

1986

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Recommended Citation

Wagner, J.J., "South Dakota Custom Feeding Program" (1986). *South Dakota Beef Report, 1986*. Paper 32.
http://openprairie.sdstate.edu/sd_beefreport_1986/32

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SOUTH DAKOTA CUSTOM FEEDING PROGRAM

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CATTLE 86-31

Summary

Seventy-five preconditioned steer calves representing 14 different owners and a variety of breeds were placed on feed at Longacre Farms, Wentworth, South Dakota, in late November and early December. Average days on feed for the 15 groups of five head was 191 (range 181-207). Average daily gain was 2.6 lb head per day (range 2.26-2.83). Feed efficiency was 8.2 lb dry matter per pound of gain. Feed cost averaged \$35.53 per cwt. gain and nonfeed cost averaged \$11.84 per cwt. gain. Average cost of gain excluding interest was \$47.37 per cwt. (range 43.16-53.74). Average loss was \$85.00 per head (range \$45.99-140.61). Cost of gain at this eastern South Dakota feedlot was competitive with nearly any feedlot in the country.

(Key Words: Retained Ownership, Custom Feeding, Feedlot Performance.)

Introduction

Many feedlots in the traditionally heavy cattle feeding areas of South Dakota stand empty while low commodity prices are cited as the major reason for economic problems on farms and ranches. Retained ownership and custom feeding are being promoted as viable means of increasing farm and ranch returns. Ranchers may increase the value of their calves by retaining ownership on part or all of their calf crop through the growing and(or) finishing phases of beef production. By feeding cattle, farmers may increase the value of their grain by marketing it through cattle.

Traditionally, the cow-calf and cattle feeding segments of the beef industry have existed as separate entities. Cow-calf producers are reluctant to deliver calves to a feedlot without an established record. They are unwilling to assume the risk of a feeding arrangement they may not understand or that may not guarantee some level of return. South Dakota ranchers that do retain ownership of their cattle generally send them to Nebraska, Kansas, Texas or Oklahoma panhandle feedlots. Eastern South Dakota farmer-feeders do not have consistent performance records allowing a rancher to shop for a feedlot on a performance basis.

The objectives of this program were to (1) evaluate retained ownership and custom feeding as a viable means for improving farm and ranch income, (2) generate economic and performance information from custom feeding in an eastern South Dakota farmer feedlot, (3) enable western South Dakota ranchers unfamiliar with custom feeding to gain experience concerning cattle feeding and (4) increase the number of cattle fed in South Dakota.

Program Procedures

Ranchers consigned groups of five preconditioned steer calves. The preconditioning program followed the South Dakota Beef Cattle Improvement Association's "Green Tag" program. Cattle were also vaccinated for *Haemophilus somnus* prior to leaving the ranch. Seventy-five cattle representing 14 ranches and a variety of breeds were consigned to the program.

Cattle were fed at Longacre Farms near Wentworth in east central South Dakota. The feedlot had traditionally been a farmer-operated lot that owned all of the cattle they fed. Total lot capacity was approximately 1250 head. Pens contained concrete feeding aprons, adequate drainage and were protected from the wind by shelter belts on the west, north and east sides. All feedstuffs except protein supplement were grown on this farm.

Ranchers were charged \$.25 per head per day for yardage plus \$.50 per head chute charge, \$2.50 per head per day hospital charge and all veterinary and medication expenses. Feed was billed on a per cwt. basis with no ration mark-up. Individual steer intake estimates needed to calculate feed bills were computed using National Research Council (1984) energy requirement computations. Table 1 outlines the calculations used to determine individual feed intake. Heavier, faster gaining cattle were assumed to have consumed more feed.

A \$500 deposit was required for each group of five cattle upon arrival at the feedlot. The deposit allowed the books to be run on a cash basis. The feedlot submitted a monthly bill for yardage, services and feed. The feedlot was paid from the deposit fund and each rancher was billed for his share of the total.

Ranchers assembled cattle for shipment at Isabel, South Dakota, on November 21 and Murdo, South Dakota, December 10. At the assembly points, cattle were weighed, eartagged and brand inspected. Originally, all cattle were to arrive at the feedlot within 1 week beginning November 21. However, blizzard conditions delayed the assembly and shipment of the Murdo cattle until December 10. Twenty-five cattle arrived at the feedlot November 21, five cattle arrived November 27 and 40 cattle arrived December 11, 1985.

Upon arrival at the lot, cattle were allowed access to prairie hay and corn silage and rested overnight. The following day they were individually weighed, implanted with Compudose¹ and placed on the growing ration (table 2). January 11, 1986, the cattle were switched to the winter finishing ration. On May 7, they were switched to the final finishing ration. Rumensin¹ was included in all diets.

Cattle were weighed at approximately 28-day intervals throughout the feeding period. Ranchers were provided monthly performance updates. Cattle were sold "in the beef" when three of the five head reached an anticipated low choice grade. Ranchers were sent carcass data and feedlot close-out information at the end of the trial. Proceeds from the sale of cattle were distributed to ranchers once a rancher's account was settled.

¹Products of Elanco Products Company.

Results and Discussion

Thirty cattle contracted shipping fever in late November. Cattle were treated with 25 cc LA-200 and Terramycin crumbles were added to the growing ration. One calf bloated early in the growing phase. A trocar was used to relieve ruminal pressure. After 2 weeks of periodic bloating, the condition diminished. No additional health problems were observed.

Table 3 shows the origin weights, feedlot in weights and shrink of the cattle. Cattle averaged 574 lb at their place of origin and 557 lb when placed on feed. Average shrink for the cattle was 2.96%.

Feedlot performance is displayed in table 4. Cattle were on feed an average of 191 days. They were slaughtered at 1056 lb. Average daily gain was 2.60 lb. Feed conversion was 8.2 lb of ration dry matter per pound of gain.

Carcass data are presented in table 5. Cattle were sold "in the beef" when three of five head reached an anticipated low choice grade. Average quality grade of all cattle was high good. Average fat thickness over the 12th rib was .4 inch.

Average cost of gain (feedlot in weight to slaughter weight) was \$47.37 per cwt. (table 6), excluding interest, and ranged from \$43.74 to \$53.74 per cwt. gain. Feed cost was based on corn (86% DM) \$2.35 per bushel; corn silage \$22.00 per ton and prairie hay \$40.00 per ton. Feed cost averaged \$35.53 per cwt. of gain. If the rancher owned the cattle but had to borrow all of the feeding costs at 13% interest, the total interest charges would have been \$3.22 per cwt. of gain. The estimated total cost of gain would have been \$50.59 per cwt.

Break-even relationships, estimated losses and the assumptions made to arrive at the break-evens are summarized in table 7. Cattle were sold "in the beef" for an average of \$82.61 per cwt. of carcass. Cattle lost an average of \$85.00 per head, assuming an average value of \$68.00 per cwt. for the calves. Losses ranged from \$45.99 to \$140.61 per head. Break-even sale price averaged \$59.34 per cwt. live. Break-even purchase price of the calves was \$53.23 per cwt.

Cost of gain reported in this study (\$47.37/cwt) is competitive with nearly any feedlot in the country. Average loss of \$85.00 per head point out the importance of using some form of marketing price protection. Locking in a price of \$59.34 per cwt. (range \$56.82-\$61.86) would have allowed the ranchers to break even on the cattle. Locking in a price of \$62.00 per cwt. would have insured a profit for all participants in the study.

TABLE 1. CALCULATIONS ESTIMATING FEED INTAKE

$$NE_m = .0426 W^{.75}$$

$$NE_g = (.0132 ADG + .00078 ADG^2) W^{.75}$$

- (1) Calculate the required NE_m and NE_g for the average of each group of five cattle.
- (2) Calculate the required NE_m and NE_g for the average of the entire pen.
- (3) Calculate the required dry matter to achieve required level of NE_m and NE_g for the average of each group of five and for the entire pen.

$$DMI = \frac{NE_m \text{ required}}{\text{Diet } NE_m \text{ content}} + \frac{NE_g \text{ required}}{\text{Diet } NE_g \text{ content}}$$

- (4) Calculate the estimated dry matter intake of the average of each group of five cattle.

$$\text{Estimated intake} = \frac{DMI \text{ (group of 5)}}{DMI \text{ (pen)}} \times \text{Actual average dry matter intake}$$

NE_m = Net energy for maintenance.

NE_g = Net energy for gain.

W = Live weight, lb.

DMI = Dry matter intake.

(Owens et al., 1984).

TABLE 2. DIETS FED TO CATTLE

Ingredient	Percent dry matter		
	Ration		
	Growing	Winter finishing	Final finishing
High moisture corn	52.5	75.0	85.6
Corn silage	40.0	20.0	10.0
Supplement ^a	7.5	5.0	4.4

^a Purina Mills Special Feedlot 40 during the growing program and Purina Mills Feedlot 40 during the finishing program.

TABLE 3. STARTING DATA

Group	Origin wt, lb	Feedlot in wt, lb	Shrink ^a , %
1	676	644	4.73
2	658	660	.00
3	711	680	4.36
4	587	571	2.73
5	NA	530	NA
6	598	589	1.51
7	557	551	1.08
8	445	428	3.82
9	546	518	5.13
10	613	592	3.43
11	542	532	1.85
12	518	502	3.09
13	525	515	1.90
14	517	490	5.22
15	585	553	5.47
Avg	574	557	2.96

$$^a 1 - \frac{\text{In weight}}{\text{Origin weight}}$$

TABLE 4. FEEDLOT PERFORMANCE DATA

Group	Feedlot out wt, lb	Days on feed	ADG
1	1156	181	2.83
2	1169	181	2.81
3	1201	207	2.46
4	1080	207	2.44
5	1058	194	2.72
6	1128	200	2.69
7	1066	200	2.58
8	992	207	2.72
9	1016	188	2.65
10	1090	181	2.75
11	1024	188	2.62
12	962	188	2.45
13	970	181	2.51
14	914	188	2.26
15	1011	181	2.53
Avg	1056	191	2.60

TABLE 5. CARCASS DATA

Group	Fat thickness, in	Percent choice	Yield grade	Hot carcass wt, lb
1	.18	20	1.80	717
2	.45	60	2.78	725
3	.24	20	2.16	745
4	.42	60	2.98	670
5	.36	80	2.82	656
6	.36	20	2.28	699
7	.51	40	2.70	661
8	.25	0	1.90	615
9	.42	0	2.58	630
10	.40	40	2.66	676
11	.40	80	2.98	635
12	.50	40	3.08	597
13	.46	20	2.52	601
14	.40	60	2.76	567
15	.40	20	2.72	627
Avg	.38	37	2.58	655

TABLE 6. COST OF GAIN DATA

Group	Cost of gain, \$/cwt		
	Total	Feed	Nonfeed
1	47.74	37.94	9.80
2	48.38	38.53	9.85
3	53.74	41.04	12.70
4	51.64	38.37	13.28
5	46.16	32.81	13.36
6	47.34	35.80	11.54
7	49.75	33.68	16.07
8	43.16	31.69	11.47
9	47.16	35.18	11.98
10	45.93	35.86	10.06
11	44.97	33.65	11.32
12	43.74	32.47	11.28
13	47.11	35.41	11.70
14	45.31	33.07	12.23
15	48.36	37.41	10.94
Avg	47.37	35.53	11.84

TABLE 7. BREAK-EVEN DATA

Group	Estimated calf price, \$/cwt	Selling price, \$/cwt carcass	Break-even		Loss, \$/head
			purchase value \$/cwt	sale price, \$/cwt	
1	68.00	83.17	52.02	60.90	108.04
2	68.00	84.25	55.38	59.35	83.02
3	66.00	80.87	46.22	61.86	140.61
4	68.00	82.35	51.12	60.25	99.09
5	68.00	85.09	59.32	57.11	45.99
6	68.00	83.18	54.61	58.66	80.09
7	67.00	83.58	53.18	59.06	77.00
8	72.00	80.00	55.86	56.82	71.84
9	69.00	80.00	49.28	60.20	107.65
10	68.00	83.69	54.96	59.24	79.95
11	68.00	83.16	56.59	57.61	61.83
12	69.00	81.43	54.92	58.08	72.96
13	69.00	83.02	54.27	59.44	77.32
14	69.00	82.31	53.07	60.06	82.37
15	66.00	83.01	51.09	60.11	87.25
Avg	68.20	82.61 ^a	53.23	59.34	85.00

^a Corresponds to a live price of \$51.22/cwt.