ABSTRACT

HOG MARKETING CHANNELS IN MICHIGAN:
STRUCTURE AND PERFORMANCE IMPLICATIONS

By

Tom Bloomer

The objectives of this report are to describe the structure of the slaughter hog marketing system in Michigan, and to investigate certain aspects of the market's performance.

The first objective was accomplished with a census survey mailed to all hog packers located in Michigan, personal interviews with persons in the packing industry and in marketing agencies, and with unpublished statistics collected by the Michigan Department of Agriculture.

The investigation of market performance was also accomplished with the survey, numerous personal interviews with those in the industry, plus the application of economic theory. Four aspects of market performance are discussed: 1) the problem of accurate communication of supply and demand to producers; 2) the problem of communicating carcass quality characteristics to producers in a way that promotes more effective production management; 3) the ability of the market system to serve the varied production requirements of the different kinds of packers present in the state; and

4) the ability of the system to promote an accurate reflection of value to the buyer in the price paid to the producer.

The report discusses ten methods of slaughter hog marketing, nine of which are actively employed in Michigan to some degree, though three methods (auctions, packer buying stations, and direct sales) account for nearly 85 percent of total marketings by Michigan producers. Auctions are used by Michigan producers to market their hogs more than the national average - packer buying stations and direct shipments less - while smaller packers look to auctions more as a source of supply than do larger packers, who rely more upon packer buying stations and direct shipments. Custom slaughter and on-the-farm slaughter account for what may seem to some as a surprisingly large percentage of Michigan's hog production - 9 percent.

The investigation of performance found the market generally unsuccessful in coordinating demand and supply in a way that avoids widely fluctuating prices. The market system was found to be somewhat more successful in transmitting carcass quality information to producers, but only because of the characteristics of direct marketings between producers and packers. In fulfilling the needs of packers, Michigan's marketing system seems to be hindered more by a lack of adequate in-state supply than an inability to conform to the procedural requirements of packers. The ability of the market to establish equitable returns is highly

variable, depending largely upon the amount of competition within individual market firms and between market firms.

This report does not develop a full evaluation of market performance because there are performance questions left undiscussed. Performance aspects necessitating further study include: markets' technical efficiency in assembling and shipping hogs, the cost of conducting market transactions, the markets' effect upon the distribution of risk among participants, and the benefits of market diversity as opposed to the possible efficiencies in more concentration of market activity.

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by

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CHAPTER I

INTRODUCTION

In 1974, Michigan hog producers shipped slightly more than one million hogs to packers.[1] The purpose of the report that follows is twofold: the first objective is to describe the structure of the marketing system in Michigan that funnels slaughter hogs from producer to packer; the second purpose is to investigate certain aspects of the market's performance.

In 1969, the Michigan Crop Reporting Service surveyed hog packers located within the state in order to determine how many Michigan produced hogs they were slaughtering, and also to determine how many of those animals were shipped directly from producer to packer [7]. The results of that survey were published in 1970.

Also in 1969, the same office surveyed producers in order to determine the specific market channels they were using in selling their livestock [8]. The results of that survey were released in 1971. The two surveys showed some disagreement concerning direct marketings (see Appendix 2), and the packer survey seemed to indicate an inordinately small number of Michigan hogs slaughtered by Michigan packers. Five years having passed, it is the purpose of this report to approach the market structure question again with fresh data and more detail, to perhaps shed some new light on the methods used to market hogs in the state.

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[1]Source: Michigan Crop Reporting Service

The first part of this paper, then, is concerned with the structure of the Michigan slaughter hog marketing system. It is based upon a census survey mailed to all hog packers located in Michigan, plus numerous interviews with packers and other persons in and around the industry. Those sources, in combination, present what is believed to be a fairly accurate picture of the market system in Michigan. A more detailed discussion of the survey utilized in the report is found in Appendix 1.

After discussing how the market works, it is worthwhile to discuss how well it works. The third chapter of the report is devoted to an investigation of selected market performance questions. Contributions to that discussion come from the survey of packers, which was designed to provide some measurement of performance, and from thoughts that have been pulled together from others' research or experience, and from elements of economic theory.

CHAPTER II

STRUCTURE

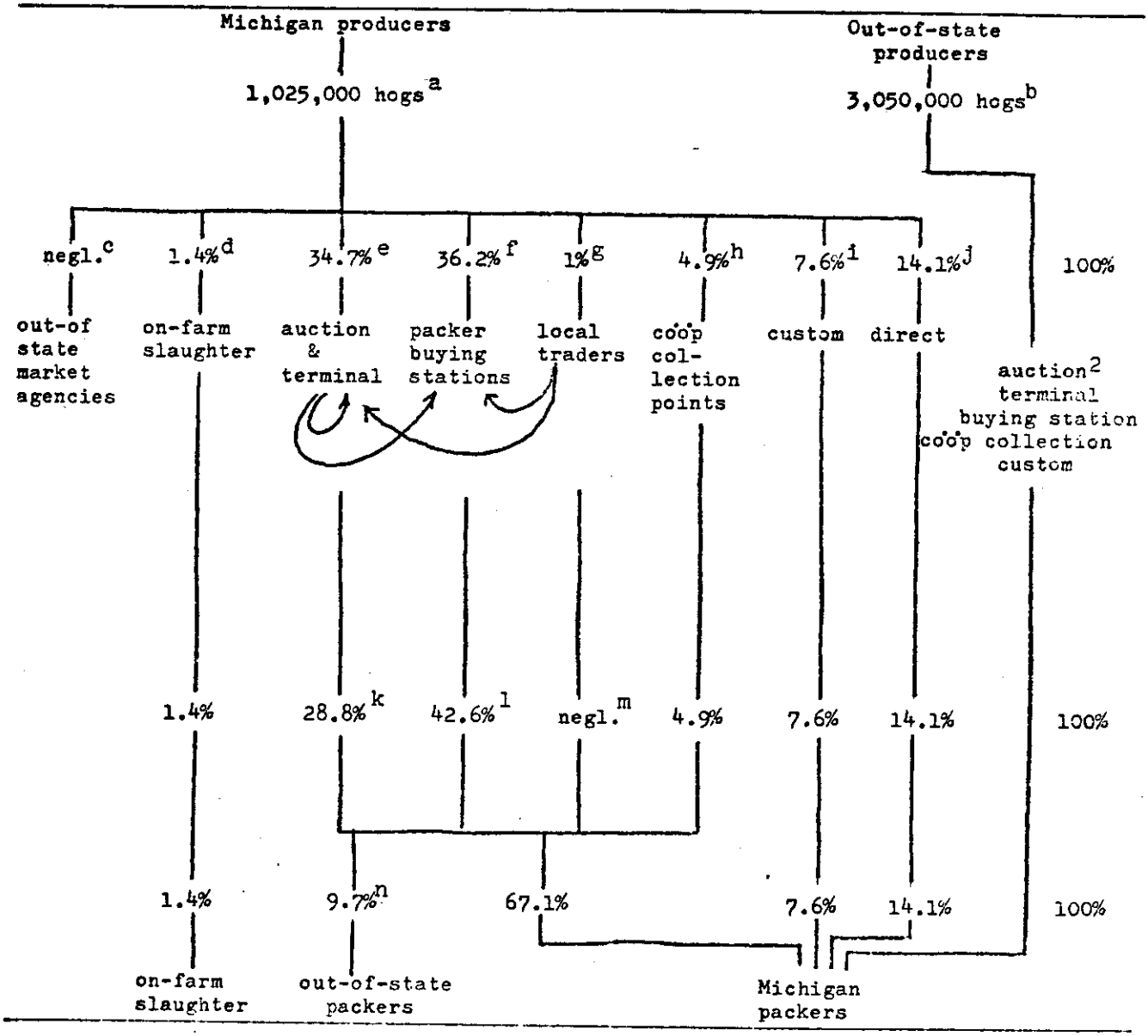
This report discusses ten market methods commonly employed to transfer hogs from producer to packer or consumer:

1) local auction
2) terminal markets
3) packer buying stations
4) direct sales to packers
   a) without any marketing contract
   b) with a marketing contract
5) local truckers and livestock traders
6) cooperative producer collection points
7) custom slaughter
8) on-the-farm slaughter
9) production and packing vertically integrated
10) electronically assisted auction system.

All but the last of those methods are employed in Michigan. Between all ten, there is some difference in technique or mode of operation (with perhaps one exception, to be discussed) that is important. Further, a great deal of variation in operating technique is present within some of the categories. Therefore, if one is to have a good understanding of the market system, some of the detail bears examination. Figure 1, on the next page, provides a schematic overview of the movement of Michigan slaughter hogs through the State's market system, followed by more detailed explanation and description.

Figure 1

MOVEMENT OF HOGS FROM PRODUCER TO MICHIGAN PACKER



Sources:

a,b,d,e,g	-	Michigan Department of Agriculture
c,f,h,k,l,n	-	industry
i,j,m	-	packer survey

[2]Marketed primarily through out-of-state marketing agencies, except for custom slaughter. Source: packer survey.

Local Auctions

The traditional local auction requires bidders, usually holding orders from packers, to bid for lots of hogs as they pass through a sale ring. Typically, the bidders are seated in bleachers overlooking the ring, where stockmen herd the lot over scales, then around the ring, and out the door while an auctioneer conducts the proceedings. Or, auctions can be patterned after the terminal market style: buyers holding orders from packers compete in negotiating price with a commission man from the marketing agency while the proceedings move from pen to pen in the yards. In either case, the auction firm charges a "commission," usually per hundredweight sold, for its services.

At auctions, hogs are grouped only by producer and by market class (gilts and barrows, sows, boars, etc.) and not by live grade. At most auctions, the lot weight is announced as the only information available to bidders - their pricing decisions rely upon their skill at visually inspecting the hogs. If a producer regularly markets quality hogs, it is to his advantage for the bidders to know that the hogs are his, because, over time, the bidders will learn whose hogs perform well at the packing plant and will compete for the increased certainty of quality that comes with identifying the producer. The regular marketer of quality hogs may mark the animals with livestock crayon in a distinctive way, or the auctioneer may tip the bidders off to the identity of the faithful marketer. Some auctions actually announce the name of the producer as the hogs enter the ring.

The auction firm is faced with something of a dilemma here: because the auction's profits are based upon volume, it wants to promote good prices to regular marketers of good animals - that insures continued marketings by the producer. But the firm doesn't want to promote direct contact between bidder and purchaser, for the two might decide to deal directly, leaving the auction firm out. By dealing directly, the packer saves trucking charges from auction to plant and the producer saves the commission.

Several years ago, a tattooing system was initiated to identify each hog with its producer. The purpose of the system was to aid in tracing disease outbreaks, but the identification had the potential to be used in other ways - commission firms feared that once packers identified the best producers, they would deal directly and bypass the auction. With the decline of serious disease problems the original justification weakened and the system rapidly disappeared.

Auction facilities in Michigan are both privately held or owned by producer cooperatives; a few firms operate more than one auction facility. There were forty-three local auctions with state licenses operating in Michigan in 1974. Thirty-two of them handled hogs. Together with the terminal market in Detroit, auctions sold 356,000 hogs, or 34.7 percent of the total marketed by Michigan producers.[3] Table 1, following, summarizes auction activity, categorized by the number of slaughter hogs handled annually.

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[3]Source: Michigan Department of Agriculture.

Table 1

AUCTION NUMBERS BY SIZE CATEGORY

Hogs Handled	Number of Auctions in Category	Percent of Total Auction Sales
1 - 999	7	.8
1,000 - 4,999	6	3.4
5,000 - 9,999	8	16.5
10,000 - 19,999	5	18.9
20,000 -	7	60.2
	33 (includes Detroit stockyards)	100.0%

Source: Michigan Department of Agriculture, 1974.

Seven, or 22 percent, of the thirty-two auctions handled over twenty thousand hogs apiece, and together, accounted for over 60 percent of the hogs sold through auction. Another seven firms sold under one thousand apiece, and collectively accounted for only .8 percent of the hogs sold through auction. Four locations handled over thirty thousand hogs apiece, and none handled over fifty thousand.

Nationally, about 14 percent of the slaughter hogs purchased by packers move through auctions; therefore, Michigan producers rely relatively heavily upon the auction channel [1, p. 37].

The smallness of certain hog auctions does not necessarily indicate a deteriorating market firm - it may not be located in a hog producing area and specialize in another species - but it does mean that the firm's hog market is not particularly viable. That is, volume isn't great enough to draw competitive bidders.

For this reason, many of the hogs sold in smaller auctions are actually marketed twice. Since the small auction may not be able to assemble a large enough number of hogs of a type and grade desired by a larger packer, the animals are remarketed through a larger facility where they can be assembled with other like animals and reshipped to the packer. The larger firm may actually bid on animals at the smaller firm, or the smaller firm may purchase the hogs and send the lot to the larger firm as a producer. To some minor extent, then, the 356 thousand marketings by producers through auctions represents a smaller number of actual hogs, since some were marketed twice.

Terminal Stockyards

There are twenty-seven terminal markets, licensed by the Federal government, that are commonly known as public markets.[4] The public market uses the same auction technique described above, where order holders for packers compete in negotiating price with commission men representing producers as they move from pen to pen, except that, unlike the privately owned auction firm, more than one commission firm usually operates there.

The differences between the local auction and one of the eleven major terminal markets, then, are found primarily in size - the volume of animals and the number of bidders. Because of the relative abundance of competitive activity at the major terminal markets, they are often considered the most accurate

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[4]Source: U.S. Department of Agriculture, Animal and Plant Health Inspection Service.

indicators of actual supply and demand conditions. Therefore, the prices they establish frequently provide the basis for local price negotiations.

However, the declining role of the central, terminal market has been well documented as the national packing industry has decentralized into the producing localities. In 1950, forty percent of the hogs purchased by packers moved through terminal markets; by 1970, seventeen percent moved through the terminal channel [1, p. 37].

The terminal market in Detroit is not one of the eleven major markets. Since there is presently only one commission firm operating there, the Detroit yards are treated here as a local auction, and the hog marketing figures are included in the preceding discussion of auctions.

Packer Buying Stations

The packer buying station buys hogs from producers and re-sells them to packers. Such stations hold a dealer's license from the state; unlike the auction, the packer buying station takes title to the hogs in the transaction. That allows the station to aggregate incoming hogs and sort them by type and live grade for the packer.

The dealer takes an order from a packer for a certain number of hogs of given type and quality at a negotiated price. The price paid to the producer and charged the packer is based upon a combination of factors described by one dealer as "other markets, barter, and what the market will bear." Typically, the

dealer starts the morning's business with a major terminal market price, and then adjusts to local conditions from there. If demand is heavy, the price works upward - if light, the price offered to producers moves downward in order to move the hogs. Animals may be discounted for deviation from prime weight in ten pound increments.

There were two major packer buying firms in Michigan in 1974 that operated five buying stations. Along with several smaller dealers operating collection facilities, these stations purchased approximately 371 thousand hogs from producers, or 36.2 percent of the total marketed in 1974.[5]

Because a marketing firm may hold both a dealer license and an auction license the actual marketing channels used can easily become blurred and indistinguishable. For instance, a marketing firm, to meet the varied demands of its different buyers, may itself buy hogs out of its own auction, group and sort to the specifications of the buyer, and sell them to the buyer as a dealer. That process takes place at a number of market points in the state, involving at least six percent of the total number of hogs marketed, by conservative estimate. Therefore, even though some 356 thousand hogs (34.7 percent) were sold by producers (primarily) at auction, only some 290 thousand (28.8 percent) were purchased by packers at auction. Consequently, though Michigan producers delivered approximately

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[5]Source: industry.

371 thousand hogs (36.2 percent) to packer buying stations, some 437 thousand (42.6 percent were actually sold to packers by dealers.[6]

Direct Sales to Packers

Direct shipments from producers to packers can take a number of forms, and are accomplished through two pricing methods: a formula price, usually related to a terminal or auction established price, or a specific price set by a forward contract.

A forward cash contract specifies a certain number of hogs to be delivered during a certain month for a certain price based upon the futures market price for that month. The packer, once committed to the contract, can then sell a contract on the futures market for the same price, thereby covering the price position established by the forward cash contract with the producer. The contract guarantees a price to the producer and packer and it guarantees the delivery of a certain number of hogs. Therefore, the forward contract system has the potential to allow the firm to more accurately schedule production, though that advantage is somewhat limited because the producer actually determines the exact date of delivery within the month, usually upon a week's notice. There are a few packers in Michigan that have forward contracts of some type, though on a very limited number of hogs - under five thousand in total.[7]

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[6]Source: industry.

[7]Source: packer survey.

Marketing contracts specify a certain number of hogs to be delivered over a specified period of time (for instance, a year) for some sort of formula price, either based upon terminal or auction prices directly, or tied to the grade and yield of the hogs.

Though one tends to associate contracts with a formal, legal instrument, the market contract may simply consist of a verbal agreement to market a certain number of hogs to a certain packer. Formal market contracts appear to cover an insignificant number of hogs marketed in Michigan - around two thousand.[8]

The cooperative marketing contract is simply a marketing contract between a packer and an association of producers. Such an arrangement allows the packer a more coordinated source of supply, and it reduces the risk for each individual producer in actually meeting the terms of the contract. Nationally, the National Farmer's Organization has experimented with market contracts as a part of its hog marketing strategy. This research revealed no cooperative marketing agreements in which Michigan producers presently participate.

The most common form of direct marketing is that which involves no contract at all. Even so, such marketing may range from the case where producers simply show up at the plant with hogs to sell, to a general agreement and expectation that a producer will market through a certain packer. The latter case is similar to a market contract except that there is no binding

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[8]Source: packer survey.

agreement involved; the packer is allowed consistent quality and good production coordination from producers with whom he is familiar and the producer saves commission charges and may receive a premium price for quality. According to data collected from the census survey of packers, approximately 138 thousand hogs were obtained through direct marketings with no formal agreements. Pricing at smaller plants is generally based upon local auction prices, and at larger plants upon terminal market prices.

Finally, the production contract is one that involves an agreement for a producer to raise hogs owned by the packer for a specified price per pound gain. Though an insignificant number of hogs are raised by a couple of small packers as a source of supply, the census did not record any production contracts between packers and unassociated producers.

In total, then, approximately 145 thousand hogs were purchased by packing plants directly, or 14.1 percent of the total marketings in Michigan.[9] In combination, packer buying stations and direct shipments accounted for 50.3 percent of the slaughter hogs marketed by Michigan producers. On the other hand, in 1970, a greater percentage, 69 percent, were marketed directly, or through packer buying stations, over the nation as a whole [1, p. 37].

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[9]Source: packer survey.

Custom Slaughter

The custom slaughter market is a form of direct marketing, only from producer to consumer. The packer generally does not take title to the hog, but simply sells the slaughter and packing service to the consumer.

Over ninety of the 115 state inspected hog slaughterers custom butchered hogs for individuals who include hog producers themselves and consumers who purchase the hog directly from the producer and then hire the services of the custom slaughter plant.[10] The customer rarely actually possesses the live hog - the producer normally delivers the animal to the plant and bills the purchaser for the live hog. Generally, the producer relies upon a local auction, terminal, or terminal-via-packer-buying-station price to determine the price charged to the customer.

Local Traders and Truckers

Local livestock traders are small dealers who buy hogs from producers and who resell them to another marketing agency. They may or may not provide a sorting function (as packer buying stations do), but aggregate hogs into large enough lots to be moved economically to a purchaser.

The 1969 Michigan Crop Reporting Service survey of producers [8] indicated that only about one percent of the slaughter hogs shipped by responding producers were marketed to local traders and truckers. Some of those hogs are moved out of the

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[10]Source: packer survey.

state for resale - the remainder are resold at auctions and packer buying stations within the state. An insignificant number are shipped directly to Michigan packers by such traders.

Cooperative Producer Collection Points

A cooperative producer collection point is a cooperatively owned assembly station, where producers put together large enough lots of hogs to ship directly to packers. That arrangement need not differ from a packer buying station operated by a cooperatively owned firm, except that the cooperative assembly point may be operated by a bargaining group in which producers are actively and personally involved and that negotiates price and supply agreements with packers.

There are several such collection points located in Michigan that shipped approximately fifty thousand hogs in 1974, or 4.9 percent of the total marketings by Michigan producers.

Farm Slaughter

The 8,064 hog farms recorded by the last U.S. Census of Agriculture engage in a certain amount of on-the-farm slaughter for home use [13]. Though not really a market as such, on-the-farm slaughter is one of the ending points for a small percentage of slaughter hogs raised by producers. Further, there are an inestimable number of local, rural, unlicensed individuals who butcher a few hogs a year for local residents: farmers and their neighbors. The Michigan Department of Agriculture estimates that, in 1973, fifteen thousand hogs were slaughtered

on-farm for home consumption [10, p. 34]. Using that figure as an estimate again for 1974, 1.5 percent of total Michigan slaughter hog production is disposed of in this fashion.

Production and Packing Vertically Integrated

Vertically integrated production and packing occurs when the same firm operates both hog producing and hog packing facilities. The need for any kind of public exchange agency or mechanism between the two processes is eliminated, along with the associated costs. Integrated pork production has the potential to provide the most complete coordination of hog production with processing within the individual firm, because decision control resides within a single entity. Of course, the production contract can provide the same advantages - the difference is that the integrated firm hires the necessary labor and hog production expertise, whereas the contracting packer rents the hog-raising expertise of the independent producer for a specific period of time.

While there may be savings in eliminating the transactions between packer and independent producer, there are potential costs, particularly for the large firm. Relatively little is known about the economy and feasibility of raising huge numbers of hogs in a concentrated area, or the added costs of coordinating the management of dispersed production operations within the single firm, as well as the feasibility of a single management adequately coordinating production and processing on a large scale.

While one tends to equate integrated production and packing with the large, conglomerate style firm, that need not be the arrangement. The tiny number of hogs raised by producer-packers in Michigan are raised by a few small firms (under 1,000 head kill annually) and public institutions (university and prison).[11] Because the number of hogs involved is so insignificant in Michigan, the integrated method will not be considered further.

Electronically Assisted Auction

The electronically assisted auction enables the auctioneer, bidders, and each load of livestock to be at different locations at the same time - otherwise, the method is similar to the conventional auction. Since bidders and animals aren't brought together in one location, the electronically assisted auction can sell animals over a larger producing area and collects bids from more widely scattered buyers than most local auctions can attract. That has the effect, of course, of increasing the level of competitive bidding over the local auction, which may normally have one to five bidders present.

Animals can be assembled before or after the sale takes place. The sale of slaughter animals can be accomplished with on-farm grading, then sent to the purchasing packer, or if necessary, aggregated into the proper truckload lots after the specific destination is known.

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[11]Source: packer survey.

Electronically assisted auctions take two forms, depending upon the type of equipment utilized. The teleauction (or telephone auction) is conducted over a conference telephone call. The teletype auction utilizes teletype equipment that prints out the auction proceedings and allows a virtually unlimited number of buyers to participate.

Electronically assisted auctions are a relatively new system, and none are operating in Michigan. In 1974, feeder pigs were sold in several states using teleauctions, and slaughter hogs were sold at points in Iowa and North Carolina [5, p. 11]. Hogs in several Canadian provinces are traded over a teletype exchange system [5, p. 15].

Producers

There is a two-way relationship between a market and its clients. The characteristics of individual producers and packers are influenced by the market between them. At the same time, the structure of the market is determined in large part by the characteristics of producers and packers in the aggregate.

Michigan ranks seventeenth among the states both in hogs and pigs in inventory and in sows farrowed [9, pp. 25, 30]. The industry has experienced some growth in the past ten years, though it appears to have leveled off. Inventory numbers increased by about 12 percent from December 1, 1965 to December 1, 1973, and farrowings increased by about 13 percent [9].

Hog production is concentrated in the southern four tiers of counties where corn is extensively grown. Hog inventories

are maintained in all but three lower peninsula counties and are absent in ten of the fifteen counties in the upper peninsula [9,pp. 22-31]. The hog inventory for the entire upper peninsula is under two thousand [9, pp. 22-31].

In 1969, the most recent year for which compiled census statistics are available, there were forty-four thousand farms in classes I through V, eight thousand of them marketing hogs for slaughter [13, p. 19]. A summary of their production activities follows.

Table 2

HOGS AND PIGS SOLD, MICHIGAN, 1969

Number Sold	% of Total Production	Number of Farms	Number of Hogs
Total	100	8064	1,057,568
1-9	0.39	829	4,166
10-49	7.06	2768	74,670
50-99	11.18	1679	118,328
100-199	17.96	1375	189,791
200-499	28.72	1021	303,744
500-999	17.94	288	189,810
1,000 +	16.72	104	176,879

Source: U.S. Census of Agriculture, Michigan Summary Data, 1969, p. 19.

Forty-five hundred farms marketed fifty or more pigs, accounting for 92.5 percent of total marketings. However, the largest number of producers, 2800, marketed in the ten to

forty-nine category. The smallest number, 104, marketed over one thousand slaughter hogs annually. Producers in the 200-499 category accounted for the lion's share of total marketings - about 29 percent.

Michigan's hog industry is on a scale smaller than other midwestern states, and it consists of relatively small and unspecialized producers. The nature of Michigan producers may have contributed to the development of hog markets in a number of ways:

1. The lack of a viable terminal market for hogs is not surprising. The Detroit area or any other Michigan district is simply not surrounded by enough concentrated production activity to support a major national market. Michigan hog production is scattered and localized, except perhaps in the southwest district of the state. Over time, the active development of locally oriented marketing agencies was a logical consequence.

2. Likewise, the development of large scale direct purchasing and packer buying stations seems to have been more rapid in states of more concentrated hog production. The ability to collect and ship large lots of sorted, uniform hogs is promoted by the existence of numerous, frequent marketers. The relative abundance of marketings from Michigan producers of two to five hundred hogs, found in 1969, probably did not satisfy that need very well.

The buying station method has rapidly increased in importance in the state to the point where it is now the prevalent method, though it is not as developed as in other midwestern states. The

lion's share of station buying activity is in the southwest portion of the state, where hog production is most concentrated.

3. Though contracting directly with packers is not a major method in other states, contracting techniques have been more prevalent than in Michigan, where little experimentation with large scale contracting has occurred. For a large portion of Michigan producers, hog production is an enterprise secondary to cash cropping, dairy or beef production, or it is a part-time enterprise. The small or part-time producer lacks the kind of commitment to the industry that seems to foster imagination and innovation among larger producers. The large, specialized producer, with all or most of his income coming from one source, attaches greater importance to the uncertainties of the hog market and is more aggressive in seeking ways to alleviate risks and improve the operating efficiency of marketing programs.

Direct marketing agreements of a more informal nature than future cash contracts still have the same requirements for fairly uniform numbers of hogs, frequently available, that promote packer buyer activity. Smaller producers often do not have the volume nor the evenness of production to enter into the kind of marketing agreements that larger producers can.

Packers

The Michigan hog packing industry encompasses a tremendous variety of firms, slaughtering from under fifty to over one and a half million head annually. There were 115 state inspected

hog packers operating in 1974 that slaughtered hogs on a regular basis.[12] In addition, there were seven federally inspected plants.[13]

The number of packing firms has been in continual decline for some years - in 1968, there were 172 state inspected packers killing hogs, and in 1974, 115.[14] Most of that decrease has taken place among the smaller plants - those slaughtering under one thousand head of all species annually [7]. The continual evolution of stricter state health laws has been responsible for much of the decrease. The smaller firm often lacks the volume of business needed to financially justify major changes in facilities that are often required to meet more restrictive laws; the alternative has been to leave the business.

However, at the same time, the volume of the hog kill has increased rapidly. In 1968, 2.1 million hogs were slaughtered in the state; in 1970, 2.9 million; in 1973, 3.8 million; and by 1974, 3.97 million [10, p. 37]. Most of that increase has been contributed by expansion among the largest firms - those slaughtering over ten thousand hogs annually.

The way in which hogs are procured changes significantly with the size of plant. A summary of market procurement channels by size of plant, based upon the usable responses from the census survey of packers, follows. Since some marketing information

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[12]Source: Michigan Department of Agriculture.

[13]Source: USDA, Animal and Plant Health Inspection Service.

[14]Source: Michigan Department of Agriculture.

could not be obtained from two of the largest plants in the state, reliable estimates could not be established for the marketing channels used by federally inspected plants.

Table 3

MARKET CHANNELS UTILIZED BY MICHIGAN PACKERS, 1974

	State Inspected				Federally Inspected
	Under 50-999	1000-4999	5000-9999	10,000-50,000	50,000 +
No. of Plants	72	26	8	9	7
% of total No.	59%	21%	6.5%	7%	6%
% of state inspected kill	9.2%	13.9%	17.6%	59.3%	--
% of total Mich. slaughter	.9%	1.2%	1.5%	5.1%	91.3%
% purchased out-of-state	5%	0	insig.	24%	approx. 75%
% of Mich. Hogs Procured:					
Custom	85%	76%	26.7%	.7%	
Auction & Terminal	5	15	27	21	
Packer Buying Station	insig.	0	8.5	44	
Direct	9	9	37.8	34	
Cooperative	0	0	0	0	
Local Trader	insig.	insig.	0	0	
	100%	100%	100%	100%	
% of usable responses out of total possible per category	47%	58%	100%	78%	
% of hogs represented by responses out of total possible per category	54.5%	47%	100%	76%	

Source: packer survey.

Because the state inspected firms serve markets within the state, they tend to be smaller than the federally inspected plants serving regional or national markets - no state inspected firm slaughtered over fifty thousand head, and only one federally inspected plant slaughtered under fifty thousand head. As the plants increase in size, they tend to become more specialized - that is, most of the larger plants slaughter hogs exclusively. Many of the smaller, custom plants slaughter more than one, or all species.

The lower peninsula of Michigan is dotted with small hog packers throughout. With rare exception, the seventy-two plants processing under one thousand hogs annually are custom slaughter operations, killing and wrapping animals obtained by their customers.[15] Because some of these firms will purchase animals for the customer and/or operate a retail meat counter as a part of the business, they themselves buy some hogs, primarily from producers directly. Only a few of such firms, situated along the southern border, obtained hogs from outside the state.

As the plant volume gets larger, a greater percentage of business activity is devoted to retailing and wholesaling pork from purchased animals; very few large packers offer any custom slaughter services. Note the shifts in market channel with plant size.

When the actual purchase of hogs (as opposed to custom slaughter) increases in importance as a part of the business, firms appear to look toward local auctions first as a source of

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[15]Source: packer survey.

supply, supplying only five percent of the needs of firms slaughtering under fifty to 999; increasing to fifteen percent for firms slaughtering 1,000 to 4,999 and 27 percent for those slaughtering 5,000 to 9,999, but dropping to 21 percent for those slaughtering 10,000 to 50,000.

Direct purchasing increases with firms slaughtering five thousand or more, whereas buying stations become most important to firms slaughtering ten thousand or more.

The nature of the shifts in market usage among different size firms might be generalized as follows.

Local auctions and low volume direct purchases are easy and convenient sources of hogs to supplement the custom packing business of smaller firms. Larger packers, perhaps serving less flexible markets and with less flexible processing routines, are attracted to buying stations that can provide large lots of hogs pre-sorted for uniform type and quality. Likewise, direct shipments from producer to packer of uniform lots of hogs remains relatively important with larger packers. Many local auctions, on the other hand, don't handle the volume necessary to be the major source of supply of uniform lots of hogs for the larger firm. And, whereas most local auctions can obtain the volume to operate a viable market by competitive bid only on certain days of the week (often, only one), packer buying stations, with prices based upon terminal activity, accept hogs throughout the work week, and, of course, direct shipments can be accomplished at any time. Large packers, slaughtering five days a week, can be expected to rely upon buying stations and direct shipments more heavily.

While Michigan auctions handle a relatively large percentage of hogs, direct shipments and packer buying stations together accounted for approximately 50 percent more producer marketings than did auctions.

With packer buying stations shipping hogs of even quality, the producer is encouraged to market his top hogs there, where packers may pay a premium to obtain uniform lots of high quality hogs. Or the producer may market top hogs direct. The producer's remaining, less desirable, hogs, not actively sought by dealers or the larger plants themselves, may be marketed through auction. This has the effect of entrenching the auction's role with the smaller packer who may deal more flexibly with odd lot animals, and of reinforcing the buying station's role with the larger packer who insists on more uniform quality and who has the volume to justify shopping around until the desired product is found. Note that out-of-state purchases become important with the same size group of firms for whom packer buying stations are important.

The larger state inspected plants and the federally inspected plants tend to be situated in the southeast portion of the state, though not exclusively so. The largest of the federally inspected plants are not located near rural areas at all, and consequently, are involved in few direct shipments from producers. The number of direct shipments to federally inspected plants, then, as a percentage of total shipments to that group, would be expected to be smaller than for the more rurally located state inspected plants. Packer buyer stations are the major source of Michigan produced hogs for those federally inspected plants.

Summary

In summary, then, the percentage of Michigan hogs handled by each market channel, in 1974, was found to be as follows:

Table 4

SUMMARY OF MICHIGAN HOG MARKET CHANNELS

Item	Number	Percent
1) custom slaughter	78,000	7.6
2) auctions and terminal	356,000	34.7
3) packer buying stations	371,000	36.2
4) direct shipments	145,000	14.1
5) cooperative collection points	50,000	4.9
6) local traders	10,000	1.0
7) on-the-farm slaughter	15,000	1.4
	1,025,000	100.0%

Sources: packer survey, industry.

However, because of intermarket transfers between local traders, auctions, and packer buying stations, packers purchased 42.6 percent of the hogs of Michigan origin from packer buying stations, and only 28.8 percent from auction markets.

Michigan auctions, buying stations, local traders, and cooperative collection points shipped about 100 thousand hogs to packers located outside the State, or about 9.7 percent of the state's total production.[16] Michigan packers needed

[16]Source: industry.

3,050,000 hogs from other states in order to fill their production requirements.[17]

The terminal market is not a major channel within the state. Auctions are used by Michigan producers to market their hogs more than the national average - packer buying stations and direct shipments less - while smaller packers look to auctions more as a source of supply than do larger packers, who rely more upon packer buying stations and direct shipments. Custom slaughter and on-the-farm slaughter account for what may seem to some as a surprisingly large percentage of Michigan's hog production - 9 percent.

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[17] Source: Michigan Department of Agriculture.

CHAPTER III

PERFORMANCE

An evaluation of industry performance is an attempt to determine how well an industry measures up to the expectations of people. There are two levels at which one can look at the performance of an industry. One of these is short run in nature, and tends to concentrate on the more or less selfish interests of the individual groups participating in the system.

For instance, consumers tend to evaluate an industry's performance in terms of how well and how cheaply that industry satisfies their consumptive desires. Specifically, consumers want high quality pork at low prices. The USDA maintained that, prior to the great food price hikes of 1973-1974, the average American household spent 15 to 18 percent of its disposable income on food. In fact, that percentage had been dropping for some years, as rising incomes outstripped inflation in the food market. Consumers then had become used to a certain level of spending for food, and as an important adjunct to that, they had become accustomed to allocating the increases in their salaries to non-essential "consumer" items outside of the actual food area (but including such things as food preparation services). Naturally, in gauging a food industry's performance, such consumers will take particular note of the percentage of income spent for food this year as opposed to years past. Those accustomed to spending 18 percent of their disposable income on food do not take kindly to having to spend 25 percent while

having to cut back on items of leisure enjoyment. Further, those less fortunate who were just getting by before the big inflation are put in desperate straits by price hikes, and are likely to consider food industry performance as miserably poor.

On the other hand, producers are bound to evaluate their industry's performance in terms of the profit generating opportunities that it provides, though there are other important elements involved too, such as the evenness of income and the difficulty or unpleasantness of the required labor. But basically, if profits, however defined, compare favorably with those available in other enterprises, then the industry is considered to be performing well. If profits are low, or nonexistent, the industry is failing to perform properly, usually without reference to personal responsibility as a part of that industry.

Like all producers of a product, packers like to see profits high. Normally, the spread between price at the farm and wholesale prices paid by retailers is the important determinant of profits. With prices to retailers high and farm prices low, industry performance can look exceptionally good to packers while looking dismal to producers and consumers.

It is obvious that the performance measures of the individual actors in the system contain significant incompatibilities. Consumers see good performance in prices that mark disaster for the producer, and packers are capable of being pleased at the expense of both those parties. To confine discussion to that level of performance evaluation is to miss the major value of performance consideration. Short run performance criteria are

pointless if their fulfillment spell doom for the system as a whole. This is a classic conflict of perspective in the free market economy. Just as the ardent defender of free speech cannot justify the shouting of fire in crowded theatres, producers and processors and consumers cannot individually reap such benefits that the system sustaining them collapses. The only legitimate level at which to evaluate performance, then, is from the point of view of the society as a whole. The question is, in its most simplistic sense, does the industry contribute to harmony in the system, or to disfunction? Does it subscribe to some individual group's short run gain or to everyone's long run interest? Does it work for or against ultimate survival?

The challenge of the performance question to an industry is that society's broad expectations may not be perceived as valid by any one of the individual actors; the whole is greater than the sum of its parts. To perform well, then, an industry is required to perform an amazing balancing act - it must speak to the needs of all society's members at the same time. Those needs, spoken by no individual groups, enunciate that elusive balance. They might be summarized as follows:

1) Level and reliability of output.

The interdependent nature of the complex industrial organization of the United States' society demands a high degree of regularity in both the quantity and quality of food available. The population of such a society is almost entirely nonfarm and largely nonrural. Almost all people's food needs are obtained through the market, and the average person has no personal food

production capability upon which to fall back. Consequently, the agricultural sector is expected to provide a plentiful and stable supply of high quality food. If people can maintain themselves with healthy food today, and if they can expect to eat tomorrow with equal certainty, then individuals and their resources are freed for nonfood-gathering pursuits.

Since food production is largely a biological process which is unpredictable, and because food is of such primary importance, the requirement that there be a plentiful and stable supply of food places a special demand upon the food production sector - that it supply adequate safeguards against disaster. Wide price fluctuations due to volatile supply lends an element of uncertainty to the economy that is quite undesirable.

2) Production and Marketing Efficiency.

For reasons already expressed, good food is not a luxury item, but a necessity. It is a common denominator that must be available to all those satisfying certain requirements of the society. Therefore, food should be as inexpensive as possible. That is, resources used in the production and distribution of agricultural commodities should be combined in the most efficient way possible - a given level of output should be attained at the least possible cost to society.

In concert with that expectation is the desire for technological progressiveness within the industry in order to foster improvements in both quality and efficiency.

3) Distribution of income.

At the same time, society desires the agricultural economy to provide the incentives necessary to perpetuate the production of food. As interpreted in this country, that requirement has at least two facets: First, there is the expectation that society owes each person the equivalent of his or her contribution, or the concept of commutative justice. If food producers are to provide the service of reliable quantities and qualities of food that are deemed necessary, they must receive rewards commensurate with the rewards others receive for services of equal value.

Secondly, society desires equality in the opportunity to participate - the application of distributive justice. The implications of that requirement for the food sector are found in the great value placed upon the individual enterprise - upon the system remaining open to relatively small producers. The sentiments underlying this competitive disposition are two: that the assertion of individual initiatives is a right; and that the entry of new people with new ideas into industries will protect society from incompetence and inefficiency.

Clearly, such societal performance goals represent an intricate alchemy of individual demands, and a balance must be attained among such goals. An individual goal does not represent an absolute value - it must be interpreted in light of the other of society's expectations. Performance criteria, in themselves, constitute an ecosystem in search of equilibrium.

For instance, how does one define "efficiency" in "production and marketing efficiency"? Technical efficiency can only really be defined in terms of the remaining requirements of society. For a given level of output to be attained at least cost to society, it must provide for the adequate compensation of producers and it must insure, ultimately, the protection of the environment itself. The socially and culturally defined benefits from individually owned farms and competitive structure must be charged as a cost against the huge conglomerate that may be able to produce more pigs per man hour than the average size unit, and thereby produce them "more cheaply."

Likewise, while we may succeed in lowering institutional and structural barriers to entry in an industry, the act of everyone actually entering that industry would ruin the chances for reasonable rewards for any. And reasonable rewards for producers cannot be had with food as inexpensive as many would prefer it. And, for instance, the conservation of resources may be advocated in varying degrees of intensity, including some directed beyond mere perpetuation of the system toward an improvement of the "quality" of life; those demands must be equated with the demand for a steady and plentiful supply of food by the same society. The potential conflicts and resultant trade-offs go on and on. Nor is the list of societal performance expectations presented here exhaustive - it is proposed with the topic at hand in mind. The links between the level of employment, per capita income, labor relations, the costs of promotion, etc., and the Michigan slaughter hog market are perhaps too remote for a study of this scope.

Because of the interlocking and interdependent nature of all the food industry's participants, one is ultimately led to the question of performance at that level at least, and even beyond. But one must come to grips first with how each minor element of the food system contributes to the performance of the whole. There are certainly many ways to measure how well a market system may satisfy the performance criteria outlined above. Here, the intention is to discuss four aspects of Michigan hog markets, realizing that those aspects in no way exhaust the possibilities: Does the slaughter hog marketing system communicate to producers an accurate reflection of supply and demand? Does the system adequately communicate to producers the quality characteristics of pork desired by consumers? Does the system serve the varied production requirements of the different kinds of packers present in the state? And finally, does the system promote an accurate reflection of value to the buyer in the price paid to the producer?

Communication of Supply and Demand to Producers

If markets do not adequately perform that function, individual producers will not know how many hogs to produce, market gluts and droughts will result from their lack of information, and the industry will provide neither stable supplies and prices of pork, nor an atmosphere attractive to producers. The question relates, in part, to the first of the performance criteria - that of level and reliability of output - and also to the third criterion - that of providing the incentives necessary to perpetuate the production of food.

Almost all of the slaughter hogs produced in the state are marketed by a method that prices hogs day to day. Hogs marketed through auctions receive a price established by competitive bidding at the sale. Packer buying stations, in dealing with larger packers, must negotiate prices in line with terminal market quotes, where many bigger packers already obtain large numbers of hogs - terminal markets, of course, establish daily prices through competitive bidding. Producers selling hogs to individuals for custom packing generally rely upon daily price quotations, either from local auctions or terminal markets, to guide their prices. And the pricing of hogs marketed direct to to packers, except for the tiny number with future price guarantees, is based upon terminal or local auction market quotes. Cooperative collection agencies, unless shipping hogs under a bargained contract, negotiate prices with packers on a day to day basis.

Generally, then, the only supply and demand information received by the producer from the market is the price paid for the hogs. If the producer were a part of a perfectly competitive market system, as is often assumed for agriculture, then such price information would be sufficient to regulate supplies according to demand while providing normal profits to producers.

Talpaz observes that the industry experiences large fluctuations in "production activities, inventories, sales, purchases, capacities, and earnings," and that the participants in the system, from producer to consumer, "do not share equally in the rewards and penalties" resulting from those fluctuations [12, p. 1].

Prices paid to producers for live hogs have varied greatly over the past ten years while the demand for pork, on a per capita basis, has remained fairly stable. The major variable, of course, has been the supply of hogs on the market.

Unfortunately, the realities of hog markets, and of all agricultural markets for that matter, violate two critical assumptions required to keep traditionally free and competitive markets unburdened by boom and bust cycles: one is that producers do not have perfect knowledge and foresight, or anything even approaching it; the other is that agricultural producers have a very limited ability to make marginal adjustments in production.

Given the present market system, individual producers make future production decisions on the basis of current price. In making that decision, the producer is making a commitment to a certain level of future output without knowing the output decisions of all other producers. The individual reactions of each producer to price information in time one, made in ignorance of each others' reactions, determines the actual output achieved in time two. One might argue that the tremendously improved market information currently available alleviates the problem, but that, also, is just another form of price information to which no one producer knows the reaction of others.

So, the first part of the problem is the inability of producers to equate individual supply responses with industry-wide supply responses. That wouldn't <u>be</u> a problem if producers could easily make incremental changes in output in response to daily

price information. But they can't, in fact, make marginal production decisions. Rather, with some allowance for length of feeding and finishing weights, producers have little control over output for ten months after they have bred a group of sows.

The complicated nature of supply response extends from the uncertainties inherent in the biological processes of food production. Livestock has little storage life because the characteristics of the product change rapidly and because maintenance costs are high for market weight animals. Therefore, it is impractical for livestock producers to try to stabilize supplies and prices by releasing surpluses in short periods and by building reserves in times of surplus.

In reality, then, producers are faced with large shifts in supply, of complicated origin, to which they must try to make a one-time, accurate, individual response. Since all producers are essentially making the same non-incremental decision, they must also make an accurate assessment of everybody elses' response. When that doesn't happen, which is frequently, prices received for commodities fluctuate.

The fallacy of the "free market" for agriculture, as an automatic and even-handed regulator of production, seems unquestionably simple, yet it is often not recognized or understood by those who establish economic policies.

Forward price contracts for hogs are not extensively used anywhere, and are of little importance in Michigan. Contracts do not suddenly allow producers to make daily marginal output changes, but they do allow the planning of production with some

price certainty for the future. Holder points out, however, that the price certainly of the forward cash contract is not without cost to the producer - "he acquires a new risk of being able to fulfill his contract without penalty" [5, p. 22]. The benefits of the forward contract are available to the producer, without direct agreement with the packer, on the futures market, but that too involves the risk of meeting production goals unless the producer is willing to take a speculative position. However, the risk assumed by the hog producer, to meet output intentions, is probably rather slight for most confinement operations. In the southwest portion of the state, where the large, pasture system is widely employed, that risk may be a good deal higher, giving future contracts less potential as a pricing mechanism.

One potential of cooperative producer action is that prices can be negotiated at a level that will cover the cash costs, labor charge, and normal return to investment of the producer without actually relying upon forward contracts. The ability of producer groups to bargain with packers over price requires that the cooperative control the marketing of a significant number of hogs - enough to preclude packers from obtaining adequate supplies elsewhere. One argument to be made is that the withholding action of the producer group increases competition for other hogs, and therefore raises the price. However, the ability to withhold market hogs is very limited, and the withheld hogs must eventually join the market pool. Unless the cooperative can actually control the supply of hogs available

over a long period of time, there is little price certainty to be attained through recurring price negotiation. Since Michigan based or affiliated cooperative collection points don't practice that kind of supply control, nationally or locally, they are in essentially the same position as the packer buyer station - they must stay in line with current supply and demand conditions established in daily markets.

Therefore, though producers may be able to protect themselves individually by hedging output in the futures market, the slaughter hog market system itself does not deal effectively with the problem of coordinating producer response at a level that provides stable output and prices over time.

Communication of Quality Characteristics From Packer to Producer

Stable quantities of a product are a hollow goal unless they have the quality characteristics desired by the consumers of the product. Producers, then, must be able to determine how to produce what the market calls for. If we can assume that packers and processors have an accurate perception of the product to be marketed, then the question refers to the transfer of information from the packer to the producer.

The producer offers what is essentially a raw good, the hog, that has certain characteristics seen from the outside. The packer takes the raw good and transforms it into a product which is marketed to the consumer. The quality of the product of the packer is dependent, in part, upon the characteristics

of the slaughtered hog carcass, which may or may not be closely related to the outward appearance, to the producer, of the hog live on the hoof. The performance question, then, centers around the passage of carcass quality information from packer to producer.

The primary basis for the USDA's hog grading system is the animal's live weight and its backfat estimate measured at the last lumbar region. Carcass value research indicates that live weight is a poor indicator of real carcass value. Live weight in combination with cold carcass weight (percent dress) proved to be a better indicator of real carcass value, and even better is the single measure of backfat thickness alone. Combining backfat measurement with live weight and percent dress resulted in good pricing accuracy for real carcass value with little error [11]. The ultimate is a full cut-out analysis, including backfat thickness, carcass length, loin eye area at the tenth rib, and percent dress [3, p. 4].

If hogs are purchased on the basis of live weight, then, one might expect little pricing accuracy because live weight measures relatively little of carcass value.

Auctions, terminal yards, packer buying stations, and co-operative collection points utilize live weight as the only hard data upon which to establish price. Hog buyers, of course, are adept at estimating real carcass value by visual inspection and they may, in some cases, be able to match the identity of the producer with the reputation of his hogs at the plant, so the packer may have adequate information upon which to base pricing

decisions. But the question really concerns the transfer of carcass quality information from packer to producer - the producer has only the live weight, live conformation, and the price received. Though the producer may be reasonably fairly paid for high quality, the system transmits no information to the producer concerning specific management practices that result in quality increases. Price alone, as an inaccurate source of quality information, is a rather inefficient vehicle for quality improvement management decisions at the farm.

Seventy-five percent of Michigan's hogs are marketed through auctions, buying stations, and collection points. Measurement of backfat thickness and other characteristics is not infeasible at such assembly points, but the necessary technology involves a significant expense that hasn't been assumed by any market agencies.

Direct shipments offer more immediate potential for the transfer of more detailed quality information, because there is direct communication between producer and packer. Of the seventy-four firms responding to the census survey of packers, twenty-eight indicated that they bought hogs direct from producers (not including custom slaughter). Twenty of those firms indicated that they provided some type of quality information to producers, accounting for approximately 76,500 of the 126,500 hogs marketed direct to respondents. Over half those indicating a transfer of quality information provided partial or complete cut-out data. A quarter of them provided unspecified, oral information and discussion.

Two quantities remain unknown. First, one doesn't know how many producers did, in fact, receive information, or the percentage of total output they produce. Not necessarily all producers marketing direct were given quality information by packers who gave information to at least some producers. And finally, an undetermined number of producers receive quality information concerning hogs that are custom butchered, either from the packer or the customer. It is probably fair to assume that a significant number of producers receive at least some good information concerning the carcass value of their hogs. One must keep in mind, however, that a tremendous number of hogs are marketed without transmitting any quality information about them.

Accommodation of Varied Production Requirements of Different Types of Packers in the State

Reliability of supply concerning both quantity and quality are important factors in determining the firm's costs of production. There may be high inefficiencies associated with uneven flows of inputs, especially for firms with large fixed investments and labor contracts that make labor schedules rigid. Fluctuations in the numbers of hogs of various type and quality desired can jeopardize the packer's position with retail or wholesale customers. The operating inefficiencies of packers caused by the market ultimately can be expected to be passed on to consumers in the form of higher prices.

Considering the broad variety of operating styles and needs of packers within the state, one way of approaching the question

of market efficiency for packer operations is to determine what packers themselves perceive as the performance of the market system. That was accomplished, with limited success, both through the census survey and through a number of interviews.

One might speculate that the available market channels have evolved partly in response to the demands of buyer clients and that the variety of methods that exists is sufficient to accommodate most packers. The results of the survey and interviews bear that out. Fifty-six of the seventy-four respondents answered at least one of the two questions concerning market performance. Of those fifty-six, only four expressed a desire for marketing arrangements other than those already employed by the firm, and only one indicated a method not currently available.

To the first question, "what major problems do you have with your present system of getting hogs?", nineteen responded "none." Another seventeen didn't answer that question even though they answered the second performance related question - one might construe at least some of those non-answers to mean that there were no problems because that choice wasn't available to circle on the questionnaire. Fourteen responded by circling one of the choices, and all but three of those were circled by plants killing five thousand head or more annually. Their complaints were almost evenly divided between "can't get consistent quality of hogs" and "can't get consistent number of hogs." Smaller plants, under a five thousand annual kill, generally indicated no complaint.

The second question, "if you could design the hog marketing system from scratch, how would you prefer to obtain the hogs that you buy in Michigan?", produced the full range of answers, except that nobody advocated a teleauction system, which is to be expected. Local auction and custom slaughter were favored by plants under a five thousand head annual kill, and direct purchases were favored by larger plants, though a number of smaller plants showed a preference for direct purchases also. The largest plants, those over fifty thousand annual kill, favored packer buying stations and terminal markets.

When combined with comments provided by the respondents, plus interview information, all this seems to substantiate the discussion in the previous section on structure concerning the market channels employed by firms of different size. Custom slaughtering is particularly adaptable to the small firm because it does not require buying expertise on the part of the packer - they simply provide a service for which they get paid. They need not get involved with inventories, markets or other business activities not directly associated with butchering. Auctions are preferred by those smaller firms who do retail or wholesale some quantity of pork because they can pick up smaller lots of hogs than packer buying stations are generally interested in providing and because they can readily pick up lower quality animals for sausage at favorable prices. As indicated in the survey, smaller packers also show considerable interest in direct purchases because they can pick up any size lots of hogs of known reputation from a nearby source.

Plants in the five to fifty thousand head kill range preferred direct purchases because this source allowed them to get the exact number and quality of hogs required without having to enter major regional markets. Many of those firms are essentially locally based, and can easily establish ties with area producers.

The largest producers, those slaughtering over fifty thousand head annually, indicated a preference for terminal markets and packer buying stations. Such packers deal in such volume that it would be difficult to coordinate direct purchases to fill all their needs. By buying from several packer buying stations they can put together large quantities of hogs of a uniform and specific live grade. Terminal markets are large enough that they also can provide that service. One of the common complaints of large packers toward auctions, even though they may utilize them to some extent, is that they do not provide particularly the uniformity of quality desired. Also, as presently constituted in Michigan at least, auctions don't provide a week long source of supply to fit large volume production schedules.

Contracting can offer solutions to supply uncertainties. Thesis research by Campbell lists the specific advantages and costs of contracts realized by case-study, non-Michigan-based firms: price savings through advantageous pricing formulae, more efficient purchasing, and through more even input flow, plus greater profits through improved yields of hogs purchased, improved sales, and the ability to brand products because of

higher quality pork. The limitations of contracting included higher accounting and bookkeeping costs, the payment of premiums for certain producer rendered services, the inability to get delivery during certain busy farming periods, and the inability of meat packers to contract with their customers [2,pp. 61-62].

In general, Campbell found some packers willing to experiment with contracting, but not willing to contract over twenty percent of their supply, an industry rule of thumb. Michigan packers interviewed for this report echoed a concern implied in Campbell's study - that contracting is most valuable only if one can contract the price and supply of the packer's product. As a retail product, pork competes against a number of good substitutes plus other pork competitors. Through contracting, packers are afraid of limiting their ability to make rapid adjustments to changing retail market conditions.

Marion suggests that, "producer interest in contracting is positively related to the degree of farm specialization and past variability in product prices, and negatively related to current price levels" [6, pp. 11-12]. Indeed, it appears from interviews that much of the pressure for contracts with packers originates with producers during periods of low market price, and not from packers themselves.

The survey results are not particularly satisfying, in that one suspects that the conclusions they support are

somewhat incomplete. Much more is learned from interviews - the production demands of packers are complicated and difficult to obtain information about. Within the limits of what has been done here, it is thought to be important to note that quantity and quality considerations are problems for large packers in Michigan markets, even though they do not look upon forward cash contracts as the solution. If generalizations can be made, the smaller of the large packers (from five thousand to ten thousand annual kill) indicate a desire for an expansion of direct shipments, either without formal contracts or with some guarantee of quantity as a solution to quantity and quality problems. Those firms are generally too small to enter large markets outside the state, or even to deal extensively with packer buying stations. Still generalizing, the larger packers (ten thousand and up) look upon Michigan markets as secondary suppliers to out-of-state terminal and dealer markets. That is particularly true of the largest firms. The smaller plants (from five thousand on down) have few complaints - their volumes are such, and they are flexible enough, that they can obtain the quantity and quality they desire. It seems, then, that market firms are not necessarily out of adjustment with the requirements of packers, but simply lack the supply of Michigan-produced hogs to satisfy all packers' needs without going across state lines. That conclusion is highlighted by the fact that very few survey respondents actually

indicated a desire to change from the market system they are already utilizing - it is more a matter of changing market emphasis in cases where more than one method is used.

Promotion of Accurate Value to the Buyer in the Price Paid to the Producer

Does the slaughter hog marketing system promote an accurate reflection of value to the buyer in the price paid to the producer.

That question represents an approach to the matter of commutative justice, of the third of the performance criteria.

Auctions are supposed to price livestock according to the competitive bids of buyers. At least two possibilities exist for the auction method to operate at less than perfection. First, at many local auctions, there are few buyers, often fewer than three, and bidding cannot really be called actively competitive. When so few buyers are represented at a particular auction, it is relatively easy for supply and demand conditions to become distorted from the real conditions prevalent in the region. Smaller auctions, of course, draw fewer bidders, and the lack of competition is frequently shown in relatively low prices, regardless of proximity to population centers or packers.

Another consequence of the small numbers of bidders commonly found at local auctions is the possibility of

collusion between buyers - that is, the relative ease with which they can agree on bidding practices. The same bidders operate at the same auctions continually - they know one another, and they share a thorough knowledge of the industry.

One way in which such collusion appears is in price discrimination against the infrequent marketer - infrequent marketers of hogs tend to get lower prices than frequent marketers for hogs of equal live grade. Bidders can take advantage of producers who market just a few times a year if they allow each other to have such bargains. Bidders are more cautious with frequent marketers upon whose supplies they depend.

A qualification to be added to the above observation is that bidders may have more certainty concerning the real carcass value of the hogs of frequent marketers, and that they are simply paying the higher price for that certainty. Unless that higher price is greater than, say, a terminal price where such certainty is less likely to exist, it is hard to demonstrate that buyers are paying for increased certainty; oftentimes, the higher price paid to the regular marketer is not higher than a major terminal price. Regardless, the inability of price and live weight to accurately reflect specific carcass quality characteristics and value, previously discussed, lends to the possibility of such purchasing discrimination.

Where hogs are remarketed by the original purchaser to a second marketing agency, the price paid to the producer will be discounted for both the commission charge of the first agency and, implicitly, for the margin taken by the second agency. The remarketing practice is particularly prevalent in areas of less concentrated production, served by smaller sales - usually farther away from packers. The producer in such an area would expect to be discounted for the greater transportation cost, but he is also discounted for the commission of a second marketing firm. While it may be argued that remarketing is necessary in order to aggregate hogs sufficiently for practical movement to packers, the remarketer is often benefitting from a price differential inflated by the lack of competition at the original market. Such bargain hunting means that the producer is penalized for more than distance from the final destination.

Direct sales to packers or to packer buying stations have an advantage in that producers know the price before the hogs leave the farm. That affords them some opportunity to consider the sale, especially if they are fortunate enough to live in an area with competing market agencies - those areas are found generally in the Thumb, in the southwest and in certain sections of other southern areas of Michigan. Direct sales, however, if based upon a major terminal price, may not reflect actual local demand

conditions. Localities that do not have competing marketing agencies are less likely to offer competitive prices for livestock - if the producer doesn't market there, where else can he go?

Of general concern for both the auction and packer buying station methods is that the producer may not be getting paid for real carcass value - that may be true for both frequent and infrequent marketers. The problem also extends to direct shipments, depending upon the kind of quality information returned to the producer. Except for direct deliveries to certain packers, then, the producer has little idea whether or not the price received is an accurate reflection of value to the buyer.

In certain instances, then, producers are penalized for the lack of competitive markets, both within a particular market firm and between market firms. Those that bear the brunt of that inequity are infrequent marketers and producers located in less concentrated areas of production. And, as discussed previously, a majority of hogs are traded on the basis of live weight and conformation only, leaving significan room for error in payment when compared to true carcass value.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Michigan has a slaughter hog marketing system that shows good variation in method - auctions, packer buying stations and direct shipments all are relied upon heavily to market the state's hog output, as well as custom sales and cooperative action to a lesser extent. Reiterating the summary statistics presented at the end of the second chapter: custom slaughter accounted for 7.6 percent of producer marketings in 1974; auctions and terminal, 34.7 percent; packer buying stations, 36.2 percent; direct shipments, 14.1 percent; cooperative collection points, 4.9 percent; on-the-farm slaughter, 1.4 percent; and local truckers and traders, approximately 1.0 percent. Because of intermarket transfers between local traders, certain auctions, and packer buying stations, packers purchased 42.6 percent of their Michigan-produced hogs from packer buying stations, and 28.8 percent from auction markets.

Michigan producers tend to be smaller and less specialized than their counterparts in other midwestern states, which may be partly responsible for the relatively slow development of packer buyer stations and the relative strength of auctions in the state; the marketing needs and habits of the small producer being more amenable to the local auction system of markets.

In general, the survey and interviews found smaller packing firms, killing under 5000 hogs annually, to be primarily

custom slaughterers, relying upon auctions and small scale direct purchases to supply their other needs. As firms become progressively larger, custom work becomes progressively less important while large scale direct transfers, and packer buying stations in particular, become progressively more important.

An attempt has been made to look at four aspects of Michigan's market system that, in part, determine the level of its performance for society. In summary, it appears that the market system, as presently constituted, is unable to deal effectively with the problem of coordinating supply with demand in a way that avoids widely fluctuating prices. The system offers somewhat more opportunity for the transfer of usable information concerning quality characteristics, though that is generally limited to direct marketings to packers. An evaluation of the markets' success in fulfilling the needs of packers is less conclusive. While individual packing firms, especially larger ones, may have difficulty getting the performance out of the market that they require, the industry as a whole is served by varied markets that have evolved partly in response to the industry's widely varying needs, as well as those of producers; almost every marketing technique is represented and available, and the system serves every packer of every size to the limit of the number and quality of hogs marketed by Michigan producers. Finally, the ability of the market to establish equitable returns to producers is questionable. Almost no one receives a price

based upon real carcass value itself, though direct marketing can provide the producer with some indication of what he is getting paid for. Beyond that basic failing of the system, some markets are more successful than others in establishing price for producers, generally depending upon the volume of hogs handled and the level of competitive action, both within and between market firms.

There are many aspects of Michigan's slaughter hog marketing system that haven't been considered here - for instance, their technical efficiency in assembling and shipping hogs, the cost of carrying out transactions, the markets' effect upon the distribution of risk, and the benefits of market diversity relative to the efficiencies of more coordination and concentration of purpose. Those are topics that must be investigated before a complete evaluation of Michigan's slaughter hog marketing system is attempted.

APPENDICES

APPENDIX 1

SURVEY OF PACKERS

One of the methods for determining market information for this paper was a census survey mailed to all state and federally inspected hog packers in Michigan. A copy of the questionnaire is on the following pages.

The survey was mailed twice - the first mailing to all packers in March of 1974 - the second to nonrespondents in April. Of 122 plants, thirty-five returned the first questionnaire and thirty nine returned the second. Five additional questionnaires were completed over the phone. In total, seventy-six firms responded; seven were not usable, providing 69 usable responses. Six of the seven federally inspected plants responded, though one of them did not provide complete information. A brief discussion of the questionnaire and some evaluation in retrospect follows.

The basic objective of the survey was to collect information about the numbers of hogs moving through the various market channels, as well as information concerning market performance. One goal was to get more detail concerning market arrangements - fairly accurate statistics concerning custom slaughter volume and the use of contractual arrangements, for instance.

Question I asked for the total number of hogs slaughtered. The answer was checked against state inspection reports to

MICHIGAN STATE UNIVERSITY, EAST LANSING, MICHIGAN 48824
DEPARTMENT OF AGRICULTURAL ECONOMICS, AGRICULTURE HALL

MICHIGAN SLAUGHTER HOG MARKETING STUDY

All information provided herein is for research purposes only, and will be held strictly confidential as it pertains to your firm.

I. a. Total number of slaughter hogs (all classes and types slaughtered in your plant in 1974: _____

b. What percent of those were sows and boars? _____

II. How many of your slaughter hogs were obtained from sources out-of-state in 1974? _____ (If you don't have the actual number, put down the percent of total slaughter obtained out-of-state.)

III. Estimate the numbers or percent of hogs obtained through the following marketing channels located in Michigan that you slaughtered in your plant in 1974.

1) Custom slaughtered for individuals (if the customer bought the hog independently from a producer of his/her choosing, then include the number here. If you obtained the hog for the customer, include the number under one of the following categories. ____

2) Obtained from auctions and sale yards located in Michigan (includes Michigan Livestock Exchange) ____

3) Obtained from public stockyards (Detroit) ____

4) Obtained from independent buying stations in Michigan ____

5) Obtained directly from Michigan producers (if you use this method, be sure to answer number V.)

a. under forward cash contract ____

b. producers agree to supply a certain number of hogs over a specified period, but without a price guarantee ____

c. direct purchase without any kind of marketing agreement ____

6) Obtained from bargaining cooperatives with collection pens located in Michigan ____

7) Obtained directly from truckers and livestock traders who do not represent an auction or buying station ____

8) Other: specify _____ ____

Total 100%

IV. Using the categories in III, what are the two or three most important ways of obtaining hogs out-of-state, if you do so? If you use terminal markets or some other source not listed above, please specify.

a. _____ b. _____ c. _____

V. If you buy hogs direct from producers how do you determine the price to be paid to the producer (circle)?

a. based on terminal price

b. based on local auction price

c. other: please specify _____

VI. What major problems do you have with your present system of getting hogs (circle)? If you use a combination of methods, state which method the problem refers to.

a. can't get consistent number of hogs

b. can't get consistent quality of hogs

c. pay prices higher than prices paid by other firms getting hogs another way

d. other: please specify _____

VII. 1) If you could design the hog marketing system from scratch, how would you prefer to obtain the hogs that you buy in Michigan (circle one or more)?

a. custom slaughter; customer obtains own hog

b. local auction and sale barns

c. independent buying stations

d. terminal market

e. direct from producer with forward cash contract

f. direct from producer without forward cash contract but with some type of marketing agreement concerning price and number of hogs.

g. direct from producer without any marketing agreements

h. teleauction system

i. other: specify _____

2) Would you explain very briefly why the above choices would serve you best?

_____

_____

VIII. 1) If you take hogs direct from producers, do you provide the producer with information about the quality of the hogs? _____

2) How?

a. cut-out data

b. other: specify _____

IX. Do you custom slaughter for individuals? _____

X. Could I have your name in case I need to get in touch with you?

Name: _____

Firm: _____

THANK YOU!

provide some indication of the accuracy of the response. No firm responded with an exact number, and some were considerably off the mark, though most came fairly close. Question III concerning the specific market channels utilized, asked for percentage estimates. Tabulation of results was carried out as though the respondents' estimates of percents would be generally more accurate than the specific number slaughtered. Therefore, in tabulation, the percent figures provided from question III were multiplied by the official figures for question I.

It is clear to this writer, however, that truly accurate market statistics of this nature cannot be arrived at by a mailed survey alone; markets are simply too complex. The results of the survey were made a great deal more accurate with official and private interview information. For instance, the Michigan Livestock Exchange presents a particular problem. It is one of the largest single marketing agencies in the State, holding both a dealer's and an auction license. Many packers have no idea how many of their hogs came from MLSE auctions or buying stations without looking up detailed records of transactions, which most are unwilling to do. However, those figures could be sorted out with the help of privately obtained statistics. Such information became useful again in tabulating statistics for independent buying stations and bargaining cooperatives, both of which send significant numbers of hogs to out-of-state destinations. Of course, a survey of packers will not record actual marketings

by producers, but only shipments from marketing agencies. So, using additional information from a number of sources, it was possible to check and cross-check the survey and private interview statistics to the point where it is felt that as accurate and detailed results as can be hoped for were obtained. Statistics for three methods (custom, direct, and local traders) would have been virtually impossible to obtain without the survey, since no real marketing agency as such is involved.

In running the survey again, one should consider giving the MLSE a separate category, simply because they handle so many hogs both as an auction and as a dealer, while regarded as a single entity by many packers.

The performance questions, VI and VII, probably only obtained superficial results - such questions are more effectively answered in good interviews. Question VI should have allowed the choice of "none" - it was written in by many respondents.

The accuracy of responses to question VIII probably suffered from a lack of clear definition of the term "cut-out data", though there is no real way of knowing. So many respondents indicated that they released cut-out data to producers, that one suspects that there is some lack of precision in the understanding of exactly what complete cut-out data really is. Regardless, it is clear that a good deal of usable information is being transmitted back to producers about quality.

Following is a statistical summary of responses to the survey, by question:

I. a.) (Total number of slaughter hogs slaughtered in your plant in 1974.) The sixty-three usable or partially usable responses represented a total slaughter of 3,739,000, or 94 percent of the total official slaughter count determined by the Michigan Department of Agriculture.

Forty-seven percent of the firms in the 1-999 kill range responded, represented 54.5 percent of the official slaughter for that group. Fifty-eight percent of the firms in the 1000-4999 kill range responded, representing 47 percent of that group's official slaughter. One hundred percent of the firms in the 5000-9999 kill range responded, and 78 percent of the firms in the 10,000-50,000 kill range, representing 76 percent of the possible hogs, responded. At least some information was obtained from six of the seven federally inspected plants, representing 96 percent of their total slaughter.

I. b.) (What percent were sows and boars?) Fifty respondents answered the question, accounting for 2,677,000 hogs and 60,500 sows and boars. Therefore, 2.9 percent of the animals killed in those plants were sows and boars.

II.) (Number of hogs obtained from sources out-of-state?) Plants in the 1-999 kill range purchased 5 percent of their hogs out-of-state; in the 1000-5000 kill range, 0.5 percent; in the 5000-9999 kill range, 0.0 percent; and in the 10,000-50,000 kill range, 24 percent. The five federally inspected

firms answering the question purchased 79 percent of their hogs out-of-state.

III.) (Estimated number of hogs obtained through various market channels.) See Table 3, page 23, in the text.

IV.) (Most important ways of obtaining hogs out-of-state?) This question was answered by six packers, four of which slaughter over 50,000 head annually and two of which slaughtered under 1000 head. The large firms utilized terminals most (all four, then auctions and buying stations (two each), and direct purchase (one). The small firms utilized auctions only.

V.) (If you buy hogs directly, how is price determined?) Thirty-three firms, buying all or some hogs directly answered the question. Twenty-two were firms slaughtering under 1000 head annually. Eighteen of the smaller firms establish price at local auctions, only two use terminal prices, and two use publications. Seven of the eleven larger firms rely upon terminal quotes, three upon local auctions, and one upon an unspecified method of "negotiation."

VI.) (What problems do you have with your present system of getting hogs?) Nineteen respondents wrote in "none." Seventeen didn't answer, though they answered question VII., a related question. One possibility is that some of those would have responded with "none" if the choice had been available to circle. Fourteen circled one of the choices; all but three were in the 5000 and above annual kill range. Complaints were almost evenly distributed between "can't get consistent quality" and "can't get consistent number," the former receiving one more than the latter.

VII.) (If you could design the hog marketing system from scratch, how would you prefer to obtain the hogs that you buy in Michigan?) Forty-three firms responded to the question. Fourteen, all under 5000 annual kill, indicated a preference for custom slaughter. Fifteen firms, all but three under 5000 annual kill, indicated a preference for local auction. Nine firms expressed a preference for direct purchase with some type of marketing agreement while eleven firms desired direct purchase without contracts. Those twenty firms were distributed throughout the size range. Three firms, all above 35,000 annual kill, expressed a preference for packer buying stations. Also, three firms above the 500,000 annual kill range expressed preference for terminal markets. Two firms, both under 2000 annual kill range, indicated a preference for forward cash contracts. Several firms indicated more than one choice, the most popular being a combination of local auction and direct purchase without any agreement, with four votes.

VIII.) (Do you provide the producer with carcass quality information?) Twenty-eight firms indicated that they purchased direct from producers. Twenty indicated that they provided some type of quality information to producers. Those firms handled 76,500 of the 126,500 hogs purchased directly by respondents.

IX.) (Do you custom slaughter for individuals?) Fifty-three of the sixty-nine usable responses indicated custom slaughtering 47,000 hogs, or 1.2 percent of total slaughter by respondents.

APPENDIX 2

MICHIGAN DEPARTMENT OF AGRICULTURE SURVEYS

HOGS: PERCENT SOLD THROUGH SPECIFIED MARKET OUTLETS, BY DISTRICTS, MICHIGAN, 1969

Districts	Auctions and sale barns	Public stockyards	Direct[1]	Packer buying stations	Local truckers	Local markets	Other	All market outlet	Number reported
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Head
	Sold for slaughter								
Upper Peninsula	Less than 100 heads reported								50
Northwest	19	8	'71	0	-	2	-	100	4532
Northeast	16	11	67	0	2	0	4	100	524
West Central	84	6	8	0	1	1	0	100	1423
Central	48	40	4	4	2	2	-	100	8477
East Central	26	21	45	8	-	0	-	100	12867
Southwest	38	17	15	11	-	17	2	100	100634
South Central	34	31	9	4	5	12	5	100	73314
Southeast	47	31	16	1	-	3	2	100	42885
State	38	24	16	7	1	12	2	100	244715
	Sold for feeders, stockers or breeding stock								
Upper Peninsula	Not published to avoid disclosing individual reports								439
Northwest	2	7	67	-	24	0	0	100	3537
Northeast	69	1	29	-	1	0	0	100	1905
West Central	52	7	39	-	0	0	2	100	2288
Central	47	11	42	-	-	0	0	100	2253
East Central	3	9	88	-	-	0	0	100	2971
Southwest	44	3	46	-	-	6	1	100	21527
South Central	22	3	67	-	1	-	7	100	11827
Southeast	5	5	90	-	0	0	-	100	5660
State	29	6	58	-	2	3	2	100	52407
Utilization	Number reported								
Slaughter	Head 92,451	Head 59,590	Head 38,775	Head 16,227	Head 3,586	Head 28,204	Head 5,882	---	244,715
Other[2]	15,265	3,029	30,442	--	1,097	1,645	929	---	52,407

[1]Direct to slaughter plants for sales for slaughter, and direct to other farmers for feeders, stockers, and breeding stock.

[2]Feeders, stockers, or breeding stock.

Michigan Department of Agriculture, Michigan Livestock Channels, 1969.

HOG SLAUGHTER, BY AREA AND BY SIZE GROUP, MICHIGAN 1968 AND 1969

Area	Plants reporting		Number reported slaughtered		Produced in Michigan			
	1968	1969	1968	1969	1968		1969	
	Number	Number	Head	Head	Head	Percent	Head	Percent
North	24	21	11,487	7,941	11,152	97	7,583	95
Central+West	27	27	44,008	41,316	32,501	74	29,583	72
South+West	54	51	131,239	124,798	108,016	82	97,846	78
South+East	67	57	1,913,925	2,214,258	607,155	32	639,730	29
State	172	156	2,100,659	2,388,313	758,824	36	774,742	32
Size Group 1/								
1-250 head	16	12	2,097	1,752	1,947	93	1,433	82
251-1,000 head	81	72	24,743	24,591	23,378	94	23,405	95
1,001-10,000 head	54	52	91,206	85,039	83,309	91	84,240	99
Over 10,000 head	21	20	1,982,613	2,276,931	650,190	33	665,664	29
State	172	156	2,100,659	2,388,313	758,824	36	774,742	32

MICHIGAN HOGS MARKETED DIRECT TO MICHIGAN SLAUGHTER PLANTS, BY AREA AND SIZE GROUP, 1968 AND 1969

Area	Slaughter comparable with direct marketings					
	Comparable slaughter 2/		Michigan hogs marketed direct			
	1968	1969	1968		1969	
	Head	Head	Head	Percent	Head	Percent
North	4,158	7,941	3,241	78	4,522	57
Central+West	16,614	23,647	10,786	65	12,964	55
South+West	126,359	94,869	67,680	54	70,771	75
South+East	301,657	376,818	28,188	9	30,636	8
State	448,788	503,275	109,895	24	118,893	24
Size Group 1/						
1-250 head	1,722	1,480	1,268	74	1,094	74
251-1,000 head	21,258	23,555	17,064	80	17,861	76
1,001-10,000 head	73,171	83,706	37,664	51	49,964	60
Over 10,000 head	352,637	394,534	53,899	15	49,974	13
State	448,788	503,275	109,895	24	118,893	24

1/ Size Group is based on number of all species slaughtered annually.

2/ Comparable to those plants that answered the direct marketing question.

Michigan Department of Agriculture, Michigan Livestock, 1969.

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