FEEDER CATTLE
COSTS AND RETURNS
1958 - 1959

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INTRODUCTION

The return over feed cost from feeder cattle fluctuates from year to year and from farm to farm. The variation in returns is accounted for by two primary factors: (1) the price spread between the purchase price and the sale price of the cattle, and (2) the feed cost per pound of gain. This is emphasized by this study of costs and returns for 67 lots of feeder cattle on Southern Minnesota farms in the 1958-59 feeding season. This information was obtained from records kept by members of the Southeastern, Southwestern, and West Central Minnesota Farm Management Services. The purpose of this report is to make available data regarding the average results from feeding operations, to provide examples of individual lot records, to show the relative importance of feeding efficiency and price spread in feeder cattle production, and average labor requirements as affected by feeding program and size of lot.

The data presented cover individual lots of cattle from purchase as feeders to sale of fat cattle. Three different programs are represented: (1) long-fed calves; (2) long-fed yearlings; and (3) short-fed yearlings and two-year-olds. Cattle on feed 240 days or less are classified as "short-fed" and those fed for longer periods as "long-fed." Steers and heifers are combined. All lots with an average weight of 500 pounds or less per head at purchase are classed as calves.

Simple arithmetic averages are used throughout the report. In computing group averages each lot was given equal weight regardless of the number of animals in it.

PRICES

The average yearly prices at which the principal feeds used in cattle feeding were charged on the farms studied are shown in Table 1 for 1958 and 1959. The farm-raised feeds are valued at average prices on the farms. Purchased feeds are listed at the prices paid for them. Feeds for which there is no established market, such as corn silage, are valued on the basis of their feeding value relative to similar feeds for which a market price is available.

Table 1. Average Annual Feed Prices

Feed	1958	1959
Alfalfa hay, per ton	$17.75	$19.75
Timothy or brome hay, per ton	10.25	11.50
Oats or hay silage, per ton	6.00	6.10
Corn silage, per ton	6.00	6.60
Ear corn, per bu.	.98	.98
Oats, per bu.	.54	.58
Linseed oil meal, per 100 lbs.	3.50	4.20
Soybean oil meal, per 100 lbs.	3.50	3.85
Pasture, per month per head	2.50	2.50

Monthly prices of stocker and feeder cattle at South St. Paul from January, 1958, through June, 1960, are shown in Figure 1. Southern Minnesota farmers secure their feeder cattle from a variety of sources but the South St. Paul quotations are reasonably representative of price trends during this period.

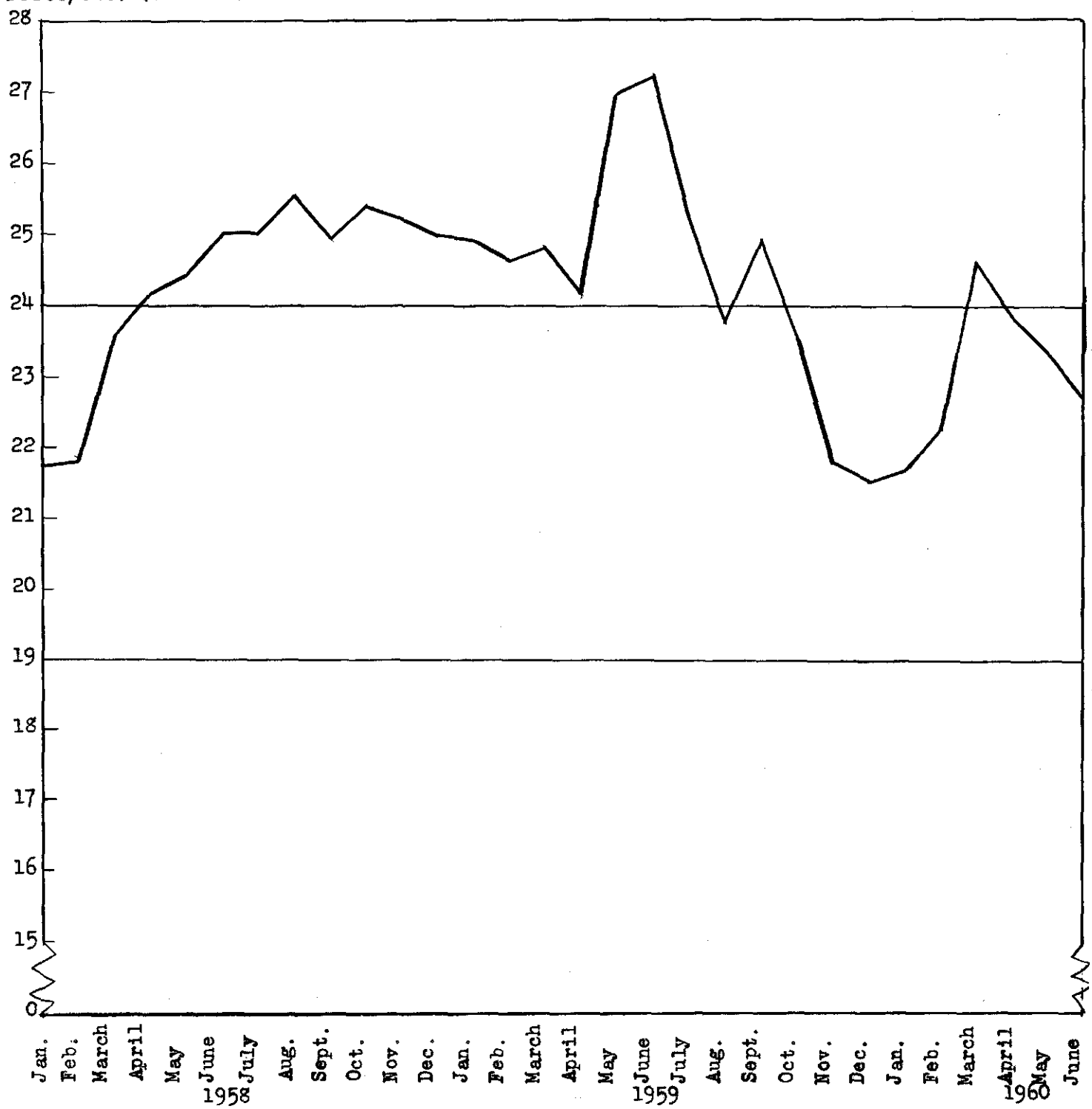

Figure 1. Average monthly prices per 100 pounds of stockers and feeders, all weights South St. Paul, January, 1958 - June, 1960 (compiled from Livestock Market News Statistics and Related Data, USDA, PMA, 1958-60.

The average purchase and sales prices per 100 pounds of feeder cattle for the years 1955-59 by type of feeding program are shown in Figure 2.

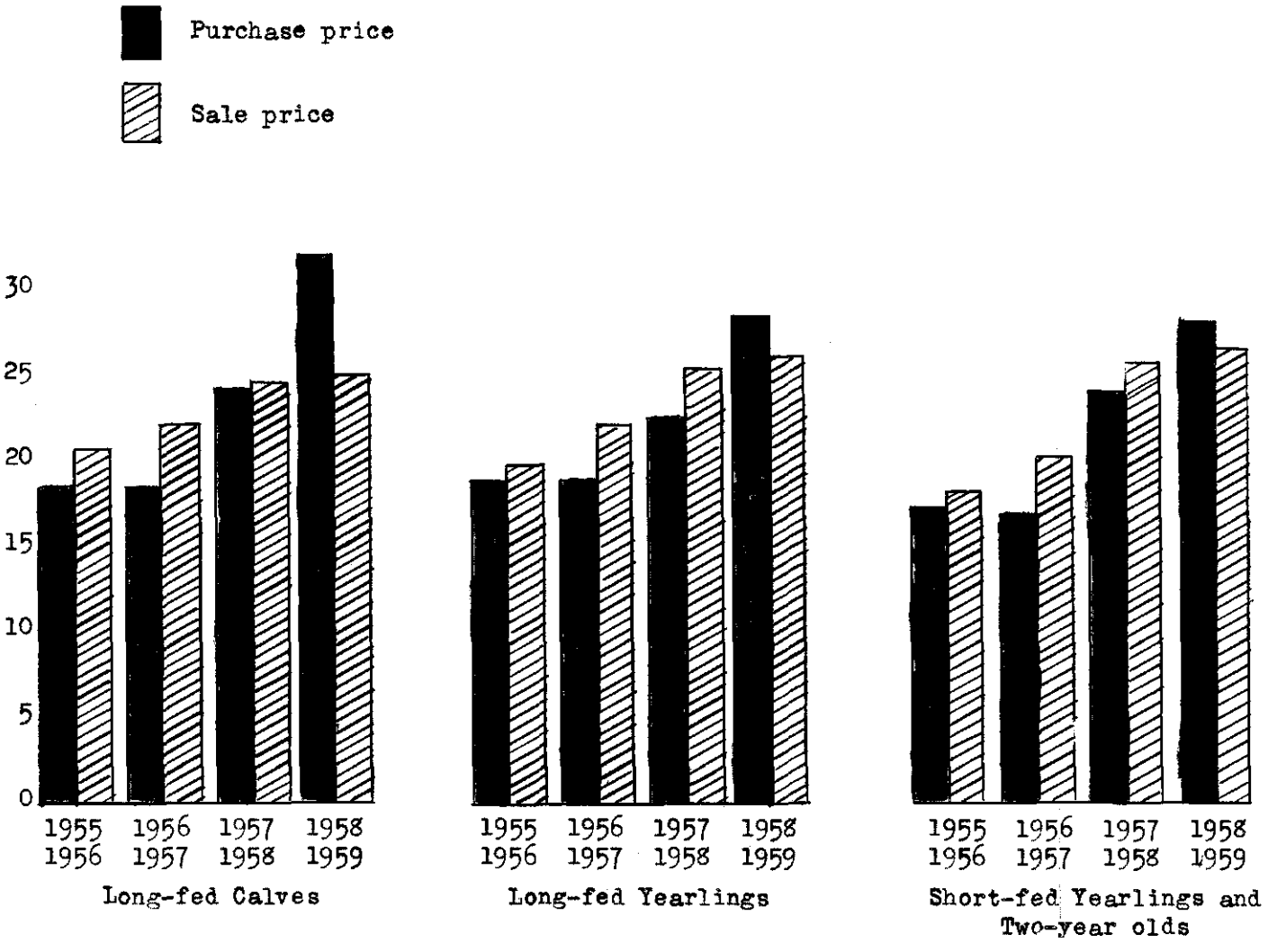

Figure 2. Average purchase and sale prices per 100 pounds of feeder cattle by feeding program on farms studied, 1955-59.

NUMBERS AND WEIGHTS OF CATTLE FED

The individual lots of cattle for the 1958-59 feeding period included a wide range as to numbers per lot, gain per head, and daily gain. The data in Table 2 indicate the range from high to low for each item and also give a comparison between the calves, long-fed yearlings, and the short-fed yearlings and two-year-olds.

Daily gains were greatest for the short-fed cattle. This was due in part to their larger size and greater capacity for feed and to the fact that they were pushed along more rapidly. Death losses occurred in 27 of the 67 lots. In a few of the cases it was an important factor limiting the profits for these lots.

Table 2. Range in Numbers and Weights for Individual Lots

	39 lots Long-fed calves			8 lots Long-fed yearlings			20 lots Short-fed yearlings and two-year-olds		
	Avg.	High	Low	Avg.	High	Low	Avg.	High	Low
Number of head in lot	69	165	14	67	119	30	58	148	15
Avg. purchase weight*	418	499	305	621	788	503	697	915	502
Avg. sale weight**	974	1107	828	1070	1197	886	1066	1229	802
Avg. gain in weight/hd	556	709	404	449	613	295	369	508	225
Avg. daily gain/head	1.80	2.65	1.31	1.60	2.20	.99	2.10	2.90	1.45

* Weight at the time cattle were purchased.
** Weight at the time cattle were sold at the market.

FEEDING DATA

The number and weights of cattle fed, the quantities of feed used and the costs and returns from feeding operations for the 1958-59 feeding season are shown on the following pages. In Table 3 is the report for the long-fed calves, in Table 4 for the long-fed yearlings, and in Table 5 for the short-fed yearlings and two-year-olds. A comparison of these data for the last four years is given in Table 6.

The information on costs and returns presented in Tables 3, 4, and 5 includes the prices paid and received for cattle, the cost and returns per lot and cost and returns per 100 pounds gain in weight. The return over feed costs per 100 pounds gain in weight (line 29) is used in this study as a measure of the relative profitability of individual lots of cattle and of the different groups compared.

Net returns or profits in cattle feeding are the result of sales income minus costs. The major items of cost are purchase price of cattle and the feed they consume. Profits result when the total of these plus other costs are below the amount received for the cattle.

Two factors contribute to return over feed cost, (1) a gain in weight produced in the lot at less cost than the selling price, and (2) a positive price spread between the cost of the feeders and that of the fed cattle when sold. The combined effect of these two factors determines how much profit or loss is made on any given lot of feeder cattle. The amount each contributes to the return over feed cost is shown on lines 30 and 31 of the tables. The return from feeding (line 30) is the difference between the feed cost per 100 pounds gain in weight and the selling price per 100 pounds. The remainder is the price spread minus death loss. The return per $100 feed cost (line 32) is obtained by dividing the total return by the total feed cost. This tells what was received on the average per $100 spent for feed.

Table 3. Long-fed Calves, 1958-59

	Average of 39 lots	Individual lot numbers 1	2	3	4
Number and weight of cattle fed:					
1. Number of head bought	69	19	27	50	100
2. Days on farm	313	200*	316	352	302
3. Days on pasture	11	-	117	-	-
4. Percent death loss	1.2	-	3.7	2.0	-
5. Average purchase weight, lbs.	418	436	399	405	378
6. Average sales weight, lbs.	974	966	918	1070	909
7. Gain per head, lbs.	556	530	519	665	531
8. Gain per head per day, lbs.	1.80	2.65	1.64	1.89	1.76
9. Pounds of beef produced	38229	10085	13120	32190	53090
Feed used per 100 lbs. gain:					
10. Corn, lbs.	529	496	430	446	348
11. Small grain, lbs.	32	96	1	2	24
12. Commercial feed, lbs.	59	24	54	54	76
13. Total concentrates, lbs.	620	616	485	502	448
14. Legume hay, lbs.	184	115	251	106	147
15. Other hay, lbs.	11	-	-	12	-
16. Total dry roughage, lbs.	195	115	251	118	147
17. Corn silage, lbs.	321	40	534	-	501
18. Grass or oat silage, lbs.	104	396	-	-	-
19. Total silage, lbs.	425	436	534	-	501
20. Pasture, days	2	-	24	-	-
Prices of cattle:					
21. Price paid per 100 lbs.	$33.51	$21.92	$29.75	$35.20	$33.41
22. Price received per 100 lbs.	25.09	24.24	26.45	25.29	25.95
23. Price spread per 100 lbs.	-8.42	2.32	-3.30	-9.91	-7.46
Cost and returns per lot:					
24. Total value produced	$7061.09	$2636.50	$3115.09	$6136.08	$10960.07
25. Total feed cost	5878.01	1414.32	1933.80	3371.73	6555.19
26. Total return over feed	$1183.08	$1222.18	$1181.29	$2764.35	$ 4404.88
Cost and return per 100 lbs. gain:					
27. Value produced	$18.62	$26.14	$23.74	$19.06	$20.64
28. Feed costs	15.67	14.02	14.74	10.47	12.35
29. RETURN OVER FEED COST	$ 2.95	$12.12	$ 9.00	$ 8.59	$ 8.29
30. Return over feed cost from price spread	$-6.47	$ 1.90	$-2.71	$-6.23	$-5.31
31. Return over feed cost from feeding	$ 9.42	$10.22	$11.71	$14.82	$13.60
32. Return per $100 feed cost	$123	$186	$161	$182	$167

* Short-fed calves were included in the long-fed calves.

Table 3. Long-fed Calves, 1958-59 (continued)

	Individual lot numbers						
	5	6	7	8	9	10	11
1.	80	54	128	99	161	52	125
2.	333	335	327	320	328	195*	374
3.	42	120	-	-	-	-	-
4.	-	-	1.6	1.0	1.2	-	1.0
5.	399	451	410	429	431	494	419
6.	890	996	1051	959	1081	898	1038
7.	491	545	641	530	650	404	619
8.	1.47	1.63	1.96	1.66	1.98	2.07	1.66
9.	39210	29456	81070	52430	102485	21030	76312
10.	477	650	531	444	470	558	569
11.	51	115	23	-	54	-	2
12.	5	-	27	51	11	29	17
13.	533	765	581	495	535	587	588
14.	177	81	104	69	43	105	94
15	-	-	5	-	14	14	-
16.	177	81	109	69	57	119	94
17.	97	102	-	247	119	-	472
18.	255	-	460	-	351	-	157
19.	352	102	460	247	470	-	629
20.	8	22	-	-	-	-	-
21.	$34.98	$30.45	$30.03	$35.02	$34.82	$31.02	$36.00
22.	26.75	26.53	23.84	25.49	25.24	25.42	26.20
23.	-8.23	-3.92	-6.19	-9.53	-9.58	-5.60	-9.80
24.	$7857.62	$6859.18	$16079.43	$9083.74	$19207.92	$3907.16	$14863.64
25.	5096.63	4914.92	10747.42	5932.89	13104.18	2658.00	10430.36
26.	$2760.99	$1944.26	$ 5332.01	$3150.85	$ 6103.74	$1249.16	$ 4433.28
27.	$20.04	$23.28	$19.83	$17.33	$18.75	$18.58	$19.48
28.	13.00	16.68	13.26	11.32	12.79	12.64	13.67
29.	$ 7.04	$ 6.60	$ 6.57	$ 6.01	$ 5.96	$ 5.94	$ 5.81
30.	$-6.71	$-3.25	$-4.01	$-8.16	$-6.49	$-6.84	$-6.72
31.	$13.75	$ 9.85	$10.58	$14.17	$12.45	$12.78	$12.53
32.	$154	$140	$150	$158	$147	$147	$143

* Short-fed calves were included in the long-fed calves.

Table 3. Long-fed Calves, 1958-59 (continued)

	Individual lot numbers				
	12	13	14	15	16
Number and weight of cattle fed:					
1. Number of head bought	73	65	43	40	40
2. Days on farm	325	291	320	291	359
3. Days on pasture	35	-	-	-	-
4. Percent death loss	1.4	1.5	-	2.5	2.5
5. Average purchase weight, lbs.	447	410	388	392	421
6. Average sales weight, lbs.	886	1056	903	981	1107
7. Gain per head, lbs.	439	646	515	589	686
8. Gain per head per day, lbs.	1.35	2.22	1.61	2.03	1.91
9. Pounds of beef produced	31105	40945	22145	22590	26335
Feed used per 100 lbs. gain:					
10. Corn, lbs.	478	564	521	844	645
11. Small grain, lbs.	26	11	32	-	22
12. Commercial feed, lbs.	22	43	42	64	30
13. Total concentrates, lbs.	526	618	595	908	697
14. Legume hay, lbs.	135	164	145	186	178
15. Other hay, lbs.	-	-	27	27	-
16. Total dry roughage, lbs.	135	164	172	213	178
17. Corn silage, lbs.	-	342	352	-	448
18. Grass or oat silage, lbs.	559	-	45	-	-
19. Total silage, lbs.	559	342	397	-	448
20. Pasture days	8	-	-	-	-
Prices of cattle:					
21. Price paid per 100 lbs.	$30.67	$34.30	$33.75	$30.00	$34.25
22. Price received per 100 lbs.	24.93	25.49	25.94	26.15	26.25
23. Price spread per 100 lbs.	-5.74	-8.81	-7.81	-3.85	-8.00
Cost and returns per lot:					
24. Total value produced	$5876.11	$8093.25	$4441.83	$5301.90	$5567.90
25. Total feed cost	4208.71	6003.04	3337.65	4226.58	4366.28
26. Total return over feed cost	$1667.40	$2090.21	$1104.18	$1075.32	$1201.62
Cost and return per 100 lbs. gain:					
27. Value produced	$18.89	$19.77	$20.06	$23.47	$21.14
28. Feed costs	13.53	14.66	15.07	18.71	16.58
29. RETURN OVER FEED COST	$ 5.36	$ 5.11	$ 4.99	$ 4.76	$ 4.56
30. Return over feed cost from price spread	$-6.04	$-5.72	$-5.88	$-2.68	$-5.11
31. Return over feed cost from feeding	$11.40	$10.83	$10.87	$ 7.44	$ 9.67
32. Return per $100 feed cost	$140	$135	$133	$125	$128

Table 3. Long-fed Calves, 1958-59 (continued)

	Individual lot numbers						
	17	18	19	20	21	22	23
1.	136	46	128	35	43	104	40
2.	347	261	260	320	258	358	302
3.	-	-	-	-	-	-	65
4.	2.2	-	-	-	4.7	2.9	-
5.	385	417	430	392	394	399	422
6.	951	893	970	1014	856	867	937
7.	566	476	540	622	462	468	515
8.	1.63	1.82	2.08	1.94	1.79	1.31	1.71
9.	74129	21927	69030	21760	18145	46130	20585
10.	569	589	262	604	558	428	495
11.	17	7	51	19	51	-	2
12.	35	55	92	35	37	13	69
13.	621	651	405	658	646	441	566
14.	205	207	138	131	77	99	223
15.	8	-	32	34	-	100	-
16.	213	207	170	165	77	199	223
17.	-	-	595	276	1323	-	631
18	-	-	-	-	-	250	-
19.	-	-	595	276	1323	250	631
20.	-	-	-	-	-	-	13
21.	$34.69	$33.50	$33.75	$35.25	$29.18	$34.26	$32.75
22.	24.88	25.97	25.80	25.29	25.34	23.87	25.92
23	-9.81	-7.53	-7.95	-9.96	-3.84	-10.39	-6.83
24.	$13299.87	$4249.23	$13438.53	$4135.09	$3946.99	$6699.72	$4182.78
25.	10086.12	3299.65	10584.72	3251.10	3317.84	5210.86	3548.15
26.	$ 3213.75	$ 949.58	$ 2853.81	$ 883.99	$ 629.15	$1488.86	$ 634.63
27.	$17.94	$19.38	$19.47	$19.00	$21.75	$14.52	$20.32
28.	13.61	15.05	15.33	14.94	18.28	11.30	17.24
29.	$ 4.33	$ 4.33	$ 4.14	$ 4.06	$ 3.47	$ 3.22	$ 3.08
30.	$-6.94	$-6.59	$-6.33	$-6.29	$-3.59	$-9.35	$-5.60
31.	$11.27	$10.92	$10.47	$10.35	$ 7.06	$12.57	$ 8.68
32.	$132	$129	$127	$127	$119	$129	$118

Table 3. Long-fed Calves, 1958-59 (continued)

	Individual lot numbers				
	24	25	26	27	28
Number and weight of cattle fed:					
1. Number of head bought	40	165	26	40	40
2. Days on farm	360	307	322	331	300
3. Days on pasture	-	-	-	-	-
4. Percent death loss	-	1.2	-	2.5	-
5. Average purchase weight, lbs.	406	374	468	305	345
6. Average sales weight, lbs.	964	995	1078	828	944
7. Gain per head, lbs.	558	621	610	523	599
8. Gain per head per day, lbs.	1.55	2.02	1.89	1.58	2.00
9. Pounds of beef produced	22340	100535	15845	19255	23970
Feed used per 100 lbs. gain:					
10. Corn, lbs.	545	573	497	270	449
11. Small grain, lbs.	11	71	30	101	3
12. Commercial feed, lbs.	62	93	34	277	54
13. Total concentrates, lbs.	618	737	561	648	506
14. Legume hay, lbs.	170	96	76	393	434
15. Other hay, lbs.	72	45	-	-	-
16. Total dry roughage, lbs.	242	141	76	393	434
17. Corn silage, lbs.	340	248	252	-	706
18. Grass or oat silage, lbs.	206	-	189	-	-
19. Total silage, lbs.	546	248	441	-	706
20. Pasture days	-	-	-	-	-
Prices of cattle:					
21. Price paid per 100 lbs.	$39.07	$34.11	$36.25	$34.00	$36.36
22. Price received per 100 lbs.	27.32	24.93	24.50	24.24	24.94
23. Price spread per 100 lbs.	-11.75	-9.18	-11.75	-9.76	-11.42
Cost and returns per lot:					
24. Total value produced	$4196.86	$19407.05	$2450.57	$3476.67	$4402.50
25. Total feed cost	3574.50	16731.09	2051.50	3195.11	4075.21
26. Total return over feed cost	$ 622.36	$ 2675.96	$ 399.07	$ 281.56	$ 327.29
Cost and return per 100 lbs. gain:					
27. Value produced	$18.79	$19.30	$15.47	$18.05	$18.37
28. Feed costs	16.00	16.64	12.95	16.59	17.00
29. RETURN OVER FEED COST	$ 2.79	$ 2.66	$ 2.52	$ 1.46	$ 1.37
30. Return over feed cost from price spread	$-8.53	$-5.63	$-9.03	$-6.19	$-6.57
31. Return over feed cost from feeding	$11.32	$ 8.29	$11.55	$ 7.65	$ 7.94
32. Return per $100 feed cost	$117	$116	$118	$109	$108

Table 3. Long-fed Calves, 1958-59 (continued)

	Individual lot numbers						
	29	30	31	32	33	34	35
1.	80	14	42	48	101	100	32
2.	323	311	297	318	365	375	358
3.	-	-	-	-	-	-	-
4.	-	-	-	8.3	-	-	3.1
5.	449	450	462	427	401	439	411
6.	985	947	950	1037	1048	1076	1039
7.	536	497	488	610	647	637	628
8.	1.66	1.60	1.64	1.92	1.77	1.70	1.75
9.	42940	6955	20465	25115	65380	63725	19050
10.	491	451	406	586	695	580	602
11.	4	36	63	18	111	53	97
12.	42	13	24	68	62	55	152
13.	537	500	493	672	868	688	851
14.	214	330	313	517	150	323	406
15.	-	-	-	-	-	-	-
16.	214	330	313	517	150	323	406
17.	582	-	586	-	426	518	-
18.	-	-	-	239	-	-	-
19.	582	-	586	239	426	518	-
20.	-	-	-	-	-	-	-
21.	$33.36	$27.86	$33.40	$33.17	$38.59	$37.70	$36.44
22.	23.57	19.94	23.47	25.19	25.13	25.47	24.79
23.	-9.79	-7.92	-9.93	-7.98	-13.46	-12.23	-11.65
24.	$6607.91	$888.72	$2874.95	$4692.13	$10982.66	$10859.02	$3190.53
25.	6340.18	853.16	2851.00	4769.01	11804.68	12110.93	3751.89
26.	$ 267.73	$ 35.56	$ 23.95	$ -76.88	$ -822.02	$-1251.91	$-561.36
27.	$15.39	$12.78	$14.05	$18.68	$16.80	$17.04	$16.75
28.	14.77	12.27	13.92	18.99	18.06	19.01	19.70
29.	$ .62	$ .51	$ .13	$ -.31	$-1.26	$-1.97	$-2.95
30.	$-8.18	$-7.16	$-9.42	$-6.51	$-8.33	$-8.43	$-8.04
31.	$ 8.80	$ 7.67	$ 9.55	$ 6.20	$ 7.07	$ 6.46	$ 5.09
32.	$104	$104	$101	$ 98	$ 93	$ 90	$ 85

Table 3. Long-fed Calves, 1958-59 (concluded)

	Individual lot numbers			
	36	37	38	39
Number and weight of cattle fed:				
1. Number of head bought	60	99	97	35
2. Days on farm	284	237*	252	387
3. Days on pasture	-	-	-	60
4. Percent death loss	-	-	3.1	-
5. Average purchase weight, lbs.	455	465	472	429
6. Average sales weight, lbs.	929	904	950	1138
7. Gain per head, lbs.	474	439	478	709
8. Gain per head per day, lbs.	1.67	1.85	1.90	1.83
9. Pounds of beef produced	28490	43461	43290	24810
Feed used per 100 pounds gain:				
10. Corn, lbs.	783	576	696	463
11. Small grain, lbs.	1	-	-	25
12. Commercial feed, lbs.	79	117	111	178
13. Total concentrates, lbs.	863	693	807	666
14. Legume hay, lbs.	114	138	28	293
15. Other hay, lbs.	26	-	-	-
16. Total dry roughage, lbs.	140	138	28	293
17. Corn silage, lbs.	1081	1118	489	106
18. Grass or oat silage, lbs.	123	322	-	484
19. Total silage, lbs.	1204	1440	489	590
20. Pasture days	-	-	-	8
Prices of cattle:				
21. Price paid per 100 lbs.	$34.00	$32.28	$34.21	$37.07
22. Price received per 100 lbs.	24.38	24.17	24.13	25.25
23. Price spread per 100 lbs.	-9.62	-8.11	-10.08	-11.82
Cost and returns per lot:				
24. Total value produced	$4321.47	$6771.90	$5832.16	$4487.64
25. Total feed cost	5767.36	9161.10	8241.05	6364.46
26. Total return over feed cost	$-1445.89	$-2389.20	$-2408.89	$-1876.82
Cost and return per 100 lbs. gain:				
27. Value produced	$15.17	$15.58	$13.47	$18.08
28. Feed costs	20.24	21.08	19.04	25.65
29. RETURN OVER FEED COST	$-5.07	$-5.50	$-5.57	$-7.57
30. Return over feed cost from price spread	$-9.21	$-8.59	$-10.66	$-7.17
31. Return over feed cost from feeding	$ 4.14	$ 3.09	$ 5.09	$ -.40
32. Return per $100 feed cost	$ 75	$ 74	$ 71	$ 71

* Short-fed calves were included in the long-fed calves.

Table 4. Long-fed Yearlings, 1958-59

		Average of 8 lots	Individual lot numbers 40	41	42	43
Number and weight of cattle fed:						
1.	Number of head bought	67	30	90	30	56
2.	Days on farm	286	279	250	295	260
3.	Days on pasture	23	-	-	90	-
4.	Percent death loss	.5	-	1.0	-	-
5.	Average purchase weight, lbs.	621	526	591	503	649
6.	Average sales weight, lbs.	1070	1139	886	1048	1084
7.	Gain per head, lbs.	449	613	295	545	435
8.	Gain per head per day, lbs.	1.60	2.20	1.18	1.85	1.67
9.	Pounds of beef produced	27608	18400	26555	16345	24354
Feed used per 100 pounds gain:						
10.	Corn, lbs.	627	527	878	419	531
11.	Small grain, lbs.	24	21	6	6	105
12.	Commercial feed, lbs.	43	23	68	32	41
13.	Total concentrates, lbs.	694	571	952	457	677
14.	Legume hay, lbs.	363	108	813	257	328
15.	Other hay, lbs.	6	-	-	46	-
16.	Total dry roughage, lbs.	369	108	813	303	328
17.	Corn silage, lbs.	202	-	-	-	682
18.	Grass or oat silage, lbs.	130	-	-	-	-
19.	Total silage, lbs.	332	-	-	-	682
20.	Pasture days	5	-	-	17	-
Prices of cattle:						
21.	Price paid per 100 lbs.	$28.93	$31.17	$26.19	$31.70	$26.34
22.	Price received per 100 lbs.	26.31	27.18	27.02	26.00	25.88
23.	Price spread per 100 lbs.	-2.62	-3.99	.83	-5.70	-.46
Cost and returns per lot:						
24.	Total value produced	$6530.22	$4370.04	$7615.34	$3389.25	$6134.36
25.	Total feed cost	5308.22	2390.00	5107.00	2171.58	4550.72
26.	Total return over feed cost	$1222.00	$1980.04	$2508.34	$1217.67	$1583.64
Cost and return per 100 pounds gain:						
27.	Value produced	$23.77	$23.75	$28.68	$20.74	$25.19
28.	Feed costs	18.26	12.99	19.24	13.29	18.69
29.	RETURN OVER FEED COST	$ 5.51	$10.76	$ 9.44	$ 7.45	$ 6.50
30.	Return over feed cost from price spread	$-2.54	$-3.43	$ 1.66	$-5.26	$ -.69
31.	Return over feed cost from feeding	$ 8.05	$14.19	$ 7.78	$12.71	$ 7.19
32.	Return per $100 feed cost	$135	$183	$149	$156	$135

Table 4. Long-fed Yearlings, 1958-59 (concluded)

	44	45	46	47
Number and weight of cattle fed:				
1. Number of head bought	50	119	85	74
2. Days on farm	246	310	318	327
3. Days on pasture	-	60	34	-
4. Percent death loss	-	.8	1.2	1.4
5. Average purchase weight, lbs.	788	766	625	525
6. Average sales weight, lbs.	1197	1179	941	1091
7. Gain per head, lbs.	409	413	316	566
8. Gain per head per day, lbs.	1.66	1.33	.99	1.73
9. Pounds of beef produced	20455	47980	25955	40820
Feed used per 100 lbs. gain:				
10. Corn, lbs.	458	788	694	720
11. Small grain, lbs.	31	11	6	11
12. Commercial feed, lbs.	22	56	71	28
13. Total concentrates, lbs.	511	855	771	759
14. Legume hay, lbs.	101	204	832	263
15. Other hay, lbs.	-	1	-	-
16. Total dry roughage, lbs.	101	205	832	263
17. Corn silage, lbs.	433	-	-	500
18. Grass or oat silage, lbs.	239	800	-	-
19. Total silage, lbs.	672	800	-	500
20. Pasture days	-	15	11	-
Prices of cattle:				
21. Price paid per 100 lbs.	$27.75	$27.09	$26.19	$35.00
22. Price received per 100 lbs.	25.65	26.77	26.93	25.08
23. Price spread per 100 lbs.	-2.10	-.32	.74	-9.92
Cost and returns per lot:				
24. Total value produced	$4418.44	$12547.86	$7384.31	$6382.18
25. Total feed cost	3127.44	10593.68	6349.20	8176.13
26. Total return over feed cost	$1291.00	$ 1954.18	$1035.11	$-1793.95
Cost and return per 100 pounds gain:				
27. Value produced	$21.60	$26.15	$28.45	$15.63
28. Feed costs	15.29	22.08	24.46	20.02
29. RETURN OVER FEED COSTS	$ 6.31	$ 4.07	$ 3.99	$-4.39
30. Return over feed cost from price spread	$-4.05	$ -.62	$ 1.52	$-9.45
31. Return over feed cost from feeding	$10.36	$ 4.69	$ 2.47	$ 5.06
32. Return per $100 feed cost	$141	$118	$116	$ 78

Table 5. Short-fed Yearlings and Two-year-olds, 1958-59

	Average of 20 lots	Individual lot numbers			
		48	49	50	51
Number and weight of cattle fed:					
1. Number of head bought	58	58	37	30	148
2. Days on farm	178	120	192	175	215
3. Days on pasture	13	-	135	-	-
4. Percent death loss	.5	-	2.7	-	-
5. Average purchase weight, lbs.	697	843	502	698	738
6. Average sales weight, lbs.	1066	1115	955	1206	1229
7. Gain per head, lbs.	369	272	453	508	491
8. Gain per head per day, lbs.	2.10	2.27	2.36	2.90	2.28
9. Pounds of beef produced	22209	15775	16750	15275	72658
Feed used per 100 pounds gain:					
10. Corn, lbs.	603	599	457	454	773
11. Small grain, lbs.	12	-	-	16	15
12. Commercial feed, lbs.	68	51	24	72	72
13. Total concentrates, lbs.	683	650	481	542	860
14. Legume hay, lbs.	191	76	167	157	121
15. Other hay, lbs.	48	-	-	-	-
16. Total dry roughage, lbs.	239	76	167	157	121
17. Corn silage, lbs.	203	824	299	825	306
18. Grass or oat silage, lbs.	137	-	-	-	110
19. Total silage, lbs.	340	824	299	825	416
20. Pasture days	4	-	30	-	-
Prices of cattle:					
21. Price paid per 100 pounds	$27.42	$23.89	$26.20	$29.07	$27.27
22. Price received per 100 lbs.	25.92	25.48	26.68	28.24	28.60
23. Price spread per 100 lbs.	-1.50	1.59	.48	-.83	1.33
Cost and returns per lot:					
24. Total value produced	$5425.37	$4781.19	$4558.48	$4140.87	$22220.45
25. Total feed cost	3891.00	2122.00	2441.01	2292.60	14355.14
26. Total return over feed cost	$1534.37	$2659.19	$2117.47	$1848.27	$ 7865.31
Cost and return per 100 pounds gain:					
27. Value produced	$22.74	$30.31	$27.21	$27.11	$30.58
28. Feed costs	16.98	13.45	14.57	15.01	19.76
29. RETURN OVER FEED COST	$ 5.76	$16.86	$12.64	$12.10	$10.82
30. Return over feed cost from price spread	$-3.18	$ 4.83	$ .53	$-1.13	$ 1.98
31. Return over feed cost from feeding	$ 8.94	$12.03	$12.11	$13.23	$ 8.84
32. Return per $100 feed cost	$135	$225	$187	$181	$155

Table 5. Short-fed Yearlings and Two-year-olds, 1958-59 (continued)

	Individual lot numbers				
	52	53	54	55	56
Number and weight of cattle fed:					
1. Number of head bought	70	33	38	96	77
2. Days on farm	210	179	194	221	192
3. Days on pasture	-	-	-	-	-
4. Percent death loss	-	-	-	3.1	-
5. Average purchase weight lbs.	644	816	608	662	649
6. Average sales weight, lbs.	970	1197	1037	1068	1055
7. Gain per head, lbs.	326	381	429	406	406
8. Gain per head per day, lbs.	1.55	2.13	2.21	1.84	2.11
9. Pounds of beef produced	22785	12565	16300	38960	31252
Feed used per 100 lbs. gain:					
10. Corn, lbs.	386	696	665	749	660
11. Small grain, lbs.	10	-	41	9	10
12. Commercial feed, lbs.	66	52	54	69	176
13. Total concentrates, lbs.	462	748	760	827	846
14. Legume hay, lbs.	246	-	178	156	96
15. Other hay, lbs.	-	469	92	-	288
16. Total dry roughage, lbs.	246	469	270	156	384
17. Corn silage, lbs.	-	207	110	-	243
18. Grass or oat silage, lbs.	667	-	-	-	-
19. Total silage, lbs.	667	207	110	-	243
20. Pasture days	-	-	-	-	-
Prices of cattle:					
21. Price paid per 100 lbs.	$26.75	$26.53	$26.17	$27.85	$27.26
22. Price received per 100 lbs.	25.87	26.86	26.15	26.24	27.54
23. Price spread per 100 lbs.	-.88	.33	-.02	-1.61	.28
Cost and returns per lot:					
24. Total value produced	$5494.60	$3466.36	$4259.07	$9203.13	$8754.18
25. Total feed cost	3172.96	2246.65	2799.50	6117.55	6304.27
26. Total return over feed cost	$2321.64	$1219.71	$1459.57	$2085.58	$2449.91
Cost and returns per 100 lbs. gain:					
27. Value produced	$24.12	$27.59	$26.13	$23.62	$28.01
28. Feed costs	13.93	17.88	17.18	15.70	20.17
29. RETURN OVER FEED COST	$10.19	$ 9.71	$ 8.95	$ 7.92	$ 7.84
30. Return over feed cost from price spread	$-1.75	$ .73	$ -.02	$-2.62	$ .47
31. Return over feed cost from feeding	$11.94	$ 8.98	$ 8.97	$10.54	$ 7.37
32. Return per $100 feed cost	$173	$154	$152	$150	$139

Table 5. Short-fed Yearlings and Two-year-olds, 1958-59 (continued)

	Individual lot numbers						
	57	58	59	60	61	62	63
1.	36	51	27	140	40	69	52
2.	229	108	125	219	154	233	162
3.	-	56	-	-	-	-	72
4.	-	2.0	-	-	-	-	-
5.	544	719	794	662	798	613	699
6.	919	980	1137	1058	1140	1087	1119
7.	375	261	343	396	342	474	420
8.	1.64	2.42	2.74	1.81	2.22	2.03	2.59
9.	13475	12315	9265	55425	13666	32725	21810
10.	465	612	556	624	1124	690	629
11.	2	-	5	17	-	26	42
12.	51	83	52	74	53	50	96
13.	518	695	613	715	1177	766	767
14.	237	65	86	224	395	416	-
15.	-	-	-	-	-	-	103
16.	237	65	86	224	395	416	103
17.	-	-	-	-	-	-	374
18.	-	650	-	-	-	458	-
19.	-	650	-	-	-	458	374
20.	-	23	-	-	-	-	17
21.	$28.85	$25.27	$29.40	$28.93	$27.78	$29.91	$29.00
22.	24.86	24.50	26.47	26.55	28.50	27.77	26.37
23.	-3.99	-.77	-2.93	-2.38	.72	-2.14	-2.63
24.	$2567.59	$2734.96	$1823.82	$12506.32	$4123.99	$8462.32	$4993.13
25.	1700.19	1947.70	1317.55	9596.95	3568.16	7180.81	4604.33
26.	$ 867.40	$ 787.26	$ 506.27	$ 2909.37	$ 555.82	$1281.51	$ 388.80
27.	$19.05	$22.21	$19.68	$22.56	$30.18	$25.86	$22.89
28.	12.62	15.82	14.22	17.31	26.11	21.94	21.11
29.	$ 6.43	$ 6.39	$ 5.46	$ 5.25	$ 4.07	$ 3.92	$ 1.78
30.	$-5.81	$-2.29	$-6.79	$-3.99	$ 1.68	$-1.91	$-3.48
31.	$12.24	$ 8.68	$12.25	$ 9.24	$ 2.39	$ 5.83	$ 5.26
32.	$151	$140	$138	$130	$116	$118	$108

Table 5. Short-fed Yearlings and Two-year-olds, 1958-59 (concluded)

	64	65	66	67
Number and weight of cattle fed:				
1. Number of head bought	33	51	57	15
2. Days on farm	155	183	184	117
3. Days on pasture	-	-	-	-
4. Percent death loss	-	-	1.8	-
5. Average purchase weight, lbs.	577	602	860	915
6. Average sales weight, lbs.	802	928	1150	1174
7. Gain per head, lbs.	225	326	290	259
8. Gain per head per day, lbs.	1.45	1.78	1.58	2.21
9. Pounds of beef produced	7450	16600	15230	3890
Feed used per 100 lbs. gain:				
10. Corn, lbs.	376	569	184	792
11. Small grain, lbs.	52	-	-	-
12. Commercial feed, lbs.	125	54	13	79
13. Total concentrates, lbs.	553	623	197	871
14. Legume hay, lbs.	671	120	276	141
15. Other hay, lbs.	-	-	-	-
16. Total dry roughage, lbs.	671	120	276	141
17. Corn silage, lbs.	-	-	880	-
18. Grass or oat silage, lbs.	-	603	247	-
19. Total silage, lbs.	-	603	1127	-
20. Pasture days	-	-		-
Prices of cattle:				
21. Price paid per 100 lbs.	$26.50	$31.00	$24.21	$26.63
22. Price received per 100 lbs.	24.85	24.25	19.16	23.49
23. Price spread per 100 lbs.	-1.65	-6.75	-5.05	-3.14
Cost and returns per lot:				
24. Total value produced	$1536.61	$1951.88	$445.00	$483.51
25. Total feed cost	1481.00	2687.52	1131.95	752.20
26. Total return over feed cost	$ 55.61	$-735.64	$-686.95	$-268.69
Cost and returns per 100 lbs. gain:				
27. Value produced	$20.63	$11.76	$ 2.92	$12.43
28. Feed costs	19.88	16.19	7.43	19.34
29. RETURN OVER FEED COST	$ .75	$-4.43	$-4.51	$-6.91
30. Return over feed cost from price spread	$-4.22	$-12.49	$-16.24	$-11.06
31. Return over feed cost from feeding	$4.97	$8.06	$11.73	$4.15
32. Return per $100 feed cost	$104	$ 73	$ 39	$ 64

Table 6. Comparison of High and Low Profit Lots, 1958-59

	Long-fed calves			Long-fed yearlings			Short-fed yearlings and two-year-olds		
	Average for 39 lots	23 lots above av. return	16 lots below av. return	Average for 8 lots	5 lots above av. return	3 lots below av. return	Average for 20 lots	11 lots above av. return	9 lots below av. return
1. Days on farm	313	307	320	286	266	318	178	185	170
2. Percent death loss	1.20	1.20	1.10	.50	.20	1.10	.50	.71	.20
3. Av.purch.wt., lbs.	418	415	422	621	611	639	697	675	724
4. Av. sale wt., lbs.	974	965	988	1070	1070	1070	1066	1066	1066
5. Gain per head, lbs.	556	550	566	449	459	431	369	391	342
6. Gain/hd./day, lbs.	1.80	1.82	1.77	1.60	1.71	1.35	2.10	2.15	2.05
Feed used per 100 lbs. gain:									
7. Grain, lbs.	561	547	580	651	597	743	615	601	631
8. Comml. feed., lbs.	59	38	89	43	37	52	68	70	67
9. Tot. conc., lbs.	620	585	669	694	634	795	683	671	698
10. Dry roughage equiv.lbs.	336	274	426	436	420	474	356	442	365
11. Pasture days	2	3	1	5	3	-	4	5	2
Prices of cattle:									
12. Price pd./100 lbs.	$33.51	$32.56	$34.86	$28.93	$28.63	$29.42	$27.42	$26.82	$28.15
13. Price rec./100 lbs.	25.09	25.53	24.46	26.31	26.35	26.26	25.92	26.46	25.27
14. Price spread/100 lbs.	-8.42	-7.03	-10.40	-2.62	-2.28	-3.16	-1.50	-.37	-2.88
Cost and returns per 100 lbs. gain:									
15. Value produced	$18.62	$20.11	$16.49	$23.77	$23.99	$23.41	$22.74	$25.99	$18.77
16. Feed costs	15.67	14.31	17.62	18.26	15.90	22.18	16.98	16.00	18.17
17. Return over feed	$ 2.95	$ 5.80	$-1.13	$ 5.51	$ 8.09	$ 1.22	$ 5.76	$ 9.99	$ .60
18. Ret. over feed cost from price spread	$-6.47	$-5.42	$-7.97	$-2.54	$-2.35	$-2.84	$-3.18	$ -.46	$-6.49
19. Ret. over feed cost from feeding	$ 9.42	$11.22	$ 6.84	$ 8.05	$10.44	$ 4.07	$ 8.94	$10.45	$ 7.09
20. Ret. per $100 feed cost	$123	$142	$ 96	$135	$153	$104	$135	$164	$103

Table 7. A Four-year Comparison of Feeder Cattle Costs and Returns

	Long-fed calves			
	1955-56 Average 37 lots	1956-57 Average 39 lots	1957-58 Average 25 lots	1958-59 Average 39 lots
Number and weight of cattle fed:				
1. Number of head bought	57	58	89	69
2. Days on farm	340	313	321	313
3. Days on pasture	46	28	13	11
4. Percent death loss	1.2	.8	.9	1.2
5. Average purchase weight, lbs.	407	402	398	418
6. Average sales weight, lbs.	962	931	966	974
7. Gain per head, lbs.	555	529	568	556
8. Gain per head per day, lbs.	1.6	1.7	1.8	1.8
9. Pounds beef produced per lot	31666	29588	51393	38229
Feed used per 100 pounds gain:				
10. Corn, lbs.	436	470	489	529
11. Small grain, lbs.	34	22	26	32
12. Commercial feed, lbs.	41	45	40	59
13. Total concentrates, lbs.	511	537	555	620
14. Legume hay, lbs.	254	263	209	184
15. Other hay and stover, lbs.	26	48	14	11
16. Total dry roughage, lbs.	280	311	223	195
17. Silage, lbs.	415	389	353	425
18. Pasture days	8	6	2	2
Prices of cattle:				
19. Price paid per 100 pounds	$18.89	$18.81	$24.51	$33.51
20. Price received per 100 lbs.	21.00	22.48	24.97	25.09
21. Price spread, per 100 lbs.	2.11	3.67	.46	-8.42
Cost and returns per 100 lbs. gain:				
22. Value produced	$22.44	$25.52	$25.46	$18.62
23. Feed costs	16.62	15.82	13.93	15.67
24. RETURN OVER FEED COSTS	$ 5.82	$ 9.70	$11.53	$ 2.95
25. Return over feed cost from price spread	$ 1.44	$ 3.04	$ .49	$-6.47
26. Return over feed cost from feeding	$ 4.38	$ 6.66	$11.04	$ 9.42
27. Return per $100 feed cost	$139	$166	$189	$123
28. Estimated costs other than feed and labor[1]	$ 2.62*	$ 2.61*	$ 2.74*	$ 2.79*
29. Estimated return to labor and management	$ 3.20	$ 7.09	$ 8.79	$ .16
Returns to labor:				
30. Estimated hours of labor**	1.63	1.62	1.52	1.59
31. Estimated return per hour of labor	$ 1.96	$ 4.38	$ 5.78	$ .10
32. Estimated return per head to labor & mgt.	$17.76	$37.51	$49.93	$ .89

1. Hasbargen, P. R., and Pond, G. A. "Planning Farms for Increased Profits," University of Minnesota Station Bulletin 445, December, 1957.

* Interest charge adjusted according to purchase value and time period lot was held.

** Adjusted for size of lot.

Table 7. A Four-year Comparison of Feeder Cattle Costs and Returns (concluded)

	Long-fed yearlings				Short-fed yearlings and two-year-olds			
	1955-56	1956-57	1957-58	1958-59	1955-56	1956-57	1957-58	1958-59
	Average 13 lots	Average 14 lots	Average 16 lots	Average 8 lots	Average 29 lots	Average 26 lots	Average 30 lots	Average 20 lots
1.	70	66	63	67	46	53	41	58
2.	304	303	309	286	184	184	169	178
3.	42	25	38	23	12	15	12	13
4.	.3	1.1	1.1	.5	.4	.3	.5	.5
5.	647	614	608	621	731	684	730	697
6.	1134	1125	1094	1070	1070	1054	1088	1066
7.	487	511	486	449	339	370	358	369
8.	1.6	1.7	1.6	1.6	1.8	2.0	2.1	2.1
9.	32108	33340	32545	27608	15553	19592	14437	22209
10.	572	511	475	627	632	600	668	603
11.	9	6	12	24	18	9	10	12
12.	50	45	24	43	61	59	56	68
13.	631	562	511	694	711	668	734	683
14.	253	263	212	363	311	273	225	191
15.	28	23	22	6	33	31	15	48
16.	281	286	234	369	344	304	240	239
17.	740	835	601	202	790	508	458	340
18.	8	5	7	5	4	4	3	-
19.	$19.13	$19.11	$22.63	$28.93	$17.38	$17.06	$24.20	$27.42
20.	21.04	22.48	25.54	26.31	18.50	20.35	26.05	25.92
21.	1.91	3.37	2.91	-2.62	1.12	3.29	1.85	-1.50
22.	$23.80	$26.51	$28.70	$23.77	$21.40	$26.85	$30.09	$22.74
23.	20.53	19.05	15.32	18.26	22.62	19.03	17.00	16.98
24.	$ 3.27	$ 7.46	$13.38	$ 5.51	$-1.22	$ 7.82	$13.09	$ 5.76
25.	$ 2.75	$ 4.03	$ 3.16	$-2.54	$ 2.89	$ 6.50	$ 4.03	$-3.18
26.	$ .52	$ 3.43	$10.22	$ 8.05	$-4.11	$-1.82	$ 9.06	$ 8.94
27.	$128	$149	$196	$135	$ 98	$147	$187	$135
28.	$ 3.19*	$ 3.01*	$ 3.22*	$ 3.10*	$ 2.99*	$ 2.80*	$ 3.21*	$ 3.31*
29.	$ .08	$ 4.45	$10.16	$ 2.41	$-4.21	$ 5.02	$ 9.88	$ 2.45
30.**	1.14	1.17	1.19	1.16	1.29	1.23	1.33	1.23
31.	$ .07	$ 3.80	$ 8.54	$ 1.00	$-3.26	$ 4.08	$ 7.43	$ 1.99
32.	$ .38	$22.74	$49.38	$ 4.49	$-14.27	$18.57	$35.37	$ 7.34

* Interest charge adjusted according to purchase value and time period lot was held.
** Adjusted for size of lot.

COMPARISON OF LOTS ABOVE AVERAGE WITH THOSE BELOW AVERAGE IN RETURN OVER FEED COST

Tables 3, 4, and 5 indicate a wide variation among the different lots as to costs and returns. In Table 6 the averages of the high return lots are compared with the low return lots. This table shows that the lots above average in return over feed costs have both lower feed costs per 100 pounds gain and a higher value produced per 100 pounds gain.

Some of the differences in feed costs may be due to over or under estimates in the amount of feeds fed. Most of them, however, are due to variations in the feed, the cattle, and the cattle feeder.

The quality of the feed produced is especially important in this study because most home grown feeds are valued at the same price with little regard for quality. Thus, the lots fed low quality feed will tend to have higher feed costs per 100 pounds gain. The selection and combination of feeds used also determines the feed cost per 100 pounds gain. The least cost ration is one which will put on weight with the lowest feed cost per 100 pounds of gain. Another factor affecting feed costs is the amount of feed wasted.

The type of cattle has an effect on feed costs per 100 pounds of gain. In general the heavier and older cattle require more feed per pound of gain than the lighter cattle. The degree of finish put on and the inherent feeding efficiency of the cattle have an effect on feed requirements.

Differences in the value of 100 pounds of cattle produced resulted from differences in the purchase price of feeders, the sale price of cattle marketed and the death loss, if any, during the feeding period. Both the price received and the price spread are higher for the lots with above average returns than for those with below average returns. A high value produced per 100 pounds gain is obtained by a high selling price, a large price spread, or a combination of these two. The effect of price spread becomes more important as the purchase weight becomes a larger proportion of the total weight.

Table 7 presents a four-year comparison of feeder cattle costs and returns. The estimated returns per hour of labor and estimated returns to management and labor per head indicate a wide variation in returns over the four feeding periods, 1955-59.

COMPARISON OF RETURNS FROM PRICE SPREAD AND FROM FEEDING FOR THE DIFFERENT CATTLE FEEDING PROGRAMS

The data in Table 8 serve to illustrate the comparative importance of price spread and feed costs in determining cattle feeding profits for cattle of different beginning weights and different lengths of feeding period, as are presented by these lots of long-fed calves, long-fed yearlings, and short-fed yearlings and two-year-olds.

The returns from feeding are of most importance in the calf feeding program and become relatively less important for the long-fed yearlings and least in importance for the short-fed yearlings and two-year-olds. Calves are purchased at lighter weights, are fed for a longer period for more gain in weight and put on gain at less cost per pound.

Table 8. Returns from Price Spread and from Feeding, 1958-59

	Long-fed calves Avg. of 39 lots	Long-fed yearlings Avg. of 8 lots	Short-fed yearlings and two-year-olds Avg. of 20 lots
Price spread per 100 lbs.	$-8.42	$-2.62	$-1.50
Return over feed cost from price spread	-6.47	-2.54	-3.18
Return over feed cost from feeding	9.42	8.05	8.94
Return over feed cost per 100 lbs. gain	2.95	5.51	5.76
Average purchase weight, pounds	418	621	697
Gain per head, lbs.	556	449	369

The return from price spread is of most importance for short-fed yearlings and two-year-olds because of their higher initial weight and becomes relatively less important as the purchase weights decrease and the gain in weight increases with the younger and lighter calves. Price spread per 100 pounds for the 1958-59 lots is greatest for the long-fed calves in comparison with long-fed yearlings and short-fed yearlings and two-year-olds. Effects of a high purchase weight on returns from price spread and returns over feed cost are noted in comparing long-fed yearlings with short-fed yearlings and two-year-olds. The price spread per 100 pounds is $-2.62 for long-fed yearlings and $-1.50 for short-fed yearlings and two-year-olds. Returns over feed cost from price spread are $-2.54 for long-fed yearlings and $-3.18 for the heavier short-fed yearlings and two-year-olds.

These illustrations serve to emphasize that low feed cost is an important determinant of profit for all types of cattle feeding programs but comparatively more so for calves or light weight cattle. Price spread becomes relatively more important for cattle that are purchased at heavier weights. The higher the purchase weight in relation to the selling weight, the more important price spread becomes. The buying and selling phase of the heavy cattle feeding program becomes extremely important because price spread is one of the main factors determining profits.

LABOR REQUIREMENTS FOR FEEDING CATTLE

The average labor requirements for feeding cattle was determined in a study conducted during the 1956-57 cattle feeding season.[2] These labor requirements for three feeding systems are presented in Table 9.

2. Johnson, R. G., Nodland, T. R., "Labor Used in Cattle Feeding," Station Bulletin 451, University of Minnesota Agricultural Experiment Station, March, 1960, pp. 12-15.

Table 9. Hours of Labor, Total Per Head, and Per 100 Pounds Gain in Weight for Three Feeding Programs

	Number of head in the lot						Per 10 added
	20	40	60	80	100	120	
			(hours of labor)				
Long-fed calves (550 lbs. gain)							
Total for 47 wks.	319.01	423.33	525.97	630.29	732.98	835.67	51.67
Per head	15.95	10.58	8.77	7.88	7.33	6.96	
Per 100 lbs. gain	2.90	1.92	1.59	1.43	1.33	1.26	
Long-fed yearlings (500 lbs. gain)							
Total for 36 wks.	221.85	293.70	364.50	436.35	507.09	577.83	35.60
Per head	11.09	7.34	6.08	5.45	5.07	4.82	
Per 100 lbs. gain	2.22	1.47	1.22	1.09	1.01	.96	
Short-fed yearlings (425 lbs. gain)							
Total for 27 wks.	163.03	228.76	293.97	359.70	424.67	489.64	32.66
Per head	8.15	5.72	4.90	4.50	4.25	4.08	
Per 100 lbs. gain	1.92	1.34	1.15	1.06	1.00	.96	

This data is for cattle fed twice a day using conventional hand feeding methods. Included is the labor for hay, grain, and silage feeding; bedding, watering and observation, care and treatment of sick animals, feed grinding, equipment repair, buying and selling, and manure removal using a tractor manure loader.

The three cattle feeding systems upon which the labor requirements are based are typical of those used for long-fed calves, long-fed yearlings, short-fed yearlings and two-year-olds as presented in this report. These three cattle feeding systems are described in the following paragraphs.

Long-fed calves on a liberal roughage ration: Good to choice steer calves weighing about 400 pounds are purchased in the fall. They are fed a limited amount of grain and good hay for the first four weeks. This is followed by a full feed of silage, limited grain, and hay for the next 22 weeks. For the last 21 weeks they are fed a full feed of grain and some hay. In the 47 weeks on feed, these cattle should gain about 550 pounds; they are sold in the early fall at approximately 950 pounds.

Long-fed yearling steers fed a liberal roughage ration: Good to choice yearling steers weighing about 650 pounds are purchased in the fall. They are placed on cornstalk pasture for the first six weeks. This is followed by a full feed of silage, and limited grain and hay for the next 12 weeks. For the last 18 weeks a full feed of grain with hay is fed. In the 36 weeks on feed these cattle should gain about 500 pounds; they are sold in the early summer at approximately 1150 pounds.

Short-fed yearling steers fed a liberal grain ration: Good to choice yearling steers weighing about 700 pounds are purchased in the fall and are put on cornstalk pasture for the first three weeks. This is followed by a full feed of grain with hay for the next 24 weeks. In the 27 weeks on feed these cattle should gain about 425 pounds; they are sold in the late spring at approximately 1125 pounds.

For all three cattle feeding systems the labor requirements per head and per 100 pounds gain in weight decrease when larger numbers of cattle are fed. These economies of labor are obtained by spreading the fixed time needed in doing each task over a greater number of animals. The lower labor requirements per 100 pounds gain for the yearlings than for the calves is due mainly to the higher rate of gain for the yearlings. For small lots of cattle the short-fed yearlings require less labor per 100 pounds of gain than the long-fed yearlings. This difference is largely explained by the fact that for long-fed yearlings the feeding program includes silage while for the short-fed yearlings silage is not fed. Silage feeding requires a large amount of time per head for small lots and therefore increases the labor requirements.

EFFECT OF SIZE OF LOT UPON LABOR RETURNS PER HOUR

The effect of size of lot on the return per hour of labor in the same feeding system is shown in Table 10. Twenty lots of short-fed yearlings and two-year-olds were separated into two groups of 10 lots each. The average number of head per lot is 34 in the one group and 82 in the other group. Labor requirement estimates per 100 pounds of gain were obtained from data included in Table 9 of this report. Labor required in hours per 100 pounds gain for 34 head is 1.51 hours, for 82 head 1.05 hours. Although the smaller size lots had $0.33 per 100 pounds gain higher returns per hour of labor and management, the estimated returns per hour of labor are $0.42 less. This emphasizes the effect of lot size on returns to labor.

Table 10. Comparison of Estimated Returns per Hour of Labor by Size of Lot for Short-fed Yearlings and Two-year-olds, 1958-59

	10 lots (average size, 34)	10 lots (average size, 82)
Cost and returns per 100 lbs. gain:		
Value produced	$23.22	$22.26
Feed costs	$17.26	$16.70
Estimated other costs	3.44	3.37
Total	$20.70	$20.07
Return for labor and management	$ 2.52	$ 2.19
Hours of labor spent*	1.51	1.05
Return per hour of labor	$ 1.67	$ 2.09

* Adjusted for size of lot.

ESTIMATED RETURNS OVER ALL COSTS PER HOUR OF LABOR

The return over feed costs does not give the complete picture as to returns for feeding cattle. In Table 11 is presented the estimated return to labor and management per 100 pounds gain in weight and the return per hour of labor for each of the feeding programs.

The value produced and feed costs are the average results in 1958-59 of the 67 lots presented in this report. Interest is computed at 6 percent of the purchase value times the fraction of the year the cattle were on the farm. Power, equipment, shelter and miscellaneous cash costs are average costs based on detailed

cost studies.[3] This includes fixed costs for shelter and equipment, such as depreciation.

The hours of labor spent per 100 pounds gain is based on the detailed labor study carried out during the 1956-57 feeding season, as reported in Table 9. Labor requirements are reported on the basis of 60 head in a lot for all feeding systems.

The return per hour of labor is the return for each hour spent to pay for the labor used and give a return for management. The estimated average return per hour in 1958-59 for the three feeding programs was $1.40.

The costs and returns upon which the table is based will vary from farm to farm and from year to year. The individual feeder can determine his interest and other costs for his lot and subtract this from his return over feed costs to get his return for labor and management. Dividing this by the number of hours spent per 100 pounds gain will give the return per hour of labor.

Table 11. Estimated Returns per Hour of Labor, Feeder Cattle Lots, 1958-59 (lot size of 60 head)

	Long-fed calves	Long-fed yearlings	Short-fed yearlings
Cost and returns per 100 pounds gain:			
Value produced	$18.62	$23.77	$22.74
Feed costs	$15.67	$18.26	$16.98
Interest at 6 percent	.94	1.46	1.25
Miscellaneous cash	.50	.50	.50
Power	.40	.40	.40
Equipment	.30	.30	.30
Shelter	.65	.65	.65
Total	$18.46	$21.57	$20.08
Return for labor and management	$ .16	$ 2.20	$ 2.66
Hours of labor spent	1.59	1.22	1.15
Return per hour of labor	$ .10	$ 1.80	$ 2.31

DETERMINING PROFIT PROSPECTS

The selling price required to cover all costs (feed, interest, buildings, equipment and miscellaneous cash costs) and provide a return for labor and management depends on three main factors. The factors are: (1) the level of feeder cattle prices; (2) the cost of putting on a pound of gain; and (3) the weight and type of cattle fed.

The level of feeder cattle prices in the future is difficult to estimate. In making an estimate, number of cattle on feed and demand prospects for the various classes of feeder cattle are factors to be considered. Market outlook publications are sources of this type of information.

3. Hasbargen, P. R., and Pond, G. A., "Planning Farms for Increased Profits," University of Minnesota Station Bulletin 445, December 1957.

The cost of putting on a pound of gain depends upon the price of feeds, the weight and finish to which animals are fed, the percent death loss, the efficiency of food utilization and age of the animals, and the ability of the farmer as a cattle feeder.

Profit prospects for the coming feeding season can be calculated by using the following work sheet. Past records of feed requirements over a period of years for comparable types of cattle fed to similar weights and finish should be used as a basis for the calculations. For farmers who do not have feed records the averages shown on the last page of this report will provide data which can be used.

Step 1. Determine Cost of Producing Finished Animal[4]

(a) Original cost per head _____(wt.) x $_____(price)= $_____

(b) Feed and other costs per head:

Feed cost	Am't fed	Price	Cost
Corn (bu.)	_____	_____	_____
Small grain (bu.)	_____	_____	_____
Supplement (lbs.)	_____	_____	_____
All hay (tons)	_____	_____	_____
Silage (tons)	_____	_____	_____
Pasture (days)	_____	_____	_____
Total feed cost			$_____

Estimated other costs:

Labor cost _____(hrs. per head) x $_____ per hour = $_____

Interest $ _____(original cost per head) x ____ percent=$_____
(interest rate)
(for number of months on feed)

Miscellaneous costs[5] _____(lbs. gain) x $1.10 per cwt. = $_____

Other overhead costs for equipment and shelter:
_____(lbs. gain) x $.75 per cwt.= $_____

(c) Total cost per head $_____

Step 2. Determine selling price you need to cover costs

Divide: $\frac{\text{Total cost per head}}{\text{Sale weight}}$ = _____ $_____

Step 3. Your estimated sale value of steer

_____cwt. x $_____ YOUR ESTIMATED PRICE $_____

PROFIT PER HEAD $_____

4. Routhe, Hal, Thomas, Kenneth H., and Johnson, Roger, "How Does the Level of Feeder Prices Affect Cattle Feeding Profits?" Report, Agricultural Extension Service, University of Minnesota, September 1957.

5. Hasbargen, P. R., and Pond, G. A., "Planning Farms for Increased Profits," University of Minnesota Station Bulletin 445, December 1957. (Miscellaneous costs adapted from bulletin data.)

Examples of Various Feeding Programs

Long-fed calves--good to choice grade

Step 1. Determine cost of producing finished animal

(a) Original cost per head = 400 lbs. at $27.00 per cwt. $108.00

(b) Feed and other costs per head: 550 lbs. gain

Feed cost	Am't fed	Price	Cost	
Corn (bu.)	48 bu.	$ .98	$47.04	
Small grains (bu.)	3.8 bu.	.58	2.20	
Supplement (lbs.)	244 lbs.	.04	9.76	
All hay (tons)	.71 tons	19.75	14.02	
Silage (tons)	1.79 tons	6.00	10.74	
Pasture (days)	38 days	.083	3.15	
Total feed cost				$86.91

Estimated other costs

Labor cost $8.77 hours per head x $1.50 per hour (60 head basis)	13.16
Interest: $108 (original cost per head) x .06 percent (Number of days on farm = 330)	5.86
Miscellaneous costs: 550 lbs. gain x $1.10 per cwt. (includes only variable costs)	6.05
Other overhead costs for equipment and shelter: 550 lbs. gain x $.75 per cwt.	4.13

(c) Total cost per head $224.11

Step 2. Determine selling price farmer must receive to cover all costs

$$\frac{\text{Total cost per head}}{\text{Sale weight}} = \frac{\$224.11}{950} = \$23.60$$

Feed Requirements Based on 1953-59 Lot Averages

	Long-fed yearlings	Short-fed two-year-olds
Purchase weight	622 lbs.	722 lbs.
Gain	500 lbs.	340 lbs.
Requirements per head		
Corn (bu.)	47	40.3
Small grains (bu.)	1.8	2.4
Supplement (lbs.)	223	215
All hay (tons)	.77	.52
Silage (tons)	1.75	1.06
Pasture (days)	41	21
Labor (hours)	(See Table 9 for labor requirements by size of lot)	
Interest	6%	6%
Miscellaneous costs	$1.10 per cwt.	$1.10 per cwt.