for the low and middle profit groups, respectively.

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