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Cattle - Feeding

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MANAGING THE BEEF FEEDING ENTERPRISE



Norlin A. Hein

1977-27

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MANAGING THE BEEF FEEDING ENTERPRISE

I. INTRODUCTION

Beef cattle feeding is a high risk, but challenging enterprise. Cattle feeders have available a wide range in types and ages of cattle. The ration can be formulated with a number of different grains and vary from high grain to high silage. Relatively small price movements result in large profits or serious losses.

II. BEEF INDUSTRY OUTLOOK

A. Consumption

1. Per capita beef consumption has been rising steadily for several decades (see Fig. 1), increasing from about 90 pounds per person in the early 1960's to 129 pounds in 1976. Much of this increase is the result of higher levels of consumer income. Part of the current high level, however, comes from the liquidation phase of the current cattle cycle.
2. Consumer demand for beef depends largely on the price of beef and level of personal income. Historically, for each 1 percent decrease in the price, the amount of beef demanded increased about 1 percent. With each 1 percent increase in disposable income the amount of beef demanded increased about .5 percent.
3. Per capita consumption is expected to drop back to below the 120 pound level between now and 1980, as cattle inventory liquidation is slowed.
4. Prices for choice beef should continue to strengthen, if consumers continue to bid their disposable income increases into the price of beef. Continued economic prosperity is an essential ingredient in demand for choice beef. Future demand for beef will also depend on changing population mix, and consumption patterns.

Paper presented at the Midwest Banking School, Morris, Minnesota, July 26, 1977, by Norlin A. Hein, Extension Economist, Farm Management, University of Missouri-Columbia.

B. Production

1. Beef cattle production follows a surprising cyclical pattern (see Fig. 2). Beef cattle numbers have peaked during the middle of each of the past four decades. The beef cycle was moderated in the 1950's and 1960's because of rapid growth in demand and low and relatively stable grain prices.
2. One of the most rapid cow herd reductions on record is currently in progress. The number head slaughtered is currently in excess of 100 percent of the numbers of calves born. A stable herd is maintained at about 88-90 percent (see Table 1).
3. An annual cattle slaughter of 38-39 million head would be required to yield 120 pounds of beef per capita. This could be obtained from a cattle and calf inventory of 122 million head. The inventory on January 1, 1977 was 122.8 million. It is expected to drop to the 117 million head mark before build-up again occurs. Therefore, beef supplies will drop below 120 pounds per capita level (see Table 2).

C. Price and Profit Prospects

1. Feedlot profits (or losses) are obtained from two basic sources: payment for feedlot services and cattle price changes.
2. Feedlots have suffered almost continuous losses since January, 1976. Cattle feeders apparently expected an early turn in the cattle cycle and over-estimated the demand for choice beef. High retail margins, an apparent lower demand for choice beef, and large supplies of lower quality beef, held choice beef prices below expectations.
3. As the cattle cycle turns around, profits will return to the beef industry. Feeding profits will be made on individual lots of cattle when choice beef prices move up. Cattle feeding margins, however, could remain low for several years because of surplus feedlot capacity. Cattle feeders are likely to bid most returns into feeder calf prices to keep lots filled. Feedlot capacity exists for feeding nearly 29-30 million head. This year, only about 25.4 million head will be fed.

III. WHO WILL FEED CATTLE IN THE FUTURE?

- A. Feedlots over 1000 head capacity marketed 65 percent of the fed cattle in 1975. The 217 feedlots of over 16,000 head capacity marketed over 35 percent (see Table 3).
- B. Large commercial feedlots will continue to feed the bulk of the cattle. These are located primarily in the southwest. Many of these lots sell feedlot services and shift the risk of price changes to the cattle owners. These lots typically have lower investment and nonfeed costs than cornbelt feedlots. Most are independent of crop production and have higher feed costs than midwest feeders. These lots have the potential of using specialized management and developing external buying and selling economies.
- C. Specialized cornbelt feedlots with skilled management will remain competitive. Although they may buy some additional grain, these operations are usually tied in with on-farm grain production. They face lower feed prices than commercial lots and may use cattle as a way of marketing grain. Since these lots are tied in with cropland, they can make economic use of the manure produced. Because of climate, high land costs, and pollution control requirements, they face higher investment costs than the commercial lots in the southwest. These feeders typically assume all price risks themselves.
- D. Small supplementary lots are found on many farms throughout the country but primarily in the midwest. They exist where surplus labor, buildings, or forage are found. They yield returns because they utilize resources that would otherwise go unused. Supplementary lots fit well on farms that have forages for a cow herd and grain to feed out the calves. Although supplementary lots will continue to find an economic niche--their numbers will continue to drop.
- E. Regardless of feedlot size, the successful cattle feeder must be skilled in marketing, feeding, and financing. Total production costs vary more between individual feeders than between areas of the country or size of feedlot.

IV. ANALYZING A CATTLE FEEDER'S MANAGEMENT ABILITY

A. Although there is a great deal of variation in the management ability between cattle feeders, because of price fluctuations, profit comparisons are difficult between individuals, on an annual basis. Feedlot returns are affected by three major factors: marketing ability; feed costs; and non-feed costs.

B. Gross Margin

Figures to evaluate marketing ability are probably easiest to obtain. Gross margins between feeders, over time, varies greatly--reflecting differences in marketing ability (see Table 4). Gross margin is calculated by subtracting feeder calf cost per head from gross sale price per head and dividing by cwt. gain. Gross margin is the amount available per hundredweight gain to pay feed and all non-feed costs.

C. Feeders also vary greatly in obtaining feed conversion and in their ability to hold down feed costs. To obtain accurate figures requires both good financial and production records on the part of the cattle feeder. Feed intake and cost comparisons can be made with University Guidesheets and record reports (see Table 5).

D. Non-feed costs are only about 20-25 percent of total costs, but can be an important consideration for some feeders--especially those with high cost facilities.

V. MAKING FEEDLOT MANAGEMENT DECISIONS

A. Marketing

The cattle feeder is faced with a large number of marketing alternatives. He must decide what, when, and where to buy and later when and where to sell.

1. Marketing Information

The successful cattle feeder must understand and continually keep abreast of changing supply and demand conditions. Shortrun information is available from local market reports and advisory services. A number of publications are available that provide insight to

longer run trends of supply and demand. These include:

- a. Livestock, Meat and Wool Market News, Weekly Summary and Statistics. (Order from Livestock Division, Consumer and Marketing Service, USDA, Washington, D.C. 20250)
- b. Feedlot and Range Sales Reports. (Order from Livestock Market News Service, 403 Livestock Exchange Building, Denver, Colorado 80216).
- c. Livestock and Meat Situation. (Order from Economic Research Service, USDA, Washington, D.C. 20250).
- d. Cattle and Calves on Feed. (Order from Crop Reporting Branch, Statistical Reporting Service, USDA, Washington, D.C. 20250).

2. What and When to Buy.

The feeder cattle purchase decision requires a knowledge of expected fed cattle prices and current feeding cost for each feeder cattle alternative. Profit prospects will vary for different types of cattle. A feeder must match the type of feeder cattle he buys to his available feed supply. He must know and understand price differentials for different grades and sex and judge his ability for feeding to desired grade. Comparative budgets such as the FBEEF computer budgets can be helpful in making feeder cattle purchase decisions.

3. When, Where, and How to Sell

Once feeder cattle are in the lot, the "when to sell" decision has gotten many cattle feeders into trouble. Short-run market fluctuations are difficult to predict. Holding cattle beyond usual market weight, to gain on market swings, is a high risk activity, which must be carefully evaluated.

Where and how to sell must continually be evaluated by each feeder. Cattle feeders must be familiar with dressing percentages, shrink, and carcass vs. liveweight prices to make accurate comparisons.

4. Risk Avoidance Strategies

Cattle feeders need to consider their goals and financial position in evaluating need for risk avoidance. Custom feeding may be a possibility for some larger specialized

feeders. A custom feeder receives payment only for his services and foregoes the opportunity for gain (or loss) on price movements.

Hedging or contracting are also feasible alternatives for specialized cattle feeders. However, neither hedging or contracting should be done on a routine basis. A cattle feeder who knows his costs and is a student of the market can often lock-in a profit and reduce downside his risk.

B. Controlling Feed Costs

1. Feed Price Advantage

Midwest cattle feeders have the lowest feed prices in the country. Grain fed on the farm does not incur a market or transportation cost but does require storage.

2. Pricing Home-Produced Feed

Cattle feeders who grow their own grain and have the option to feed cattle or sell grain, essentially price their grain when they buy feeder cattle. Price changes of stored grain after feeder cattle purchases are made should be charged to the grain enterprise rather than the feeding enterprise.

3. Factors Affecting Feed Conversion

The rate of feed conversion to beef is an important factor in feed costs per cwt. gain. Factors that increase feed conversion efficiencies include:

- (a) Faster daily gains;
- (b) Improved breeding and cross-breeding;
- (c) Lighter market weights;
- (d) Less market finish;
- (e) Less hay or cob in ration; and
- (f) Flaking or rolling of high moisture grain.

4. Standards for Feed Conversion.

University Planning Guides can be a source of standards for evaluating feed conversion. The following is a useful guideline that can be used:

	<u>Calves</u>	<u>Yearlings</u>
	(Lbs. of air dry feed/Lb. Gain)*	
Excellent	8.0- 9.0	8.5- 9.5
Average	9.5-10.5	10.5-11.0

* Dry corn, concentrate and hay plus one-third of corn silage weight. This amounts to feed requirements of about ten bushels of corn per cwt. of gain on calves and twelve bushels on yearlings. Forage needs are usually met with about .5 tons of corn silage per cwt. of gain on calves and .4 tons on yearlings (or .2 tons of hay for calves and .16 for yearlings). Protein supplement is usually fed at a pound per day.

5. Grain vs. Silage Rations

The question of grain vs. silage ration must be evaluated in light of the type of cattle fed and their ability to reach desired market grade. High silage rations result in more beef per acre but this may not be consistent with the most profit per unit of feedlot space.

Silage rations generally result in lower cost of gain as the price of grain rises. High silage rations give lower rates of gain than high grain and consequently result in lower turnover rates in a continuous feeding program. Generally, high silage rations fit better for the one-lot-a-year feeder rather than the continuous feeder.

6. Dry vs. High Moisture Grain

Research has shown that high moisture is equal to or better than dry corn--especially when flaked or rolled. This however, may not be true for light calves. Major considerations are harvesting and storage costs and reduced market flexibility of high moisture corn. High moisture corn can be harvested at a high rate without concern for frequently encountered harvest bottlenecks when corn is dried.

7. Protein Supplementation

Many cattle feeders could save money by testing of grain and forage for protein content and accurately balancing for protein supplement needs. Computerized least-cost ration programs can be used to determine actual protein needs and help feeders select from alternative protein sources.

C. Controlling Non-Feed Costs

1. Non-feed costs for the typical cornbelt cattle feeder is currently running about \$10 per cwt. gain. Principle non-feed cash costs include interest on feeder animal, veterinary, utilities, bedding, and labor when hired. Fixed costs include depreciation and interest on feedlot and feed storage facilities.
2. Feeding strategies such as high grain rations that yield rapid gains and result in faster turnover rates reduce facility overhead cost per cwt. gain for the continuous feeder. This reduction in non-feed cost must be balanced against increased feed costs.
3. Where manure is returned to cropland a credit should be given based on its fertilizer value to a particular farm operation.

VI. FEEDLOT EXPANSION CONSIDERATIONS

A. Who Should Expand?

1. Long-term goals must be carefully evaluated when expanding--especially with high cost inflexible facilities.
2. The feeder's marketing and management ability must be evaluated. Good records can give a good clue to past performances.
3. Ability to bear, or shift, increased price risks--due to larger volume--should be considered.

B. Type of Facilities

1. The type of facilities selected should be evaluated both on a short-run cash-flow basis as well as long-run cost-comparison basis.
2. Pollution control requirements, land cost, bedding availability and labor requirements are important considerations in facility selection.
3. Feed efficiency and rate of gain are both affected by type of housing. The cold slot and manure scrape facilities have shown feed efficiencies and rate of gain advantages over other systems in experiments at the West Central Experiment Station at Morris, Minnesota (see Table 6).

4. Although animal performance in the manure scrape is equal to the cold slot, it requires more bedding and about 30% more labor (see Table 7).
5. Cold slot facilities appear economical when used to capacity and will become more competitive as labor and bedding costs rise.
6. Because of lower cost, the open lot still has a place for the one-lot-a-year feeder where pollution control requirements can be met and bedding is available.
7. The conventional systems will likely remain popular with many cattle feeders. This system is often difficult to expand and Morris experiments show no advantage to the system.

VIII. SUMMARY

- A. Although per capita consumption of beef is expected to drop because of smaller supplies of lower grade beef, increased consumer income should result in increased prices for choice beef during the next few years.
- B. Because of surplus feedlot capacity, feedlot operators will likely bid down feeding margins for the next two to three years. However, able corn-belt feeders--especially those with existing facilities--will find opportunities for profits.
- C. Evaluating the market for both cattle and grain will become an increasingly important aspect for the midwest cattle feeder. A feeder must be large enough and expert enough to devote sufficient time to studying market conditions.
- D. Depending on goals and financial resources, some feeders should consider strategies that will reduce their risk to price changes.
- E. Cattle feeders vary greatly in both their marketing and management ability. Those who excel should continue to find profit opportunities. Creditors will need to evaluate their clients for these characteristics, especially those considering expansion.

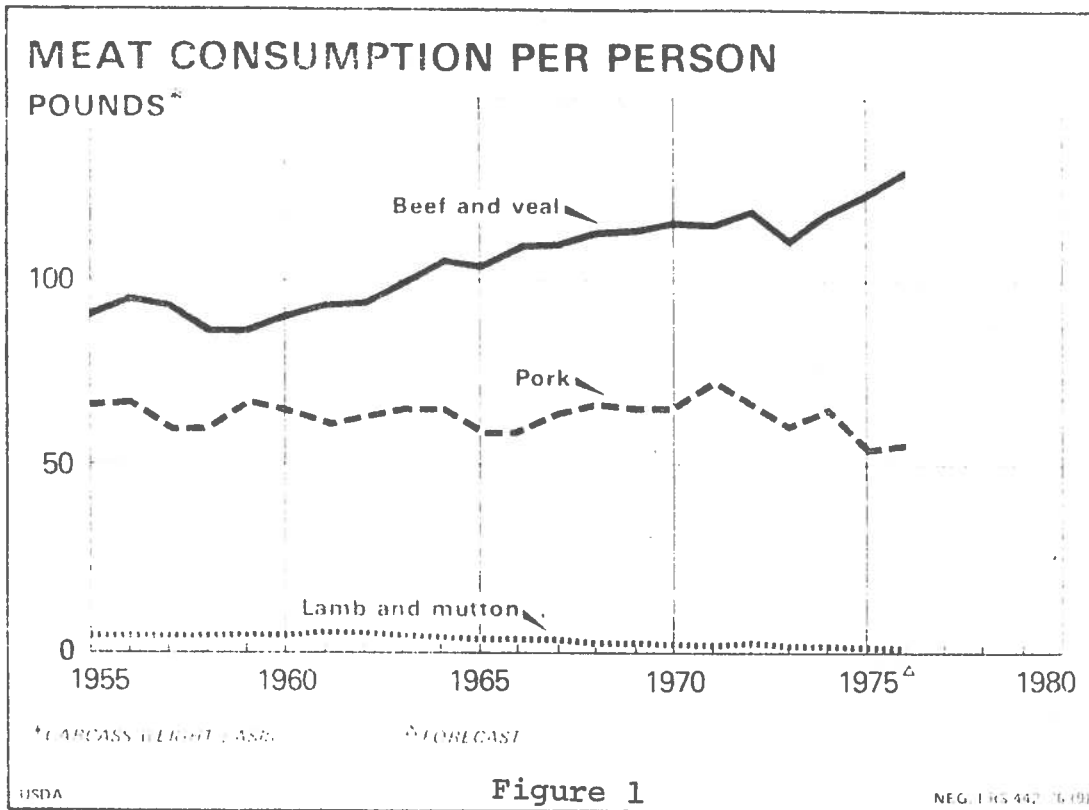


Figure 2

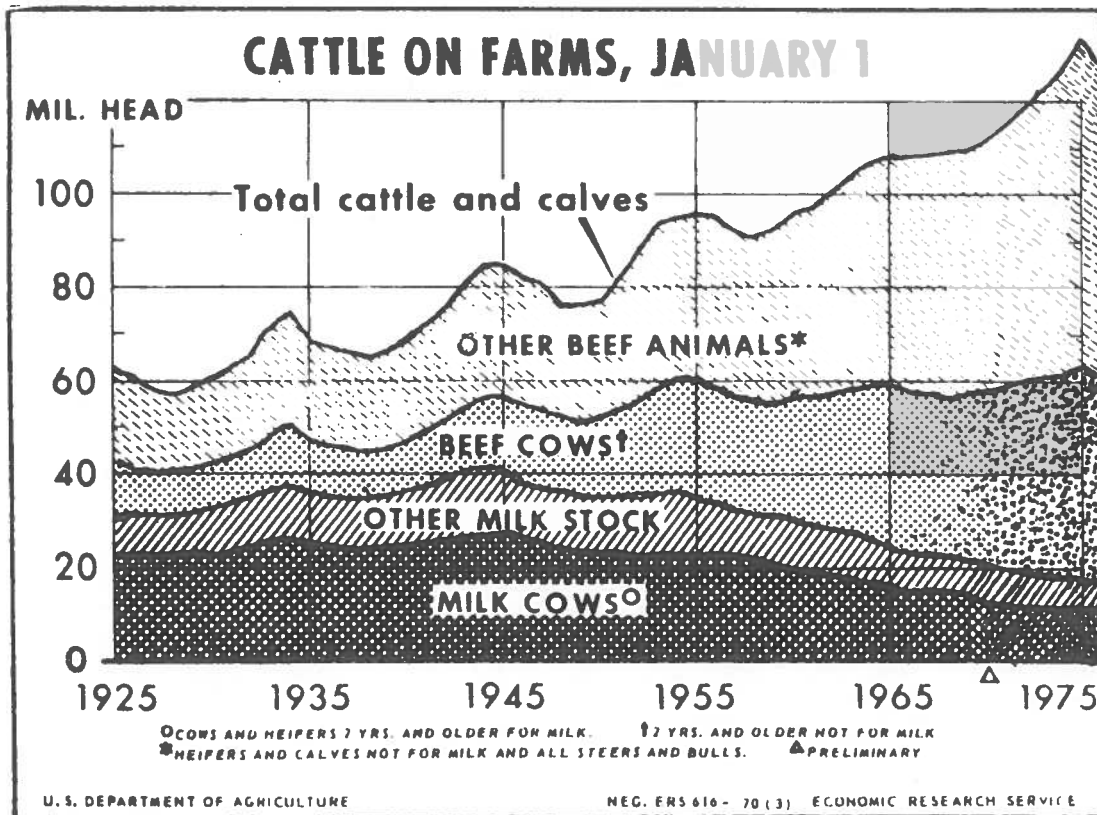


Table 1
Actual and Projected Balance Sheet
U. S. Cattle Industry

Year	January 1 Inventory Cattle & Calves	Calf Crop	Imports	Cattle Slaughter	Calf Slaughter	Exports, Death loss, etc.
1970	112,369	45,871	1,168	35,354	4,203	5,273
1971	114,578	46,739	991	35,895	3,821	4,729
1972	117,862	47,695	1,186	36,083	3,184	5,942
1973	121,534	49,132	1,039	34,027	2,376	7,632
1974	127,670	50,695	568	37,327	3,172	6,608
1975	131,826	50,426	231	41,464	5,406	7,637
1976	127,976	47,415	981	43,214	5,550	4,715
1977 ¹	122,896	46,000	1,000	42,000	5,400	5,496
1978 ²	117,000	45,500	1,200	37,700	4,000	5,000
1979 ²	117,000 ¹	45,500	1,300	36,800	3,000	5,500
1980 ²	118,500	46,200	1,300	37,000	2,500	5,500

¹Partially estimated

²Projection

Table 2
BEEF SUPPLIES AND PRICES

Year	COMMERCIAL SLAUGHTER				Avg. Dress- sed Wt. lbs.	Consump- tion per Capita Lbs.	PRICE, CHOICE BEEF	
	Fed	Non- fed	Cows & Bulls, etc.	Total			Retail ¢/Lb.	Live Wt. \$/Cwt.
	1,000 head							
1971	26,060	2,517	7,008	35,585	611	113.0	104.2	32.29
1972	27,670	1,472	6,637	35,779	623	116.1	113.8	35.78
1973	25,890	873	6,924	33,687	626	109.6	135.5	44.54
1974	23,880	4,598	8,334	36,812	621	116.8	138.8	41.89
1975	21,108	7,050	12,753	40,911	579	120.1	146.0	44.61
1976	24,825	6,161	11,627	42,663	602	128.9	138.9	39.10
*1977	25,335	5,311	10,805	41,451	610	126.0	140.0	40.00
*1978	26,000	3,000	8,300	37,300	625	119.0	151.0	45.00
*1979	27,500	1,500	7,400	36,400	625	117.0	155.0	47.00

* Projections

Table 3
NUMBER OF CATTLE FEEDLOTS AND FED CATTLE MARKETED
BY SIZE OF FEEDLOT CAPACITY, 1975

Feedlot Size	Number of Lots	No. of Cattle Marketed (1000 hd.)	Percent of Cattle Marketed
Under 1,000	136,262	7,272	35.5
1,000- 1,999	653	813	4.0
2,000- 3,999	426	953	4.6
4,000- 7,999	259	1,389	6.8
8,000-15,999	209	2,582	12.6
16,000-31,999	151	4,216	20.6
32,000 & Above	66	3,266	15.9
TOTAL	138,026	20,494	100.0

Table 4

NINE YEAR AVERAGE VALUE PRODUCED PER CWT. GAIN
FOR INDIVIDUAL BEEF CATTLE FEEDERS
Minnesota Farm Management Association

<u>TOP 20 Percent</u>		<u>BOTTOM 20 Percent</u>	
Farm	Value Produced	Farm	Value Produced
A	\$41.09	M	\$22.07
B	40.89	N	24.52
C	39.96	O	27.19
D	37.07	P	27.95
E	36.52	Q	28.84
F	36.41	R	29.01
G	35.87	S	29.22
H	35.80	T	29.25
I	35.71	U	39.72
J	35.71	V	30.03
K	34.52	W	30.11
Average	\$37.23	Average	\$27.99

Difference = \$9.24/Cwt.

Table 5

CATTLE FEEDING COSTS AND RETURNS, PER CWT. GAIN,
Missouri Mail-In Record Farms

Year	Value Pro- duced ¹	Feed Cost	Vari- able Non- feed Costs	Fixed Costs	Total Costs	Return to Labor and Manage- ment
1970	24.21	21.21	5.38	1.48	28.07	-3.86
1971	35.93	21.57	5.50	1.74	28.81	+7.12
1972	37.84	20.33	5.74	1.99	28.06	+9.78
1973	41.98	30.61	8.77	1.54	40.92	+1.06
1974	27.27	44.03	8.39	1.88	54.30	-27.03
1975	58.55	45.90	9.39	1.94	57.23	+1.32

¹/Comparable to gross margin, but typically about \$.50 lower because of death loss adjustments.

Table 6

SEVEN YEAR PERFORMANCE COMPARISONS OF FIVE BEEF
CATTLE HOUSING SYSTEMS, University of
Minnesota, West Central Experiment
Station. Morris, Minnesota

System	No. of Head	Daily Gain	Dry Matter/ Cwt. Gain
Cold Slot	451	2.53	606
Warm Slot	682	2.47	615
Conventional	536	2.47	617
Manure Scrape	403	2.54	604
Open Lot	328	2.44	632

Table 7

SELECTED COST COMPARISONS OF DIFFERENT
BEEF CATTLE HOUSING SYSTEMS

	Cold Slot	Warm Slot	Conven- tional	Manure Scrape	Open Lot
Investment Cost (300 Head Units)					
Housing	\$66,000	\$99,000	\$40,500	\$46,500	\$15,000
Machinery & Equipment	19,077	19,077	19,077	19,077	19,077
Housing In- vestment/Head	220	330	135	155	50
Fixed Cost, Per Head Capacity/Year					
Housing ¹	\$ 26.40	\$ 39.60	\$ 16.20	\$ 18.60	\$ 6.00
Machinery & Equipment ²	<u>11.45</u>	<u>11.45</u>	<u>11.45</u>	<u>11.45</u>	<u>11.45</u>
Total	\$ 37.85	\$ 51.05	\$ 27.65	\$ 29.05	\$ 17.45
One-lot Calves Per Year (600 Lb. Gain)					
Fixed Cost/ Cwt. Gain	\$ 6.30	\$ 8.50	\$ 4.60	\$ 4.85	\$ 2.90
Lot Filled to Capacity (1.5 turns/Lot) ³ (900 Lbs. Gain)					
Fixed Cost/ Cwt. Gain	\$ 4.20	\$ 5.67	\$ 3.07	\$ 3.22	\$ 1.93
Manure & Bedding					
Manure Credit/ Head	\$ 10.02	\$ 10.02	\$ 7.56	\$ 6.82	\$ 3.40
Bedding Charge/Head	-	-	6.05	7.87	9.63
Net	+\$10.02	+\$10.02	+\$1.51	\$ -1.05	\$ -6.23

Source: 1976 Minnesota Cattle Feeders Report.

¹12% of housing investment for depreciation, repairs, taxes, and insurance, divided by 300 head capacity.

²18% of machinery and equipment investment.

³Assumes high grain ration. Turnover could be slightly faster for some systems.

NOTE: Utility costs were about \$4 per head for warm slot than other systems. Compared to the conventional system, the manure scrape requires 10% more labor, the open lot 10% less and the cold slot about 20% less.