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Master of Science degree in Agricultural Economics

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**STRUCTURAL AND ORGANIZATIONAL  
CHARACTERISTICS OF THE MICHIGAN  
FED CATTLE INDUSTRY**

By  
Kent R. Gwilliam

**A THESIS**

**Submitted to**

**Michigan State University  
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## ABSTRACT

### STRUCTURAL AND ORGANIZATIONAL CHARACTERISTICS OF THE MICHIGAN FED CATTLE INDUSTRY

by

Kent R. Gwilliam

This study investigates the fed cattle industry in Michigan in an attempt to identify potential means for cattle feeders to remain competitive. Two surveys were conducted to collect data, one of Michigan's cattle feeders, the other of firms purchasing Michigan fed cattle for slaughter.

Typical farmer feedlot traits are exhibited in Michigan, including low turnover rates, seasonal placement and marketings, high use of feeds produced on the farm, and variation in the type, and size of cattle fed. Results include a description of the facilities, feeds and feeding practices, marketing, management, and a profile of the farmers feeding cattle.

Slaughter plants purchasing Michigan cattle are diverse in products, cattle requirements, plant size and location, and markets served. Most packers reported plans for expansion.

The competitive position of Michigan's cattle feeding industry reveals no major advantage or striking disadvantages relative to other parts of the nation. Slight advantages in the Mid- and Southwestern parts of the nation precipitated investment in cattle feeding in these areas. As a result, cattle feeding in Michigan is limited to the role of a supplemental enterprise making use of surplus feeds and available facilities.

To Carol, Julia, Burt, Marilyn, David,  
Richard, Maria, and Catherine,  
the worlds greatest family.

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Most of all thanks to my wife for stalwart support, love and patience.

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## **CHAPTER I**

### **INTRODUCTION**

For the past several decades, cattle feeding and the fed cattle industry in Michigan have held an important position in the state's agricultural economy accounting for approximately 6 percent of farm products sales (Census of Agriculture, Michigan 1982). Despite recent sharp declines in the fed beef production of other states in the Northeastern Corn Belt, Michigan cattle feeders have tenaciously maintained output and consequently increased market share in the four-state region. Uncertainty with respect to the future profitability of cattle feeding has prompted inquiry into the industry's productive capacity, trends, and attitudes of cattle feeders with the hope that these will prove to be useful indicators of Michigan's future in the fed beef industry.

#### **1.1 National Setting**

The beef industry is currently faced with some major challenges. Decreased demand as evidenced by lower prices paid per pound and declining per capita consumption, has interrupted the long period of growth in the beef and cattle subsector (Hilker and Ritchie, 1984). Consumers have turned to poultry

as a perceived lower cost substitute for beef. Other changes, which are often attributed to health concerns and a trend toward smaller families, have resulted in a shift in consumer preferences away from beef (Cornell and Sorenson, 1986). Also, the increase in the number of households with two income earners has necessitated a move away from meals requiring lengthy preparation time, a category which applies to many traditional beef dishes. Fewer meals are eaten at home where beef has been a staple and more attention has been given to consumption of foods perceived to be more healthful.

The general image of beef has suffered as the media have focused attention on medical reports linking cholesterol (a lipid soluble sterol common in animal tissue) to heart disease. Finally, beef is seen as being an expensive food, relative to poultry and pork. Overall, these factors pose threats to the success and future of the beef industry and cattle feeding in particular.

Industry organizations, such as the National Beef Council and the American Meat Institute, have taken positive steps to reverse some of the negative public opinion resulting from disparaging reports. But, it is not expected that the decline in per capita consumption will soon (if ever) return to the levels of the mid 1970s. Innovative efforts of the industry seek to improve public opinion and enhance the acceptability of the beef products being offered.

In the face of powerful forces of opposition, beef still remains the preferred meat. Its popularity is threatened by changing lifestyles, health concerns and effective competition from substitute meat products and other foods (Meatfacts, 1984). However, beef still captures the single largest share of the consumers' expenditure on meat and meat products (Meatfacts, 1987).

### **1.2 Michigan Situation**

The stability in fed cattle numbers indicates that cattle feeding remains a viable option to Michigan farmers. Abundant feed grain supplies and expectations that world feed grain surpluses will continue for some time (Insel, 1985) have kindled renewed interest in cattle feeding. Beef production is often viewed as a practical means of marketing surplus crops, harvesting otherwise inaccessible forages, or converting to a marketable product, those feeds of type and quality that do not lend themselves to commercial markets. However, investors are justifiably cautious due to the stressful conditions that were experienced during 1985 and the early part of 1986 (see per head losses reported by Schwab, 1986).

Michigan's strategic location holds several advantages. Large Great-Lakes population centers of concentration, with substantial ethnic constituents, offer a diversity of proximate markets, providing the potential for product differentiation

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and specialization. Michigan feedlots have proven to be a popular source of cattle to Canadian meat packers to supplement shortfalls in Canadian supply. Low freight costs due to short distances for shipping product from packing plants to retail outlets is also an attractive advantage.

On the other hand the moist climate which provides an abundance of forages in Michigan also dictates that cattle on feed be provided with shelter to avoid unprofitably low rates of gain and feed conversion during the cold, damp winter months.

While the number of slaughter plants and the slaughter capacity in the state have both declined, the amount of beef and beef products imported from out of state sources has steadily increased. By contrast, the percent of fed cattle finished in Michigan and exported to out of state slaughter plants has also increased (Riley and Heimstra, 1982).

Assessing the extent of influence each of these factors and determining which will play a dominate role in Michigan's fed cattle industry, are the key issues in this study. The information presented here is intended to contribute to the decision maker's knowledge base.

### **1.3 Problem to be Addressed**

What then, will be the future of cattle feeding in Michigan? Can the recent stabilization and modest expansion be

interpreted as a longer term trend? Producers, industry leaders as well as research and extension personnel all have a vested interest in the answers to these questions. Understanding the structure and behavior of the industry as presently constituted is essential to evaluation of the alternatives that will form the industry's future.

The purpose of this study is to reduce the uncertainties by expanding the pool of knowledge relevant to Michigan's fed cattle industry.

The study objectives are to identify and describe the organizational and operational characteristics of:

- 1) Michigan's cattle feeders;
- 2) The markets available to Michigan cattle feeders; and,
- 3) To investigate Michigan's competitive position relative to major cattle producing areas in the United States.

As with any problem solving research, it is necessary to begin with an investigation into the factors that make up the current environment. Hence, the author endeavors to answer an array of questions, including: "What is the current situation with respect to number of cattle feeders, size of operations, feeding systems and housing? What are the key reasons that Michigan cattle feeders have continued to feed cattle? In what areas are there relative advantages? disadvantages? Are the feeders progressive and to what extent do they make use of modern management methods in Michigan?" Much of this

information was more readily available prior to 1982 when budgeting cutbacks by USDA Agricultural Statistics Division budgets eliminated Michigan in the regular cattle on feed reports. In response, a survey of cattle feeders was conducted by the Michigan State University Agricultural Economics Department in April 1986. The approach, method, procedure and results of the survey are contained in Chapter III.

Similarly, to address the questions relative to the adequacy and potential of the markets for Michigan cattle and salient marketing issues, a survey of slaughterers of Michigan cattle was conducted in July of 1987. Chapter IV contains the details and result of this second survey.

Relative to the United States as a whole, the share of the cattle fed in the Eastern Corn Belt has been diminishing. It is apparent that the rate of decline in Michigan has been less than that of the other Eastern Corn Belt states (Gwilliam and Rust, 1987). These conditions prompted investigation into the competitiveness of cattle feeding in Michigan relative to other areas, the treatment of which constitutes the fifth chapter.

In summary the central question, "What is the current and future role of cattle feeding in Michigan?" will be addressed as follows:

- 1) Chapter II gives a historical perspective.
- 2) Chapter III reports the intent, methods and summary of the survey of Michigan cattle feeders.
- 3) Chapter IV focuses on the survey of slaughterers of Michigan cattle.
- 4) Chapter V presents Michigan's competitive position



in cattle feeding by examining and comparing production factors in major areas of competition.  
5) Chapter VI, summary, conclusions, and recommendations for further research.

The intent of this study is to provide descriptive data and information about the Michigan cattle feeding industry and identify some of the strengths and weaknesses inherent in Michigan cattle feeding. This data will also serve as a base from which diagnostic, prescriptive and predictive studies may be conducted relative to this industry.

## **CHAPTER II**

### **CATTLE FEEDING IN THE UNITED STATES AND MICHIGAN'S RELATIVE POSITION IN THE INDUSTRY**

#### **2A. HISTORY AND SETTING**

##### **2A.1 Introduction**

In order to provide a base from which to assess the relative position of the cattle feeding in Michigan, it is necessary to review the industry's characteristics relative to cattle production across the nation. This chapter is not intended to be a comprehensive review, but compares essential elements of the industry nationwide.

##### **2A.2 National Perspective**

Beef cattle have long held a position as the largest single component of agricultural cash receipts in the U.S. As agricultural revenues rose from \$34.2 billion in 1960 to \$166.6 in 1986, sales of cattle and calves have maintained a consistent 20-25 percent share of the total (USDA 1).

The number of fed cattle expresses as a percentage of all cattle marketings has increased from 39.1 percent in 1960 to 69.6 percent in 1986 (Table 2.1).

**Table 2.1: Annual Marketings of All Cattle and Fed Cattle in United States, Selected Years.**

Year	Thousands Fed Cattle	All Cattle	Fed Cattle as a percentage of all cattle
1961	13,747	35,175	39.1
1966	19,774	45,038	43.9
1971	25,281	49,248	51.3
1976	24,170	55,348	43.7
1981	23,818	34,953	68.1
1982	24,902	35,843	69.5
1983	25,752	36,649	70.3
1984	25,758	37,582	68.5
1985	26,155	36,289	72.0
1986	25,957	37,290	69.6

Source: U.S. Department of Agriculture. Livestock and Meat Statistical Bulletins and Supplements., selected issues and Meat and Poultry Situation and Outlook Report., selected issues.

### **2A.3 Early Cattle Feeders**

In the early part of the 20th century corn output flourished in the Eastern corn belt and cattle feeding expanded as a means of turning the crop surpluses into a marketable product. W. D. Farr, a pioneer in cattle feeding in the Southwest gives the following description (Farr, 1985):

These corn belt cattle feeders were not really cattle feeders. They only bought cattle to use their own corn crop. The corn was fed whole and hogs followed the cattle. Hogs were basic and raised on the farm so the corn first went to the hogs then the surplus was fed to the cattle. When a corn belt feeder purchased cattle, he fed them until he ran out of corn. Maybe the animals weighed 900 pounds or maybe 1900 pounds [when marketed].

The Corn Belt cattle feeders in the late 1800's and early 1900's were largely responsible for the establishment and growth of the fed beef industry. Concurrently, the American

people acquired a taste, even a preference, for grain fed beef. As the volume of trade increased the industry saw the establishment of large terminal markets, with nearby multi-species slaughterhouses. The terminal markets served to facilitate access to rail transportation and provided a place of exchange for producers and packers. This institutional arrangement formed the foundation of the cattle trading and packing business in the United States in this era. Most of the nation's slaughtering capacity was owned by the four major meat packers (Armour, Cudahy, Swift, and Wilson).

Improvements in storage and handling, largely attributable to the advent of refrigeration and the refrigerated box car, made fresh beef more available to the urban consumers in the Eastern population centers (Hiemstra, 1985). Technological advances and industrial expansion, particularly during the post war period of the 40's and 50's, improved the productivity of the American worker. Disposable income increased and with it the standard of living. The purchasing pattern of the American consumer shifted to include more fresh meat. Per capita consumption of beef increased from 50.1 pounds in 1950 to 64.2 pounds in 1960, retail weight (Hasbargen, 1967). Americans acquired a preference for the tenderness and flavor of grain fed beef. Demand for beef expanded.

Chicago became a major center of commerce between the West where the majority of the food was being produced and the East

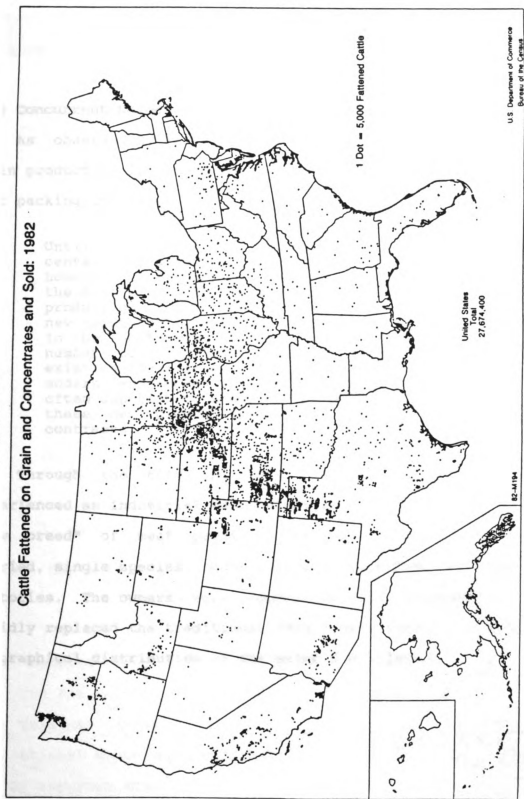
where most of the nation's population resided. Rail transportation was constructed to facilitate east west movement of products. With the railroad as the primary means of transportation, trade with the major rail linked firms in the Northern Midwest was active. Consequently, the Corn Belt with its plentiful supplies of corn and access to the rail head markets, became the center of cattle feeding.

#### **2A.4 Migration of Cattle Feeding to the High Plains.**

With the expansion of irrigation into the High Plains, portions of Texas, New Mexico, and Colorado in the 1960s these areas became highly productive sources of corn and other feedgrains. New varieties of milo and sorghum were developed along with milling and processing that rendered these feeds highly effective as substitutes for corn.

The warm dry climate in the High Plains region was found to be particularly suitable for cattle feeding, where the favorable weather required less shelter, bedding, and less management than the Corn Belt (Hasbargen, 1967). In addition, the cattle fed in this area achieved better gains and higher levels of feed conversion. These factors contributed to lower cost of production and fostered rapid expansion of cattle feeding. Large cattle feeding companies emerged with annual production in the tens- even hundreds of thousands. (For a display of the distribution of cattle feeding see Figure 2.1)

Figure 2.1



Fed cattle are defined by the USDA as cattle fattened for at least one month on grain or concentrate.

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## **2A.5 Concurrent Relocation of Slaughter Facilities.**

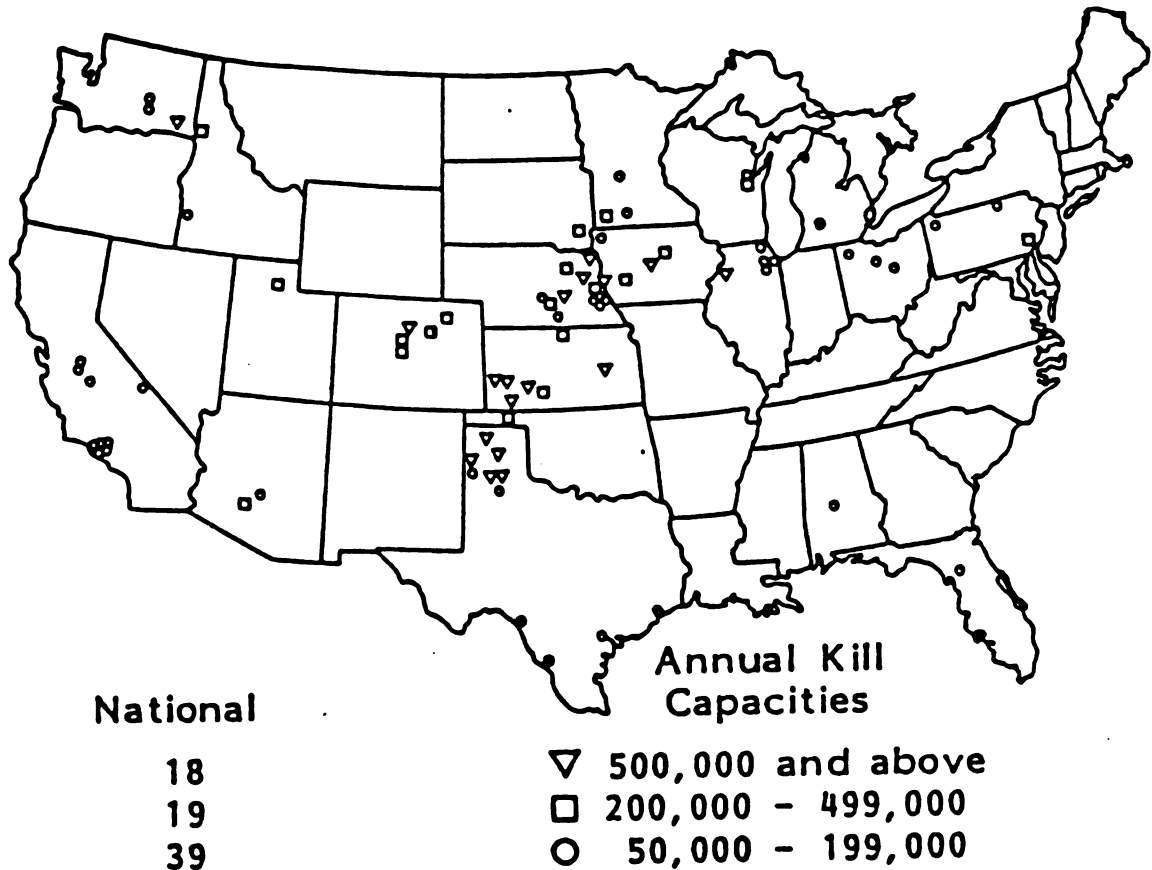
As observed by Faminow and Sarhan (1983) the expansion of grain production in the Southwest had a major impact on the meat packing industry:

Until the 1960s the Midwest had been the undisputed center of fed cattle production and slaughter. Then, however, the supplies of fed cattle began to shift to the Southwest with the great expansion of feed grain production in that region. As a result of this shift, new slaughtering and processing plants were established in the Southwest. These new plants opened with a number of competitive advantages relative to older existing facilities: (1) they were technologically modern and more efficient; (2) their locations were often superior to those of the existing plants; and (3) these new plants frequently had attractive labor contracts.

Through the 60's and 70's the meat packing industry experienced an industrial reorganization and emergence of a "new breed" of meat packers. The new plants were single storied, single species, technologically advanced, meat packing factories. The owners were aggressive and progressive and rapidly replaced the traditional "Big Four". Figure 2.2 gives a geographical distribution of the major U.S. plants.



**Figure 2.2: Steer and Heifer Slaughter Plants (50,000+ head)  
Based on 1984 Capacity Estimates.**



Source: Loy et al., 1986.

#### **2A.6 Decline of Terminal Markets**

The fed cattle industry expanded rapidly after World War II. Terminal markets flourished with it and served as the conventional marketing institution of cattle trade. Rockenbach (1972) reported that,

Throughout the early 1950's, terminal markets received

around 75 percent of the cattle marketed in the United States, ... In recent years there has been a steady movement away from terminal markets toward auctions and direct selling. In 1968 only 24 percent of the slaughter cattle were sold through terminals while 57 percent were sold direct and 18 percent through auctions.

In the 70's the decline in terminal markets and increase of direct selling constituted a shift to more efficient vertical coordination in the industry. This method required less handling of the cattle and lower transaction costs. Since then the national trend has continued toward more direct selling. The USDA reports that 39 percent of the nation's fed cattle were sold direct in 1960, but by 1982 the percentage of direct sales had increased to 88 (USDA 2).

## **2B. CURRENT SETTING**

### **2B.1 Geographic Concentration of Cattle Feeding**

Table 2.2 shows the pattern of the shift in concentration in the cattle feeding industry. For simplicity and clarity the states have been grouped to show changes in regional production. Unfortunately for our purposes state boundaries were not drawn up with cattle feeding regions in mind and do not always reflect regional changes. For example, feeding volume in Nebraska has increased from 1970 to 1985 (table 2.2) but these figures do not show the shift in concentration from east to west.

Major regions, often referred to by industry personnel, have indistinct boundaries. The Northwest, Southwest, High Plains, Cornbelt and Southeast all are referred to loosely and at times will mean different locations depending on the origin of the reference. Where regions are specified they often follow natural dividing lines (Quail, 1986). For example, the Southwest-Highplains region targets West Texas and New Mexico but also includes eastern Colorado, the southwest corner of Kansas, and the Oklahoma panhandle.

**Table 2.2: Fed Cattle Marketed in Selected Cattle Feeding States, Selected Years, Grouped by Region.**

State	1000 head marketed per year			
	1970	1975	1980	1985
Colorado	1,905	1,838	1,925	2,210
Texas	3,138	3,067	4,160	5,090
Kansas	1,890	2,264	3,015	3,655
Oklahoma	542	515	650	690
SW Total	7,475	7,684	9,750	11,645
S. Dakota	552	561	600	625
Nebraska	3,609	2,795	3,825	4,220
Iowa	4,522	2,645	2,690	1,924
Minnesota	877	762	760	590
Midwest Totals	9,560	6,737	7,875	7,359
Illinois	1,167	805	880	850*
Indiana	517	346	344	338*
Ohio	429	379	244	195*
Michigan	254	244	218	270*
NE Totals	2,367	1,774	1,686	1,653
Aggregate Totals	19,402	16,221	19,311	20,657

Source: USDA Cattle: Final Estimates. Statistical Bulletins

\* Estimated using on feed and marketings averages 1978-81.

For purposes of this thesis the Eastern Corn Belt will refer to Michigan, Ohio, Indiana, and Illinois; the Midwest

will include South Dakota, Nebraska, Iowa, and Minnesota; and the Southwest will refer to Colorado, Texas, Kansas, and Oklahoma. Since a number of the works cited use other terms, in general it is intended that "High Plains" be synonymous with the Southwest, "Corn Belt" with Midwest, and "Northeast" with Eastern Corn Belt.

The reader must keep in mind that regional trends discussed here, using state reported data, do not precisely distinguish the shifts in production. Some states, such as Kansas, may include portions of both Midwest and Southwest regions. Interpretation of regional changes using state data must be viewed as general indicators of the overall industry wide trends.

The transition in Iowa is a prime example of the kind of reorganization that has led to the decline in the Midwest marketings. Much of this decline is the result of farmer feeders going out of the cattle feeding business. More specifically, in 1965 Iowa reported 46,939 feedlots with less than 1,000 head capacity which marketed 96 percent of the state's fed cattle. By 1984, the number of feedlots with less than 1,000 head capacity had dropped to 19,496, from which only 50 percent of the state's fed cattle were marketed (Loy et al., 1986). This decline in farmer feeding is typical of many other areas across the nation see table 2.3.

Large industrial feedlots have increasingly captured a

larger share of the market on a national basis (table 2.3). As their share has increased, the farmer feedlot, where much of the feed used is produced on the farm, has declined.

**Table 2.3: Number of Feedlots and Cattle Marketed for 13 Major Cattle Feeding States**

-----Capacity Less than 1,000 head-----				
<u>Year</u>	<u>No. of Feedlots</u>	<u>Percent of Total</u>	<u>No. of Cattle Marketed</u>	<u>Percent of Total</u>
1965	149,804	99.03	8,136,000	53.55
1970	119,436	98.47	9,102,000	41.73
1975	90,097	98.36	5,798,000	31.72
1980	76,175	97.57	5,320,000	25.40
1985	49,279	96.84	4,085,000	17.87

-----Capacity 1,000 head or more-----				
<u>Year</u>	<u>No. of Feedlots</u>	<u>Percent of Total</u>	<u>No. of Cattle Marketed</u>	<u>Percent of Total</u>
1965	1,468	.03	7,056,000	46.45
1970	1,856	1.53	12,708,000	58.27
1975	1,501	1.64	12,478,000	68.28
1980	1,896	2.43	15,626,000	74.60
1985	1,607	3.16	18,772,000	82.13

Source: USDA Agricultural Statistics Board. Cattle on Feed Selected years.

Though Michigan numbers of fed cattle marketed have not suffered the sharp declines observed in the midwest and parts of the northeast, the state has followed the national trend to fewer and larger feedlots.

Substantial variation exists between states with respect to the shift to large industrial feedlots. The number of cattle marketed from farm feed lots (represented,

approximately, by those marketing under 1000 head annually) is still substantial in some states, particularly in the Corn Belt. However, the national trend is for fewer and fewer cattle being fed in farm feedlots.

## **2B.2 Concentration as a Structural Issue in Cattle Feeding**

Allen (1983) estimated concentration using capacity figures reported by Simpson and Farris. The feedlot use ratio chosen<sup>1</sup> was 1.55 or marketings to capacity rate of 155 percent. The results indicated that the top 20 cattle feeding firms marketed approximately 16 percent of the total 23 state output in 1979 (Allen, 1984). The industry was far from where the collective behavior of the leading 4, 8, 12, or even 20 firms could have any significant impact on the volume and/or price of cattle being offered for sale in the national market. Though actual behavior varies between industries and commodities, economists usually do not become concerned about single, or four firm concentration ratios below 40 percent (Marion, 1986).

## **2B.3 Overview- Cattle Feeding in Michigan Relative to the U.S.**

As is evident in table 2.4, the number of feedlots has been declining in all the major cattle feeding states and in Michigan as well. The data indicate that in Michigan, between

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1 For a definition of the feedlot use ratio and how it compares to the traditional turnover ratio, see Appendix II.

**Table 2.4: Number of Feedlots and Fed Cattle Marketed**

1970	Capacity under 1,000 head		Ave. per lot	Capacity 1,000 head and over		Ave. per lot	Total	
	Number of lots	Fed cattle marketed 1,000 head		Number of lots	Fed Cattle marketed 1,000 head		Number of lots	Fed cattle marketed 1,000 head
State								
Colorado	654	288		184	1,617		835	1,905
Texas	1,300	98		227	3,040		1,527	3,138
Kansas	8,868	495		132	1,395		9,000	1,890
Oklahoma	753	50		47	492		800	542
SW Totals	11,575	931	80	590	6,544	11,092	12,165	7,475
S. Dakota	9,049	463		51	89		9,100	552
Nebraska	18,400	1,636		541	1,973		18,914	3,609
Missouri	15,466	617		34	67		15,500	684
Iowa	41,829	4,123		171	460		42,000	4,583
Minnesota	18,162	822		38	55		18,200	877
Midwest Totals	87,440	7,044	81	801	2,577	3,217	88,241	9,621
Illinois	23,952	1,064		48	103		24,000	1,167
Indiana	14,473	451		27	66		14,500	517
Ohio	9,472	391		28	38		9,500	429
Michigan	1,673	210	125	27	44	1,630	1,700	254
NE Totals	49,570	2,116	43	130	251	1,931	49,700	2,367
U. S. Totals	164,074	10,713		1,600	9,827		165,674	20,540

1980	Capacity under 1,000 head		Ave. per lot	Capacity 1,000 head and over		Ave. per lot	Total	
	Number of lots	Fed cattle marketed 1,000 head		Number of lots	Fed Cattle marketed 1,000 head		Number of lots	Fed cattle marketed 1,000 head
State								
Colorado	200	116		200	1,809		400	1,925
Texas	931	51		166	4,109		1,097	4,160
Kansas	3,252	202		248	2,813		3,500	3,015
Oklahoma	280	18		35	632		315	650
SW Totals	4,663	387	83	649	9,363	14,426	5,312	9,750
S. Dakota	5,951	422		49	178		6,000	600
Nebraska	12,525	1,350		375	2,475		12,900	3,825
Iowa	29,532	1,677		468	1,013		30,000	2,690
Minnesota	10,681	664		69	96		10,750	760
Midwest Totals	58,689	4,113	70	961	3,762	3,915	59,650	7,875
Illinois	12,410	750		90	130		12,500	880
Indiana	9,676	301		24	43		9,700	344
Ohio	5,787	205		13	39		5,800	244
Michigan	1,350	145	107	50	73	1,460	1,400	218
NE Totals	29,223	1,401	48	177	285	1,610	29,400	1,618
U. S. Totals	97,040	6,045		1,853	13,783		98,893	19,828

Source: USDA Agricultural Statistics Cattle, Selected Issues.

1970 and 1980, the number of cattle marketed per feedlot has decreased but the number of feedlots in the 1,000 head and over category has increased. The overall average number of cattle marketed per feedlot increased slightly from 149 to 156, indicating that the average size of feedlot has increased, though modestly.

## **2C. FED BEEF PRODUCTION**

The practice of feeding high concentrate rations to cattle not only enhances the palatability (Schupp et al., 1976) of the finished product but constitutes one of the least cost methods of producing beef. This however depends on the relationship between feed costs compared to management, facility, energy, maintenance and other overhead costs. Brokken et al., using a model with corn prices at \$2.50 per bushel (1980) concluded that, "Feeding to the Choice grade is consistent with minimizing cost per pound of beef." He also cautioned that feeding to excessive weights is wasteful and eventually unprofitable.

### **2C.1 Case Study in Economies of Cattle Feeding**

Table 2.5 shows the break even prices (average cost) and marginal cost of gain associated with feeding steer calves from 450 to 1050 lbs. as recorded by Brokken et al., (1980).



Unfortunately, the experiment ended by slaughtering the cattle before the data could show the effects of the relative cost changes of continuing beyond the 1050 weight.

This table was used as an example because the author felt that it showed many of the typical cost-feed-gain relationships in feeding cattle. It was adopted from Brokken with only a few minor changes.

**Table 2.5: Approximate Feedlot Production Costs for Steer Calves With Corn at \$2.25 per Bushel**

Wgt	Gain	Days	Feed	Feed	Other	Total	Ave.	Marginal
lbs	lbs/ day	On Feed days	Consumed lbs	Cost	Costs	Cost	Cost	Cost
				-----dollars-----			---cents/lb.---	
450					270	270	60.00	
450	1.98	19	149	7.17	306	312	69.51	28.91
500	2.09	44	372	17.95	308	326	65.29	27.96
600	2.26	89	857	41.37	314	355	59.17	30.01
700	2.37	132	1,402	67.69	319	386	55.18	32.35
800	2.44	174	2,009	97.00	323	420	52.55	34.89
900	2.45	215	2,666	128.77	328	457	50.76	37.59
1,000	2.42	256	3,379	163.22	333	496	49.60	40.52
1,050	2.39	277	3,763	181.73	335	517	49.23	42.12

Source: Brokken, Ray F., et al Costs of Reducing Grain Feeding of Beef Cattle.

USDA Agricultural Economic Report #459, 1980.

Feed prices used: corn \$2.25/bu., silage \$16.50/ton, soybean meal \$190/ton.

Other costs include purchase cost, 4 cents per day yardage, \$3 per ton feed markup, \$8.55 interest on purchase costs at 9 percent per annum.

Marginal cost includes feed, yardage, profit, and interest on purchase price and on initial start-up costs.

By viewing the marginal and average cost data it appears that they are converging to a point of equality (intersection), which is consistent with theory in production economics. Because of the relationship, typifying theory, the data were used as a basis for creating a simple graphical model of

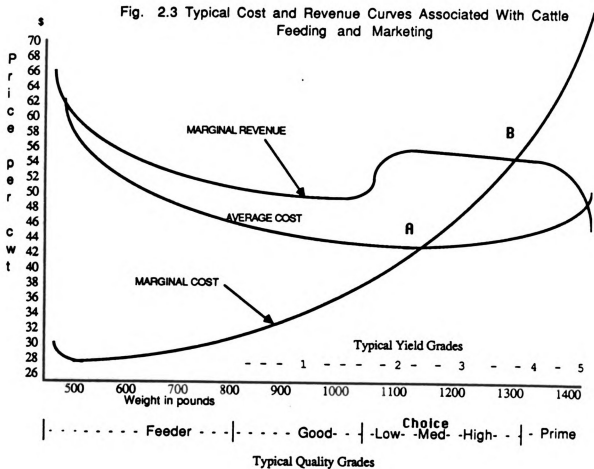
typical cost-revenue relationships in cattle feeding (see Figure 2.3). The lines representing the marginal and average costs were plotted to approximate the values in table 2.5. Then these values (lines) were extended to show the theoretical relationship between the cost curves at heavier weights<sup>1</sup>. A line representing marginal revenue or price per pound of the animal at different stages in the weight gain was added to depict the expected, or typical price relationships associated with finishing a pen of cattle under 1987 market conditions. The low point of the average cost curve is the point where the marginal cost curve intersects it (point A Figure 2.3). Beyond this point the cost of adding additional pounds exceeds the average of preceding pounds thus causing the average cost per pound to rise.

As mentioned, the marginal revenue (MR) curve shown in Figure 2.3 attempts to depict the typical relationships in market value of the live animals per pound as they continue to gain weight. The price paid for the calves is higher than the market price for finished steers. This difference is referred to by cattlemen as a premium. It is expected that the cost of gain is low enough to compensate for the premium and as the animal gains weight the premium will be recuperated in low cost gain. As the animal grows the price per pound drops indicating that the value of additional potential weight gain is reduced,

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<sup>1</sup> The slope of the curves shown is consistent with the author's experience in cattle feeding and slaughtering.

reducing the range over which the cattle feeder can profit from low cost gain. As the steers approach slaughter weight their value as feeders (what they could be sold for) reaches a low point reflecting the costs that would be incurred in having the animals moved and adjustment to new facilities and management. Or, were the animals sold for slaughter at this point most of them would grade Good and thus command an inferior price.



Source: Modified from data from Brokken et al., 1980.

The portion of the MR curve depicting the price change from feeder cattle to choice beef is indistinct and is therefore shown graphically as a segmented or dotted line. However, as the cattle reach the point where most will grade Choice, the marginal revenue curve again becomes a solid line, reflecting the higher price that is paid for the cattle of this grade. This portion of the curve is relatively flat since the price paid is relatively constant until the cattle reach the degree of finish corresponding to the Yield Grade 4, at which point the price begins to fall more rapidly reflecting the price discounts encountered by over-fat cattle.

Tradition and what may be described as standard operating procedures in the packing industry have tended to interfere with the sensitivity of price to small changes in quality. This has been an issue of debate in the industry because the Choice, but lean carcass has substantially higher value than one that is over fat. Resistance to more representative pricing stems from a preference among cattlemen for selling cattle live and from the difficulty of identifying, precisely, the quality and corresponding value of the live animals. Transaction costs are sometimes blamed, using the argument that it is too much trouble to price each level of quality separately. Packers too, when faced with coolers full of over fat carcasses for which they paid the equivalent of Choice

(Yield Grade 2 & 3) price on a live weight basis, are reluctant to encourage pricing that could result in losses.

The high profit point will occur where the price received (marginal revenue) is equal to the marginal cost, or cost of adding another pound. In Figure 2.3 this is represented by point B. Though the price per pound received beyond this point (at slightly heavier weights), is approximately constant, the cost of adding additional pounds exceeds the value of those pounds on the market. Often cattle feeders under estimate the cost of gain and keep the cattle too long resulting in over finishing.

The cattle referred to in table 2.5 were slaughtered before they reached the point where marginal and average costs intersected. Assuming that the price per pound of the finished animal was higher than the break even cost per pound then economically, this was an unwise decision since the cost of an additional pound of gain was still below the average cost. By adding pounds the break even or average cost per pound at slaughter could have been reduced.

The model contains at least a partial explanation as to why cattlemen continue to market cattle that are over fat. As shown, a large number of the cattle begin to grade Choice at or near the 1,000 lb. weight range. These cattle would also tend to fall into the Yield Grade 1 & 2 area of the scale. But, because the cattle feeder recognizes that he is not penalized

With a substantially lower price for adding additional pounds, and because his marginal cost is still below marginal revenue, he continues to feed the cattle. This condition may be compounded if consideration is given to the aspect of the lower marginal variable cost associated with a pound of gain, which may be the only cost the cattle feeder is concerned with in the short run. Consider also the willingness of the feeder to take the risk of holding his cattle for another week or two, hoping that market fluctuation will result in a better price. Whereas, if the marginal revenue for all the cattle (on average) may fall slightly, as they approach yield grade 4, a rise in the market of \$1/cwt., could more than compensate.

The primary reason that cost of gain is low on a high percentage grain diet is due to the low cost of corn and the adequately high conversion ratio of feed into live weight. Many other scenarios exist besides the representative example used here. For example, if the cost of gain exceeds the value of the finished beef, feeders react by discounting feeder cattle instead of paying a premium. In this case the incentive for the feeder to keep his cattle beyond the point where they will grade Choice is decreased.

The last time cattlemen were faced with this kind of price relationships was in 1974-75 when the prices were high, resulting in the cost of a pound of gain exceeding the market price of the finished beef. Current prospects for feedgrains indicated abundant supplies and low prices for the foreseeable

future. This is due in part to a global condition of surplus feed grains. Total grain output is increasing and barring major crop failures, the cost of feed grains should remain low (Insel, 1985).

## **2C.2 Determining Geographically Relative Prices**

Hasbargen (1967) determined that the prices for cattle in Michigan markets averaged \$.50 per cwt. more than markets in the Corn Belt or High Plains. Riley et al, (1984) on the other hand claimed that prices in the early 80s ranged from \$.50 to \$1.50 lower in Michigan than at Omaha. In Chapter V these differences are studied more closely.

Michigan prices are influenced by a variety of forces. The large cattle producing areas of the west tend to set the national price for fed beef and other regions often refer to local prices as they relate to Omaha. Occasional seasonal surpluses result in fed cattle from Michigan being shipped west to plants in Illinois and Wisconsin which, with closer proximity to the midwestern cornbelt supplies, provide a base price (less the cost of shipping). The eastern markets, such as Pennsylvania and New York, are generally higher than the Midwest and draw cattle from Michigan, Indiana, Ohio, and Illinois as well as a few from southern states. A third factor in the Michigan fed beef markets is the intermittent exports to Canada which are generally viewed as price supportive. (For a

more complete discussion see Chapter IV.)

### 2C.3 Cost of Production

Hasbargen (1967) concluded that feedlots in the Southwest and High Plains enjoyed relative cost of production advantage of \$1.50 per cwt. primarily due to climate and climate related conditions.

Trapp (1984) showed that the difference between costs of production for Corn Belt and Great Plains cattle feeders has been steadily decreasing. Using figures from USDA data from 1978 through 1983 he demonstrated that in 1978 the High Plains cattle feeders profits exceeded those of their counterparts in the Corn Belt by an average of \$13.29 per head. By 1983 the difference had shrunk to \$2.22 per head.<sup>1</sup> This was primarily due to changes in costs of feeder cattle and relatively better fed cattle prices in the Corn Belt. This improvement occurred despite greater advances in feed conversion and rate of gain in the High Plains.

### 2C.4 Cattle Numbers and the Cattle Cycle

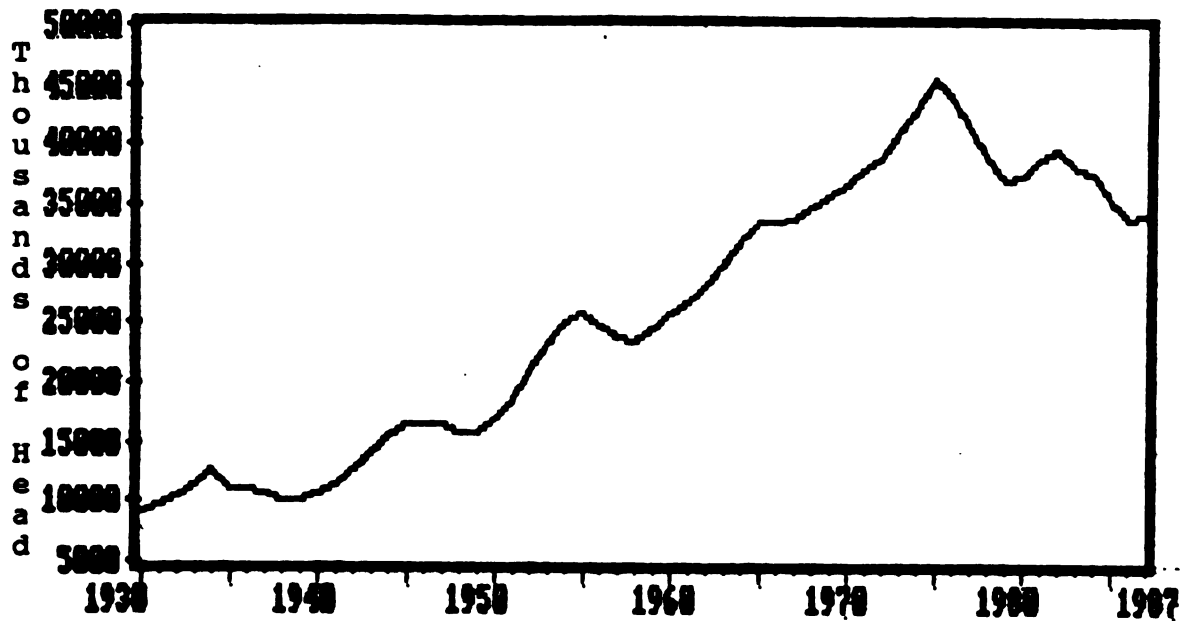
The term cattle cycle refers to a recurring rise and fall in relative cattle numbers as cattlemen invest and dis-invest in cattle and replacement stock. It may be described by

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1. In this year cattle feeders in both regions were suffering losses however the losses incurred in the Southwest were less than in the Midwest.



picking a starting point and following through the events of investment and disinvestment. For example, when supplies are low and prices are favorable, producers are inclined to increase output. However, the decision to expand output results in removing heifers from the slaughter market. This compounds the shortage of cattle being offered for sale, magnifying the rise in prices and further stimulating cattlemen to retain breeding stock. Slowly the breeding herds expand and eventually the supply of beef in the market place increases. Then, prices begin to fall as a result of larger supplies. Faced with prospects of unprofitable low returns cattlemen will cull heavily (remove less productive females and sell them), retain fewer heifers or even liquidate their breeding herds. This action increases the volume of cattle on the market and further depresses prices until the excess supply is depleted, prices begin to rise and the cycle starts again. As shown in Figure 2.3 there is a cyclical, or repeating pattern with cattle numbers reaching a high point and then falling again. Over the past several decades the overall trend has been steadily upward until the late 70s. The average cattle cycle is approximately 10 years.

**Figure 2.4 Cattle Cycle Shown by the Number of Beef Cows on Farms January 1, 1930 through 1987, U.S.**



Source: Data on file with Dr. J. Ferris Michigan State University Agricultural Economics Department.

The time lapse between investment in breeding stock to marketing of the finished product is at least 3-4 years.<sup>1</sup> Consequently, it appears that the decisions made today to increase or decrease production depend on the assumption that current trends and prices will continue. Historically the

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 1 If the aspect of retention of female stock with a predetermined pedigree is considered, the minimum time lapse may be as much as 5-6 years. For example, commercial breeders may use a specific breeding program using for their main cow herd, female stock resulting from a three-way cross. Such a breeding program would require long term planning.

cattle cycle has enjoyed an underlying upward trend. Each cycle traditionally has consisted of 4-7 years of herd building and rising prices followed by 2-3 years of liquidation and declining prices (see Figure 2.3). More recently with the shift to lower per capita consumption of beef and slowing of population growth, total demand for beef products has suffered. The two most recent cattle cycles have been characterized by sustained periods of liquidation and shorter duration of recovery (Ritchie and Hilker, 1985).

In the past the cow calf operators were able to withstand the periods of low returns because the number of expansion years per cycle were greater (USDA 3). Sustained periods of less than adequate returns to the calf producers may have a permanent effect on the industry in the decades to come.

## **2D FED BEEF MARKETING**

### **2D.1 Brief Overview of Fed Cattle Markets in the U.S.**

Meat packing in the U.S. has grown from small rural and urban shops to a multi-billion dollar industry over the past century. By the early to mid 1900's most large packing plants were multi-story multi species processing centers. These were located near the terminal markets and handled the bulk of the volume of fed cattle.

As cited earlier, in the 60's and 70's the location of major meat packing firms shifted from the Northeast to the

Midwest and Southwest. This was concurrent with the expansion of the cattle feeding business in these areas and the improvements in transportation, storage, and handling of fresh meat products.

## **2D.2 Concentration Among the Leading Cattle Slaughter Firms**

The pattern in the meat packing business has been inconsistent with that of other agricultural commodities. Instead of steadily increasing levels of concentration, the meat packing industry has undergone major changes that have seen the four firm concentration ratio fall from nearly 50 percent to less than 20 percent in 1975 and 76. Recently, however, the ratio has been increasing (table 2.6) which is causing some concern over monopsony power influence in cattle purchasing.

The four largest firms held a commanding 49 percent of the market in 1920. Accusations of collusive action on the part of the "Big Four" prompted an investigation by the Federal Trade Commission. The commission alleged that these major packing firms were engaged in anticompetitive practices such as livestock and meat pools where firms predetermine market shares to reduce competition. The result of this investigation was the famous Packer Consent Decree of 1920 in which the major packers achieved an out of court settlement by stating that they would: 1) divest themselves of public stockyards, stockyard railroads, market newspapers, and cold storage

facilities; 2) not engage in retailing of meat and other commodities; and 3) submit to perpetual jurisdiction of the U.S. District Court (Engelman, 1975).

**Table 2.6: Four Firm Concentration Ratios  
Selected Years 1908-1985**

<u>Year</u>	-----Percent-----	
	<u>All Cattle</u>	<u>Steer and Heifer</u>
1908	45	
1920	49	
1930	48.5	
1940	43.1	
1950	36.4	
1955	30.4	
1960	23.5	
1965	23.0	
1970	21.3	27.3
1975	22.2	28.0
1976	22.1	29.0
1977	21.9	28.8
1978	24.3	31.6
1979	29.3	36.5
1980	31.3	39.0
1981	34.2	42.7
1982	35.4	45.0
1983	39.4	50.6
1984	40.6	53.2
1985	41.3	52.3

Source: Hiemstra p. 47, Faminow p. 15, American Meat Institute. For years since 1977 the figures are for P&SA (Packers and Stockyards Association) reporting firms only.

Though the decree had an impact, resulting in decreasing concentration, many other forces played major roles in restructuring the industry. Farr claims that the Big Four used the supermarket chains as outlets for lower quality products during the war when meat prices were under regulation. After the war the imposed regulations were lifted and the chains were eager to give their business to new companies. Modernization

and implementation of modern technology proved to be much less expensive in the construction of new plants as compared to remodeling existing facilities. Relocation of the centers of cattle feeding and the reduction of supplies near the older plants contributed to higher costs of production. The older plants were also faced with expensive labor contracts and benefits packages. All of these factors and possibly others contributed to the start up of many new meatpacking firms and reduced concentration in the industry.

Prior to the introduction of grading standards, brand names played a major role in meat product marketing. Subsequent to federal adoption of grade standards and concurrent with the reorganization of the industry, the importance and success of marketing brand name products subsided. Beef products more closely matched the definition of a commodity where product description is sufficiently accurate and consistent that buyers may purchase without inspection and remain confident that the product quality will adequately match expectations.

Though the figures indicate that concentration began increasing rapidly since 1978, studies by Ward (1982) and Williamson (USDA 4, 1982) showed little or no evidence of monopsony behavior in the market place. However, more recently a study by Quail et. al. (1986) demonstrated that high levels of concentration in cattle buying have had an effect of depressing prices received by producers for fed cattle.

### 2D.3 Economies of Size

A major barrier to identification of benefits of economies of size as measured by volume of output in the cattle slaughtering industry has been the lack of data. Plant owners and managers are understandably very reluctant to release cost and volume data. Much of the work in this area relies heavily on the research by Cothorn et. al. 1976 which was based on data primarily from the 1960's and early 70's (Cothorn et al., 1978). Estimated costs for slaughtering and chilling were approximately \$24.91 per head for a plant of annual slaughter of just over 100,000 head and \$18.58 for a plant with annual volume of over 600,000 head.

A more recent study by Ward and Sersland (1986) evaluated slaughter and fabrication costs in midwestern slaughter plants. The study used an interesting technique to get around the problem of asking firms to reveal actual cost and volume data. The approach was to describe a variety of hypothetical plants and then asked upper-level management to estimate costs as closely as possible based on their knowledge and experience. This survey of plant managers discovered a division of opinion with respect to the minimum efficient size:

For slaughter-only plants, the estimated minimum competitive plant size in 1985 ranged from 100 to 5,000 cattle/day. Responses were bimodal, meaning they were grouped around the higher or lower end of the spectrum. Nine respondents said the minimum efficient plant in 1985 would slaughter less than or equal to 1,000 head/day. Five other respondents indicated minimum

slaughter was 2,000 head/day. There were no responses between 1,000 and 2,000 head/day.

However, the data in the report show that kill cost estimates for plants dressing 25 head per hour were nearly twice those of plants that had hourly volume of over 200 head (table 2.7)

**Table 2.7: Average Kill Cost Estimates for U.S. Beef Slaughter Plants**

Plant <sup>a</sup>	-----Hourly Volume-----					
	25	85	145	205	265	325
	(Kill cost in dollars per head)					
#1	37.71	29.14	25.17	26.39	24.78	22.72
#2	38.80	29.40	24.90	25.25	23.58	21.64
#3	37.60	28.08	24.80	23.97	22.53	20.78
#4	36.00	28.67	24.50	25.56	22.86	21.00
#5	33.00	25.57	22.67	22.50	20.94	19.57
#6	41.70	32.60	28.20	28.17	26.58	24.83
#7	43.80	35.20	30.80	29.47	27.94	26.39

<sup>a</sup>Plant Descriptions- plants were categorized by having:  
 #1 one, 8-hour shift, 5 days/week, at 100 percent capacity;  
 #2 one, 9-hour shift, 5 days/week, at 100 percent capacity;  
 #3 one, 10-hour shift, 5 days/week, at 100 percent capacity;  
 #4 one, 8-hour shift, 6 days/week, at 100 percent capacity;  
 #5 two, 8-hour shifts, 5 days/week, at 100 percent capacity;  
 #6 one, 8-hour shift, 5 days/week, at 90 percent capacity; and  
 #7 one, 8-hour shift, 5 days/week, at 80 percent capacity.

Source: Ward, Clement E. and Claudia J. Sersland research data.

Both studies, Cothorn, et al and Ward and Sersland, conclude that there appears to be even greater economies of scale in boxing of beef. Ward estimates that the plant size that best realizes scale economies in boxed beef production approaches annual processing of 500,000 (or more) carcasses.



#### **2D.4 The Impact of Labor**

Early prosperity in the packing industry engaged a large labor force. Union organization of the laborers expanded with encouragement from the War Labor Board, and was successful in securing "master agreements", or uniform labor contracts with the major packers. The agreements and settlements reached resulted in high wages and benefits which later proved to be a contributing factor to relocation and restructuring of the packing industry (Hiemstra, 1985).

The "new breed" packers that were responsible for the relocation of meat packing facilities by constructing efficient modern plants near the sources of large quantities of fed cattle in the 1970's managed to avoid the conventional "master agreements" and enjoyed much lower labor costs as well as lower per unit overhead costs (Hiemstra, 1985).

#### **2D.5 Demand and Supply**

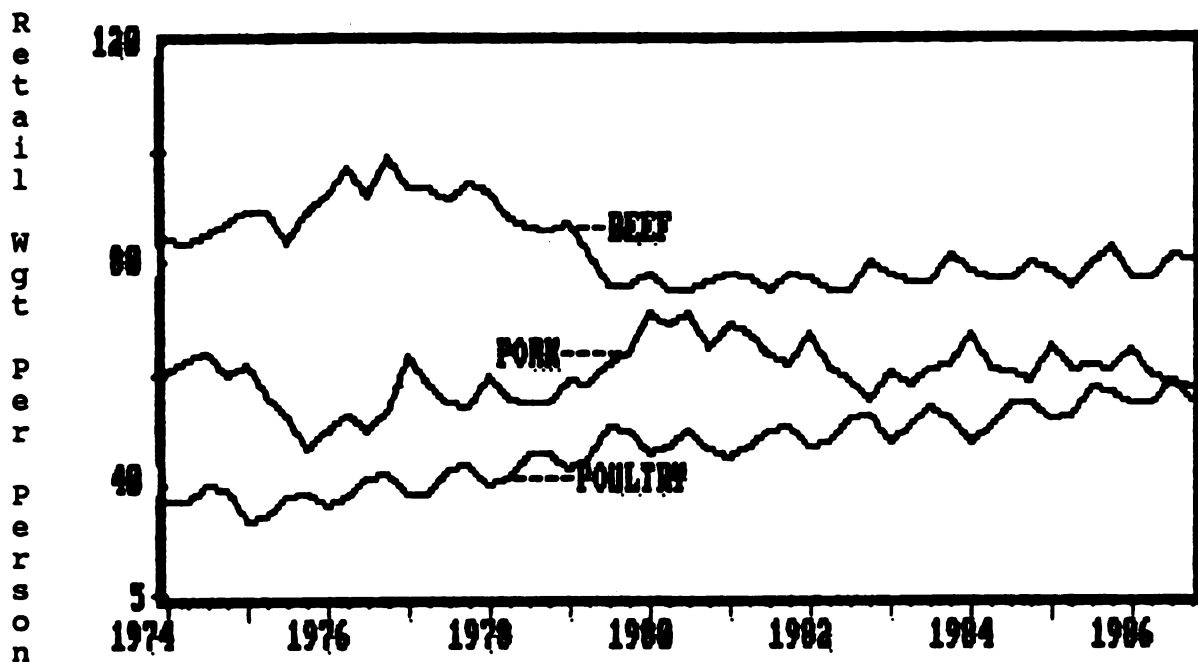
For years (1950-1976) the per capita consumption of beef trended upward. Beginning in 1976 the statistics show a downward shift in the trend and a leveling off since 1980. Consumers appear to have shifted preferences to poultry and fish with beef consequently losing market share in high protein food sources derived from animals products.

The recent proliferation of fast food restaurants has increased the quantity of manufacturing beef consumed. Also, the health concerns, changes in family size and the age

composition of the nation's population have contributed to the recent decline in fed beef consumption both in total pounds and as a percent of total meat consumption.

Tradition plays a major role in the cattle business as the biological process of producing beef is relatively long. Because of this, there is a partial disassociation between production and profit levels. Decisions to invest in cattle, land and equipment are often based on assumptions about the distant future and on personal preferences. Many feeders and stockmen are in the business because they like to feed cattle.

**Figure 2.5 Per Capita Consumption of Red Meats and Poultry, U.S. 1974-87**



Source: USDA Livestock and Poultry Situation and Outlook Reports.

Still, cattlemen tend to invest in breeding stock when the prices of fed beef and feeders are high and disinvest when prices are low. The result magnifies the price swings and enhances the tendency to observe the typical shortage and glut cycle discussed earlier.

## 2D.6 Industry Trends

Though this report deals primarily with factors that may influence the production and marketing of fed beef in Michigan, it is important to note that external forces may have a far greater influence on the future than the factors discussed here. For example, there is a trend in the industry toward a brand name approach rather than commodity marketing of beef. To consumers this means that packers are encouraging the association of quality with a brand name rather than a government grade or standard. To the extent that packers are able to do this successfully, the potential exists for changes in the consumer perception and preference for beef which may have either a positive or negative effect on total per capita consumption. If a change of this type would result in sustained growth in the industry over the next decade, it would have a far greater impact on the success of Michigan's cattle feeders than the small differences observed in cattle prices and costs of production.

Slaughter plants are investigating and researching

products that can be shipped to the supermarket "case ready", eliminating the need to process and package at the retail level. Changes in technology such as this will greatly affect methods and costs of preparation and packaging of beef cuts and reorganize labor needs of slaughterhouses and supermarkets. Pierson and Allen propose that case ready processing, fabrication and packaging at the slaughterhouse will mark the next major era in the industry (Pierson and Allen, 1984). The impact with respect to the cattle feeding business may be in the kind, size and quality of beef desired to provide oven ready or table ready products.

The important point here is to emphasize that although Michigan's competitive position in producing fed beef may be accurately evaluated in the following pages, the advantages and or disadvantages may be of little consequence in the wake of major movements. Having a slight edge in cost of production does not ensure profits in a declining industry. Conversely, lack of access to a market niche in which a packer or producer may receive a premium price for a specialized product does not necessarily spell failure in an industry experiencing a period of sustained growth.

## **2E SUMMARY**

The cattle feeding industry in the U.S. has seen a shift from numerous small farmer feeders scattered across the

Cornbelt to a concentration of large industrial cattle firms in the Southwest-High Plains region of the U.S. Although the number of feedlots finishing cattle has declined and the average output per feedlot has risen, the percent of cattle marketed by the leading firms is still not sufficient to cause concern about oligopolistic behavior. More recently, concentration has been increasing rapidly but is far from levels where a single cattle feeding company or small group of companies has sufficient market share to have influence on prices or quantity.

By contrast, in the cattle slaughtering industry, there has been a shift from high concentration to greater competition with the advent of the "new breed" packers. More recently, however, there has been a trend to rapidly increasing concentration of market share held by the leading four firms. Indications are that the beef packing industry will surpass previous levels of concentration.

Per capita consumption of beef rose rather steadily throughout the 1950s and 1960s peaked in 1977 and subsequently dropped sharply until 1980 when it leveled off at approximately 83 pounds per person. The proportion of fed beef (compared to all beef and beef products) consumed increased from less than 40 percent in 1961 to an average of around 70 percent in the 1980's, where it appears to have leveled off.

Cattle feeding has become a more specialized business with an increasing number of cattle being fed by large industrial

feedlots. The trend toward fewer farmer feeders will likely continue. The Southwest with its temperate climate, abundant supplies of feed grains and close proximity to sources of feeder cattle has proven to be the preferred location for the largest feedlots. The midwest is still characterized by many small farm feedlot operations but these have decreased in number. However, these small lots still account for a approximately 50 percent of the cattle sold in the Midwest.

## **CHAPTER III**

### **CATTLE FEEDING IN MICHIGAN**

#### **3A INTRODUCTION**

Farmers are currently experiencing plentiful supplies of feed grain, general farm product surpluses and low profitability. Relatively few alternatives exist for many farmers. Success lies in finding crops that will result in a reasonable return to their investment in time and capital. Cattle feeding found its beginnings as an alternate means of marketing surplus grain. It is still a logical option to be considered and for the same reason-- to transform crops into a marketable product.

Whether a potential cattle feeder is considering entering the business or established feeders are weighing the alternatives of expansion or reduction there is a constant need to reevaluate the short term conditions and long term trends to assist in decision making. Changing conditions require not only constant review of the situation but also demand that those making or maintaining an investment in a business such as cattle feeding, adapt and progress, innovate and adjust.

This chapter begins with a discussion recent trends in the cattle feeding industry in Michigan based upon secondary data. This is followed by a summary of information obtained from a survey of cattle feeders conducted in April of 1985. The basis

for the survey of Michigan cattle feeders and methods used in gathering the survey data are also explained.

### 3A.1 Recent Trends

Cattle feeding in Michigan grew during the 1960s and early 1970s from annual marketings of 200,000 head to a peak of 277,000 in 1977. The subsequent four-year decline in annual marketings appears to have bottomed out in 1982 at just over 170,000 head, then rebounded to 224,000 thousand head in 1984 and 1986 (Table 3.1).

**Table 3.1: Annual Marketings of Fed Beef in Michigan (1962-86)**

Year	Thousand Head	Year	Thousand Head
1962	208	1974	242
1963	214	1975	244
1964	208	1976	271
1965	219	1977	277
1966	230	1978	271
1967	240	1979	219
1968	243	1980	218
1969	244	1981	197
1970	254	1982*	173
1971	251	1983*	192
1972	251	1984*	224
1973	244	1985*	211
		1986*	224

Source: Michigan Livestock Statistics, 1962-81.

\*Figures for these years were estimated by multiplying the reported cattle on feed (Jan 1) quote by 1.28 (the average ratio of marketings to cattle on feed from 1977 to 1981). No official figures are available since the USDA cattle on feed and marketings reporting services were cut back in 1982.

Not only did fed cattle numbers decline in Michigan after 1977, but the Eastern Corn Belt's share of the national market



also diminished (Table 3.2). Concentration of cattle feeding shifted to the Western Cornbelt and Great Plains where the mild climate, lower feed costs, plentiful supplies of feeder cattle

**Table 3.2: Cattle-on-feed and Marketings: Eastern Cornbelt States and United States.**

State	Number of head in thousands				Percent change
	1971	1976	1981	1986	1971-86
<b>Michigan</b>					
On feed Jan 1	225	210	160	175*	-22
Marketings	251	271	197	225*	-10
<b>Ohio</b>					
On feed Jan 1	308	320	160	160*	-48
Marketings	431	387	235	205*	-52
<b>Indiana</b>					
On feed Jan 1	314	285	280	250*	-20
Marketings	476	365	348	320*	-33
<b>Illinois</b>					
On feed Jan 1	649	630	519	460	-30
Marketings	1049	935	925	815	-22
<b>Eastern Cornbelt</b>					
On feed Jan 1	1496	1445	1119	1054	-30
Marketings	2207	1958	1705	1565	-29
Percent of U S Total	8.7%	8.1%	7.4%	6.0%	
<b>United States</b>					
On feed Jan 1	12770	12941	11593	11497	-10
Marketings	25281	24170	22894	25957	+ 2.7

Source: USDA Statistical Reporting Service.

\* These figures are estimated, using reported Jan. 1, 1986, cattle-on-feed estimates and average turnover rates for the years 1977-81.

and concurrent relocation of slaughter capacity contributed to the development of massive feedlots. Growth and expansion led to the development of an infrastructure of industrial cattle

feeding in the Western plains, resulting in further cost reductions due to greater specialization and efficient use of resources.

The post 1977 decline prompted concern about the future of the industry in Michigan. Rising production costs and an apparent downward shift in national demand pointed to a need for reevaluation of traditional positions. Clearly the Western cornbelt had gained a strong advantage in production and processing costs and was using this advantage to capture an increasingly larger portion of the market.

In the midst of this competitive adjustment, Michigan and Eastern Cornbelt fed cattle marketings decreased in both total numbers and U.S. market share, falling from 9 percent of the U.S. total in 1971 to approximately 6 percent in 1986. It is evident from Table 3.2, however, that the extent of the decrease has not been as great in Michigan as in the Eastern Cornbelt as a whole. Consequently, Michigan's share of Eastern Cornbelt fed cattle marketings has increased from 11 percent in 1971 to 14 percent in 1986.

Michigan's fed beef production amounts to only 25 percent of the quantity consumed within the state (Allen, 1984). The population provides the potential demand for many more fed cattle than Michigan cattle feeders produce.

A further unique characteristic is that a significant number of cattle finished in Michigan are shipped out of the state for slaughter -in fact, Michigan is a net exporter of fed

cattle (see Table 3.10). These combined phenomena prompted industry and government officials to encourage research into the feasibility of additional slaughter plant capacity. It was felt that increased cattle slaughter capacity would enhance the prospects for cattle production and improve the competitive position of Eastern cornbelt producers (Allen, 1984). However, according to a study conducted in 1982 by the Michigan State University Agricultural Economics Department, supplies of fed beef in the Eastern cornbelt were deemed insufficient to support a new, cost-competitive plant that would process more than 200,000 head of cattle annually. The study recommended that the best alternative would be to modernize and expand existing facilities (Riley et al., 1984). Though major investment in larger sized slaughter plants did not seem to be feasible, keen interest remained with respect to the future of Michigan's fed cattle industry.

### **3B THE CATTLE FEEDING SURVEY**

#### **3B.1 Motivation and Purpose**

When the USDA cut back on the number of states included in the quarterly Cattle on Feed Report in 1982, Michigan was one of the states dropped from the regular service. Since then detailed, current information on the number of cattle on feed and future intentions of cattle feeders have been drastically reduced. In an effort to partially compensate for this lack of

information, the survey that is described in the following pages was conducted in April 1986.

The objectives of the 1986 survey were to identify and describe:

1. The structure of the Michigan cattle feeding industry including the various sizes and types of operations.
2. The current characteristics of the cattle feeders with respect to,
  - a) age
  - b) experience (both in farming and cattle feeding),
  - c) intentions (i.e. plans for the future), and
  - d) outlook.
3. The types and sources of cattle being fed.
4. The marketing practices currently in use.
5. Current feeding practices, feeds being used and
6. Management practices and facilities being employed, including cattle handling equipment, basic health maintenance procedures, and record keeping.

### 3B.2 Survey Procedure

The source of names and addresses of cattle feeders in the state of Michigan came from a list compiled in 1983 by Dr. John Waller, former a professor in the MSU Animal Science Department and Jim Robb formerly an Agricultural Economics graduate student at MSU. The first listing was compiled by simply recording names and addresses from the notes, files, and memory of university faculty and staff and industry personnel. This information was then sent to the various county agents with requests to update it from the county records. Some time was also spent in visiting farms and gleaning information about the names and addresses of others in the business.<sup>1</sup>

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<sup>1</sup> Procedure as it was explained by Jim Robb during a telephone conversation.

A survey was conducted by Jim Robb and a set of data was compiled. Unfortunately no summary of the results of the Robb survey is on file in either the MSU Agricultural Economics or Animal Science Departments, nor was the raw data available to this author. Consequently, trends, changes and comparisons with the previous work are limited to the information that was contained in the address list itself.

The Robb questionnaire was used as a guide in developing the set of questions contained in the 1986 questionnaire. Modification and changes were first made by the author and then copies of the revised questionnaire were circulated to selected Agricultural Economics, Animal Science, and industry personnel for comments and suggestions. Upon integrating these suggested changes into the questionnaire a final draft was tested by sending a copy to a local cattle feeder, asking him to fill it out and then visiting him the next day to go over the questions, his interpretation, and answers. After this exercise a few changes were made.<sup>1</sup> The questionnaire was then printed and prepared for mailing.<sup>2</sup>

The survey was directed to 39 Michigan counties which reported total marketings of approximately 2000 or more head of fed cattle according to the 1982 Census of Agriculture. These counties accounted for 91 percent of the total reported marketings in 1982. The intention was to survey all the known

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1 See Appendix II on survey procedure.

2 A copy is included in Appendix I.

cattle feeders in those counties. Nine hundred and twenty-eight copies of the questionnaire were mailed to the cattle feeders whose names appeared on the address list.

### **3B.3 The Address List**

Interpretation of the results of the survey depend heavily on the accuracy of the information gathered and the extent to which the information is representative of the population as a whole. The difficulties encountered in securing an accurate list of cattle feeders in the state left some question with respect to the achievement of this objective.

Where there exists a cattle feeder that markets a large number of cattle, the chances are that he is known and that his name and address was on the address list and he received a questionnaire. By contrast, a feeder that has marketed only a small number of cattle per year and has been in and out of the market (i.e. some years he may not feed any) is not as likely to have his name on the address list and may or may not have received a questionnaire. Following this logic the results of the survey may not be as representative of the smaller cattle feeders as it is of those who are more active in the business. Thus the relative importance of the smaller feeders may be greater than that indicated.

The small or intermittent feeders may also represent an important part of the marginal ability of the Michigan cattle feeding industry to respond to changes in the market. However,

it is necessary to note that those feeders that responded as marketing 100 head or less in 1985 accounted for only 5.3 percent of the total cattle sold by all feeders returning the questionnaire. Even if the number of small feeders responding were doubled the relative impact on the whole would still be small, provided the distribution was the same. There was no convenient way to estimate the existing capacity on farms where no cattle were being fed or where new facilities were under construction or consideration.

Updating of the original list was undertaken by repeating one step of the Robb approach- sending a copy of the Waller/Robb working list to appropriate county agents requesting that they review the list, and add or delete names accordingly. Most county agents responded but the corrections were few, and did not satisfy the author that the questionnaire would consistently reach a high percentage of cattle feeders in every county surveyed.

Table 3.4 displays a county by county breakdown of the cattle feeders surveyed and the corresponding responses. Included also is capacity and marketing information from Census data, the Robb/Waller address list, and the survey respondents. It is obvious that in some cases there is wide discrepancy between the sources. Appendix II addresses these concerns in further detail.

Table 3.3: Cattle Feeders Surveyed, Responded, and Currently Feeding; Showing Marketings and Capacity

COUNTY	CATTLE FEEDERS			MARKETINGS 1982 <sup>a</sup>	REPORTED MARKETINGS <sup>b</sup>	CAPACITY <sup>c</sup>	REPORTED CAPACITY <sup>d</sup>
	Surveyed	Responded	Now Feeding				
Allegan	39	14	8	9100	483	7592	748
Barry	7	5	4	2899	630	1150	965
Branch	11	5	2	10661	5000	4925	4350
Calhoun	6	2	2	7526	587	2950	620
Cass	16	4	4	3441	165	1767	110
Clinton	23	8	8	4840	1806	5175	2535
Eaton	50	13	9	3514	1726	3782	2070
Genesee	7	3	3	8404	3143	9400	5500
Gratiot	11	4	4	9513	4797	9050	3900
Hilledale	4	2	2	8029	1103	1100	900
Huron	98	33	27	41736	12091	33545	9550
Ingham	5	2	2	3053	155	565	200
Ionia	9	5	4	5247	485	1330	660
Isoco	13	5	5	0	4597	2500	3116
Isabella	11	2	2	8238	515	4300	650
Jackson	5	2	2	10859	8410	4400	5250
Kalamazoo	14	6	6	4873	2406	5150	2975
Kent	17	11	10	4916	1243	3111	2020
Lapeer	13	3	2	8969	1300	7935	1200
Leelanau	9	3	1	2449	40	2200	50
Lenawee	17	12	12	11438	4231	8565	4230
Livingston	5	3	2	6438	989	2800	1900
Macomb	2	2	2	3440	4110	2020	2230
Mason	7	2	2	2358	450	1170	400
Midland	99	11	2	6657	110	NONE	445
Monroe	12	8	8	6232	2876	3757	2915
Montcalm	1	1	1	1873	180	200	350
Muskegon	1	1	1	2917	1300	700	1200
Newaygo	2	1	0	2484	M	700	M
Oceana	14	6	5	2936	945	2450	1240
Ottawa	23	6	5	10861	3710	3500	2845
Saginaw	21	6	4	3327	388	2500	370
Sanilac	57	13	11	7449	3140	6805	3730
Shiawassee	115	23	10	3194	457	NONE	980
St Clair	4	1	3	6566	964	2750	7125
St Joseph	4	3	3	2963	1651	1330	1500
Tuscola	1	1	1	2989	10	1000	14
Van Buren	10	1	0	2326	M	2875	M
Washtenaw <sup>e</sup>	165	50	32	7407	2394	5409	3933
Unidentified		3	1		180		180
Totals	928	283	212	252122	78767	160458	82956

Source: 1986 survey list and data. U.S. Department of Commerce, Bureau of Census, Census of Agriculture, Michigan 1982.

a: From Census of Agriculture 1982. These marketing figures consistently exceed those quoted by Michigan Agricultural Statistics. There seems to be some difference in classification.

b: From the survey. Actual reported marketings.

c: From capacity figures in the Robb/Waller address list.

d: From the survey. Actual reported capacity.



It is the author's opinion that the number of cattle fed by dairy farmers is under represented. Michigan sustains a milking dairy herd of about 400,000 head of cows (Michigan Agricultural Statistics). A 75 percent annual calf crop would yield 150,000 bull calves. Even if 100,000 (estimated by Allen 1984) were slaughtered as veal- the remaining 50,000 would constitute 20-25 percent of the fed beef annually (assuming they all remained in the state). However, it is not certain that all of the bull calves end up in Michigan feedlots nor was the author able to determine how many Holstein feeders are shipped into the state. Nevertheless, respondents to the 1986 survey reported Holsteins accounting for only 13 percent of the annual kill. (See Table 3.9)

#### **3B.4 The Questionnaire**

A copy of the questionnaire is found in Appendix I. It is comprised of seven sections covering the subjects of feeder profile, feedlot characteristics, feeds and feeding, marketing, the purchase of feeder cattle, selected management issues, and the responding cattle feeders' comments about the future.

#### **3B.3 Accuracy of the Responses**

Even in formulating the questions there was a problem in terms and language as attempts were made to specify wording that would determine clearly just what practices were being followed. For example, in the section under feeds the

cattlemen were asked what terms best described the way in which the feed was presented to the cattle. One of the possible responses was listed as "a complete mixed ration." In a number of cases the cattle feeder chose both this and the response that he provided free choice roughage to the cattle. The phrase was intended to mean that the roughage was included in the mix. Evidently some cattlemen interpreted the phrase to mean that only the grain portion of the ration had been balanced. Further, the term concentrate in ration formulation refers to all feeds high in total digestible nutrients, but locally in some circles it is apparent that the term is used to refer to a blended protein supplement. Though every effort was made to clarify the questions in as simple and precise language as possible, judging by the responses, interpretation of some of the questions was inconsistent and consequently some of the resulting data was limited in its usefulness.

#### **3B.4 The Responses as a Basis for Analysis**

Though the preceding discussion raises some doubts about the reliability of the data, the author has attempted to present the facts as clearly, accurately, and completely as possible.

The major flaws reported here have to do with the representativeness of the survey results as they pertain to the individual counties. However, the sample size and the number of responses are sufficiently large as to be reasonably

representative of the characteristics of the cattle feeders of the state as a whole. Also, the major cattle feeding counties in Michigan do not have significant regional conditions with respect to climate or feedstuffs used so as to make the inaccuracies observed within any one county bias the data with respect to cattle feeders as a group within the state. The analysis did not involve comparisons between counties or groups of counties.

The focus will be to summarize the survey information from those feedlots in the industry reporting more than 100 head of cattle fed annually. Due to the nominal contribution of the smaller cattle feeders (see following section on industry structure) and the intention of this report to describe the characteristics of those cattle feeders who are feeding cattle as a business, the analysis was restricted to this group. Hence, throughout the text, reference to respondents identifies those feeders who reported marketing in excess of 100 head of finished cattle in 1985. Data relating to the feeders marketing fewer than 100 head annually will be included in selected tables and occasionally in the text for comparative purposes, but such cases will clearly specify that the information refers to all feeders.

### 3C RESULTS

#### 3C.1 Industry Structure

Forty-seven percent of the 283 responding cattle feeders, those who sold more than 100 head in 1985, accounted for 95 percent of all fed cattle sold. In contrast, 53 percent of the feeders (described as those who "marketed less than 100 head annually") account for only 5 percent of the cattle sold (Table 3.4).

**Table 3.4: Size Distribution of Cattle Feeders, 1985 Marketings**

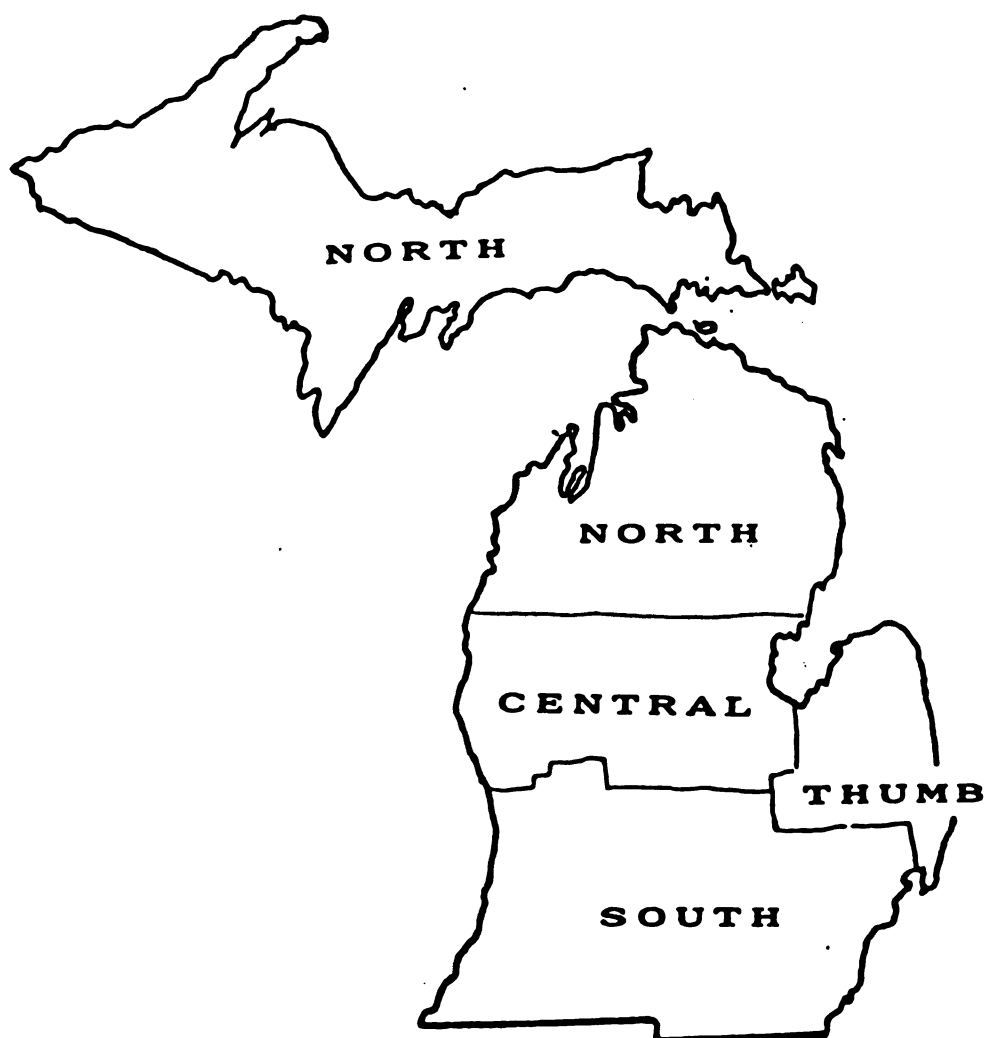
<u>Category by Number Sold</u>	<u>Percent of Cattle Feeders</u>	<u>Number of Cattle</u>	<u>Percent of Total Marketings</u>
0-50	37	1,440	1.8
51-100	16	2,751	3.5
101-400	29	14,017	17.0
401-1000	9	13,160	16.7
1001-and up	9	47,494	60.1

Source: 1986 Survey data.

The southern half of Michigan has traditionally served as the site for most of the state's feedlots (Figure 3.1). A shift in concentration has seen a modest decrease in the southeastern and southern counties and a significant increase in the east central "thumb" area of the state.

Feedlot capacity does not appear to be limiting production of fed beef within the state. Table 3.5 shows the reported capacity and relative use. Feedlots reported significant amount of unused capacity. For the most part, only the larger feeders fill their lots more than once a year, as indicated by the capacity used in excess of 100 percent.

**Figure 3.1: Marketing of Cattle Fed in Michigan**  
**Showing Data on Regional Changes.**



Region	Year			
	1969	1974	1978	1982
North	12063	10997	11800	9952
Central	43298	47713	47105	45779
Thumb	57156	66878	83995	80817
South	162386	133797	141309	133366
Totals	274903	254385	284209	269914

Source: Census of Agriculture, U.S. Department of Commerce,  
 part 22- Michigan, 1982, 1978, 1974.

**Table 3.5. Capacity and Feedlot Use Rates.**

Category by No. sold-1985	Capacity reported	Cattle sold-1985	Percent of capacity used in 1985
	--- (No. of head)---		
0-100*	16,231	4,194	26
101-400	19,120	14,019	73
401-1000	16,700	13,160	79
<u>1001-&amp; up</u>	<u>30,050</u>	<u>47,494</u>	<u>158</u>
Totals	82,191	78,867	(ave.) 96

Source: 1986 survey data.

\* Included here for comparison only.

As reported earlier, the average turnover rate for Michigan from 1977-81 was 1.28, which was similar to that for Indiana (1.3) and Ohio (1.28). These figures contrast with the rate reported by the 13 leading cattle feeding states in the United States, which was 2.2 (calculated from USDA 13-state cattle-on-feed reports, 1982-85). Possible reasons for the lower rate in Michigan include the seasonal nature of cattle feeding, the kind of cattle being fed, and the fact that cattle feeding in Michigan is usually combined with other major farm enterprises.

Most of the feedlot capacity fits the description "open lot with partial cover." Table 3.6 gives a breakdown of the lot types used and the estimated capacity attributed to each type of lot.

**Table 3.6. Reported Capacity by Lot Types.**

<u>Lot type</u>	<u>Percent of one time feedlot capacity</u>
Open lot	20.0
Open lot with partial cover	42.5
Covered lot w/out slotted floor	25.5
<u>Covered lot with slotted floor</u>	<u>12.0</u>
Total	100.0

Source: 1986 survey data.

More of the cattle marketed were fed under shelter and on slotted floors than the initial inspection would suggest, because the use rates were much higher in these lots. It is not uncommon for a feeder to start cattle in one lot and then move groups of them onto slotted floors for the last 60 days as they approach market weight.

Custom feeding is not a common practice in Michigan-- only 11 percent of the survey respondents were custom feeding at the time of the survey. Forty percent of those who were custom feeding used a feed-plus-yardage<sup>1</sup> method of levying charges, while others based their fees on cost of gain, flat yardage rates or a share of the gain. Comments from survey respondents indicated a recent growing interest in this practice. Custom feeding reduces demands on feedlot operators' short-term capital and helps transfer risk in a volatile market.

### 3C.2 Profile of the Cattle Feeders

The following characteristics of the individuals feeding cattle (and marketing more than 100 head in 1985) in Michigan serve to describe the population surveyed.

Survey respondents ranged in age from 22 to 77 (average age, 49), with the vast majority being between the ages of 36 and 65. Michigan cattle feeders average 28 years of farming and 23 years experience in feeding cattle. Ninety-one percent

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 1 The cattle owner in this case pays the actual feed costs plus a yardage charge to the feedlot owner. There may or may not be a markup on the feed. The risk associated with animal performance is borne by the owner of the cattle rather than the feedlot owner.

reported being full time farmers.

Perhaps because of the many stressful conditions confronting farmers in general and cattle feeders in particular, approximately 25 percent of all those surveyed (including those who marketed less than 100 head in 1985) responded that they were not feeding cattle at the time of the survey. However, none of those "currently feeding and who sold more than 100 head in 1985" indicated an intention to discontinue. Nine percent planned to expand, 7 percent to reduce, 16 percent were undecided and 67 percent planned to maintain their current level of production.

The above indicates that a turning point from the recent liquidation has been reached and, at least temporarily, the active cattle feeders are determined to hold on. Liquidation, however, is not always by choice. Though this data points to stabilization in the cattle feeding numbers, more than two thirds of the farmers questioned said that they were not optimistic about the future. It should also be noted that at the time of the survey (April, 1986), cattle prices were very depressed and the author believes that the mood of the industry was particularly negative.

More than 90 percent of the cattle feeders reported that in addition to cattle feeding, cash crops were a major farm enterprise. Other major farm enterprises included hogs, dairy and other livestock, reported by 18, 11 and 10 percent respectively. The fact that a large majority of Michigan's cattle feeders produce all or most of their own feed indicates



that Michigan cattle feeders use cattle feeding to market their corn or other grain and forage crops.

### 3C.3 Cattle Types and Sources

Nearly two thirds of the cattle fed in Michigan come from out of state sources. The beef type breeds have undergone such extensive cross breeding and change in frame type and muscling selection that it has become very difficult to distinguish individual breeds. Consequently, the industry has adopted the term "colored" cattle for those of beef type breed descent to distinguish them from dairy type cattle.

Table 3.7 shows the breakdown of the purchasing practices of the responding cattle feeders.

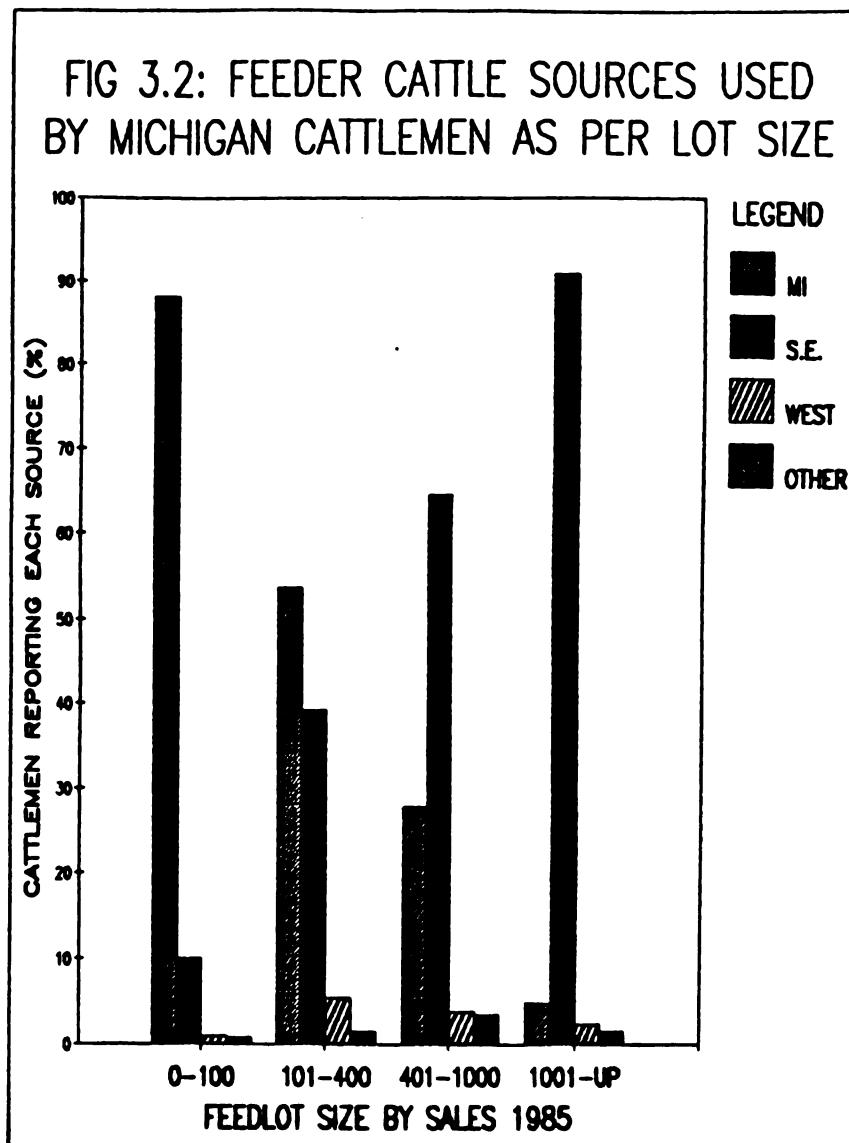
**Table 3.7: Use of Various Purchasing Services  
in Replacement Buying.**

Source	Feedlot size by marketings-1985		
	101-400	401-1000	1001 & up
	-----Percent-----		
Auction or personal arrangement	41.4	28.2	11.0
Commission buyer -MLSE	31.4	53.8	30.5
Orderbuyer -independent	20.1	18.0	58.0
Raised on farm	7.1	0.0	0.5

Source: 1986 survey data.

The smaller cattle feeders (those marketing less than 100 head annually are included for comparison) purchased their stock locally, while, those with larger lots purchased most of their cattle from the states south and east of Michigan and, to a lesser extent, from the West. (Figure 3.2)

Figure 3.2 shows that the geographical sources for feeder cattle used by owners of different sized feedlots were markedly different. In comparison, Table 3.8 shows the relative numbers of cattle that come from each region. A possible explanatory reason for the differences is that Southern and Western producers' ability to assemble large groups of cattle that appeal to the operators of the large lots.



Source: 1986 Survey Data.

**Table 3.8: Various Sources of Feeder Cattle**

<u>Source</u>	<u>Percent</u>	<u>Number</u>
Michigan	38	29,970
Southeastern states	55	43,377
Other states	7	5,521

Source: 1986 survey data.

Table 3.9 gives a general breakdown of the kind of cattle fed.

**Table 3.9: Types of Cattle Fed**

<u>Type of cattle</u>	<u>Number sold</u>	<u>Percent</u>
Beef steers	53,604	70
Beef heifers	13,760	17
Dairy steers	10,764	13
Total cattle fed by the survey respondents	78,867	100

Source: 1986 Survey data.

Entry weights of cattle varied from approximately 100 pound deacon calves to over 850 pound steers. The most popular placement weight was in the 450- to 650-pound range for both steers and heifers. Lightweight feeders were more common among the smaller producers. Larger feedlots specialize in finishing and therefore concentrate their efforts on heavier cattle that have been grown or backgrounded elsewhere, rather than placing young calves or light feeders.

### **3C.4 Marketing**

The topics discussed here deal with the data from the cattle feeder survey. For further details with respect to

markets for Michigan cattle see Chapter IV.

The larger feedlots tended to market cattle of lighter finished weight, which may indicate that they fed primarily beef type cattle which descended from British breeds rather than Holsteins or exotics. More than 70 percent of the fed steers were marketed between 1,050 and 1,250 pounds, whereas 77 percent of the heifers weighed between 950 and 1,150 pounds when marketed.

The Michigan cattle marketing structure is characterized by the large percentage of the sales volume handled by a livestock marketing cooperative identified as the Michigan Live Stock Exchange (MLSE). In this survey, the MLSE accounted for nearly 75 percent of all fed cattle sold.<sup>1</sup> Services were provided in the form of either auction yards or direct-to-packer sales on a commission basis.

Michigan fed cattle go to a variety of slaughter destinations (30 or more), both in and out of the state (Table 3.10). No one market consistently takes a majority of the cattle offered for sale. This presents a problem to feeders as they attempt to target their feeding program to match the demands of the market.

Table 3.10 shows a significant number of cattle going to Canadian markets. The Canadian purchasing pattern is characterized by wide variations in volume and, consequently,

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1 This figure corresponds with estimates by the Exchange obtained by personal communication with Eldon Roberts of MLSE.

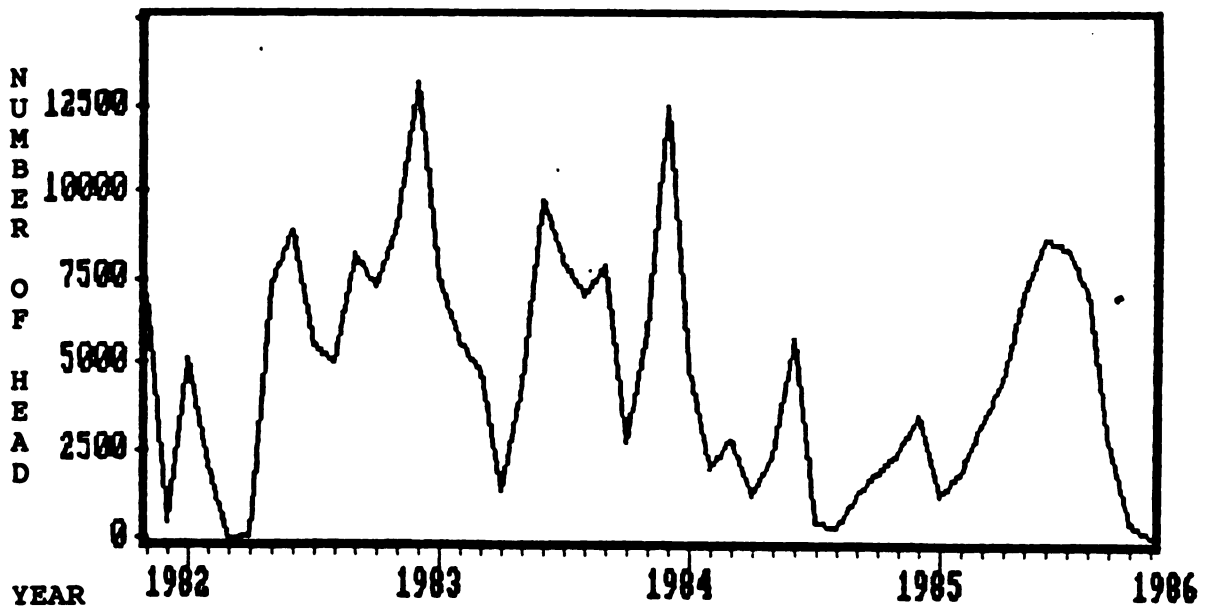
it is difficult to predict. Michigan cattle are imported only when the price differential is sufficient to compensate for the shipping costs and \$1 per hundredweight (cwt.) tariff. Several forces tend to influence this movement. In some cases, the Canadians import to fill gaps in their production. At other times, shifts in the exchange rates will make importation profitable for a short time until local prices adjust to the change (Figure 3.3). Although a significant number of Michigan fed cattle go to Canada, the sporadic purchasing pattern makes it difficult to anticipate when the Canadian buyers will be in the market. Nevertheless, when they are, Michigan producers realize about a \$1 to \$2 advantage per cwt., which can represent a substantial profit margin for cattle feeders. For more on the Canadian market see Chapter IV section 4A.7.

**Table 3.10. Slaughter Destinations of Michigan Fed Cattle, 1985**

<u>Packer location</u>	<u>Percent of cattle</u>	<u>No. of slaughter plants</u>
Michigan	32.5	16
Out-of-state (U.S.)	45.0	9
Canada	22.4	5
Totals	100.0	30

Source: Opportunities to Custom Feed Cattle in Michigan. S. Rust et al., MSU Animal Science Mimeo 105, October 1986. Data supplied by Michigan Live Stock Exchange.

**Figure 3.3: Canadian Monthly Imports of Fed Beef  
From the U.S. 1982-86**



\* Michigan supplies 95 to 98 percent of the fed beef imported into Canada from the U.S.  
Source: Agriculture Canada, Agricultural Statistics, solicited data.

### **3C.5 Management**

Good management is crucial to the success of farming and business endeavors but is very difficult to measure. A number of managerial techniques used by the responding cattle feeders to transfer risk and to improve performance were probed by the survey and are reported here.

Just over 20 percent of the responding cattle feeders reported making use of the futures and/or options markets as a tool to manage risk exposure by forward pricing cattle or feed. Those making use of this management tool were primarily the larger (more than 1000 head annual marketings) feeders.

Sixty-eight percent of the respondents indicated that they

fed their cattle "to appetite" (ad libitum) or "all the feed they would eat". The remaining 32 percent use a variety of methods, ranging from requiring that the cattle "clean up" the ration offered within a predetermined length of time, to combinations of self feeding part of the ration and measuring the balance. Twenty-six percent of the responding cattle feeders routinely weighed the amount of feed delivered to the bunk daily. Of the approximately 59 percent of the respondents who utilize feed mixer wagons, about 64 percent had working scales.

Table 3.11 summarizes the various common feedstuffs used in Michigan and the percentage of cattle feeders reporting use

**Table 3.11: Feedstuffs and Reported Use by Michigan Cattle Feeders and the Percent of Feeders Using the Indicated Feed.**

Primary feeds		Byproduct feeds	
Corn silage	70.7	Brewers grains	11.1
Haylage	36.4	Corn gluten feed	13.1
Alfalfa hay	56.6	Distillers grains	4.0
Mixed and/or grass hay	9.1	Other grain byproducts	7.1
Dry shelled corn	34.3	Potato byproducts	7.1
High moisture corn	54.5	Apple byproducts	4.0
Ground ear corn	22.2	Beet pulp	9.1
Other grains	7.1		
Protein Supplements			
Soybean meal		33.3	
Ammoniated corn silage		26.3	
Liquid supplement		6.1	
Protein blocks		5.1	
Other protein sources		21.2	

Source: 1986 survey data.

of each type. A majority of Michigan cattle feeders rely on corn silage as the main source of roughage. Corn fed as grain

appears in three standard forms- dry shelled, ground ear and high moisture. The most popular form used was high-moisture corn, which was fed by as many feeders as the other two forms combined. Brewers', distillers' and other byproduct grains were fed by 10 percent of the responding cattle feeders. Those reporting the use of these feeds represent some of the largest feedlots.

Other byproduct feeds, such as potatoes or apple pulp, were also used primarily by the larger producers. This can probably be attributed to economies of scale in handling and efficient use of perishable products. Use of these products is also limited to product availability and proximity to processing plants.

Soybean meal appeared to be the most popular protein supplement, followed by anhydrous ammonia treatment of silage. A few of the smaller and medium-size lots relied on blocks and liquid supplement as supplemental protein sources.

Sixty percent of the cattle feeders added salt, minerals and vitamins directly to the ration, while 18 percent provided these nutrients free choice. The remaining 22 percent supplied them free choice in addition to adding them to the ration.

Nearly 80 percent of the cattle feeders said they had their feed analyzed at least annually. Twenty-five percent reported that the analysis is done at least quarterly.

Rumensin was reported as being fed by 83 percent of feeders while some used Bovatec (24 percent) and MGA (9 percent).



Compudose and Ralgro appeared to be the most popular implants. They were reportedly used by 63 percent and 56 percent of the feeders, respectively. Synovex-S & Sinovex-H were used by 21.5 percent of the feeders, and Steeroid and Heiferoid by 6.3 and 1.3 percent respectively.

Headgates were reported by 77 percent of the feeders as part of their livestock handling equipment. Livestock scales were conspicuously absent, with only 19 percent reporting them as part of their equipment.

Concern for disease control was evident. Approximately 70 percent reported having either a separate hospital area or a chronic (sick) pen; 33 percent had both.

Approximately 20 percent of purchased feeder cattle arrived preconditioned or vaccinated prior to shipping. Another two-thirds were vaccinated upon arrival, so a large majority of the cattle received preventive treatment for disease.

About 63 percent of the cattle feeders said they kept some kind of performance records on their cattle. In most cases, this amounted to rough estimates of total gain and days on feed for entire pens of cattle. In some cases average weights of cattle placed on feed, market weights, and total feed consumed would provide approximate performance information. Records on the performance of individual animals were rare. This observation is consistent with the relative absence of feed and livestock scales.

### 3D SUMMARY

The recent stability, as evidenced by increased placement of cattle on feed in Michigan, suggests that cattle feeding is a viable alternative for Michigan farmers. This is substantiated by the fact that fed cattle marketings in Michigan have declined at a slower pace than reported for the Northeastern Cornbelt as a whole over the past two and a half decades.

A desire to investigate the reasons for the resistance to decline and a quest for understanding as to how these and other factors might indicate future trends in cattle feeding in Michigan motivated the survey of Michigan's cattle feeders conducted in April of 1986. The nearly three hundred responses received from Michigan cattle feeders supplied a substantial base from which to evaluate the characteristics of the industry. The data was analysed focusing on the aspects of those respondents who reported marketing in excess of 100 head of finished cattle in 1985.

The vast majority of the feedlots are located in the Southern, central and "thumb" areas of the state. Most of the lots are small- only nine percent reported marketing in excess of 1000 head in 1985. Feeding tends to be intermittent or seasonal which is explained by the low turnover rates reported. Michigan's cattle feeders are typically "farmer feeders", growing and harvesting all or part of the feed used on land owned and or operated by the cattle feeder over 90 percent of

whom are full time farmers.

Some of the cattle fed are raised in Michigan, constituting the major source of cattle for the smaller feedlots. The larger lots however obtain the majority of their cattle from the states to the south and east of Michigan.

Though few of the responding cattle feeders reported making use of the futures or options markets as a tool to transfer risk, modern practices were evident in the feeding techniques, facilities and equipment, and health care exhibited. A number of comparisons and further analysis is made in Chapter V.

## **CHAPTER IV**

### **MARKETS FOR MICHIGAN CATTLE**

#### **4A INTRODUCTION**

An integral part of the fed cattle industry is the availability of markets for the finished cattle. The structure, conduct and performance of the institutions comprising these markets impact on the efficiency and quality of service provided. This chapter will focus on the markets serving Michigan feedlot operators. Included are brief historical setting, some comments comparing markets in Michigan to other parts of the U.S., and the results of a survey of slaughterers of Michigan cattle conducted in the summer of 1987.

#### **4A.2 Trends in Cattle Slaughtering in Michigan**

Total Michigan cattle slaughter (excluding veal) peaked in 1976 at 827 million pounds per year and subsequently dropped to a low of 545.4 million pounds in 1980. Output then returned to a higher level, fluctuating between 600 and 700 million pounds per year until 1985 when another sharp drop occurred, down to 519.7 million pounds (Michigan Agricultural Statistics, selected issues).

As the volume of slaughter declined, the type of cattle

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being slaughtered also changed. Steer and heifer slaughter accounted for 81.5 percent of the total kill by weight in 1962, falling to a low of 59 percent in 1982 and rebounding slightly to 64 percent in 1985 (Michigan Agricultural Statistics, selected issues). The shift to a higher percent of cows (relative to steers and heifers) slaughtered in the state reflects the decline of the fed cattle industry in the state concurrent with the expansion of cow slaughter. An example of this change is the large cow slaughtering plant at Plainwell which draws a large number of cows from out-of-state and Canadian sources.

The number of federally inspected plants slaughtering cattle in Michigan has also been declining, particularly recently. For example, in 1981 the USDA reported 121 federally inspected plants slaughtering cattle in Michigan but by January 1, 1987, the number had fallen to 80.

Most of the packing plants that served the Detroit area in the 1950's and 60's closed as they reached the point of obsolescence where the cost of renovations to upgrade and modernize made such efforts no longer economically feasible. Market prospects and a general decline in the supply of fed cattle in the region have had a negative influence on the prospects for investment in a large modern facility. A recent study found that existing supplies were insufficient to support the volume necessary to realize the economies of scale required

to make such a plant viable. The study recommended that existing facilities be encouraged to investigate the opportunities for expansion.

Michigan's remaining plants tend to seek out and orient themselves to serving specialized markets or niches. Specialization has followed the lines of product differentiation and added service in order to establish local clientele loyalty. The emphasis of product differentiation is away from the main-line-Choice-boxed-beef that competes as a commodity with product from major Midwest packers.

The decline in local slaughter volume has caused wholesalers and retail chains to turn to purchasing beef from large Midwest packers.

#### **4A.1 Michigan Markets**

Cattle marketing in Michigan is unique in several ways. For one, the Michigan Live Stock Exchange, one of the largest live stock cooperatives in the United States, plays a dominant role in livestock marketing in the state, handling an estimated 70 percent of all of Michigan's cattle sales.

Michigan is strategically located close to the markets associated with the large population centers of the Eastern United States. These provide both a large market volume and broad diversity in products demanded, by a variety of ethnic sectors.

Moreover, Michigan's borders Ontario Canada where several of the larger Canadian slaughter plants are located. It has been estimated that more than 95 percent of the fed cattle imported into Canada from the U.S. come from Michigan feedlots. Though the amounts vary substantially from year to year, as much as one third of Michigan's fed cattle are sold live into Canada. Also, Michigan based packers export fresh and processed meat products to major Canadian population centers along the Great Lakes.

#### **4A.5 Eastern Packers**

The diversity of the eastern market allows for a number of niches that are served with specialized products. Ethnic populations, the largest of which is the Jewish sector which requires "Kosher" slaughtering, make opportunities for specific services and products. Institutional needs also vary and the size and stratification of the population provide demand for specialized products in sufficient quantities to sustain production. An example is the elite restaurant trade. Packers in the New York area report a significant demand for Prime and Choice Yield Grade 4 cattle.

#### **4A.6 Western Packers**

The beef packing industry to the west of Michigan moves closer to the heart of the nation's cattle feeding and



slaughtering regions where the focus has been on volume and producing beef as an undifferentiated commodity. Because of this, western markets have become established in a price setting role (i.e. Omaha). For cattle feeders in Michigan, plants to the west serve somewhat as the buyer of last resort. However, this outlet provides an important base price and a market for surplus volume.

There are a number of packers on the western shores of Lake Michigan that cater to markets similar to those serviced by the Michigan packers. One such area of specialization is in the slaughtering and processing of Holstein steers. Consequently there has been growing interest in, and demand for, well fed Holstein steers. Due to the volume of dairy cattle in Michigan, one packer in Wisconsin, Packerland, has begun to actively solicit ties with feedlots in Michigan that will custom, or contract feed cattle of this type.

#### **4A.7 The Canadian Market**

Because of its impact on Michigan in particular, and the lack of familiarity of many readers with differences in specification of Canadian markets, a more thorough discussion will follow.

Total movement of cattle and calves between Canada and the United States has seen substantial growth in net imports by the U.S. from Canada over the past decade. Canada moved from a net

importer of cattle from the U.S. in 1974 to a net exporter of \$275 million (Canadian Funds, approximately equal to \$200 million U.S.) in 1985 (Pugh, 1987). During this time period, total trade volume in cattle between the two countries increased.

Restrictions on movement of slaughter cattle between the two countries is minimal. Health regulations do not pose a significant barrier on cattle destined for slaughter, so the only other major cost is freight. A token tariff of \$1 per hundred weight is levied by both governments against slaughter steers and heifers entering each respective country.

Since Canada produces only about 10 percent as much beef as the United States the U.S. market consequently fills a price setting role, setting both a floor and a ceiling to the Canadian prices after adjusting for freight, the exchange rates and tariff. If beef is in short supply in Canada and the price begins to rise, movement of cattle into the country will begin as soon as the price difference is sufficient to offset freight, tariff, and transaction costs. Similarly, an abundance of cattle in Canada will depress prices until movement of cattle into the U.S. reduces excess supplies sufficiently to curtail further price reductions.

Nearly all of the exports from the U.S. into Canada are composed of fed beef moving into the Southern Ontario region from Michigan. The content of the U.S. cattle imports from

Canada leans heavily to cows and bulls. More recently there has been an increasing amount of fed cattle imported from Western Canada into the state of Washington (Statistics Canada, 1986). Over the past several decades the U.S. has consistently been a net importer of cattle from Canada. This condition constitutes a strong disincentive for Canadian producers to pursue the imposition of more border restrictions for importation of fed cattle.

A prime reason for the increase of movement of fed beef into the Western United States results from the change in Canadian policy regarding the Crow's Nest Pass freight rates that were in effect since the late 1800's. Years ago rates were frozen as part of an agreement between the government and the railway in which the government provided funding for the construction of a link through the Crow's Nest Pass in exchange for freight rate agreements.

One of the agreements fixed the rate for transporting grain from Canada's prairie provinces, Alberta, Saskatchewan, and Manitoba, by rail to ports for export (Tychniewicz, 1984). Recent Canadian policy has increased the transportation rates charged to farmers for grain shipment to Canada's ports to reflect current cost structures. This adjustment made the feeding of livestock more attractive in the areas of grain production in Western Canada (Kirk, 1983). The end result is fewer feeder cattle are moving from the west into Ontario

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feedlots. More western farmers and feedlot operators are using their own feed grains to feed and finish cattle in the West. The effect has been to decrease the supply of feeder cattle to Ontario and other parts of Eastern Canada. This condition enhances the prospects for exportation of Michigan fed beef into Ontario, Canada.

The Canadian beef cow herd reached a twenty year low in January 1 inventories in 1985 (Statistics Canada, 1986). Though rebuilding has commenced, as it also has in the U.S., the volume of feeder cattle available to feedlots in Ontario is expected to be limited for several years. The Canadian importation restrictions on feeder cattle have been relaxed slightly so Michigan cattle feeders could expect greater competition for the purchase of local feeder cattle, calves and yearlings, in Michigan and other northeastern states.

Where conditions of trade between countries are concerned, it is always important to entertain the possibility of political action that may result in tariffs, quotas, closure of borders, or agreements that interfere with the movement of commodities between countries. In this case, given that the volume of cattle moving into the U.S. from Canada far exceeds reciprocal movement, it is unlikely that any action will be taken by the Canadians to limit imports. A "Section 332" investigation into the U.S. imports by the United States International Trade Commission found no grounds upon which to

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issue a ruling of unfair competition from Canadian sources (U.S.I.T.C. 1984). Consequently, there is no reason to expect trade limiting action from the United States.

This observation is strengthened by an agreement reached in the fall of 1987 between the U.S. and Canada calling for elimination of restrictions and tariffs. Cattlemen and industry personnel should keep advised, however, of any changes in cattle movement that could result in new positions developing that could cause changes in political attitudes.

#### **4B THE SURVEY OF SLAUGHTERERS OF MICHIGAN CATTLE**

##### **4B.1 Purpose**

Because of the diversity of the markets serving as final destination for Michigan fed cattle and the key role markets play in the industry, this study was undertaken to identify and describe plants engaged in purchasing and slaughtering of Michigan fed cattle. In particular, it was felt that an analysis of the markets for Michigan cattle would provide valuable information to cattle feeders on the short- and long-run prospects for the cattle feeding industry in the state.

A survey conducted in the summer of 1987 served to provide useful data. Objectives of the survey were to identify and describe:

1. Basic characteristics of the plants including, age, capacity, and species of livestock being slaughtered;
2. Methods of procurement and sources of cattle;
3. Type of cattle in demand and the degree of preference for Michigan cattle;
4. Marketing methods;
5. Competitiveness of packers using Michigan cattle;
6. Labor costs in slaughtering plants;
7. Attitudes of the packers with respect to outlook for the future.

#### **4B.2 Target Population**

The address list was compiled using a USDA listing of Michigan inspected plants and comparing names and addresses solicited from industry and university sources. Out of state and Canadian packers were identified with the assistance of the Michigan Livestock Exchange. The intent was to survey all slaughterers of Michigan fed cattle with annual fed beef slaughter in excess of 1,000 head. The author felt that a minimum annual volume of 1,000 head of fed beef was necessary for a plant to be considered as having any significant contribution to the industry and to warrant participation in the survey.

Relative to the survey of Michigan cattle feeders, fewer problems were encountered in preparing the questionnaire and address list for the survey of slaughterers of Michigan Cattle. Identification of the slaughtering facilities was easier due to the small number.



#### 4B.3 The Questionnaire

The questionnaire was prepared by the author in consultation with Dr. Steve Rust of the MSU Animal Science Department. Following an initial review in which the objectives of the survey were listed to identify the main points to be covered, first draft was written and circulated amongst several professors for comment and correction. The resulting comments were integrated into the questionnaire. After the first draft, it was determined that important questions would be compared to those in a questionnaire prepared by Mark Jackson and Dr. Harold Riley for a survey that was conducted in 1983. Where possible the questions were modified in order to facilitate comparison of the results.

The second draft was then submitted to Dr. Price of the MSU Meats Laboratory. Several questions were clarified and some reorganization of the order of the questions resulted. This third draft was then tested by delivering a copy to Tom Fulton, the MSU Meats Laboratory manager, verbally familiarizing him with the approach and intent of the survey, and requesting him to review the questionnaire. An appointment was then set for a telephone interview a few days later simulating the survey procedure. This test proved very useful as it revealed minor areas where further rewording of questions would improve the speed of the interview and facilitate the recording of the responses. Several questions were

subsequently revised and clarified to improve the flow of the interview. Final testing and critique of content came from an appointment with Dr. Al Booren, also of the MSU Meats Laboratory, resulting in the rephrasing or deletion of several questions. A copy of the questionnaire is found in Appendix III.

#### **4B.4 Procedure**

An initial phone call was made to each plant to identify a contact person, verify the address information, and determine the best time to call to fill out the questionnaire over the phone. Following this initial phone call a questionnaire was sent by mail to each contact person in advance of the telephone survey in order to allow the contact person to familiarize himself with the information that was being requested.

Of the 34 firms that received initial contact, six were dismissed as having insufficient volume of fed beef slaughter to include in the study. Only one of the firms contacted by phone expressed a reluctance to participate in the survey. This firm did respond, whereas several others did not (see table 4.1).

#### **4B.5 Data Collection**

The telephone interviews met with varying degrees of success. Some of the contact persons were ready at the

appointed time; others were not. Some had carefully researched their answers; others merely estimated their responses in an impromptu fashion. An advantage, however, of the telephone interview was that in the case of misinterpretation of a question, clarification could be made immediately. Also, it was helpful to be able to monitor unexpected responses and avoid accidental omission of questions. Some respondents chose not to respond to selected questions citing company policy or unavailability of information as reasons for declining. The firms seemed to be the most sensitive to questions dealing directly with their costs.

Every effort was made to assure the firms that individual responses would be entirely confidential. Unfortunately, however, eight of the firms refused to respond. One plant in particular had recently been involved in a study that was done out of the University of Wisconsin (Quail et al., 1986). The published findings were unfavorable to the firm's image in the industry leaving the management displeased with the outcome of their cooperation. One other firm claimed that the information would be sent by mail and though contact has been made in the form of reminders the information has not arrived. Also, one firm closed between the time of initial contact and the proposed telephone interview.

After completing the interviews with those firms that agreed to participate, each of the firms that had declined to

participate were contacted again with a final request to respond to selected questions. This effort was entirely unsuccessful.

Of the 29 firms surveyed, nineteen responded. One of these had insufficient volume of fed cattle to be included in the analysis. The distribution is shown in table 4.1.

**Table 4.1: The Response Distribution of the Cattle Slaughtering Firms Surveyed**

<u>Location</u>	<u>Surveyed</u>	<u>Responded</u>	<u>Included in the Analysis</u>
Michigan	11	11 <sup>a</sup>	10
Canada	5	3 <sup>b</sup>	3
Other U.S. States	13	6	6
Total	29	20 <sup>a</sup>	19

Source: 1987 survey data.

<sup>a</sup> One plant not included in the analysis due to insufficient volume of fed cattle slaughtered.

<sup>b</sup> One plant closed between the time of initial contact and the telephone interview.

All eleven of the Michigan firms surveyed, participated. Of the five Canadian firms contacted, three responded, one closed and one refused. Non-response was a problem with the larger out-of-state packers with only six of the 13 surveyed responding.

#### 4C SURVEY RESULTS

Analysis was carried out based on the responses as received. Unfortunately, non-participation in the survey by several of the large out-of-state plants in the U.S. restricted the interpretation of the resulting data. The data collection was done with the intent of supplying industry, extension, and research personnel with information relative to cattle markets available to Michigan producers. Consequently, the analysis and results focus on the aspects of the surveyed slaughter plants from this viewpoint.

Annual slaughter levels varied among the responding firms from approximately 1,000 to over 200,000 head. Due to the large differences in volume, many of the figures reported have been weighted by the volume estimates of the responding firms in order to reflect the reported data in terms of relative cattle volume. For example, if a small plant reports an annual volume of 1000 head of fed cattle and markets 80 percent through its own retail outlet, in determining the percentage of all fed cattle marketed through plant owned retail outlets, this plant's volume must be weighted by the percent indicated in order to determine the contribution to the overall slaughter volume.

#### **4C.1 Characteristics and Operation of the Plants**

Over 70 percent of the plants surveyed were originally constructed before 1960. However, the same percent had undergone major renovations within the last 10 years. All but one of the plants had maintained or increased capacity since 1960. In the single case where capacity was reduced, management had reduced the labor force because of reduced sales.

Only four of the responding plants indicated having changed management, either through ownership or personnel changes, within the last ten years. Many of the plants have been owned and managed by the same family for two and sometime three generations.

The respondents reported a total annual capacity of over 3.5 million head (for all cattle). This figure exceeded the 1986 slaughter volume reported for the state by 1.5 million which amounted to unused capacity of nearly 43 percent (Michigan Agricultural Statistics).

All but one of the plants had increased capacity within the last ten years. And, despite this evidence of excess slaughter capacity, nearly 40 percent of the plants reported plans to expand their facilities within the next three years. Expansion plans were most common among the newer plants.

A key item in analysis of market performance is the estimation of the volume of production. From the reported

volume and estimates of categories such as the percent of cows slaughtered or average number of workers, it is possible to calculate aggregate totals and percentages for the firms surveyed. In recognition of the sensitivity that firms may have in responding to direct questions regarding volume, and in order to maintain some consistency with a previous survey, the question simply asked the respondent to estimate the plant output in an eight hour shift and to indicate the average number of shifts per week.

It seems that by using this method, the packing firms responding to the survey over estimated the volume of Michigan fed cattle processed in 1986. If volume is calculated by multiplying the estimated shift output<sup>1</sup> by the number of shifts per week and then by 52 weeks in a year the eighteen responding plants reported handling a volume of 210,000 fed beef in 1986. Total Michigan fed beef marketings in 1986 were estimated at 224,000 head.

It is the author's opinion that the packers were overly optimistic in reporting these figures since this would leave a remaining volume of only 14,000 for the nonresponding plants. For the purposes of this study however, these estimates are assumed sufficiently close to actual volume to be used in the

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1 This figure is derived by multiplying the total volume estimate by the percent of fed colored steers, colored heifers, and Holstein steers, respectively, then summing these to arrive at a fed cattle volume and dividing by the total volume to get a fed cattle percent.

analysis, particularly in estimating relative percentages of subgroups such as in calculating the proportion of the fed cattle slaughtered originating from Michigan feedlots.

Cooler space and kill floor capacity were cited as primary physical factors limiting production. However, in response to this question on production limitations, a large number of respondents claimed product markets and availability of cattle as the most limiting factors in their production volume.

Only one of responding slaughter plants reported processing a small number of hogs and sheep (on a custom basis) in addition to cattle.

One third of the respondents routinely electrically stimulate the carcasses prior to rigor formation to enhance muscle relaxation and improve tenderness. Only one plant was currently doing a small amount of hot processing. Several of the contacts responded by asking how the hot processing procedure works and what the advantages are. None of the remaining plants said they were considering integrating hot processing into their operation.

Most of the plants reported using on-the-rail systems for skinning and eviscerating. However, six or one third, of the slaughter facilities were still using cradles or beds for skinning the cattle. These plants accounted for only three percent of the total volume of fed cattle processed by the responding packers.



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Four of the responding packers performed some Kosher slaughtering. (No reports were received of other types of ethnic slaughter such as Muslim.) Several packers commented that the higher prices received for Kosher slaughtered cattle were barely sufficient to compensate for the added time and effort involved.

#### 4C.2 Cattle Types

Table 4.2 shows the distribution or mix of cattle killed by the responding packers, with comparative estimates to 3 years ago. The steer slaughter is comparable to that reported by Faminow (1984) for the U.S. if the percentages shown for colored and Holstein steers are combined. Heifer slaughter is lower and cow slaughter is 50 to 60 percent higher (Faminow, 1984), which may be explained by the prominence of the dairy industry in Michigan.

**Table 4.2: The Mix of Cattle Slaughtered in 1986 and 1983  
as Reported by Responding Firms**

Kind	Percent	
	1986	1983
Colored Steers	41.0	28.6
Colored Heifers	17.4	24.6
Holstein Steers	8.3	8.5
Cows	32.0	36.4
Bulls	1.4*	1.7*
Total	100.1	99.8

Source: 1987 survey data

\* Does not add to 100 due to rounding.

Nationally the portion of slaughter cows runs about 20

percent of the total kill and steers and heifers combined account for approximately 75 percent (American Meat Institute, 1987). It should be noted that plants that claimed to be strictly cow slaughterers were not include in the survey. The slaughter plants in the Northeast region of the U.S. slaughter a disproportionately large number of cows.

The yield and quality grade distribution for fed cattle slaughtered by the responding meat packing firms is shown in table 4.3.

National averages shown indicate that the yield grades for cattle slaughtered by the responding packers were similar to the nation as a whole. However, with respect to quality grades, the responding packers reported a significantly higher number of cattle grading "Good". (American Meat Institute, 1987).

**Table 4.3: Yield and Quality Grade Distribution for Responding Firms that Slaughter Michigan Cattle**

Quality Trade	Respondents	U.S. Ave.	Yield Grade	Respondents	U.S. Ave.
	-- Percent --			---- Percent ----	
Prime	3.2	3.1	One	5.0	3.9
Choice	84.0	94.0	Two	33.9	41.8
Good	12.7	2.9	Three	54.9	49.0
Standard	0.0	0.0	Four	6.0	4.8
			Five	.3	.4

Source: 1987 survey data

The higher percentage of cattle filling the Good category reflects the relatively high percentage of Holstein cattle

being killed, particularly by several of the larger plants. Plant managers commented that well fed Holsteins consistently have a greater percentage of Good carcasses compared to the beef type (colored) cattle. However, the quality is quite acceptable. As a result they have sought out and developed some specific markets for Holstein beef.

The quality, type, and size most in demand by the responding packers is a Choice beef type steer, yield grade two, with carcass weight between 580 and 670 pounds. Holstein steers are very marketable at dressed weights between 650 and 750 pounds.

Over 70 percent of the packers responded that their major procurement problem was the availability of cattle. Eighteen percent cited consistent quality as their major concern. Properly finished Holsteins of consistent quality were reportedly hardest to get followed closely by top quality beef type steers.

Only 17 percent of the cattle slaughtered by the responding packers came from within a radius of 50 miles of the plant. Twenty-nine percent came from between 50 and 100 miles and another 34 percent from between 100 and 200 miles. The remaining 20 percent came from areas further than 200 miles away, with a few of the largest packers reported some cattle traveled distances in excess of 500 miles.

The distribution of the sources of the cattle for the

responding plants is shown in table 4.4. Michigan feedlots were the primary source of cattle for all of the plants located in Michigan. However, 27 percent of the total volume of fed cattle slaughtered by Michigan packing plants came from outside the state.

**Table 4.4: Distribution of States of Origin of Cattle Slaughtered by Responding Packers (1986)**

<u>State</u>	<u>Percent</u>
Michigan	15.3
Ohio	7.4
Indiana	5.5
Illinois	9.9
Wisconsin	3.8
Iowa	27.9
Pennsylvania	6.3
Canada	18.2
<u>Other</u>	<u>5.3</u>
Total	100.0

Source: 1987 survey data.

All but one of the responding packers reported that Michigan cattle exhibited either "fewer" or "no difference" in the number of bruises compared with cattle from other sources. This may be attributed to proximity and shorter length of haul. Nevertheless it also indicates that Michigan cattle feeders and transporters are at least as careful in cattle shipping and handling as other competing sources.

Table 4.5 displays the relative extent of the different purchasing methods used by the responding packers.

**Table 4.5: Methods Used By Responding Packers  
to Purchase Fed Cattle**

<u>Source or Service</u>	<u>Percent</u>	
House Cattle Buyer Direct	31.7	
Independent Order or Commission Buyer Direct	17.4	
Other Purchases Direct	4.1	
Total Direct		53.2
Auction Sale	32.4	
Independent Order or Commission Buyer Indirect	12.4	
Other Indirect	1.5	
Total Indirect		46.3*
Total		99.5*

\*Does not total 100% due to rounding.

Sixty-nine percent of the cattle purchased by the responding packers were bought on a live weight basis, 18.2 percent on a grade and yield basis and 12.8 percent "in the beef" or on a hot dressed weight without grading.

A few of the packers responded that occasionally the seller or feedlot operator, is required to specify that the cattle being bought on a live weight basis meet certain minimum standards or percentages of quality and yield grades or dressing percent. The packers seemed reluctant to use this approach and tended to rely on it only when the quality of the cattle offered seemed questionable. Several commented that where the quality was lacking they preferred to buy beef elsewhere rather than stipulate requirements in the agreement.

The direct sales of only 50 percent of Michigan cattle contrast sharply with data reported in the Midwest and Southwest where direct sales account for 80 to 95 percent of

the cattle marketed (Van Arsdall, 1981).

Most of the volume reported under "other" in direct purchases was due to an electronic marketing system used by the Canadian packers. The system was a form of tele-auction where packers bid on cattle that were displayed in the feedlot via video camera. Participating packers can access the display through the use of a terminal in their place of business. The bidding works like a Dutch Auction where the price is allowed to fall at time intervals until a bid is received. The producer is then contacted and is allowed several minutes to refuse the offer and keep the cattle or sell them. This gives the producer a tremendous advantage in increasing the exposure to potential buyers without moving them. This method reduces transaction costs and avoids the risk of being required to take an inferior price rather than returning his cattle to the farm. The Canadian packers seemed pleased with this service and the concomitant arrangements.

Only one of the responding meat packing firms engaged in forward contracting of cattle, and in that case, such contracts were only occasional. Three of the packers actively contract cattle feeding, however, the numbers involved were so small as to be insignificant with respect to their total volume.

Another form of vertical coordination is for the packing firm to own or maintain partial ownership in a feedlot and cattle. Four of the smaller slaughter plants each reported

feeding from 25 to 200 of cattle annually. Again, this amount is insignificant with respect to the total reported volume.

The information that the responding packers make available to the producers is displayed in table 4.6.

**Table 4.6: Information Available From the Packers to the Producer.**

<u>Information</u>	Provided-			Provided-		
	----- by Lot -----			----- by Animal -----		
	Presently	On Request	N/A <sup>a</sup>	Presently	On Request	N/A <sup>a</sup>
Carcass Weight	76.5	17.6	5.9	11.8	47.1	41.2
Quality Grade	64.7	11.8	23.5	11.8	41.2	47.1
Yield Grade	58.8	23.5	17.6	11.8	41.2	47.1
Back fat	0.0	23.5	76.5	0.0	23.5	76.5
Rib Eye Area	0.0	17.6	82.4	0.0	17.6	82.4
KPH fat	0.0	17.6	82.4	0.0	17.6	82.4
Liver Abscesses	5.9	29.4	64.7	0.0	29.4	70.6
Liver Flukes	5.9	23.5	70.6	0.0	29.4	70.6
Trim Loss	5.9	5.9	88.2	0.0	17.6	82.4

<sup>a</sup> N/A- information is not made available to producers.  
Source: 1987 survey data.

As shown in table 4.6 most of the packers provide or are willing to provide the basic essential data with respect to carcass weights and quality and yield grades. However, fewer will provide this data on an individual animal identification basis.

When asked what Michigan cattle feeders could do to make improvements, the most common answer was, "Feed more cattle." This comment was often qualified by requests for more consistent supply both in quality and quantity at all times of the year.



#### 4C.4 Sales

Forty-one percent of the responding packers reported using a method of formula pricing of products based on the National Provisioner's "yellow sheet". Forty-seven percent use "other" sources of information. Several of the larger responding packers make use of "in house" computer generated information to price their products according to inventory and product movement. The remaining 12 percent use the "blue sheet" published by the National Association of Meat Purveyors.

Canadian packers make extensive use of private brands. Two of the responding packers in the United States market products under private brand name or label. However, only a small amount of total volume went into these products. The packers were hesitant to reveal details about grades of beef used in specific products, saying only that they were very selective in the quality of the house named products.

The responding packers shipped 71.5 percent of fed beef volume as boxed beef; 20.6 percent was shipped as "swinging" sides and quarters; and the remaining 7.9 percent was processed further into portion fresh cuts, chipped and formed cured meats, or other processed and cured products.

Table 4.7 shows that over one third of the products are shipped to supermarket chains. In addition, over 20 percent are shipped to other packers.

**Table 4.7: Distribution of Product Shipments  
by Responding Packers**

<u>Destination</u>	<u>Percent</u>
Supermarket Chains	35.7
Other Retailers	10.7
HRI (Hotel, Restaurant and Institutional outlets)	16.5
Other Packers	21.3
Purveyors	15.2
Plant's own retail outlet	.4
<u>Other</u>	<u>.2</u>
Total	100.0

Source: 1987 survey data

#### **4C.5 Labor**

Six, or one third of the responding plants reported having a labor union representing workers. Of these six, half were the three plants from Canada that participated in the survey.

Average starting wages reported by the responding firms were \$7.08 per hour compared to average top wages of \$9.95 per hour. By comparison the U.S. overall average wages for meat packing and meat processing firms is \$8.24 and \$8.74 respectively. Compared to averages for all manufacturing, meat packing employees receive almost \$1.50 per hour less than other workers. This is a significant change from 1980 in which meat packers were paid an average of \$1.22 an hour more than the national average manufacturing worker's hourly rate (American Meat Institute, Meatfacts 1987).

Technological advances have reduced the skill level required to work in meat packing plants, consequently lowering the functional pay scale. The availability of employees

willing to work for these lower wages will impact on the ability of the packing plants in the Northeastern Corn Belt to stay abreast of their competitors.

Five of the responding firms conducted some form of profit sharing benefit program for the firm's workers. Two of the firms offered volume bonuses for the shift as a group and only one of the smaller firms paid kill floor workers on a piece work basis.

Fifty percent of the firms guaranteed a weekly number of hours.

All but one of the responding packers offered time off with pay as part of their benefits package. All but two paid part or all of some type of health insurance. Only 57 percent of the U.S. firms offered employees retirement benefits (in Canada, contributions to the Canada Pension Plan are mandatory). Less than half participated in a dental program.

#### **4C.6 Competitive Position**

Table 4.8 gives a breakdown of how the responding packers viewed their position relative to other major packers, particularly those of the Midwest and Great Plains. The numbers shown represent an evaluation of perception not positive measurement.

**Table 4.8: Responding Packers Perception of Relative Competitive Position**

Item	-----Percent-----		
	Advantage	Disadvantage	No Difference
External costs			
e. g. taxes, permits	0.0	73.3	26.7
Labor Costs	0.0	46.7	53.3
Scale (size of plant)	14.3	42.9	42.9
TCattle Availability	20.0	46.7	33.3
Cattle Quality	46.7	13.3	40.0
Cattle Consistency	26.7	33.3	40.0
Market access or availability	73.3	0.0	26.7
Market Diversity	46.7	20.0	33.3
Fabrication Ability	0.0	40.0	60.0
Kill Cost	6.7	60.0	33.3

Source: 1987 survey data.

The questionnaire did not probe directly for a response on kill cost. However, during the phone interview the author posed it in conjunction with the estimate on kill cost shown in the table above. Many of the contact persons either refused to respond or used evasive terms, such as "a little more than the drop value", when asked to give the kill cost per animal. Also, after reviewing the amounts, it seemed that some were inordinately high. Upon reflection the author has determined that where a figure was quoted, the amount may sometimes have included both the kill and the cost of processing the carcass into boxed beef. Consequently the data reported corresponding to this question is not considered reliable.

Most of the packers quoted a figure for the value of the

drop<sup>1</sup>, the average being \$67.93. The value varied widely, particularly with the smaller plants. This can be attributed largely to the size, quality and handling of the hides- the single most important item in the "drop". Plants killing a high percentage of Holsteins generally reported higher values for the drop.

Of those packers who responded to the question, "What is your key to remaining competitive?" most maintained that the quality of their product was of primary importance. Cattle feeders should recognize the emphasis placed on this factor by management of slaughter facilities.

#### 4C.7 Outlook

Seven of the packers said they had intentions to expand their operations within the next three years. The remaining 11 planned to maintain their current levels of production. None of the packers indicated that they expected to reduce business or close.

Only fourteen of the packers expressed an opinion on the issue of changing grade standards. Most, 71 percent, were not in favor of changes that would replace the Federal Good grade with the name Select. Several commented that the current grading system allowed inferior cattle into the low Choice

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The drop includes everything that is removed during slaughter to leave the hanging carcass. It includes the head, hide, viscera, feet and sometimes even the blood.

grade.

None of the responding packers felt that the Northeast region would regain a major role in the national production and processing of beef. Many commented that serving niches in the market was the only means of securing a position.

Though no specific research problems were identified by the meat packers who participated in the survey, several indicated that the most valuable service the University could render would be continued education of cattle feeders in selecting and feeding cattle to a high standard of quality.

#### 4D SUMMARY

Though the survey was unsuccessful in obtaining 100 percent participation by all the slaughterers of Michigan fed cattle, all the packers located in Michigan responded. The resulting data is consequently highly representative of the cattle slaughtering industry in Michigan.

Most of the plants have undergone remodeling to modernize which indicates that they are progressive, attempting to avail themselves of modern technology. The low number reporting changes in senior management suggests stability.

Given the large amount of under utilized capacity reported, Michigan cattle feeders could confidently double, or even triple their annual output without worrying about lack of

slaughter capacity. As mentioned earlier, many of the packers have plans to expand and are anxious about the lack of cattle.

Michigan cattle seem to be well received. Nearly 50 percent of the responding packers claimed that the quality of the available cattle provided an advantage over other packers. With an established foundation of confidence, it would seem that Michigan producers could benefit from efforts to promote a quality image, not only to meat packing firms but also to the public in the local market area. The key is to provide the products or services for which there is a demand, but in which the market is not large enough to entice exploitation by the larger firms.

It seems that progress could be made in the area of forward contracts which could reduce transaction costs. There appears to be a reluctance on the part of both the producers and packers to establish relationships that could improve the consistency of the supply of fed cattle, assure a market and transfer risk, and reduce marketing costs. It may be that the small size of the Michigan cattle feeding operations limits the level of commitment that could be achieved.

Overall, the attitude of the slaughterers of Michigan cattle was progressive and positive.

## **CHAPTER V**

### **MICHIGAN'S COMPETITIVE POSITION**

#### **5A INTRODUCTION**

Chapters III and IV described the structure, production practices, and various other characteristics of cattle feeders and slaughterers in Michigan. This data and related discussion serve as a background for a summary assessment of the strengths, weaknesses, and future prospects for Michigan's fed cattle industry. It is also intended that the findings will contribute to the pool of knowledge about Michigan's diversified agriculture and thus assist those interested in further research into Michigan's future position in cattle feeding and the fed cattle industry.

In this chapter, the focus will be on major factors that determine the competitive position of cattle feeders in Michigan relative to other regions of the U.S. The degree to which cattle feeders in Michigan can remain competitive with those from other parts of the country, will enhance the probability of the survival of Michigan cattle feeders and determine the success of the industry in the state.



### 5A.1 Previous Studies

Paul Hasbargen (1967) developed a linear programming model which he used to compare the economics of feeding cattle in the Eastern Corn Belt, Midwest (particularly Minnesota his home state), and the Southwest. Using primarily secondary data, he compared feed, shelter, and labor costs for feedlots in the Midwest, Southwest, and Northeastern Cornbelt. Included also in his study was an evaluation of feeder cattle costs and fed cattle returns. His findings showed that the Southwest enjoyed several significant advantages over other regions, including 1) favorable climate which resulted in more efficient feed conversion, lower overhead costs, and lower labor costs; 2) lower feed costs; and 3) lower feeder cattle costs.

The continued expansion and concentration of cattle feeding in the Southwest (High Plains) supports his work and substantiates his findings. The trends that he identified, indicating that cattle feeding would become more specialized and concentrated in regions of favorable climate and supplies of feed grains, and that feedlots would become larger and more industrial certainly have been borne out by the past two decades.

More recently, research by G. M. Clary et al., (1980, 1986) showed that the Southwest continues to hold economic advantages in cattle feeding. But, as he aptly states,

The economies of cattle feedlot and slaughter plant location are extremely complicated as many tradeoffs

exist between the shipment of feed grains, feeder cattle, fed slaughter cattle, and fed beef. Optimum feedlot and slaughter plant locations generally are considered to be near regions with substantial feed grain supplies. However, this is an oversimplification, since changes in absolute or relative transportation rates can change the competitive advantage of particular activities or regions.

Clary's main research dealt with transportation related concerns but he also identified and evaluated other realistic scenarios which would cause shifts in costs of cattle feeding inputs. These included 1) the reduction in feed grains available to Southwest feedlots as a result of depletion of ground water reserves for irrigation, 2) cyclical or structural shifts in the traditional sources of feeder cattle, 3) dramatic energy cost increases, and 4) increases in variable slaughter costs such as labor and waste disposal. He also examined the alternate outcomes using several combinations of these factors. His model demonstrated the relative advantages of feeding cattle in the Southwest and tends to favor this region even under the effects of adverse variations (scenarios) of the model cited above.

Relevant to cattle feeders in the Northeastern Cornbelt is the conclusion reached by Clary that, in order for the concentration of cattle feeding to shift away from the Southwest and High Plains, major disruptions in transportation costs, feeder cattle supplies, feed costs or returns on fed cattle must occur. The favorable conditions for cattle feeding

in the Southwest and High Plains, and consequent expansion in volume, have resulted in the concurrent growth of a supporting superstructure of industrial cattle feeding, slaughtering, processing and marketing institutions. In order for relocation to take place at this point, major price, supply, or technological incentive must prevail.

A study by Van Arsdall and Nelson (1981) provides some useful data for comparison of the traits of the Michigan cattle feeders with their counter parts in the Midwest (Corn Belt) states. Their study, hereafter referred to as the ERS study, was based almost exclusively on a cattle feeder survey similar to the one conducted by the author in Michigan in 1986. However, it contained more detail and targeted specifically farmer feeders- selling no more than 1000 head annually. (Van Arsdall 1981).

Many of the characteristics of the cattle feeders in the ERS study (1981) are very similar to those describing Michigan cattle feeders in Chapter III. One particularly important common denominator is that the Midwest cattle feeders surveyed are categorized in the ERS study as farmer feeders or those who sold less than 1000 head annually and produced all or most of their own feed on the farm. Michigan cattle feeders surveyed in 1986 were also characterized by this same trait with a few exceptions. Some of the respondents in the Michigan survey reported selling more than 1000 head of cattle in 1985, the

Iowa and Michigan samples are considered to be sufficiently similar so that direct comparison of the described traits will be made without resorting the Michigan data by size of feedlot to remove the larger lots. In other words, the results of the analysis on all feeders (and feedlots) that reported marketing more than 100 head of fed cattle in 1985 will be used in comparison.

#### **5A.2 Basis for Comparison**

The criteria for evaluating Michigan's fed cattle industry will focus on the following areas:

##### **Costs**

1. Feed Costs
2. Feeder Cattle
3. Climate
4. Transportation
5. Labor
6. Feedlot and Equipment Use
7. Economies of scale
8. Summary of Costs

##### **Returns**

1. Fed Cattle Prices
2. Prices and Net Returns
3. Marketing
4. Management
5. Profitability

#### **5B COSTS**

##### **5B.1 Feed Costs**

Cattle can be successfully finished on a variety of diets and feeding programs. For example, Brennan et al., (1987) studied the effects of different proportions of corn grain and

corn silage in the diets of steers on feed and found no significant difference in the yield and quality grades, nor in the eating quality of the beef (panel tested, Brennan et al., 1987).

The value of a high silage ration in Michigan cattle feeding enterprises was cited by Hasbargen in 1967. He concluded that,

Relative to ration selection, it was found over a wide range of planning situations on Michigan farms, the high silage ration will give the highest return per head fed as well as the highest return per acre.

It should be noted however that this observation is conditioned on the raising of the feed on the farm.

Where cattle feeding is done in large industrial feedlots, and most or all of the feed is purchased, least cost rations are determined by the cost and quality of the available feeds and will not vary greatly among feedlots in the same locale. Under such conditions variations in costs of gain between feedlots within a given geographical area can be attributed primarily to management and facilities.

The segment of the industry that is most typical of Michigan feeders is the farmer feeder who uses cattle as a means of marketing feeds produced on his farm. In the farm feedlot the ration fed is often higher in roughage, due to a higher percentage of corn silage in the diet, than that fed in the large industrial feedlots (Van Arsdall and Nelson 1980).

The farmer feeder is also limited in facilities for ration processing, mixing, testing and balancing. His feed cost advantages lie in areas associated with use of seasonally slack labor, and low cost (surplus) roughage (Weimar et al., 1986).

There also exist isolated local conditions in which a cattle feeder, either industrial or farmer, has an advantage in being able to supplement the ration, and reduce feed costs, with surplus and salvage feeds from his own or neighboring farms or food processing plants. For example, a neighboring farmer may be experiencing partial crop failure and be willing to sell at very low (salvage) prices shrunken, barley, frozen beans, moisture discolored and slightly spoiled corn, or other feeds that have suffered damage from any number of agents. Food processing plants supply a wide variety of possible feeds ranging from beet pulp, cull potatoes, and beverage grains, to such things as broken jelly beans and off-quality breakfast cereal. In some cases the market value of such feeds for other purposes is very low or non-existent. Consequently, cattle feeding remains the only means of salvage. The potential exists, under such circumstances to significantly reduce feed costs. However, such situations are limited to locally unique conditions.

As noted in chapter III a wide variety of feeds were used by Michigan cattle feeders including a number of byproduct feeds. The percentages of Michigan feedlots utilizing

byproduct feeds show that only a limited number of cattle feeders are able to take advantage of these feeds (Table 3.11). However, use of byproduct feeds by Michigan cattle feeders is substantially higher than in the ERS study (1981) which reported that less than one percent of midwest feeders reported use of byproduct feedstuffs.

In 1967 corn prices in Michigan were essentially the same as in Northeastern Colorado (Hasbargen p. 94) but the High Plains had access to sorghum grain at lower prices. Feed cost structures have shifted to favor the Corn Belt in more recent years. Loy et al. (1986) reported that the geographical low point for corn prices shifted from eastern Iowa and was now centered in northwestern Iowa and eastern Nebraska. Unfortunately, detailed evaluation of the relative prices paid by farmers was not included in the literature consulted.

In Michigan corn is fed to cattle primarily as ensiled high moisture grain. High moisture corn has advantages in lower harvesting risk and slightly higher nutritional value but is limited in versatility and requires specialized storage. Once it is harvested and stored on the farm it is suitable only as animal feed as it is not of the type and quality to be readily marketed even as a feedgrain. Its perishability and bulk also restrict the marketability to nearby cattle feeders.

Because the focus of this study was primarily to report and expound on the results of the two surveys, the author did

not pursue a comparative evaluation of feed costs within the various regions under consideration. Comparative feed cost data for Michigan feedlots is sparse. The author has chosen therefore simply to present actual cost budgets from Telfarm<sup>1</sup> data which may be useful for future cost and trend comparisons.

**Table 5.1: Feed vs. Non-feed Costs on Cattle Feeding Farms, Michigan**

	1978	1979	1980	1981	1982	1983	1984	1985
Michigan								
Non Feed	\$13.88	\$17.79	\$21.28	\$17.84	\$20.62	\$19.97	\$20.65	\$21.25
Feed	31.84	36.24	41.34	45.46	39.42	40.50	53.58	42.36
Ave. Cost								
per cwt. gain	45.72	54.03	63.18	63.30	60.47	60.04	74.73	63.61

Source: Business Analysis Summary for Cattle Feeding Farms, Telfarm Data, MSU Ag Econ. Reports, 1977-85.

Table 5.1 presents Telfarm cost of production data for cattle feeders in Michigan. Nonfeed cost have held relatively stable from 1979 to 1985 but feed costs have risen intermittently.

## 5B.2 Feeder Cattle

As noted in Chapter III, according to the survey of Michigan cattle feeders, nearly 40 percent of the cattle placed on feed originated from within the state. The states to the south and east of Michigan supply over 50 percent of the

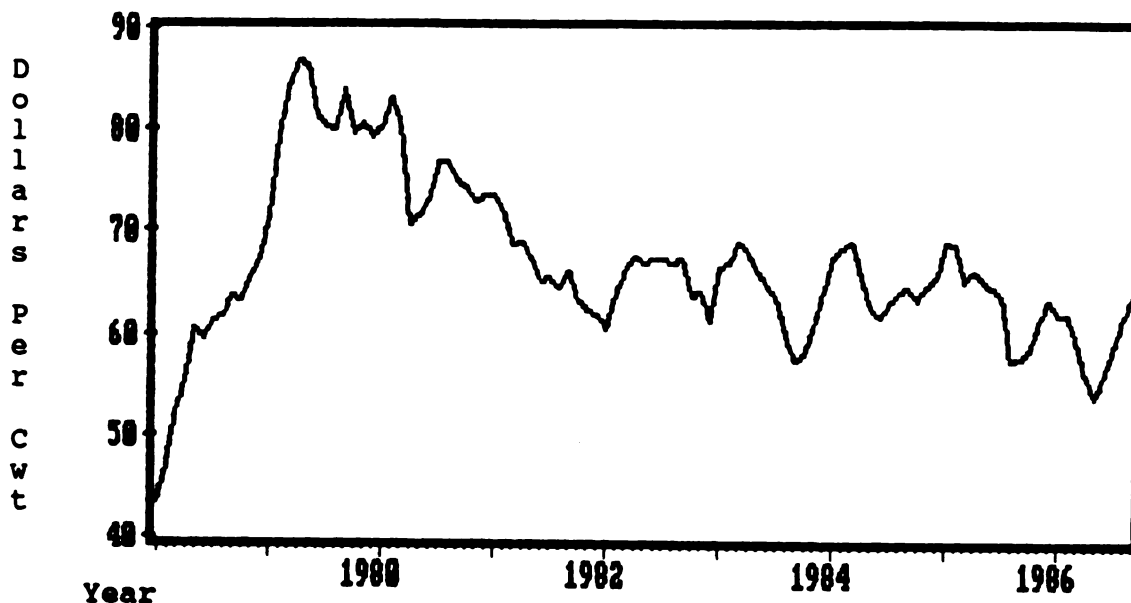
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 1 Telfarm is a computerized book keeping service operated by the Michigan State University Cooperative Extension Service.



remaining feeder cattle with less than 10 percent coming from the West. Michigan feedlots compete with Midwestern and Southwestern cattle feeders for cattle from the South, but may have a slight advantage in transportation costs on cattle coming from such states as Virginia and the Carolinas.

Figure 5.1 shows the monthly prices for feeder cattle paid by Michigan feedlot operators from January 1978 to September

**Figure 5.1 Michigan Feeder Cattle Prices by Month  
January 1978 to December 1986**



Source: MLSE Weekly Quotations.

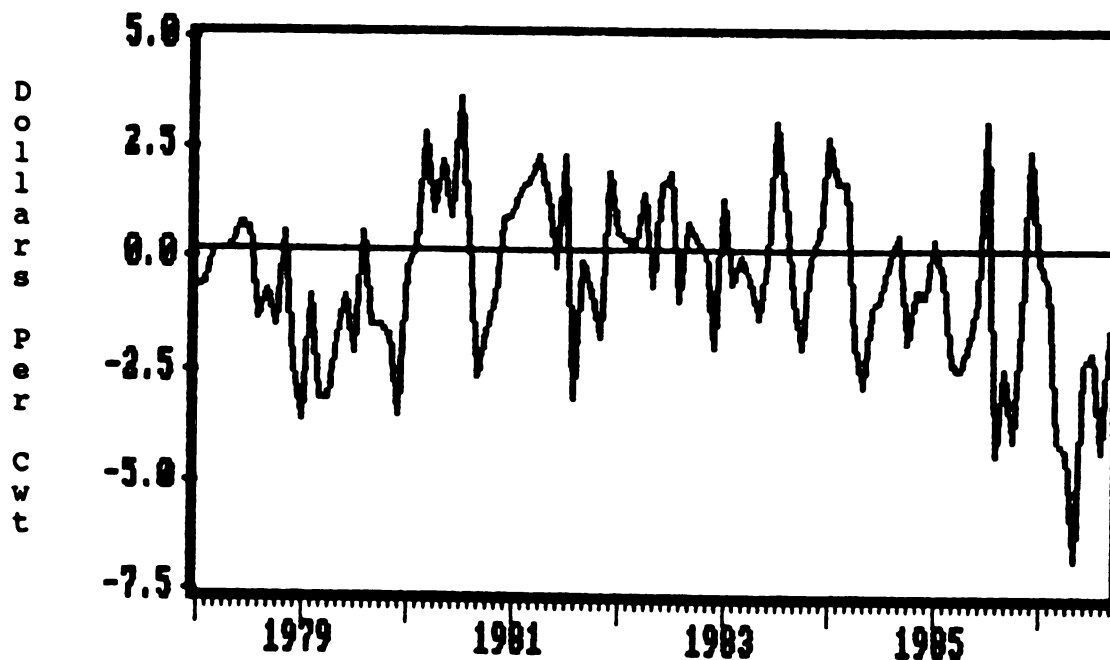
1986. These prices were taken from individual weekly quotations from the MLSE weekly newsletter for semi-loads delivered directly to Michigan feedlots. The quoted prices for

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1 See Appendix IV for details on the method of calculation and resulting numerical data.

beef type feeder steers were used to generate a weighted monthly average price that is graphed below. The method of calculation is explained in greater detail in Appendix IV.<sup>1</sup>

Comparisons of prices paid for feeder cattle are given in Figures 5.2 and 5.3. Price quotations for Omaha and Texas-New Mexico direct buying were taken from USDA Meat and Poultry Situation and Outlook Reports for 600 to 800 pound beef type feeder steers. The feeder cattle prices from the MLSE included quotations for all beef type steers averaging 600 to 900 lbs., however, very few of them exceeded 800 lbs.

**Figure 5.2 Plotted Differences in Monthly Feeder Cattle Prices in Michigan Compared with Corn Belt Markets 1978-86**

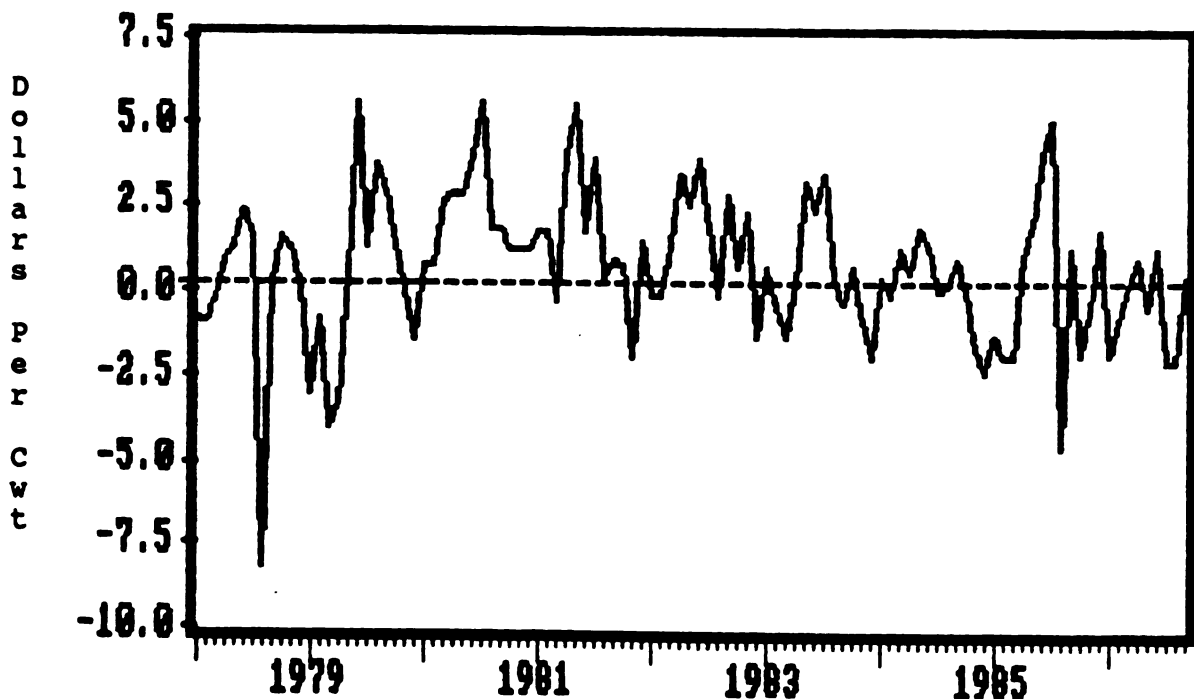


Source: MLSE weekly quotations and USDA data.

Over the period of eight plus years since January 1978,

Michigan cattle feeders paid approximately \$.50/cwt. less on average for feeder cattle than corn belt cattle feeders but \$.70 more than cattle feeders in the Southwest. These differences in average price are small and, as the graphs show, the prices fluctuate significantly. Visual appraisal of the graphs indicates that comparative feeder cattle prices appear to be tending slightly lower in Michigan since 1978 relative to both other regions.

**Figure 5.3 Plotted Differences in Monthly Feeder Cattle Prices in Michigan Compared with Southwest Markets 1978-86**



Source: MLSE weekly quotations and USDA data.

The prices quoted and graphed here are for heavy feeders.

Comparable data for lighter weight calves was more sparse and insufficient for comparison. The 1986 survey data indicated that Michigan cattle feeders preferred to place calves of lighter weight which is consistent with the use of high roughage diets.

Hasbargen concluded that for farmer feeders who placed cattle on feed only once a year that feeding calves yielded the best return to time and investment. The ERS study (1981) shows that his conclusion still holds on farmer feedlots.

### **5B.3 Climate Related Costs**

The humid conditions that make large amounts of feed available for feeding cattle have a negative effect on the animals themselves in the winter. Michigan's cold damp winters make it necessary to provide some shelter for the cattle to avoid unprofitably low levels of feed conversion and rates of gain during periods of inclement weather. However, Michigan's location between several of the Great Lakes results in some tempering of the severe winter temperatures that are experienced in other areas of the same latitude. Hasbargen argued that these conditions increased the requirements for bedding as well.

Fall harvesting of corn is often difficult in Michigan both from the standpoint of getting equipment on and off the fields as well as getting the grain dry enough to store.

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Fall harvesting of corn is often difficult in Michigan both from the standpoint of getting equipment on and off the fields as well as getting the grain dry enough to store.

Feeding of high moisture corn provides an alternative to farmers, allowing them to harvest earlier and providing a means of marketing their crop.

#### 5B.4 Transportation

The increased cost of energy during the late 1970's, and the prospects for continuation of this condition, led a number of researchers to conclude that transportation costs would be a significant factor contributing to decentralization, or at least an inhibitor to further concentration, of the cattle feeding-beef-packing industry. However, the inability of OPEC to maintain control of the output of oil and the subsequent price decline due to ample supplies has reduced the impact of transportation costs as a deterrent to concentration and centralization in the meat packing business.

In addition, Poole attributes freight rate cuts and increased competition to deregulation following the Federal Motor Carrier Act of 1980. In Michigan, the Michigan Public Service Commission Public Act 399 (1982) resulted in "Motor carriers transporting meats, frozen foods or dairy products ... [being] forced to reduce rates in response to increasing competition." (Poole 1985). Though the impact has been less dramatic than other forms of freight Poole reports that, ". . . [nominal] rates for hauling livestock have held steady since 1980, suggesting a decline in real rates." (Poole 1985). Since

1980 there has been little change in livestock hauling rates.

The rule of thumb for semi-trailer loads of \$1.75 per loaded mile has been steady or even declined in some cases since 1980. Eldon Roberts of the Michigan Livestock Exchange reported bargain rates (summer 1986) as low as \$.80 per loaded mile back-hauling cattle into IBP (Joslin, Ill.) for trucks delivering of hogs into Detroit.

Livestock hauling requires specialized equipment that does not easily accommodate other freight. Consequently, back hauls are generally limited to other livestock which restricts versatility and reduces the potential of back haul availability.

#### **5B.5 Labor**

Table 5.2 is a reproduction of table 46 in the Van Arsdall-Nelson ERS study (1981) which displays the distribution of labor use in different sized farmer feedlot operations. The author is not aware of data for comparison but includes this information for future reference.

Hired labor in Michigan has historically been more expensive than in either the Southwest or the Corn Belt. In addition the cold damp winter climate requires more labor for management, maintenance, and chores such as spreading bedding and plowing snow (Hasbargen 1967).

**Table 5.2: Amount and Source of Labor for Cattle Feeding in Iowa, by Type 1980<sup>1</sup>**

Feedlot annual sales (head)	Labor per head <sup>2</sup>			Source of Labor <sup>3</sup>		
	All enterprises	Calf Programs	Yearling Programs	Operator	Unpaid Family	Hired
	hours per head			Percent		
20 to 99	11.6	11.8	11.5	74	16	10
100 to 199	6.0	6.3	5.7	66	15	19
200 to 499	4.3	4.7	4.1	62	16	22
500 & Over	3.0	3.7	2.8	45	17	38
All Sizes	6.1	6.3	5.8	66	16	18

1 Labor includes all time spent on work related to the cattle feeding enterprise including buying and selling of cattle. Time for maintenance of machinery and facilities, and production and harvesting of feed crops is not included.

2 Approximately two-thirds of all feeder cattle were yearlings or older. Gains per head were about 530 pounds for all cattle combined, 475 pounds for yearlings, and 640 pounds for calves. Calf and yearling programs included farms where 75 percent or more of the cattle placed on feed were of the specified kind.

3 The distribution of labor among the various sources applies to all cattle feeding enterprises.

Source: Van Arsdall and Nelson 1981.

#### 5B.6 Feedlot and Equipment Use

Van Arsdall and Nelson (1980) demonstrated that the cost structures related to the different kinds of feedlots vary greatly. Primarily they were concerned with differences between the farmer feedlot and the industrial feedlot. It appears that per unit feed costs are generally lower for farmer feeders but fixed costs are higher.

On-farm feedlot facilities include a wide variety of structures, equipment, and capacity. There are a number of facilities that have been constructed specifically for cattle feeding. These include everything from simple lots- with or without shelter- to total confinement structures with varying



levels of automation in feeding and handling equipment and waste removal. In many cases the farmer has converted shelter and facilities from some other storage or livestock use to cattle feeding. For example, many converted farm feedlots were once dairy facilities. Occasionally, one finds farmers feeding cattle in open lots with no shelter and limited facilities. Consequently, the methods employed in cattle feeding often result from attempts to make use of, and accommodate, a wide variety of existing buildings and equipment.

Compared to the ERS study of Midwest cattle feeders, Michigan cattle feeders make greater use of shelter, reporting greater use of both partial and full confinement. Whereas over 50 percent of the capacity reported in the farm feedlots had no shelter, only 20 percent of the Michigan capacity fell in this category. Michigan producers consequently invest more in shelter but also may benefit through improved performance of the cattle.

As discussed in Chapter III Michigan feeders report a substantial amount of unused capacity. Where fixtures and equipment go unused, or only partially used, the fixed costs per unit of output rise. The alternative is to increase the output and spread the fixed costs over a larger number of units produced.

The use of feedscales in the Midwest was more prevalent than in Michigan. Nearly 50 percent of the feeders in the ERS

study (1981) weigh the feed delivered to the bunk compared to approximately 35 percent in Michigan. As a management tool, feed scales can be an effective aid in controlling the quantity of feed delivered. This is important not only from the standpoint of waste but also avoiding the event of cattle going "off feed" due to fluctuations in quantity. Cattle feeders should not overlook the importance of this tool in knowing and controlling costs and maintaining cattle "on feed".

#### **5B.7 Economies of Size**

Economies of size refers to a disproportional increase in output as the size of the plant increases. Such economies have the effect of decreasing cost per unit of output due to changes in the mix of inputs required or to changes in the cost of inputs or price of outputs. For example, costs per unit of output will decrease as the firm expands due to spreading lumpy fixed costs over increased volume and increased efficiency in the use of resources. The firm may enjoy advantages associated with purchasing in bulk or be able to command a premium price for large, uniform quantities of product as in the case of fed cattle.

In opposition to this cost reducing phenomenon, is the aspect of increasing assembly, transportation, and marketing costs as the firm is forced to go farther and farther from the point of manufacture to find raw materials and markets. Where

these costs begin to outweigh the gains from increased size, the optimum size of the firm is found. Any of the many factors of production can become limiting as the firm expands.

Economies of size in cattle feeding occur as a result of specialization in technology and management (Loy et al., 1986). Larger lots have advantages in being able to utilize on site feed processing and precision mixing and weighing equipment. Large lots can also employ, and benefit from, highly trained technicians to regularly test feeds and balance rations using sophisticated computers and software. This advantage is particularly useful when feed prices are changing and regular adjustments in the ration will ensure balanced, least cost formulation. Similarly, technicians can perform other tasks in determining performance of cattle from different sources, feed efficiency, and optimal feeding schedules and recommending alternatives to reduce costs. Costs can also be reduced by volume buying and direct selling.

The smaller feedlot operator may recognize that there are potential gains to be made by more accurate evaluation of feeds, feed use and cattle selection, but cannot justify the costs of obtaining this information with a small number of cattle being fed.

The margins, or differences in costs, of cattle feeding between various regions around the U.S. are small. The margin of profit is also small. Investment in plant and equipment is

substantial and requires a large and sustained volume in order to realize a profitable return. The evidence of economies of size discussed in Chapter IV, both from the standpoint of the feedlot as well as the packing plant, constitutes a strong deterrent to mobility of cattle feeding and processing facilities.

#### 5B.8 Summary of Costs

Telfarm data was consulted for some of the comparisons, but lacked, in most cases, the needed common denominators to accurately compare important cost and production characteristics. For example, USDA budgets referred to in this report are based on costs and returns in feeding beef type steers; the Telfarm data did not distinguish between steers and heifers or the breed type of either of these. Consequently, no clear evaluation of competitive position with regard to feed costs will result.

Suffice it to say that, even if an exhaustive report on regional costs of common feeds were available, it is unlikely that we could determine accurately, the actual relative costs of feeding cattle in the different regions. This is due to the variation in diets fed and feedstuffs available between regions examined. For example, we cannot simply assume that the cost of feed grade corn is the opportunity cost to the farmer of high moisture corn. For, we cannot measure the enhanced probability

of total (or partial) crop failure as the farmer waits for favorable harvesting conditions. It is plausible that one might attempt to evaluate the value of the crop less the costs of mechanical drying, but we are still faced with the problem of measuring accurately the weight and moisture content of the ensiled corn. Certainly, reasonable estimates could be proposed and tested but to do this was not the object of this study.

The differences in feeder cattle costs studied, demonstrated only slight average deviation from zero (less than 5%) between regions cited for the Southwest, Corn Belt and Michigan. No single region has a decided advantage in the cost of feeder cattle.

Michigan's climate requires greater expenditure on shelter and bedding compared to the Southwest, in particular, and to a lesser extent, the Corn Belt. The work done by Loy et al. (1986) revealed that the costs associated with construction and maintenance of shelter were nearly offset by the gains in efficiency up to the point of total confinement. Under total confinement conditions, the added costs of construction for automated feeding systems, slotted floors, and manure handling systems added \$2 to \$3 dollars per hundred weight (net) to the cost of feeding cattle.

Transportation costs have stabilized in recent years and show no trends of expected change at present. Consequently,

these costs are not expected cause a change that would influence, either favorably or adversely, any particular region in production of fed cattle.

The information provided by the ERS study shows substantial differences in the amount of labor required per head as the size of the feedlot changes. Small farm feedlots have a decided disadvantage in this regard.

The actual reduction of costs associated with economies of size, though apparent, have not been sufficiently evaluated in the literature consulted. This area holds potential for further research.

## 5C RETURNS

### 5C.1 Fed Cattle Prices

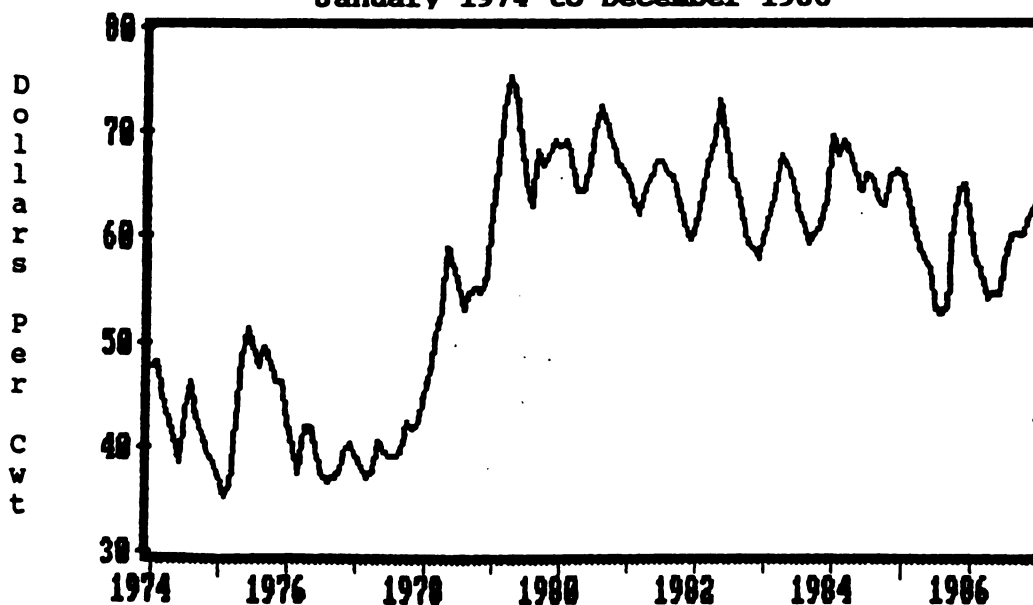
Just as the packing plants to the west of Michigan establish a base price for Choice fed cattle as the buyer of last resort, "western" beef prices also maintain an upper limit on the amount that beef packers in Michigan can pay. One would not expect the price in Michigan to differ significantly from prices observed in the Midwest after adjusting for freight, marketing and slaughter costs (Riley and Heimstra, 1982).

For comparison to other cattle producing regions, Michigan fed cattle prices were taken from weekly Michigan Live Stock Exchange (MLSE) newsletters. The method of calculation of weekly and monthly averages is shown in Appendix IV and is

identical to the method used in calculating the monthly feeder steer prices. It is noted that the quotations for Michigan are based on actual lots sold by auction. The comparative prices quoted by the USDA for Omaha and the Southwest are based on direct sales.

Figure 5.4 shows Michigan prices for choice steers from January 1974 to December 1986. The quotations come from two sources. For January 1974 through December 1977 were taken from prices on file with Dr. John Ferris of the MSU

**Figure 5.4 Michigan Fed Cattle Prices, Monthly Averages  
January 1974 to December 1986**



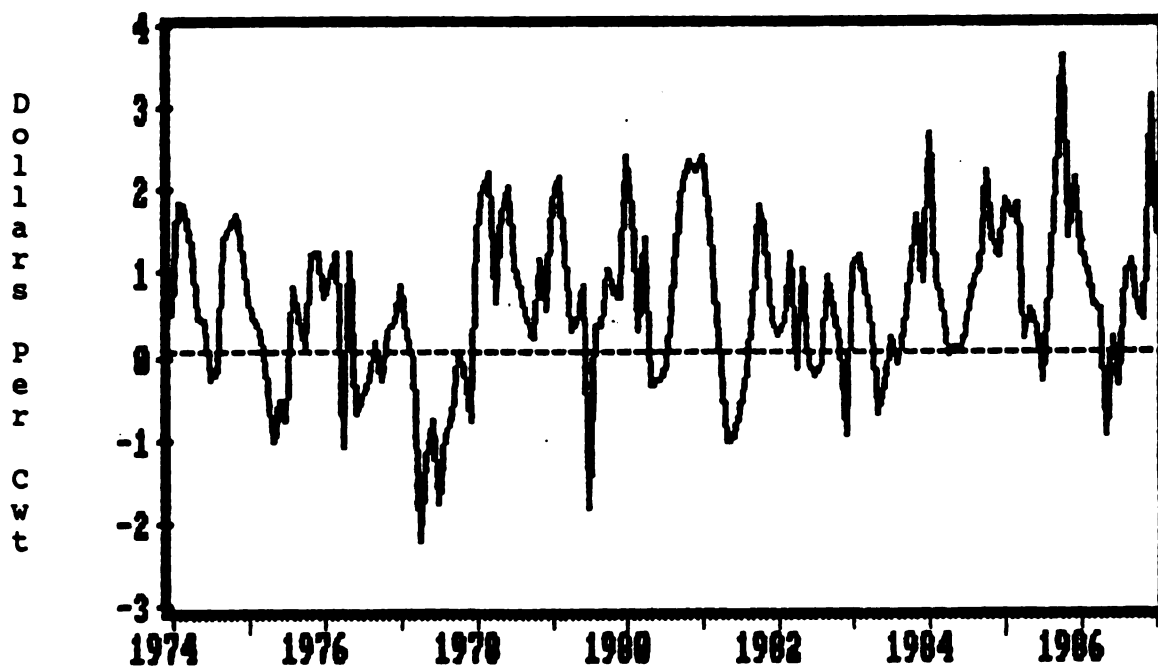
Source: MLSE Weekly Quotations.

Agricultural Economics Department. The quotations for January 1978 through December 1986 were calculated from weekly market

reports obtained from the Michigan Livestock Exchange.<sup>1</sup>

The difference between Michigan and Omaha choice steer prices is plotted in Figure 5.5. It seems that the data sources are not entirely consistent as shown by the increase and higher average of the post January 1978 prices compared to the earlier period. The author did not have access to the original source of the 1974 -1977 data and is unable to comment on its authenticity.

**Figure 5.5 Plotted Differences in Monthly Fed Cattle Prices  
in Michigan Compared with Omaha 1974 - 1986.**



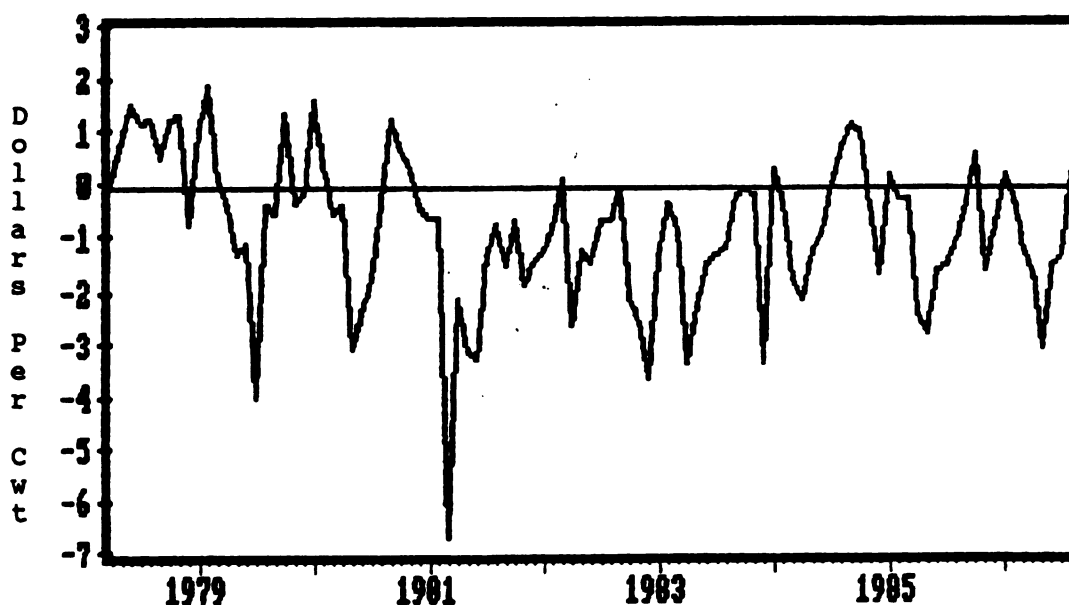
Source: MLSE weekly quotations and USDA data.

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1 See Appendix IV for details of the calculations and actual data used.



Figure 5.6 shows the plotted difference between the Michigan price for choice steers and the price quoted for choice steers in the Southwest. The fluctuating pattern seems to be fairly consistent from April 1981 to August 1986. Over this period the Southwest price averaged \$1.16 higher than the Michigan price. By comparison the Michigan price averaged \$.67 higher than Omaha for the same period.

**Figure 5.6 Plotted Differences in Monthly Fed Cattle Prices in Michigan Compared to Texas New Mexico Direct Markets 1974 - 86**



Source: MLSE weekly quotations and USDA data.

## 5C.2 Prices and Net Returns

On the national level, net returns were down sharply in 1985 with losses that averaged \$4.24 per cwt. compared to average losses of \$1.55 per cwt. in 1984. Lower feed costs in 1985 helped push the overall average cost of gain nationally down \$3 per cwt. from 1984; although fixed costs and costs of feeder cattle were slightly higher than the previous year (USDA ERS, 1985).

## 5C.3 Marketing

Lack of direct selling increases the transaction costs and reduces returns to Michigan cattle feeders. With respect to the volume of direct sales, Michigan feedlots differ significantly compared to their counterparts in the Midwest. Direct marketings accounted for 64 percent of the Midwest volume compared to less than 40 percent for Michigan fed cattle. This translates into lower returns per head for Michigan cattle feeders. As Eldon Roberts of the Michigan Livestock Exchange observed, the prices realized on direct sales through the Exchange are consistently higher than for cattle sold through the auction ring.

The difference in prices may have several explanations. For one, it is common for cattlemen to attempt to group their cattle into uniform "liner-loads", when marketing direct, by sorting off cattle of less desirable weight and finish. Packing

plants prefer uniform loads and cattlemen can use the appeal of cattle sorted in this way to bargain for higher prices. In addition, larger groups of cattle result in lower transaction costs for the packing firm, increasing their willingness to pay slightly more. For example, less time is required to establish a price and strike an agreement. Also, there is a more subtle problem related to the subjective aspects of live cattle evaluation. Repeat transactions between a feeder and a packing plant help to establish a reputation of quality and reliability of the producer's description of the cattle being offered. If the packer can depend on the cattle feeder's description and the feeder can depend on the packer to honor the agreement, a contract can be made "over the phone" substantially reducing transaction costs for both parties.

Producers who market smaller lots of cattle tend to use the auction more often as a marketing avenue. The larger feedlot operator will also take the remaining cattle (sorted in the above example) and offer them for sale at the auction as well. Either way, the cattle appearing at auction sales are of less uniform (and often of less desirable quality) and are associated with higher transaction costs.

Both the ERS study (1981) and the MSU survey (1986) found that smaller cattle feeders sold cattle of heavier slaughter weights. Van Arsdall and Nelson attribute this to a tendency for small feeders to target the middle rather than low Choice

grade. Also they propose that where the small cattle feeder fills his lot only once a year, the opportunity cost of the value of gain on the new pen of cattle refilling the feedlot is not a factor. The 1986 survey data showed that in Michigan the smaller feeders place a larger percentage of large framed dairy or dairy cross cattle. Another consideration is that the farmer may feel he has less to lose if he keeps the cattle a little too long than if he sells them a little too soon. If he markets them too soon, he foregoes the potential profits from added weight gains as well as the ever anticipated higher price. If he waits too long, his penalty is a lower price, but on more pounds so total revenue is not significantly diminished until the cattle become excessively over finished.

### 5C.3 Management

Researchers almost unanimously recommend improvements in management as a key to improved profits. This translates into higher performance, efficiency, and output from owners and operators through maintenance of control on variables and achievement of goals. This precept is aptly stated in an unpublished undated working paper by Weimar et al. as follows:

Improving feeding management in all cases improves investment returns. ... Feeding cattle at higher rates of gain and reducing the number of days on feed reduced the fixed costs sufficiently to improve investment returns. This would indicate that the management system has perhaps more impact upon investment than the feedlot facility or type of cattle fed.

An exception to Weimar's conclusion might be the case where the farmer feeder's opportunity costs in other enterprises on the farm are greater than the opportunity cost of keeping the feedlot full year round. In this case he may be able to reduce feedlot overhead costs but may rationally forgo so doing because of alternatives.

### 5C.5 Profitability

According to the Telfarm data summaries (Schwab 1977-85), Michigan feedlots experienced more profitable years over the past decade than did either the Corn Belt or High Plains feedlots (see Table 5.3).

**Table 5.3: Profitability of Cattle Feeding in Michigan**

	1977	1978	1979	1980	1981	1982	1983	1984	1985
Profit per cwt. of Beef produced.	-----dollars-----								
Michigan (Telfarm)	- 8.47	- 9.03	12.99	8.15	1.19	3.89	1.89	-8.26	-4.16
Corn Belt	- 4.96	4.33	1.76	- 4.58	- 8.99	- 1.99	- 3.62	- 4.01	- 9.40
High Plains	- 5.31	2.60	.81	- 5.32	- 9.46	- 1.99	- 3.86	- 3.57	- 8.65

Source: Michigan State University Cooperative Extension Service, Telfarm data. USDA Livestock and Poultry Situation and Outlook Reports, selected issues.

As one may observe from the table, there is substantial deviation in profitability in Michigan compared to other areas. Even though profits may be considered a common denominator for comparison there are several possible explanations for the differences. For one, the Telfarm data is based on accrual

cost-revenue relationships. Changes in inventories and carry over of high or low cost feeder cattle and feeds affect the calculated profits. Also, as noted earlier, the Michigan feedlots are farmer (as opposed to industrial) feedlots and consequently face a different cost structure. Feed costs are generally lower and fixed costs are higher on a farm feedlot. Where prevailing national or local conditions cause one or the other of these categories to deviate from the norm, the result may be seen in the resulting profits. Further, the Telfarm data is very thin, representing a small number of Michigan cattle feeders. Deviations within the sample may distort the picture. Finally, the comparison of actual farm data, as in the case of the Telfarm data, with calculated or "engineered" cost budgets, as in the case of the USDA data, may not be legitimate. However, the author is not aware of better comparative data.

### **Summary**

The advantages of fed cattle production in the Southwest leave it as the undisputed center of the U.S. fed beef industry. Recent increases in relative feed costs in this region are still outweighed by economies of size, lower transaction costs, the existence of the infrastructure of large industrial feedlots and packing plants, and efficiency of gain achieved in the High Plains feedlots.

Virtually all of Michigan's cattle feeders qualify as farmer feeders and produce most of their feed on the farm. Home production of feeds has several advantages. For one, demands on cash flow are reduced. Also farmer feeders reduce risk due to feed price fluctuations by limiting feed purchases and taking advantage of crop residues. Total crop output can be increased by harvesting silage rather than grain and ensiling high moisture corn requires less harvesting costs in drying the crop. The disadvantage is that the majority of feeds used in cattle feeding have ready markets if harvested and stored in marketable forms. That is, these crops have positive opportunity costs, represented by their cash market value. If the crops are harvested for cattle feed they do not lend themselves so readily to cash markets.

Where existing facilities and family labor can be used to generate income, particularly during the off season, the farmer can benefit from allocation of time and investment in cattle. There are some disadvantages however. Seasonal use of facilities means higher per unit fixed costs associated with the cattle fed. However, most of these fixed costs exist whether cattle are fed or not, giving the farmer feeder a sense that the fixed costs need not be charged against the cattle feeding operation per se. Creating additional demands on family labor at peak times can result in costly misallocation of resources. Infrequent buying and selling of livestock

increases the risk due to fluctuations in the market. If the cattle reach market condition and weight when prices are depressed, the farmer feeder does not have the advantage of offsetting losses with profits realized on previous and/or subsequent pens of cattle sold in the same year.

Prices paid by Michigan farmers for feeder cattle compare favorably to those paid by Corn Belt farmers. However, High Plains cattle feeders appear to have an edge in this regard. But since the real source of competition for Michigan feeders is the Midwest, the slightly lower cost in feeder cattle is important.

Relative to the Corn Belt (the primary source of competing beef for Michigan markets), it has been demonstrated that Michigan has an advantage in the prices received for fed cattle. Intuitively, it seems that having a large efficient packing plant in the area could contribute to the progressiveness of the industry. Lower processing costs could result in the packer being able to pay more for the cattle. However, the lack of a single major packing facility may actually enhance the competition for cattle by maintaining a larger pool of buyers. A problem associated with this advantage is that when feeding for specialized markets, the finished product needs to be targeted to the characteristics of that market. Presently, cattle feeders are tempted to play the field-- an approach that requires substantial knowledge and



experience. There is always the risk of having cattle ready for a specific market that is not in a position to use them such as is the case when the Canadian packers are not buying. The overall result is greater price instability which can be devastating to feeders who market intermittently.

Where cattle are auctioned, feeders may end up receiving decidedly mixed signals depending on who is buying at the time. The foregoing translates into short term price instability, thin markets and lack of coordination.

#### CONCLUDING COMMENTS

Compared to the other states in the Eastern Corn Belt, Michigan's production of fed beef has remained relatively stable. Even though the survey was conducted during a time of particularly low prices, nearly all of the producers who were feeding at that time indicated that they expected to continue with their feeding operations. The continuation of a consistent level of output in the presence of a less than ideal cattle feeding and marketing environment indicates that many Michigan cattle feeders have been successful in keeping input costs down and finding satisfactory markets for their cattle.

From the supply standpoint, Michigan's primary advantage lies in the availability of low cost feeds such as corn silage and high moisture corn. These are primarily the result of the

often unfavorable fall harvesting conditions. When properly managed, they provide high quality sources of energy. However, they are not readily transported. In addition, the availability of lower quality grains and byproduct feeds enables feeders to choose alternative sources of inexpensive nutrients for cattle feeding. Michigan cattle feeders will succeed in turning out quality, marketable beef using the available resources, provided they can reduce production costs sufficiently to compete with producers in other parts of the country.

On the demand side, the Canadian market and other local specialized markets provide the potential for profit to cattle feeders who can produce the desired quality and degree of finish required. Local centers of population also provide the potential for expansion of slaughtering and processing facilities in the event that sufficient supplies of fed beef become available to sustain them.

Michigan cattle feeders have much of the experience, technology and facilities to efficiently convert available feeds into a high quality, marketable product. Innovations in cost reduction and improved management practices have been substantial, but there is still much to be done in this area. The recent interest in custom feeding attests to the commitment of some cattle feeders to find new ways to make current conditions work for, rather than against them. Aggressive cost

reduction efforts will play a major role in their remaining competitive and possibly capturing an even greater share of the regional market. Cattle feeding remains one of the best alternatives for marketing the Michigan corn crop, particularly when corn prices are depressed.

## **CHAPTER VI**

### **CONCLUSIONS AND RECOMMENDATIONS**

The availability of livestock feeds and the market opportunities for beef products are the two driving forces that will ensure a place for cattle feeding in Michigan for some time to come. The fed cattle industry was built around the prospect of converting surplus feeds (primarily corn) into beef. To a great extent cattle feeding will continue to play this same role.

The economics of cattle feeding have centered around the costs of feed, beef slaughtering, and transportation as well as relative prices of products. As the machinery of competition has moulded the path of progress, farmers and packers have relentlessly pursued ways to reduce costs and improve performance through more efficient use of resources. The outcome has been the concentration of investment in cattle feeding in the areas where the combination of factors involved in fed cattle production result in the most favorable cost price relationships. Economies of scale has enhanced the potential for growth. The evidence of these phenomena is the concentration of fed cattle production and processing in the Southwest. As discussed in Chapter I, history has shown that the nucleus of the fed cattle industry has gradually shifted

from concentration around the terminal markets of the Corn Belt, to areas of lower cost feed and more favorable climate in the Southwest.

Faced with the reality that the mainstream of the nation's cattle feeding industry was increasingly dominated by the volume of low cost beef from the Midwest, Michigan packers and cattle feeders have felt the competitive pressure. However, as demonstrated in Chapter II, the relative decline in cattle feeding in the Northeastern Cornbelt has been less pronounced in Michigan than in some of the other states such as Ohio.

This study has attempted to examine the reasons for the survival of the Michigan fed cattle industry and to identify potential means for remaining competitive.

In the context of this setting, the study objectives were to identify and describe the organizational and operational characteristics of:

- 1) Michigan's cattle feeders;
- 2) The markets available to Michigan cattle feeders;  
and,
- 3) To investigate Michigan's competitive position relative to major cattle producing areas in the United States.

A clearer understanding of the current profile of Michigan's fed cattle industry should prove useful to industry leaders and extension personnel seeking answers to decision making questions in management and investment planning. This chapter will focus on conclusions from the study and

application of the findings to industry issues.

#### **6A.1 Michigan Cattle Feeders**

Michigan's fed cattle industry is characterized by small "farmer" feedlots and numerous, diverse markets. Much of the feeding is undertaken as a means of transforming surplus feeds into quality fed beef, which, in most cases is a more marketable product. In addition to utilizing available or surplus feeds, the farmer feeder often engages in cattle feeding to realize greater returns from labor during the "off" season and make use of available (existing) facilities.

However, many of the disadvantages associated with farmer feeding originate as closely related to the advantages. For example, seasonal feeding (and therefore seasonal marketing) of fed cattle not only subjects the producer to seasonal vicissitudes of the marketplace but also frustrates packers who need a relatively uniform flow of live cattle. Surplus or "salvage" feeds may contribute to relatively low cost rations but may lack essential nutrients, resulting in lower than expected feed conversion and actually higher costs of gain. Harvesting of corn as silage or high moisture grain may reduce the risk of crop failure, but it also limits the versatility and thus marketability of the crop.

The fine line of success in cattle feeding depends heavily on excellent management which is the key to converting

tentative advantages into profitable results. Skillful managers will tend to choose to produce commensurate with their comparative advantage and expand to the level of output that maximizes profits. By default one might conclude that the absence of large "industrial" feedlots in the state indicate that climate, feed costs and markets are not conducive to cattle feeding on a large scale.

## **A.2 Markets**

As indicated by the survey of slaughterers of Michigan cattle, the fed cattle produced within the state are well received. The number and diversity of the markets allows for a wide range of cattle types and qualities. In many ways wise management can capitalize on the variety by working the cattle to fill the market where they "fit" the best. For example, the opportunity may exist to select from a mixed pen of cattle, the larger framed lean animals that may run the risk of not grading Choice until they reach excessive weights, and shipping them to a Canadian packer. Other cattle showing excessive finish may be best received by an Eastern packer; Holsteins to yet another plant and the more traditional type, well finished types to yet another. Such a scenario is only hypothetical and requires that the cattle of various grades and types finish rather uniformly. In addition, a substantial volume would be necessary to make a plan of this type feasible.

There are other advantages. With such diversity of cattle types in demand, the cattle feeder may be able to purchase "off type" feeder cattle that are not well received in some markets at a discount. With proper nutrition, he may then create a very acceptable product for some specialized market. The potential exists for feeders to feed specifically for a differentiated product such as "natural beef" or "tender and lean" and thus strike a working relationship with a small packer that could result in added profits for both.

Where specialized products and feeding to target a specific market prevail, the potential exists for undesirable outcomes as well. Just as a cannery may entice farmers to expand their orchards by offering to pay a "fair" price for "all they can produce" and then, when the market is flooded, become very liberal with the interpretation of "fair"; a beef packing plant can imply, by encouraging cattle feeders to increase output, verbal agreements with feedlots during times of short supply. Later it may be impossible to honor such implied commitments when there is a glut of fed beef on the market.

Packers often contend that contracts with feedlots for delivery of cattle, at a prearranged price and date, result in reduced quality of the cattle on delivery than would otherwise be expected. Because of these kinds of coordination problems, cattle feeders and packers tend to revert to traditional



marketing strategies where live cattle evaluation is much more subjective.

In order for any kind of coordinated marketing scheme to work effectively, communication of market signals must improve. Packers could begin by pursuing the potential for price incentives correlated to carcass quality. Producers could investigate means of improved evaluation of live animals. Both parties must overcome the barriers to greater acceptance of on the rail evaluation and pricing in order to make significant strides in genetic improvement. For, only when the proper signals filter down through the system to the cow calf producers will major improvements in quality be achieved.

### **6A.3 Competitive Position**

Cattle feeding in Michigan fills the role of a supplemental industry. There is no major factor or natural resource that favors cattle feeding in the state, decidedly, over all other agricultural (or non agricultural) alternatives. However, there is annually a residual of feeds and feed byproducts that can be utilized effectively as nutrition for finishing cattle. Similarly, demand for cattle fed in Michigan, as opposed to those fed in other parts of the country, does not offer definite incentives in terms of price or volume to attract specific investment in fed cattle to trade the Michigan marketplace. On the other hand, though demand

does not constitute a major overriding factor stimulating expansion it has been sufficient to encourage continued production.

It is the author's opinion that cattle feeding in Michigan will continue to hold a position similar to that which has been experienced over the past several years. Michigan cattle feeders' ability to compete will be determined by use of their natural resource base combined with a progressive business approach that identifies and responds to the need for change. Identification and control of costs, management of resources, and improved efficiency are major areas where strong business skills are needed.

Several times in this thesis the author has referred to the importance of niches in the market and the advantages these provide for investment. Michigan's geographic location on the eastern edge of the Corn Belt and near to centers of population provides entrepreneurs with fertile opportunity for the full exploitation and servicing of many of the market niches that exist. To the extent that specialized products can be marketed not as commodities, but as luxuries, status symbols, or otherwise conspicuous consumption, the potential for profits increases. Discovering and serving market niches seems to be the most promising avenue for the Michigan cattle feeding industry to pursue.

## 6B ISSUES AND RECOMMENDATIONS

### 6B.1 Concentration

Since the early part of the century the cattle slaughtering industry has seen a wide swing from relatively high to low levels of concentration. More recently, the trend has been to return to higher concentration. Steer and heifer slaughter estimates indicate 60 to 70 percent of the national output being slaughtered by the four largest firms. The new high levels of concentration in steer and heifer slaughtering firms signals that new challenges will be presenting themselves to the fed cattle industry in the near future.

The author would expect however that if any behavior to extract monopoly profits does occur, the consumer will be the first target through monopoly pricing of products rather than overt monopsony purchasing behavior. Much of this action may be disguised as new products are developed which will be marketed in much the same way as breakfast cereals which are extensively advertised, brand name identified, and relatively expensive.

It would seem the current transformation of the packing industry provides a rich opportunity for a case study in firm behavior as concentration ratios rise. More specifically, research of this case may produce valuable empirical data with respect to firm strategy toward input and product markets. For example, concentration is low in the cattle feeding sector but

non existent at the consumer level. Will the packers focus their attention on consumer market exploitation, or will they collude to drive the price of fed beef even lower?

Of concern to Michigan markets is the potential for predatory behavior to force Michigan packers out of business. This would increase transportation distances and possibly interfere with a specialized market orientation. On the other hand, to the extent that Michigan packers differentiate their products and, indirectly, their clientele, and thus decrease the degree to which they compete directly with the larger Midwest packers, the less the chance that they will be viewed as a competitive threat.

#### **6B.2 Slaughter Capacity**

Two major problems would have to be overcome in order to attract investment in a new, large, cost competitive slaughter facility. Both have to do with the supply of cattle. First, it is essential that a sufficient quantity of cattle be available. Secondly, volume must be relatively consistent year round in order for the plant to be competitive.

A prevailing attitude among packers centered around the intention of many to expand. Packers considering new construction are aware of the displacement effect that any new plant would have on the many small packing plants in operation in the state. A plant killing 250,000 head per year would

require a high percentage of the Michigan, Ohio, and northern Indiana annual production, depending on the number of cattle that could be drawn from more distant sources. Such displacement is considered to be an important barrier to entry and must be considered carefully.

Michigan producers should move with caution in seeking the establishment of a large slaughter facility, particularly one owned by a major packing firm. Obvious advantages include efficiency of processing, increased capacity and added competitiveness for cattle in the short run. However, if the firm is successful in capturing sufficient market share to begin to have an influence on the market, the historical and economical pattern has shown that the firm will begin to exercise monopsony control through price leadership. The result could be a marginal decline in the prices paid to producers which would consist mainly of the offsetting freight costs associated with the potential of shipping cattle out to competing markets.

### **6B.3 Market Coordination**

During the survey of slaughterers of Michigan cattle, one of the responding firms expressed interest in some source of information with respect to the number of cattle that would be on the market in the near future. Apparently discovery of available cattle would cut his purchasing costs and assist in

planning. The author would recommend that local cattlemen's associations address this issue and investigate its feasibility. Obviously the Michigan Live Stock Exchange plays an important role where market coordination is concerned.

Michigan cattle feeders and packers should investigate the alternatives of increased direct selling and forward contracting as a means of reducing risk, cutting transaction costs and stabilizing supply. Improvements could be made in information feedback to ensure that the correct signals with respect to the desired quality were being sent.

Another alternative that Michigan producers may wish to pursue is a form of electronic marketing. As stated in Quail et al (1986), "most forms of electronic marketing broaden the geographic scope of markets and reduce the level of buyer concentration." Other reasons for engaging in an electronic marketing scheme include lower transaction costs both in commissions and in physical handling of the cattle.

Another option under investigation by the Michigan Live Stock Exchange involves selecting cattle for elite restaurant trade, aging the high priced cuts and marketing them at prices which reflects a substantial premium. In some ways the effort is similar to the Certified Angus Program without licensing of dealers. The continuation of progressive thinking of this type will have positive results on the future of the cattle feeding industry.

#### **6B.4 Management**

The problem of holding cattle too long in the feedlot might be an issue of further education to both feeders and packers. An appropriate item of instruction would be to demonstrate the importance of those costs that are not so readily visible such as returns to time and investment and opportunity costs. Packers may find that there is a greater incentive to pay a premium for leaner cattle which have been proven to yield a substantially higher percentage of saleable retail cuts.

Michigan Live Stock Exchange has become involved in some major efforts to maintain and promote cattle feeding in the state. They have engaged in a form of cattle leasing or custom feeding in order to place cattle in feedlots where they feel that management is sound but financial resources are limited and credit is restricted. This is no small effort. In 1986 their placements amounted to 10 million dollars worth of investment and preliminary estimates for 1987 indicate nearly double that amount.

#### **6B.5 Consumer Concerns**

The abundance of feed grains is expected to continue for the foreseeable future and cattle feeding constitutes an important alternative for converting these resources into a saleable product. However, the feeding of grain to acquire a

desirable, marketable product has met with some opposition and resistance from some consumers who are concerned about the healthfulness of consuming animal fats. Balancing these concerns and finding acceptable solutions will be a major task for the industry in the future.

The position of beef as the preferred meat has been threatened by an increase in popularity of poultry and to a lesser extent pork. In a world of changing lifestyles, vendors of beef and beef products are faced with the challenge of finding ways to make home preparation of beef simpler, faster and more convenient, while countering the negative impacts resulting from health charges against beef. The cattle production sector of the industry is faced with adjusting to little or no growth and can no longer depend on underlying upward trend in demand that prevailed over the previous several decades (1950 - 1977).

As the industry moves to improve its competitive position in the red meat sector and enhance demand for beef products, and as trends in consumer preferences continue to develop, changes will occur in packaging, processing, and marketing. Cattle feeders must be alert to changes that influence market preferences which need to be reflected in the age, size, and degree of finish of the cattle entering the slaughterhouse. Even small changes in these areas will influence the overall competitiveness of Michigan fed cattle.



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**APPENDIX I**

**QUESTIONNAIRE FOR THE SURVEY OF MICHIGAN CATTLE FEEDERS**

### **The Cattle Feeders' Questionnaire**

**As discussed in Chapter III this questionnaire is included here for reference as well as a possible guide for future studies.**

## MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS  
AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824-1039

April 1, 1986

Dear Cattle Feeder:

The Department of Agricultural Economics, with funding from the Michigan Experiment Station, is undertaking a systematic survey of cattle feeders in the State of Michigan. The industry has been undergoing significant adjustments in response to declining demand for beef and rising costs of financing feeding operations. Many feedlot operators have been forced out of business. Meanwhile, the Michigan Department of Agriculture's statistical services have been substantially reduced as a result of budget cuts.

The proposed survey will be conducted to provide accurate, up-to-date information on the changing structure and operational characteristics of the cattle feeding industry. We will also identify problems in the area of feedlot operations, feeder cattle procurement and marketing of fat cattle.

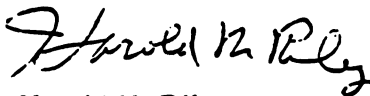
The survey results will be used by research and extension specialists in the Departments of Agricultural Economics and Animal Science to plan and carry out programs that will meet the needs of individual cattle feeders and industry organizations.

The survey has been planned collaboratively by staff members in the Departments of Agricultural Economics and Animal Science. A mailing list of cattle feeders has been developed with the assistance of field extension staff.

We would greatly appreciate your filling out the attached questionnaire. It shouldn't take more than 15 to 20 minutes. A return envelope is provided.

Could we have your response by April 25?

Sincerely,



Harold M. Riley  
Professor

Enclosures  
(Questionnaire-Return Envelope)

HMR/en



**CATTLE FEEDING SURVEY**

Departments of Agricultural Economics and Animal Science  
Michigan State University

This survey is an attempt to evaluate the current cattle feeding situation in Michigan. The information will be used to develop more effective extension and research programs for Michigan cattle feeders. Your individual response will remain confidential.

Farm Name \_\_\_\_\_  
Owner or Manager \_\_\_\_\_  
County \_\_\_\_\_  
Telephone No. \_\_\_\_\_

**I. FEEDER PROFILE****A. Background**

1. Age \_\_\_\_\_
  - a) Years farming \_\_\_\_\_
  - b) Years feeding cattle \_\_\_\_\_
2. Do you consider yourself a:
  - \_\_\_ a) full time farmer
  - \_\_\_ b) part time farmer (other job \_\_\_\_\_)

**B. Current Involvement**

1. Are you currently (or will be) feeding any cattle during 1986?      Yes    No
2. Over the next 3-5 years do you intend to
  - \_\_\_ a) expand?
  - \_\_\_ b) reduce?
  - \_\_\_ c) maintain current level?
  - \_\_\_ d) discontinue feeding cattle?
  - \_\_\_ e) undecided
3. Major Farm Enterprises (check all that apply)
  - \_\_\_ a) cattle feeding
  - \_\_\_ b) dairy
  - \_\_\_ c) hogs
  - \_\_\_ d) crops, specify \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  - \_\_\_ e) other \_\_\_\_\_

4. Do you custom feed cattle? ☐ Yes ☐ No

If yes,

- a) What percent of the cattle fed last year were on a custom basis? \_\_\_\_\_%
- b) What method do you use for determining what to charge?
- \_\_\_\_\_ i) cost of feed plus daily per head rate
  - \_\_\_\_\_ ii) cost of feed plus share of gain
  - \_\_\_\_\_ iii) flat rate per day
  - \_\_\_\_\_ iv) price
  - \_\_\_\_\_ v) other \_\_\_\_\_

## II. CHARACTERISTICS OF YOUR FEEDLOT

A. One time capacity of your feedlot \_\_\_\_\_

B. Number of cattle sold during 1985 \_\_\_\_\_

C. Feedlot facilities

1. Housing percent of total  
feedlot capacity

- a) open lot \_\_\_\_\_
- b) open lot with partial cover \_\_\_\_\_
- c) covered lot without slotted floor \_\_\_\_\_
- d) covered lot with slotted floor \_\_\_\_\_

2. Working -- Do you use

- \_\_\_\_\_ a) squeeze chute
- \_\_\_\_\_ b) headgate
- \_\_\_\_\_ c) livestock scale
- \_\_\_\_\_ d) separate hospital area
- \_\_\_\_\_ e) chronic pen

3. Do you use

- \_\_\_\_\_ a) a mixer wagon
- \_\_\_\_\_ (i) with scales that work
- \_\_\_\_\_ b) an auger system
- \_\_\_\_\_ c) a conveyor belt system
- \_\_\_\_\_ d) hand feed method
- \_\_\_\_\_ e) other \_\_\_\_\_

**III FEEDING PROGRAM****A. Cattle**

	Total	Beef	Dairy	Approx.	Approx.
1. Sex of cattle fed	<u>Percent</u>	<u>Type</u>	<u>Cross</u>	<u>Entry Wt.</u>	<u>Exit Wt.</u>
a. steer	___%	___%	___%	___ lbs	___ lbs
b. heifer	___%	___%	___%	___ lbs	___ lbs

**B. Current Feeds Used**

Please try to estimate the approximate percentage of those feeds that you purchase:

				% Purchased
1. Corn silage		yes	no	_____
2. Haylage		yes	no	_____
3. Hay	a) alfalfa	yes	no	_____
	b) other _____			_____
4. Corn	a) dry shelled	yes	no	_____
	b) high moisture	yes	no	_____
	c) ground ear	yes	no	_____
5. By product grains				
	a) brewers grains	yes	no	_____
	b) corn gluten feeds	yes	no	_____
	c) distillers grains	yes	no	_____
	d) other _____			_____
6. Protein source				
	a) soybean meal	yes	no	_____
	b) liquid protein suppl.	yes	no	_____
	c) protein blocks	yes	no	_____
	d) anhydrous treatment of silage	yes	no	_____
	e) other _____			_____
7. Potato by products		yes	no	_____
8. Apple pulp		yes	no	_____
9. Beet pulp		yes	no	_____
10. Other grains (specify)				_____
11. Other feeds or supplements _____				_____

## C. Implants and feed additives (circle ones being used)

1. Implants (a) ralgro, (b) synovex-S, (c) synovex-H  
(d) compudose; (e) steeroid, (f) heiferoid
2. Additives: (a) MGA, (b) Rumensin, (c) Bovatec, (d) Other

## D. Do you have your roughage analyzed?

yes                  no

1. ☐ annually
2. ☐ semi-annually
3. ☐ quarterly
4. ☐ other \_\_\_\_\_

## E. Feeding Methods (the term concentrates includes grain &amp; supplements)

1. How do you control the amount of feed per head per day?
  - ☐ a) all they will eat
  - ☐ b) actually weigh out amount fed per pen
  - ☐ c) measure by volume amount fed per pen
  - ☐ c) intuitively, by watching the cattle's daily reaction to the amount fed and adjusting (a little less or a little more) accordingly
2. Which of the following best describes your feeding program?
  - ☐ a) complete mixed ration
  - ☐ b) complete ration roughage is top dressed with concentrates
  - ☐ c) complete ration with roughage and concentrates fed separately
  - ☐ d) concentrate ration with free choice (may check more than one)
    - ☐ i) silage
    - ☐ ii) haylage
    - ☐ iii) pasture
    - ☐ iv) hay
3. Do you
  - ☐ a) add salt and minerals to the ration?
  - ☐ b) provide them free choice?
  - ☐ c) both (free choice in addition to amount added to the ration)?

## F. To reduce risk, do you

- ☐ a) forward price or contract feed?
- ☐ b) hedge using the grain futures markets?

#### IV. MARKETING

- A. Marketing methods over the last 2 years Percentage
1. Sales
- |                                                                                       |       |
|---------------------------------------------------------------------------------------|-------|
| a) livestock auction                                                                  | _____ |
| b) direct, through livestock agency                                                   | _____ |
| c) direct, by personal (or independent order buyer) arrangement with Michigan Packers | _____ |
| Out of state packers                                                                  | _____ |
| Canada                                                                                | _____ |
| Other _____                                                                           | _____ |
|                                                                                       | 100%  |
2. Do you feel there are adequate outlets for your cattle?      yes    no
3. How do you decide when to sell? (check all that apply)
- ☐ a) Personal evaluation of the condition of the cattle  
☐ b) Joint evaluation of the condition of the cattle with a colleague?  
☐ c) Joint evaluation with a cattle buyer, livestock exchange representative, etc.  
  
☐ d) Rely on the judgment of a buyer or market representative  
☐ e) By monitoring dry matter intake  
☐ f) Days on feed  
☐ g) Other (specify) \_\_\_\_\_
4. Do you feel that the market adequately reflects (or rewards the cattle feeder for) the quality of cattle offered?
- i.e, do buyers pay an adequate premium for:
- |                         |     |    |
|-------------------------|-----|----|
| a) high yielding cattle | yes | no |
|-------------------------|-----|----|
- Do buyers discount appropriately for:
- |                   |     |    |
|-------------------|-----|----|
| b) overfat cattle | yes | no |
| c) overweight     | yes | no |
| d) over mature    | yes | no |

5. As a method of price protection do you
- ☐ a) forward contract cattle (with a livestock agency)?
  - ☐ b) hedge using the cattle futures market?
  - ☐ c) trade livestock options?

## V. FEEDER PURCHASING

- Percent
- A. How did you purchase feeders over last 2 years?
1. \_\_\_\_\_
  2. livestock agency \_\_\_\_\_
  3. independent order buyer \_\_\_\_\_
  4. purchase your own \_\_\_\_\_
  5. other \_\_\_\_\_
- describe other \_\_\_\_\_
- 100%
- B. From which states have most of your feeder cattle come during the last two years?

State	Percent
_____	_____
_____	_____
_____	_____
_____	_____

- C. Are your feeders processed/vaccinated percentage
1. preconditioned (processed/vaccinated before arrival)? \_\_\_\_\_
  2. upon arrival? \_\_\_\_\_

## VI. Management Aids

- A. Records
1. Do you keep records on the performance of your cattle? yes no
- ☐ a) Gain (total)
  - ☐ b) Feed consumption
  - ☐ c) Days on feed
  - ☐ d) Other \_\_\_\_\_

**VII. Future**

A. Please describe your personal outlook for cattle feeding in the State of Michigan over the next 5 years. You may want to consider feeds, markets, types of cattle and other factors in your evaluation.

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B. We would like your comments on what you consider might be done to improve demand for beef.

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Return to:

Harold M. Riley  
Professor  
Department of Agricultural Economics  
Michigan State University  
East Lansing, MI 48824-1039

(Stamped envelope enclosed for your use.)

## **APPENDIX II**



## Survey Procedure

Included in Appendix I is a copy of the questionnaire used in the survey of Michigan cattle feeders. Persons interested in future research of this kind would be advised that the sections on feeds and feeding practices yielded very little useful information. For one, many of the respondents skipped over this section. They may have either been confused by the wording or possibly found the format too complicated. Also, those that did respond used everything from check marks to numbers which appeared to represent either weights, dollar values or percentages. Analysis was consequently very limited. The author is convinced that more careful revision and testing of revised questions would have produced improved results. The author would also encourage the researcher to solicit copies of questionnaires used for this purpose at other institutions. This effort could not only improve the quality of the data but also identify sources of other research for comparison of results, an essential part of the analysis.

Apparently a common procedure in surveying is to code the surveys and the address labels for easy identification. This advice came from a number of sources but, unfortunately, too late as the questionnaires had already been sent. Such identification would have greatly helped in tabulating the

results, correcting or updating addresses, deciphering illegible handwriting, and identifying those who simply wrote "No longer feeding cattle." and returned the questionnaire in the self addressed envelope without name or address. Such a procedure would also have greatly simplified the process of editing the mailing list in preparation for sending the reminder letter.

The address list contained a number of inconsistencies. As seen in Table AII many of the counties appear to be under represented. This is seen by comparing the columns identifying the number of feeders surveyed and the annual marketings for the county. For example, Jackson and Hillsdale counties had names and addresses for only a few feeders with corresponding substantial marketings. By contrast several counties, such as Washtenaw and Shiawassee, contain more names and addresses than expected given the number of fed cattle marketed from these counties. Some of the names listed in these counties may correspond to cow calf producers or those with backgrounding operations whose names appeared on county lists as beef producers.

Another concern about the original address list is examined by comparing this information with Table 3.4 which gives a breakdown of the counties in which the survey was conducted, the number of farmers surveyed in each and how many responded.

Table AII: Number of Cattle Feeders, Capacity and Marketings

COUNTY	CATTLE FEEDERS	MARKETINGS 1982 <sup>a</sup>	ESTIMATED <sup>b</sup> CAPACITY	RATIO <sup>c</sup>
Allegan	39	9100	7592	1.20
Barry	7	2899	1150	2.52
Branch	11	10661	4925	2.16
Calhoun	6	7526	2950	2.55
Cass	16	3441	1767	1.94
Clinton	23	4840	5175	.93
Eaton	50	3514	3782	.93
Genessee	7	8404	9400	.89
Gratiot	11	9513	9050	1.05
Hillsdale	4	8029	1100	7.30
Huron	98	41736	33545	1.24
Ingham	5	3053	565	5.40
Ionia	9	5247*	1330	3.95*
Isoco	13	D*	2500	D*
Isabella	11	8238	4300	1.92
Jackson	5	10859	4400	2.46
Kalamazoo	14	4873	5150	.95
Kent	17	4916	3111	1.58
Lapeer	13	8969	7935	1.13
Leelanau	9	2449	2200	1.11
Lenawee	17	11438	8565	1.34
Livingston	5	6438	2800	2.30
Macomb	2	3440	2020	1.70
Mason	7	2358	1170	2.02
Midland	99	6657	No capacity figures listed	
Monroe	12	6232	3757	1.66
Montcalm	1	1873	200	9.35
Muskegon	1	2917	700	4.17
Newaygo	2	2484	700	3.55
Oceana	14	2936	2450	1.20
Ottawa	23	10861	3500	3.10
Saginaw	21	3327	2500	1.33
Sanilac	57	7449	6805	1.09
Shiawassee	115	3194	No capacity figures listed	
St Clair	4	6566	2750	2.38
St Joseph	4	2963	1330	2.23
Tuscola	1	2989	1000	2.99
Van Buren	10	2326	2875	.81
Washtenaw	165	7407	5409	1.37

a: From Census of Agriculture 1982

b: From capacity figures in the address list

c: Marketings divided by estimated capacity.

\* Not reported to avoid revealing confidential individual farm data.

**Notes to consider from Table 3.3**

Note 1. The county agent in Midland county did not update the list sent to him but simply returned a document entitled "Beef List". Comparing this with the list sent to him revealed only one duplication of address. With no way of knowing which addresses corresponded to cattle feeders vs. cow calf or backgrounding operations it was necessary to simply include the entire list. This partially explains the large number of individuals surveyed in this county.

Note 2: The number of addresses for Shiawassee county are suspiciously high. The author has no explanation for this.

Note 3. Washtenaw county had on the list 165 cattle feeders claiming a capacity of 5409, but 2772 of that capacity came from 126 farmers all declaring a capacity of 22 head. Incidentally, not one respondent from that county reported a capacity of 22 head. Furthermore 40% of the erroneous addresses originated from the Washtenaw county list.

The capacity and marketing figures provide some useful information in determining the accuracy of the address list. From these we can compute a simple feedlot use ratio by dividing the marketings figure by the estimated capacity. This ratio can be used as a guide to compare the reported figures

with reasonable expected values.

Since it is possible to fatten cattle in as little as 60 days in the feedlot with proper backgrounding and warm up it is conceivable to market as many as six times the one time capacity of a feedlot during the course of a year. In this case the feedlot use ratio would be 6 or a total of six times as many cattle marketed as capacity in the feedlot. More typically, however, marketings are significantly less as often pens of cattle require 3-9 months to finish, depending on entry weights. Refilling of the lot is not always immediate, and the lot is not always filled to capacity. In some cases financing of the cattle may not be available or the operator may feel that existing costs and prices make cattle feeding unprofitable. Regardless of the reason, it is highly unlikely that the feedlot use ratio would exceed 3.5. Consequently, those ratios corresponding to Hillsdale, Ingham, Ionia, Montcalm, Muskegon, and Newaygo counties raise questions about the accuracy of the address list with respect to the feeders in these counties.

Feedlot use ratios are difficult to compute since capacity data are often unavailable. The industry relies on another ratio that serves as a proxy for feedlot use, the turnover ratio. This figure is computed by dividing the total annual marketings by the one time number of cattle on feed. Usually January 1 is the reference date. The turnover rate will be higher than the feedlot use ratio because the cattle on feed

will always be less than or equal to the one time capacity of the feedlots. Typically in major cattle feeding states, aggressive cattle feeders will experience turnover rates of between 2 and 3. cattle over two to three times during the course of a year depending on the entry weights and the degree of finish desired. Where cattle feeding is seasonal, as is often the case in Michigan, or if for other reasons the lot remains empty for a portion of the year, the turnover rate will be much lower. The turnover rate calculated for Michigan was 1.28 using marketing data and cattle on feed figures for 1978-81.

In the case of Montcalm, Hillsdale, Ingham, Muskegon, Newaygo, and Ionia counties the ratio of marketings to capacity indicates that either the marketings are over stated or the capacity is understated or both. Understatement of the capacity would suggest that not all of the current cattle feeders names and capacity estimates are on the list.

**APPENDIX III**  
**QUESTIONNAIRE FOR THE SURVEY OF SLAUGHTERERS**  
**OF MICHIGAN CATTLE**

July 16, 1987

{company-}  
{first-} {last-}  
{address-}  
{box-}  
{city-} {state-}  
{country-} {zip-}

Dear Mr. {last},

Please find enclosed a copy of the questionnaire "A Survey of Slaughterers of Michigan Cattle." As I indicated in my phone call this copy is provided to familiarize you with the questions and allow you to make any advance preparations for our telephone appointment. This approach was chosen in order avoid misinter-pretation of the questions and to streamline the data collection process.

The information requested pertains to the calendar year 1986.

Individual responses will be kept strictly confidential.  
A copy of the summarized results will be sent to you for your reference.

The intent of this survey is to gather current information about the type, quality, and sizes of cattle desired by slaughter plants accessible to Michigan cattle feeders. It is also hoped that information regarding the current slaughter capacity, volume trends, and competitiveness of plants in the Eastern Cornbelt region will prove useful to those intending to invest in the cattle feeding industry. We believe that it is increasingly important for cattle feeders to identify anticipated markets and feed accordingly.

I currently plan to phone you on {date} at {time}.  
Pretesting of the questionnaire has indicated that at least 20 minutes to 1/2 hour are required to complete it.

Your help and cooperation are greatly appreciated.

Sincerely,

Kent Gwilliam

KG/kg  
encl.



## Survey of Slaughterers of Michigan Cattle

Firm name: \_\_\_\_\_  
Contact Person: \_\_\_\_\_  
Address: \_\_\_\_\_  
Date: \_\_\_\_\_ Cattle Buyer \_\_\_\_\_

## PLANT PROFILE

Year when this plant was built.....  
Years since most recent major remodeling.....  
Years under present plant management.....

Current slaughter capacity (8 hour shift) Cattle \_\_\_\_\_  
Hogs \_\_\_\_\_  
Sheep \_\_\_\_\_

Average number of shifts/week.....  
Potential number of shifts/week.....

Has your capacity changed over the last 10 years?	Y	N
1		
2		
3		
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99		
100		

\_\_\_\_\_ Increased from \_\_\_\_\_ to \_\_\_\_\_ shifts/week in 19\_\_\_\_  
 \_\_\_\_\_ Increased from \_\_\_\_\_ to \_\_\_\_\_ head/shift of \_\_\_\_\_ in 19\_\_\_\_

**What is your most limiting factor in production?**

\_\_\_\_\_ Kill floor capacity  
\_\_\_\_\_ Cooler Capacity  
\_\_\_\_\_ Inspection  
\_\_\_\_\_ Labor  
\_\_\_\_\_ Other

**Do you routinely practice carcass stimulation?**                      Y    N

Do you hot process? Y N

or are you considering hot processing? Y N

**Is yours an on-the-rail skinning and dressing system?   Y   N**

Do you ethnic (Kosher, Muslim, etc.) kill? Y N

## OPERATIONS

Indicate the percent of total cattle slaughtered in each category.

Type of cattle	Percent	3 yrs. ago 1983
Colored (Beef type) steers.....	_____	_____
Colored (Beef type) heifers.....	_____	_____
Holstein Steers.....	_____	_____
Cows.....	_____	_____
Bulls.....	_____	_____
Calves.....	_____	_____
Total	100%	100%

Indicate the percent of fed cattle that fall into each quality grade.

	Percent
Prime.....	_____
Choice.....	_____
Good.....	_____
Standard.....	_____
No-roll.....	_____
Total	100%

Indicate the percent of fed cattle that fall into each yield grade.

Yield grades	Percent
1 .....	_____
2 .....	_____
3 .....	_____
4 .....	_____
5 .....	_____
Ungraded.....	_____
Total	100%

What percentage of the cattle you kill are dark cutters? \_\_\_\_\_%

What kind of cattle are the most profitable for your operation?

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Least profitable?

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Would you remove fat on the kill floor if yield grade requirements were changed? Y N

What percentage of your carcasses require trimming to remove:  
(Average number of lbs. trimmed)

bruises? _____%	_____
abscesses? _____%	_____
other? _____%	_____

Do Michigan cattle require more or less trimming than average?  
\_\_\_\_\_more \_\_\_\_\_less \_\_\_\_\_no difference

**PROCUREMENT (1986 calender year) Fed beef only.**

What are your current requirements for carcasses?

Beef type:

Choice steers	_____%	weighing	_____	to	_____	lbs.	YG	_____
Choice steers	_____%	weighing	_____	to	_____	lbs.	YG	_____
Choice heifers	_____%	weighing	_____	to	_____	lbs.	YG	_____
Choice heifers	_____%	weighing	_____	to	_____	lbs.	YG	_____
Good steers	_____%	weighing	_____	to	_____	lbs.	YG	_____
Good heifers	_____%	weighing	_____	to	_____	lbs.	YG	_____

## Holsteins

Choice steers \_\_\_\_\_% weighing \_\_\_\_\_ to \_\_\_\_\_ lbs. YG \_\_\_\_\_  
 Good steers \_\_\_\_\_% weighing \_\_\_\_\_ to \_\_\_\_\_ lbs. YG \_\_\_\_\_

Which kind of cattle are you having the most trouble getting?

What percent of your fed cattle come from within:

Percent

50 miles.....  
 51-100 miles.....  
 100-200 miles.....  
 200+ miles.....  
 Total 100%

Sources of fed cattle for slaughter

Percent

Michigan.....  
 Ohio.....  
 Indiana.....  
 Illinois.....  
 Wisconsin.....  
 Pennsylvania.....  
 Iowa.....  
 Canada.....  
 Other.....  
 Other.....  
 Total 100%

Which source do you prefer? \_\_\_\_\_ Why?

## Purchasing

What percent of your fed cattle are purchased through the following methods? Percent

Direct- feedlot to packer:

House cattle buyer dealing with the feedlot..  
 Order buyer or commission purchase.....  
 Other .....

Indirect:

House cattle buyer- auction.....  
 Orderbuyer independent.....  
 Other .....

Total 100%

What percentage of your cattle are purchased

Percent

On the rail basis  
 Live weight basis.....  
 Grade and yield.....  
 In the beef.....  
 Other.....  
 Total 100%

In the case of live purchases, do you require the producer to guarantee:

a minimum dressing percent? Y N

a maximum yield grade? Y N

(i.e. cattle must dress at least 57% with no more than 10% YG 4s)

What are your main procurement problems? (rate 1-4 worst to least)

\_\_\_\_ Availability of desired quality and type

\_\_\_\_ Consistent Quality

\_\_\_\_ Transportation

\_\_\_\_ Other

Do you:

Percent of total  
volume.

Do you feed your own cattle?

Y N

Forward contract purchases with cattle feeders?

Y N

Have feeders custom feeding cattle for you?

Y N

Would you like a list of major cattle feeders in Michigan who are custom feeding?

Y N

What post slaughter information is available to the producer? Indicate by placing the corresponding letter A, B, or C in the space under the appropriate column heading.

A) Currently provided B) Available on request C) Not available

	By Lot			Identified By Animal		
	A	B	C	A	B	C
Carcass weight	A	B	C	A	B	C
Yield grade	A	B	C	A	B	C
Quality grade	A	B	C	A	B	C
Backfat	A	B	C	A	B	C
REA	A	B	C	A	B	C
KPH fat	A	B	C	A	B	C
Liver abscesses	A	B	C	A	B	C
Liver Flukes	A	B	C	A	B	C
Amount of trim	A	B	C	A	B	C

Do Michigan fed cattle have more or less liver problems than those from others sources? \_\_\_\_more \_\_\_\_less \_\_\_\_no difference

What could Michigan cattle feeders do to improve their product being offered for sale? \_\_\_\_\_

#### SALES

What sources do you use for price formulation information?

Yellow sheet

Blue sheet

Other \_\_\_\_\_

Do you market beef products under a private brand name or label?

Y N

If not, are you considering one?

Y N

If yes, what percent of your total volume goes into these products? \_\_\_\_\_%

What quality grade of carcasses do you use in these products?

Choice \_\_\_\_\_%

Good \_\_\_\_\_%

No-roll \_\_\_\_\_%

How are your fed beef products shipped? (Percent by weight of total pounds shipped)

Sides & Quarters (swinging).....

Boxed Beef.....

Primal cuts (not vacuum packed).....

Processed portion cuts, chipped, formed, ground, etc. fresh and/or fresh frozen.....

Processed into cooked and/or cured products.....

Types of markets for products                      Percent by weight

Direct to Supermarkets.....

Direct to Other retailers.....

Direct to HRI.....

Direct to other Packers or Processors..

Purveyors (wholesalers).....

Your own retail outlet.....

Other.....

### LABOR

Do you have a union contract? Y N

What is your base hourly rate.....

What is your top hourly rate .....

Do you have bonuses for individual piece work \_\_\_\_\_  
or shift volume \_\_\_\_\_

or other \_\_\_\_\_

Do you have a weekly guarantee of hours? Y N

What is your annual workers compensation cost? \_\_\_\_\_  
per worker? \_\_\_\_\_

What does your benefits package contain?

\_\_\_\_\_ Health Care

\_\_\_\_\_ Dental

\_\_\_\_\_ Retirement

\_\_\_\_\_ Paid vacation \_\_\_\_\_ weeks

\_\_\_\_\_

Your benefits package makes up what percent of your total labor costs? \_\_\_\_\_%

**COMPETITIVE POSITION**

What advantages or disadvantages does your plant have compared to plants in the Southwest, High Plains, and Western Cornbelt?

	Advantage	Cost Disadvantage	Cost No Diff.
External			
(taxes, regulations)	_____	_____	_____
Labor	_____	_____	_____
Scale (plant size)	_____	_____	_____
Cattle			
Availability	_____	_____	_____
Quality	_____	_____	_____
Consistency	_____	_____	_____
Cont....	Adv.	Dis.	No Diff
Market			
Availability	_____	_____	_____
Diversity	_____	_____	_____
Fabrication ability	_____	_____	_____
Kill Cost	_____	_____	_____

Drop Credit Value \$ \_\_\_\_\_. Date of quotation \_\_\_\_\_

What is main source of competition?

\_\_\_\_\_

What is your key to remaining competitive?

\_\_\_\_\_

What is your most restrictive constraint to being more competitive?

\_\_\_\_\_

**OUTLOOK**

Over the next three years do you intend to

\_\_\_\_\_ Expand?

\_\_\_\_\_ Reduce?

\_\_\_\_\_ Discontinue?

\_\_\_\_\_ Maintain current level of production?

What is the potential for expanding the slaughter capacity in your area? \_\_\_\_\_

Are you in favor of changes in quality grading standards? Y N

Would you use the "Select" grade if it became official? Y N

What role should the Eastern Cornbelt have in the cattle industry to be competitive with the cattle feeding and slaughter industry in the High Plains, Western Cornbelt and Southeast?\_\_\_\_\_

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Do you have any specific problems that could be addressed by the research and extension resources of the University?

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**APPENDIX IV**  
**DETERMINATION OF MICHIGAN FEEDER AND FED CATTLE PRICES**



## Michigan Prices

The Michigan Live Stock Exchange in Lansing Michigan was very helpful in providing a set of weekly price quotations from January 1, 1978 through October 1985. The author subsequently subscribed to the weekly report and retained copies which accounted for the quotations through December 1986. The entire set has been placed in the possession of Dr. J. Ferris of the Michigan State University Agricultural Economics Department.

Calculation of monthly average prices was accomplished by entering all the weekly sales quotes, usually from six to eight per week for the beef type, fed steers, and three or four per week for 600 - 800 lb. colored feeder steers, and averaging the weekly and monthly data. The actual calculations were performed by Agricultural Economics Computer Center Personnel under the supervision of Chris Wolfe.

Below is a sample of the format used to store the price information in Lotus. The first two digits of the left column correspond to the year, the next two- the month and the last two- the week. The second and third columns represent the number of cattle in the lot and the selling price.

Date	Number	Price
780101	20	45.00
780101	32	44.96
780101	11	44.02
780101	12	44.82
780101	16	44.36
780101	30	43.60
780101	27	43.60
780102	11	45.50
780102	31	45.36
780102	6	44.60
780102	11	44.54
780102	17	44.82
780102	15	44.64
780102	12	44.91
780103	22	45.57
780103	10	44.97
780103	14	44.35
780103	12	45.40

Average weekly prices were calculated by multiplying the number sold by the price for each quotation for the week to get a value of the lot and then summing the number sold and dividing this sum into the sum of the lot values to get an average price. For example, if the week had four quotations:

780103	22 * 45.57=	1002.54
780103	10 * 44.97=	449.70
780103	14 * 44.35=	690.90
780103	12 * 45.40=	544.80
	<u>58</u>	<u>2617.94</u>

2617.94 divided by 58 is 45.14 or the average price for the week.

Then a straight average price was calculated for each

month. (i.e. sum the weekly prices and divide by the number of weeks.)

The output, the weekly and monthly prices, was listed in columns in such a way that they could be imported into Lotus or TSP to use in further calculations. It was in this form that they were transferred to Micro TSP in order to produce the graphs in Chapter V. Appendix V contains a number of tables, some of which display the monthly averages thus calculated.

The number of quotations varies for each week and the number of weeks reported for each month may also vary.

## **APPENDIX V**

### **TABLES OF DATA USED IN FIGURES IN CHAPTER V**

**Table V.1 Michigan Feeder Steer Prices**

<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>
7801	43.46	8101	73.70	8401	67.78
7802	47.04	8102	71.94	8402	68.23
7803	52.24	8103	68.66	8403	69.13
7804	55.30	8104	69.04	8404	65.66
7805	60.68	8105	67.13	8405	62.83
7806	59.39	8106	65.01	8406	61.64
7807	61.35	8107	65.57	8407	62.96
7808	61.77	8108	64.60	8408	64.07
7809	63.77	8109	66.07	8409	64.52
7810	63.37	8110	63.31	8410	63.23
7811	65.45	8111	62.23	8411	64.67
7812	67.43	8112	61.96	8412	65.42
7901	71.68	8201	60.72	8501	68.93
7902	79.43	8202	63.69	8502	68.67
7903	84.16	8203	66.11	8503	65.09
7904	86.90	8204	67.51	8504	66.12
7905	86.51	8205	67.12	8505	65.14
7906	81.38	8206	67.25	8506	64.50
7907	80.39	8207	67.22	8507	63.81
7908	79.93	8208	66.94	8508	57.20
7909	83.83	8209	67.29	8509	57.85
7910	79.83	8210	63.90	8510	58.31
7911	80.78	8211	64.11	8511	61.42
7912	79.34	8212	61.38	8512	63.39
8001	80.39	8301	66.70	8601	62.10
8002	83.41	8302	66.78	8602	61.93
8003	80.47	8303	69.19	8603	59.12
8004	70.97	8304	67.92	8604	56.06
8005	71.45	8305	66.35	8605	53.70
8006	73.21	8306	64.67	8606	56.13
8007	76.94	8307	63.24	8607	58.90
8008	76.87	8308	59.92	8608	61.51
8009	75.01	8309	57.37	8609	63.89
8010	74.43	8310	58.22		
8011	72.88	8311	61.06		
8012	73.86	8312	64.17		

Source: MLSE weekly quotation data.

**Table V.2: Michigan Fed Steer Prices**

<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>
7801	45.15	8101	65.50	8401	69.84
7802	46.99	8102	63.30	8402	68.21
7803	50.76	8103	62.09	8403	69.40
7804	53.18	8104	64.75	8404	68.07
7805	58.99	8105	65.83	8405	65.98
7806	57.48	8106	67.28	8406	64.49
7807	55.64	8107	67.20	8407	66.26
7808	53.13	8108	66.19	8408	65.33
7809	54.74	8109	65.97	8409	63.78
7810	55.27	8110	63.23	8410	63.17
7811	55.03	8111	61.28	8411	65.96
7812	56.71	8112	59.83	8412	66.70
7901	62.32	8201	61.00	8501	66.30
7902	66.86	8202	64.01	8502	64.56
7903	72.20	8203	67.08	8503	61.28
7904	75.25	8204	68.94	8504	59.05
7905	74.37	8205	73.09	8505	58.14
7906	69.28	8206	70.05	8506	56.95
7907	65.15	8207	66.02	8507	53.04
7908	62.99	8208	65.09	8508	52.88
7909	68.32	8209	62.17	8509	53.50
7910	66.97	8210	59.44	8510	61.95
7911	67.80	8211	59.05	8511	65.02
7912	69.35	8212	58.08	8512	65.51
8001	68.71	8301	60.48	8601	61.01
8002	69.19	8302	62.42	8602	57.63
8003	67.04	8303	64.82	8603	56.10
8004	64.47	8304	67.93	8604	54.44
8005	64.09	8305	66.90	8605	55.07
8006	65.90	8306	65.51	8606	54.29
8007	70.16	8307	62.46	8607	58.10
8008	72.57	8308	61.12	8608	60.33
8009	70.92	8309	59.43	8609	60.76
8010	69.21	8310	60.52	8610	60.31
8011	67.42	8311	61.19	8611	62.30
8012	66.66	8312	63.67	8612	63.27

Source: MLSE weekly quotation data.

**Table V.3: Choice Steer Prices Omaha**

<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>
7801	43.62	8101	63.08	8401	67.08
7802	45.02	8102	61.50	8402	67.07
7803	48.66	8103	61.40	8403	68.60
7804	52.52	8104	64.92	8404	67.86
7805	57.28	8105	66.86	8405	65.89
7806	55.38	8106	68.26	8406	64.28
7807	54.59	8107	67.86	8407	65.79
7808	52.40	8108	66.37	8408	64.36
7809	54.26	8109	65.37	8409	62.68
7810	54.93	8110	61.45	8410	60.85
7811	53.82	8111	59.81	8411	64.29
7812	55.54	8112	59.24	8412	65.32
7901	60.35	8201	60.75	8501	64.35
7902	64.88	8202	63.54	8502	62.80
7903	71.04	8203	65.80	8503	59.28
7904	75.00	8204	69.11	8504	58.72
7905	73.99	8205	72.10	8505	57.58
7906	68.53	8206	70.18	8506	56.64
7907	67.06	8207	66.18	8507	53.26
7908	62.74	8208	65.14	8508	51.94
7909	67.84	8209	61.25	8509	51.29
7910	65.81	8210	58.78	8510	58.02
7911	67.00	8211	58.91	8511	63.30
7912	68.72	8212	58.92	8512	62.94
8001	66.32	8301	59.33	8601	59.69
8002	67.44	8302	61.20	8602	56.42
8003	66.88	8303	64.03	8603	55.55
8004	63.07	8304	67.70	8604	53.68
8005	64.58	8305	67.51	8605	55.79
8006	66.29	8306	65.90	8606	54.08
8007	70.47	8307	62.22	8607	58.27
8008	72.31	8308	61.27	8608	59.04
8009	69.68	8309	59.19	8609	59.43
8010	67.18	8310	59.58		
8011	65.05	8311	59.41		
8012	64.29	8312	62.85		

Source: USDA Livestock and Poultry Situation and Outlook Reports.

**Table V.4: Choice Steer Prices Texas New Mexico Direct**

Month	Average Price	Month	Average Price	Month	Average Price
7801	.00	8101	66.08	8401	69.49
7802	.00	8102	63.99	8402	68.43
7803	.00	8103	68.91	8403	71.00
7804	53.10	8104	66.98	8404	70.09
7805	58.23	8105	69.04	8405	67.31
7806	55.94	8106	70.60	8406	65.31
7807	54.48	8107	68.53	8407	66.22
7808	51.96	8108	66.96	8408	64.54
7809	54.19	8109	67.47	8409	62.60
7810	53.98	8110	63.97	8410	62.14
7811	53.70	8111	63.09	8411	66.06
7812	56.85	8112	61.14	8412	68.19
7901	61.28	8201	62.34	8501	66.13
7902	65.14	8202	64.81	8502	64.81
7903	72.15	8203	67.00	8503	61.36
7904	75.72	8204	71.64	8504	61.43
7905	75.73	8205	74.43	8505	60.94
7906	70.48	8206	71.58	8506	58.68
7907	69.25	8207	66.66	8507	54.52
7908	63.50	8208	65.76	8508	53.89
7909	68.80	8209	62.29	8509	53.80
7910	65.49	8210	61.54	8510	61.11
7911	68.15	8211	61.64	8511	66.39
7912	69.66	8212	61.64	8512	65.86
8001	67.17	8301	61.80	8601	60.81
8002	68.80	8302	62.77	8602	57.74
8003	67.75	8303	65.68	8603	57.43
8004	64.92	8304	71.36	8604	55.91
8005	67.32	8305	69.17	8605	57.95
8006	68.42	8306	67.03	8606	55.81
8007	72.05	8307	63.76	8607	59.28
8008	72.96	8308	62.37	8608	59.84
8009	69.82	8309	59.68	8609	.00

Source: USDA Livestock and Poultry Situation and Outlook Reports.



**Table V.5: Feeder Steer Prices Great Plains**

<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>
7801	44.22	8101	71.88	8401	67.32
7802	47.91	8102	70.22	8402	68.31
7803	52.52	8103	68.91	8403	67.97
7804	54.33	8104	65.07	8404	65.08
7805	59.28	8105	61.70	8405	60.94
7806	57.03	8106	63.20	8406	60.28
7807	59.67	8107	61.62	8407	62.94
7808	69.92	8108	64.16	8408	63.90
7809	63.50	8109	65.11	8409	63.61
7810	61.75	8110	62.50	8410	63.27
7811	64.15	8111	64.17	8411	66.44
7812	67.37	8112	60.50	8412	67.84
7901	74.74	8201	60.78	8501	70.19
7902	80.23	8202	63.78	8502	70.60
7903	88.11	8203	64.74	8503	67.11
7904	90.26	8204	64.07	8504	65.09
7905	85.90	8205	64.50	8505	63.08
7906	75.74	8206	63.38	8506	60.42
7907	79.00	8207	65.29	8507	58.75
7908	76.13	8208	67.11	8508	61.88
7909	80.88	8209	64.43	8509	56.62
7910	78.43	8210	63.25	8510	60.11
7911	80.78	8211	61.88	8511	61.94
7912	80.85	8212	62.69	8512	61.65
8001	79.63	8301	66.06	8601	63.90
8002	82.62	8302	67.28	8602	62.81
8003	77.81	8303	70.50	8603	59.03
8004	68.05	8304	67.62	8604	55.15
8005	68.58	8305	63.07	8605	54.28
8006	69.12	8306	62.25	8606	54.88
8007	71.33	8307	59.72	8607	61.08
8008	75.01	8308	59.58	8608	63.63
8009	73.16	8309	57.72	8609	63.50
8010	73.23	8310	57.54		
8011	71.62	8311	62.00		
8012	72.66	8312	66.12		

Source: USDA Livestock and Poultry Situation and Outlook Reports.

**Table V.6: Feeder Steer Prices Corn Belt**

<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>	<b>Month</b>	<b>Average Price</b>
7801	44.07	8101	72.58	8401	65.06
7802	47.60	8102	70.40	8402	66.45
7803	52.00	8103	66.80	8403	67.42
7804	55.08	8104	66.74	8404	67.51
7805	60.36	8105	65.79	8405	65.70
7806	58.56	8106	65.12	8406	62.70
7807	60.60	8107	63.22	8407	63.80
7808	63.08	8108	67.75	8408	64.04
7809	64.46	8109	66.16	8409	63.98
7810	64.88	8110	64.07	8410	65.06
7811	64.85	8111	64.02	8411	65.42
7812	69.83	8112	60.06	8412	66.28
7901	75.29	8201	60.08	8501	68.48
7902	80.26	8202	63.28	8502	69.08
7903	87.25	8203	65.78	8503	67.40
7904	89.98	8204	66.08	8504	68.60
7905	88.32	8205	67.78	8505	67.04
7906	82.19	8206	65.57	8506	65.40
7907	82.48	8207	65.26	8507	60.76
7908	79.31	8208	67.85	8508	61.52
7909	85.34	8209	66.48	8509	60.25
7910	81.29	8210	63.45	8510	62.37
7911	82.44	8211	63.88	8511	62.86
7912	82.80	8212	63.35	8512	60.98
8001	80.52	8301	65.30	8601	62.16
8002	83.18	8302	67.35	8602	62.42
8003	77.62	8303	69.19	8603	63.22
8004	69.87	8304	68.38	8604	60.32
8005	69.18	8305	67.62	8605	60.40
8006	72.25	8306	64.75	8606	58.50
8007	73.32	8307	60.13	8607	61.00
8008	76.40	8308	58.58	8608	65.75
8009	77.60	8309	58.31	8609	65.50
8010	76.05	8310	60.20		
8011	73.75	8311	61.00		
8012	72.96	8312	63.65		

Source: USDA Livestock and Poultry Situation and Outlook Reports.

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