FACTORS INFLUENCING THE DECISION OF MILK PRODUCERS WHO ENTERED AND LEFT THE DETROIT, CLEVELAND AND TOLEDO MILK MARKETS

Thesis for the Degree of M. S.

MICHIGAN STATE UNIVERSITY

Ronald E. Kampe

1959

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By

Ronald E. Kampe

A THESIS

Submitted to the School of Graduate Studies of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Department of Agricultural Economics

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AN ABSTRACT

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ABSTRACT

The primary purpose of this study was to examine factors which may influence the producer's decision to enter or leave a particular milk market with special emphasis on the importance of price.

Data used in this study were based on a survey of 5,967 producers who entered or left the Detroit, Cleveland, or Toledo milk markets during the period from January 1, 1953 to July 1, 1956.

Producers who joined the markets were grouped and analyzed according to the dairy product they formerly produced. Producers who left a market were divided into those who continued and those who discontinued milk production.

Of those who joined the market, 63 per cent of the former inspected producers, 87 per cent of the former manufacturing producers, and 35 per cent of the new producers indicated their decision was influenced by price. Thirty-seven per cent of the producers who left for other markets and 42 per cent of those who discontinued milk production indicated they were influenced in their decision by price. With the exception of new producers, "price" was the most frequently mentioned reason. Producers joining the Toledo market mentioned price most frequently and Cleveland joiners mentioned this reason least often.

"Action of the dairy" and "convenience" of producing Grade A milk were mentioned second to price by former inspected and manufacturing producers respectively. Producers who left for other markets indicated "inspection trouble" second to price.

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Approximately 80 per cent of the producers who joined the markets and 70 per cent of those who left expected to receive a price increase. The average producer planned to increase his herd size by approximately 15 per cent during the next twelve months.

Ninety-two per cent of the former manufacturing producers and 67 per cent of the former inspected producers indicated an investment was necessary to qualify as a producer in one of the three markets. The average inspected producer made an investment of $1095.27 and the average manufacturing producer invested $1401.72.

The analysis of the data included in the study support the following general conclusions:

1) Price is a major factor in the decisions of producers who join or leave a particular milk market, but various reasons other than price are also influential in their decision.

2) The average producer considers joining the market for 18 months with manufacturing producers contemplating the change for a longer period than inspected producers.

3) Over 60 per cent of the producers considered no other market than the one they joined indicating that producers have, or exhibit, little choice in the selection of a market.

4) Producers who left the three markets were generally satisfied with the market as indicated by the number who plan to re-enter.

5) Younger producers are more inclined to transfer to other markets or change to another enterprise or occupation because they are less permanently established in dairy farming and generally have the advantage in other job opportunities.

6) Dairies generally have more influence in the decision of the more specialized producer on the medium to large farms.

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7) Most milk producers consider an inspected market to be economically advantageous over manufacturing or cream markets and strive to become more specialized.

8) Monthly price fluctuations have little effect on the number of producers who joined the market indicating that those who join look at the long term price.

9) All three markets expanded geographically thus indicating a favorable price in peripheral areas of the market.

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CHAPTER I

INTRODUCTION

The supply of milk in a market is a function of the number of producers in that market and the level of production of these producers. In a competitive economy these factors are theoretically a function of price. If the price of milk rises, existing producers will produce more, some producers considering discontinuing production will continue to produce, and an increased number of new producers will be attracted to the market. The opposite is expected if the price falls.

In practice, however, the function of price in a milk market may not bring the expected supply response in the short run. In addition to price, other factors may influence the actions of producers as much or more than the price of milk in a particular market.

Objectives

It is the task of this study to examine factors which may influence the producer's decision to enter or leave a particular milk market. The importance of price as a determining factor will be evaluated as well as other economic and institutional factors which may influence the decision of the producer. Various characteristics of the producer and his farm enterprise will be analyzed to determine if there is a significant relationship between producers with these characteristics and their decisions to enter or leave the market.

Theoretical Framework

Economic activity revolves about three key elements: 1) human wants which are varied and insatiable, 2) recources which are limited, versatile, and capable of being combined in varying proportions to produce a given commodity, and 3) techniques for utilizing resources to produce goods and services which satisfy wants.[1] The price system in a free enterprise economy operates in such a manner that resources are used to produce the quantities of the goods and services which contribute most to aggregate want satisfactions. This is achieved through the interaction of the laws of supply and demand.

The law of demand may be stated as: The greater the amount of a given commodity offered for sale upon a given market at a given time, the lower will be the price at which the entire amount can be sold.[2]

There are these principle reasons underlying the operation of the law of demand. Not all people have the same desires for the same commodity, nor are they equally able to pay a given price. Even if people had the same original desire for a commodity and the same purchasing power, it would still be necessary to lower the price in order to induce them to consume additional quantities because of what is known as the principle of Diminishing Marginal Rate of Substitution.[3]

---

[1]Richard H. Leftwich, The Price System and Resource Allocation, (New York: Rinehart and Co., Inc., 1955), p. 10.

[2]Frederich Lundy Thompson and Richard Jay Foote, Agriculture Prices, (New York: McGraw-Hill Book Co., Inc., 1952), p. 42.

[3]J. R. Hicks, Value and Capital, (Oxford: Clarendon Press, 1946), p. 20.

This principle implies that as a commodity is consumed the utility of the last unit consumed diminishes and the marginal rate of substitution of this commodity for money is also diminishing.

The law of supply is similar to the law of demand with the exception that it applies to the supply of a commodity rather than to the consumption. The law may be simply stated as the higher the price offered to producers for a product or services, the more of that product will be made available to buyers in a specific market at a specific time.

The interaction of the laws of supply and demand in a free economy determines the market price for that commodity. If demand for a product is greater than the supply available, the price will increase. This increased price stimulates greater supply, either through additional resources applied in the production of a commodity, or by additional units released from storage. If the supply becomes too great, the price will fall. Eventually an equalibrium price position, or a position from which there is no net tendency to move, will be reached.[1] The term "net" tendency is used to emphasize that it is not a state of inactivity but instead represents the balance between the forces of supply and demand.

The source of supply is also affected by many factors. Von Thunen, a German land owner and economist, developed a theory of the relationship between differences in location and land utilization.[2] It was

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[1]George J. Stigler, The Theory of Price, (New York: Macmillan Co., 1954), p. 14.

[2]Raleigh Barlowe, Land Resource Economics, (Englewood Cliffs, New Jersey, 1958), p. 33.

illustrated that the differences in land use could be attributed directly to variations in transportation costs. These in turn were dependent upon such factors as ease of transportation, weight, bulk, and perishability of the product. The land near the market would be used intensively and would be utilized primarily for products that are perishable, heavy, or bulky to transport.

In the milk industry von Thunen's theory would assume that the first zone nearest the market would be devoted to the production of fluid milk, the next zone devoted to cream production, and the following zone would be devoted to the production of butter, cheese, and other manufactured products which are less perishable and are easier to transport. As transportation facilities improve and become less expensive, all zones would expand, thus forcing the cream and butter zones farther away from the market area. The geographical location of milk producers who entered and left the markets will be observed to determine if any evident change in the milkshed area corresponds to this land use theory.

The geographic location of the milkshed from the market will be observed to determine if this also substantiates von Thunen's theory. If the whole United States were to be considered as one market, the surplus production area will be centered in the Wisconsin-Minnesota area.[1] If the data available substantiate this theory of differences

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[1]G. G. Quackenbush, "Price Interrelationships in Dairying," Michigan State University, Agriculture Economics Department, mimeograph.

in land use, all the milkshed areas will extend wherever possible in the direction of the Wisconsin-Minnesota surplus area.

The milkshed areas of the three markets might also suggest the interaction of Fetter's Law of Markets. According to this law the boundary line between the territories tributary to two geographically competing markets for like goods is a hyperbolic curve.[1] At each point on this line the difference between freight from the two markets is just equal to the difference between the market prices, whereas on either side of this line the freight difference and the price difference are unequal. The relation of price in the two markets determines the location of the boundary line and the lower the relative price, the larger the tributary area. If the three markets do conform to Fetter's Law, we would expect an expanded or contracted milkshed, depending on the extent to which each market is able to compete with neighboring markets.

Hypothesis

Within this theoretical framework we may state the hypothesis as follows: Producers decide to enter or leave a particular market because of price.

In the present study we shall be concerned about that part of the supply function resulting from producers who enter or leave a market

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[1]G. G. Quackenbush, "Some Marketing Principles: The Perfect Market, Von Thunen's Principle, Fetter's Law of Markets," Michigan State University, Agriculture Economics Department, mimeograph.

because of price. Other factors including characteristics of the producer and his dairy enterprise and concerning his attitudes and actions will also be considered. More specific hypotheses will be formulated at appropriate points in the analysis.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Important studies have been made on the total agriculture supply response as well as on single commodities. However, little work has been done on the effect on supply resulting from producers' decisions to discontinue producing or to change from one market to another. While this study deals with the factors influencing producers' decisions to enter or leave a particular market, a broader understanding of the supply response as it relates to the milk industry can be valuable in understanding the decisions of producers to enter or leave a market.

Specific Studies of the Supply Response

The impact of technology on the milk supply is investigated in a study by French and Walz.[1] Dairy farming has traditionally been considered a long-run business and current specialized capital outlays, such as bulk tanks, tend to keep it that way. Dairy farmers thus become less prone to move into other lines of work. Technological changes tend to have an even greater output-increasing effect in the aggregate dairy industry than in some other types of farming.

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[1]Charles E. French and T. C. Walz, "Impacts of Technological Developments on the Supply and Utilization of Milk," Journal of Farm Economics, Vol. 39, December, 1957, pp. 1159-1170.

A further statement on technology and supply is given by Wheeler[1] who concludes that recent technological developments are leading to a higher degree of specialization on dairy farms and to increasing output per farm, but not to any significant increase in farm size as measured by the number of workers in the regular labor force. In city milk markets there is likely to be intense competition between nearby and distant producers which is likely to increase with peripheral areas accounting for more than a proportionate share of any change in total production. Even though prices remain constant the amount of capital needed per man has been increasing substantially.

Many valuable insights into the response of producers to price are found in a study of acreage response. Nerlove[2] emphasizes the reaction of farmers to the price they expect rather than to last year's price. This expected price is influenced only to a limited extent on last year's price. It may be that statistical estimates of supply response have been too low because of incorrect use of the price factors to which farmers react. Farmers revise the price they expect in the coming year in proportion to the error they made in predicting price during the present period.

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[1]R. G. Wheeler, "The Impact of Technological Changes on Milk Production," Journal of Farm Economics, Vol. 37, December, 1955, pp. 996-1004.

[2]Marc Nerlove, "Estimates of the Elasticities of Supply of Selected Agriculture Commodities," Journal of Farm Economics, Vol. 38, No. 2, May, 1956, pp. 469-509.

Halvorson,[1] in a study of the elasticity of supply covering the period from 1927-1957, found that in the short run of a year elasticity ranged from .15 to .30 with strong indications that it has increased in recent years and is now in the upper part of this range. Estimates of longer-run elasticity indicate it to be in the range of .35 to .50 with indications that it, too, is now near the upper end of this range. Producer response is occurring at a more rapid rate in recent years so that the long-run adjustments are not as long as they used to be.

A further study on supply elasticity[2] indicates that from 1921-1941 the year to year change in production was about 2 per cent. This indicates rather stable production which results in a low elasticity due to: 1) heavy fixed investments, 2) the lack of good alternatives, and 3) major dependence on family labor. Major adjustments in the dairy industry are likely to be relatively more costly than in most segments of agriculture and will not be made quickly and easily or in response to temporary relative price change.

Brinegar[3] has outlined some characteristics of the milk industry in relation to the geography of milk supply. Within milk sheds, milk distant from market is usually overpriced in terms of the prices

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[1]Harlow W. Halvorson, "The Response of Milk Production to Price," Journal of Farm Economics, Vol. 40, December, 1958, pp. 1101-1113.

[2]Harlow W. Halvorson, "The Supply Elasticity for Milk in the Short Run," Journal of Farm Economics, Vol. 37, No. 5, December, 1955, p. 1186.

[3]George K. Brinegar, "Economic Effects of Regulations and Price Fixing in the Milk Industry," Journal of Farm Economics, Vol. 39, December, 1957, pp. 1173-1185.

received by farmers near the market, while among markets, milk tends to be overpriced in deficit areas and underpriced in surplus areas. This would lead to the conclusion that in the future a large percentage of milk for a particular market will come from more distant areas.

Federal marketing orders have their effect on supply also as shown by Gaumnitz[1] in referring to a Federal Order Study Committee on pricing policies in federal orders. If the conclusions of the committee are correct it appears that fluid milk prices, and average prices, under marketing orders are abnormally high. If such is the tendency, operators of manufactured dairy product plants will probably be forced to enter the fluid business, or the manufacturing operations will become subsidiaries of fluid operations.

The tendency of marketing orders to expand or consolidate is emphasized by Henderson.[2] It was found that in the two year period between 1956 and 1958, twenty-one of the sixty-three marketing areas defined by Federal orders were revised and enlarged. These areas were enlarged by an average of 43 per cent with three areas more than doubled. More adequate transportation facilities have contributed to the enlargement or consolidation of these orders. This along with improved methods of handling milk, from the farmer to the consumer, have tended to break

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[1]E. W. Gaumnitz, "Economic Problems Associated with Milk Marketing Orders," Journal of Farm Economics, Vol. 37, December, 1955, pp. 1017-1021.

[2]Ellen Henderson, "Our Changing Fluid Milk Market," Agriculture Marketing, Vol. 4, No. 2, February, 1959, p. 7.

down existing market boundaries causing them to overlap to the extent that consolidation or expansion of markets is deemed necessary. The present study will point out some of these changes in the marketing areas.

The results of a study by Jones and Quackenbush[1] indicate that producers who entered and left the Detroit market were strongly influenced by price and other economic factors. The great bulk of producers shifted from manufacturing milk outlets to the Detroit market, with an expected price gain of a dollar or less per hundredweight. Considering the investment necessary to qualify for inspected milk production and the increase in gross receipts expected by the average former manufacturing producer, it was concluded that shifting to fluid production was a highly profitable venture for former manufacturing producers. The implications were that the Detroit market would have difficulty maintaining prices at a level of one dollar above manufacturing prices without inviting many new producers.

These studies present valuable insights on the characteristics of the nature of the supply response in milk production. The studies cited generally support the proposition that milk production is relatively stable and is not very responsive to price, particularly in the short run. The studies also point out some of the difficulties facing administrators of fluid milk markets in regulating supply to demand.

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[1]E. B. Jones and G. G. Quackenbush, Milk Producers Entering and Leaving the Detroit Market, Bulletin 397, Michigan State College, East Lansing, Michigan, April, 1955, p. 4.

CHAPTER III

METHODOLOGY

Study Setting

The Detroit, Cleveland and Toledo milk markets were selected for detailed study. These marketing areas are regulated by federal milk marketing orders. Marketing orders are authorized by the Agricultural Marketing Act of 1937. A major objective of the act is to achieve a uniform minimum price to producers which reflects prices and supplies of feed as well as other supply and demand conditions in the area and that is necessary to obtain an adequate supply of pure and wholesome milk.[1]

These marketing areas are shown in Figure 1. The Detroit area includes all of Wayne and portions of Macomb, Monroe, Oakland, St. Clair and Washtenaw counties in Michigan. The Toledo area includes the territory within the corporate limits of the city of Toledo, Ohio, and adjacent territory in the counties of Monroe, Michigan and Lucus and Wood counties, Ohio. The Cleveland marketing area includes all of Cuyahoga County and adjacent territory in Ashtabula, Lake, Lorain, and Medina counties all in the state of Ohio.

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[1]The United States Department of Agriculture, Marketing, The Yearbook of Agriculture, 1954, United States Government Printing Office, Washington, D. C.

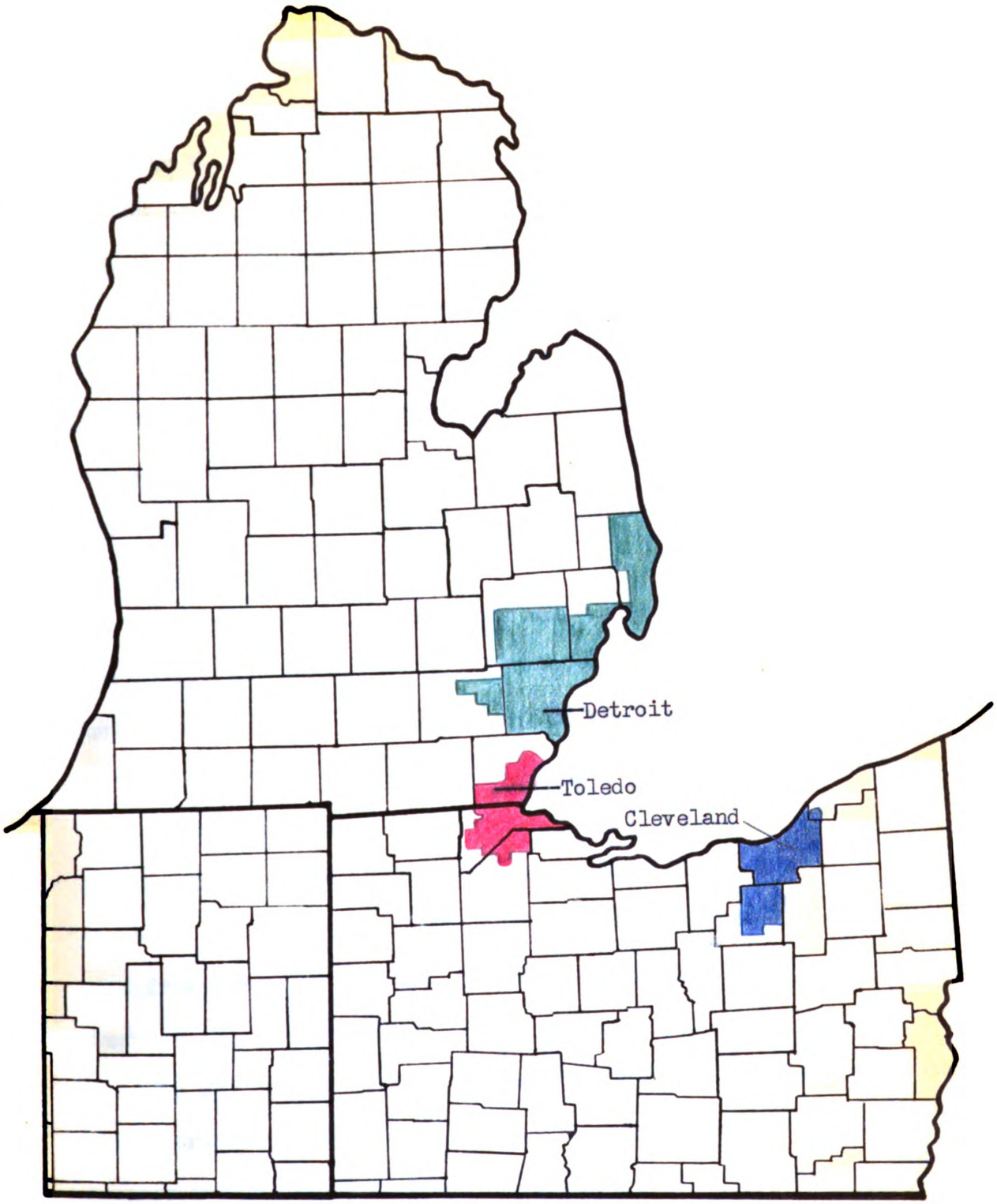

Figure 1

Detroit, Cleveland and Toledo Milk Markets, as Defined by Federal Order Numbers 24, 30, and 75, 1956.

Provisions of the orders regulating the three markets vary. The Detroit and Cleveland markets operate under a market wide pool. Under this plan all producers shipping to a particular market receive a uniform price, adjusted for transportation differentials and butterfat content, regardless of how his milk was utilized.

In contrast the Toledo market operates under an individual handler pool. Under this system all producers shipping milk to a particular handler in the marketing area receive a uniform price for their milk. This price might differ, however, from the price paid to producers shipping to another handler in the same market area if the utilization of the plants differed.

All three marketing orders include a supply-demand adjustment provision. The purpose of this provision is to provide a means of adjusting the price of Class I milk to an over or under supply in relation to what is considered to be an adequate amount of fluid milk for Class I purposes.

Country receiving stations were operated in the Detroit and Cleveland milkshed areas. The Toledo market, being smaller, procured milk from a smaller area and all milk was hauled directly from the producers to the processor.

The average number of producers in the three markets during the study period is shown in Table 3.1. All three markets experienced increases in the number of producers in 1953 over 1952. Detroit continued to show an increase in 1954, while the number of producers in Cleveland

TABLE 3.1

AVERAGE NUMBER OF PRODUCERS IN THE DETROIT, CLEVELAND AND TOLEDO MILK MARKETS, 1953-1956

Year	Detroit		Cleveland		Toledo	
	Number	Change from Previous Year (Per cent)	Number	Change from Previous Year (Per cent)	Number	Change from Previous Year (Per cent)
1953	12,822	+4.0	8219	+0.5	2003	+7.1
1954	13,165	+2.6	8038	-2.2	1979	-1.2
1955	12,903	-2.0	7929	-1.4	1911	-3.4
1956	12,548	-2.8	7368	-7.1	1780	-6.9

Source: Compilation of Statistical Material, Federal Order No. 75, Prepared by the Marketing Administrator, Cleveland, Ohio, October, 1956; Federal Order No. 24, Prepared by Marketing Administrator, Detroit, Michigan, January, 1959; and Federal Order No. 30, Prepared by Marketing Administrator, Toledo, Ohio, November, 1958.

and Toledo declined slightly. The number of producers, however, declined in 1955 and in 1956 in all three markets.

Average daily production per producer increased in all three markets during the entire study period. Table 3.2 shows this increase and the percentage change from the previous year.

Table 3.3 illustrates the average Class I price and the annual average blend price for the three markets from 1953 through 1956. The Class I price is the amount paid by the processor for milk utilized as fluid milk. Milk utilized for other purposes is purchased at a lower price and the resulting average price paid by processors for all milk is called the blend price. The differential between the Class I price and the blend price in the Detroit and Cleveland markets is quite similar while the differential in the Toledo market is less.

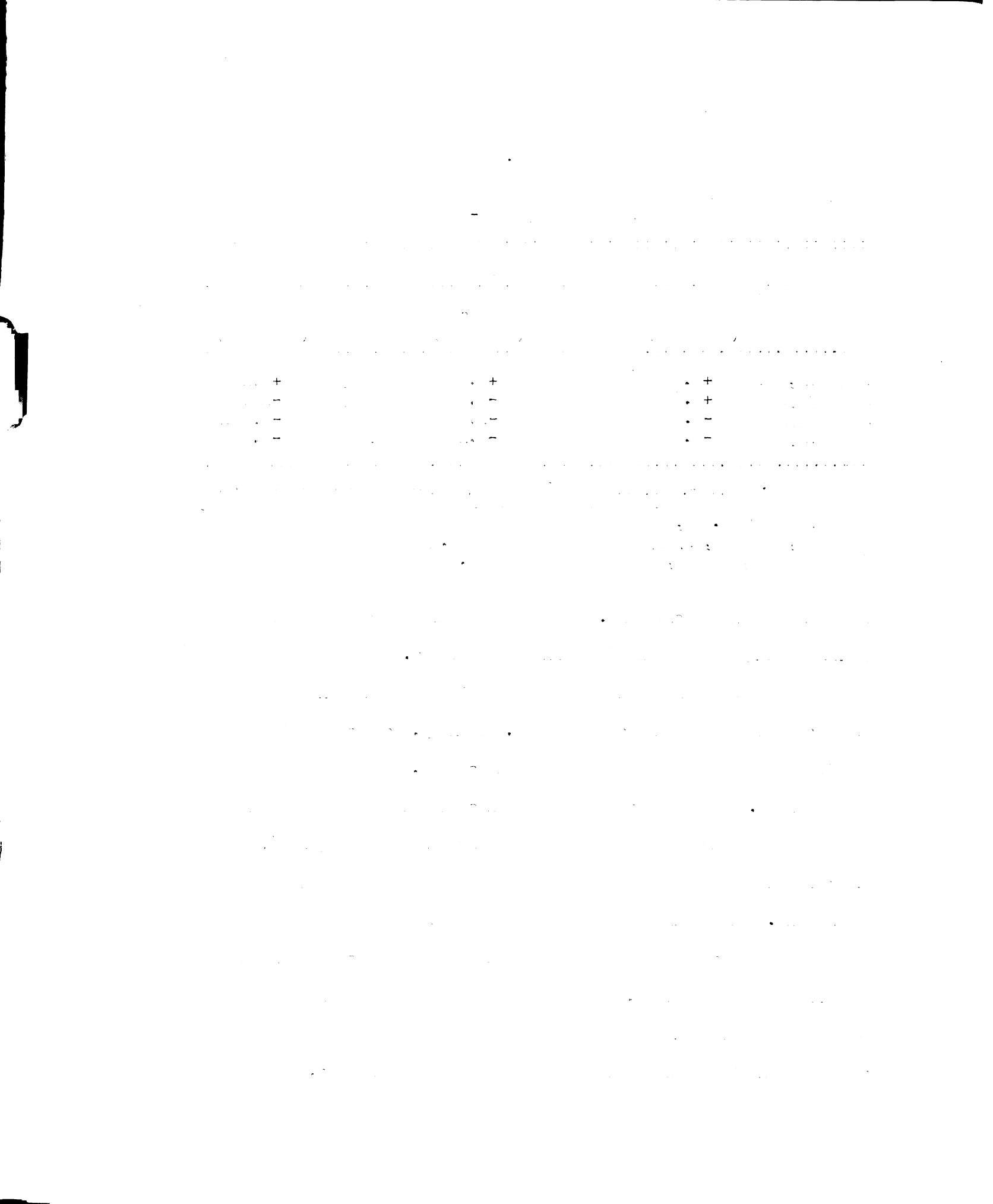

TABLE 3.2

AVERAGE DAILY PRODUCTION PER PRODUCER FOR THE DETROIT, CLEVELAND AND TOLEDO MILK MARKETS, 1953-1956

Year	Detroit		Cleveland		Toledo	
	Pounds	Change from Previous Year (Per cent)	Pounds	Change from Previous Year (Per cent)	Pounds	Change from Previous Year (Per cent)
1953	340	+7.3	297	+7.2	290	+13.7
1954	343	+0.9	312	+5.1	314	+ 8.3
1955	366	+6.7	341	+9.3	347	+10.5
1956	388	+6.0	366	+7.3	388	+11.8

Source: Ibid.

TABLE 3.3

AVERAGE CLASS I AND BLEND PRICE[1/] RECEIVED BY PRODUCERS IN THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Year	Detroit		Cleveland		Toledo	
	Class I Price	Blend Price	Class I Price	Blend Price	Class I Price	Blend Price
	- - - - - - - - - - - - Dollars - - - - - - - - - - - -					
1953	4.67	4.27	4.88	4.41	4.61	4.41
1954	4.29	3.91	4.46	4.05	4.32	4.15
1955	4.40	4.05	4.48	4.11	4.31	4.14
1956	4.65	4.26	4.86	4.45	4.70	4.56

[1/] Dollars per cwt., 3.5% milk, f.o.b. market.
Source: Ibid.

This indicates that the Toledo market had the highest per cent Class I utilization of the three markets. Actual average per cent Class I utilization during the study period shows a range from 70.1 per cent to 72.7 per cent in the Detroit market, 67.0 per cent to 73.5 per cent in the Cleveland market, and 82.0 per cent to 88.7 per cent in the Toledo market.

Sampling Unit and Response

The Detroit, Cleveland, and Toledo markets were selected for detailed study. Mail questionnaires were sent to all producers who entered or left the three markets during the period from January 1, 1953 to July 1, 1956. Follow-up questionnaires were sent to all producers who did not respond to the first questionnaire. Information received from the Detroit market during 1953 is not included in this study since these data were analyzed and published in a previous study.[1]

The names and addresses of producers who joined the markets were provided by the marketing administrator for the Cleveland and Toledo markets and by the Detroit Health Department for the Detroit market. The market administrator of each market provided the names and addresses of all producers who left the three markets during this period.

Questionnaires from those who entered the market were returned by 55.9 per cent, 36.0 per cent, and 52.6 per cent of the producers in

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[1]Jones and Quackenbush, op. cit., p. 13.

the Detroit, Cleveland, and Toledo markets respectively. In the case of those who left the market 51.4 per cent, 33.2 per cent, and 52.5 per cent of the producers in the Detroit, Cleveland and Toledo markets responded. Information regarding the number of producers who entered and left the three areas and the respondents is summarized in Table 3.4.

Because of the large number of respondents and the proportion of the population they represent, the sample is assumed to be representative of the entire number who entered and left the three markets.

Producers were asked questions which might indicate factors that influenced their decision to enter or leave a market, as well as the direct question as to why they decided to make the change. A sample of the questionnaire is found in the Appendix.

Disposition of the Sample

Producers Who Entered the Markets. Tables 3.5, 3.6, and 3.7 indicate the number and proportion of respondents to the questionnaire who joined the Detroit, Cleveland, and Toledo milk markets respectively for each year of the study. The producers are classified according to the product they produced before entering these markets. Producers who did not answer the question were not included in computing percentages as their former production was unknown.

Detroit Joiners. More than one-half the respondents who entered the Detroit market had previously produced manufacturing milk. The percentage for the total study period was 58.9, or about six out of every ten, who joined. Former inspected milk producers accounted for

TABLE 3.4

NUMBER OF PRODUCERS WHO ENTERED AND LEFT THE DETROIT, CLEVELAND AND TOLEDO MILK MARKETS AND THOSE RESPONDING TO MAIL QUESTIONNAIRES, 1953-1956

Year	Detroit		Cleveland		Toledo	
	Entered	Left	Entered	Left	Entered	Left
1953						
Questionnaires sent	1/	1/	703	996	318	245
Respondents	"	"	246	290	138	104
Respondents (Per cent)	"	"	35.0	29.1	43.4	42.5
1954						
Questionnaires sent	851	1053	872	1048	204	289
Respondents	535	572	348	401	134	171
Respondents (Per cent)	62.9	54.2	39.9	38.3	65.7	59.2
1955						
Questionnaires sent	995	1349	912	1203	198	330
Respondents	508	695	326	404	103	171
Respondents (Per cent)	51.1	51.5	35.7	33.6	52.0	51.8
1956						
Questionnaires sent	333	486	466	551	36	156
Respondents	175	216	144	169	24	93
Respondents (Per cent)	52.6	44.4	30.9	30.7	66.7	59.6
Total 1953-56						
Questionnaires sent	2179	2888	2960	3803	758	1027
Respondents	1218	1483	1064	1264	399	539
Respondents (Per cent)	55.9	51.4	36.0	33.2	52.6	52.5

1/ 1953 data from Detroit not included in this study.

28.2 per cent of the total; farm separated cream 7.1 per cent; and new producers represent only 5.8 per cent of those who joined.

TABLE 3.5

RESPONDENTS WHO JOINED THE DETROIT MILK MARKET AND THE DAIRY PRODUCT THEY PREVIOUSLY MARKETED, 1954-1956

Dairy Product Previously Marketed	Year 1954 (N=503) [1]	1955 (N=485)	1956 (N=173)	Total (N=1161)
	Per cent			
Inspected milk	21.9	34.0	30.1	28.2
Manufacturing milk	64.8	55.1	52.6	58.9
Farm separated cream	7.6	6.0	9.2	7.1
New producer	5.7	4.9	8.1	5.8
Total	100.0	100.0	100.0	100.0

[1] "N" in this and subsequent tables refers only to the number who responded to the question(s) and consequently will vary between tables.

While two and one-half years is not sufficient time to determine trends, it is interesting to note the percentage decline from year to year in those who enter from the former manufacturing group.

Cleveland Joiners. Former inspected milk producers represent the majority of those who joined the Cleveland market with 59.2 per cent compared to 32.2 per cent former manufacturing producers. Approximately the same proportion of new producers joined the Cleveland market as joined Detroit with 6.4 per cent of the total. Former farm separated cream producers, however, accounted for only 2.2 per cent.

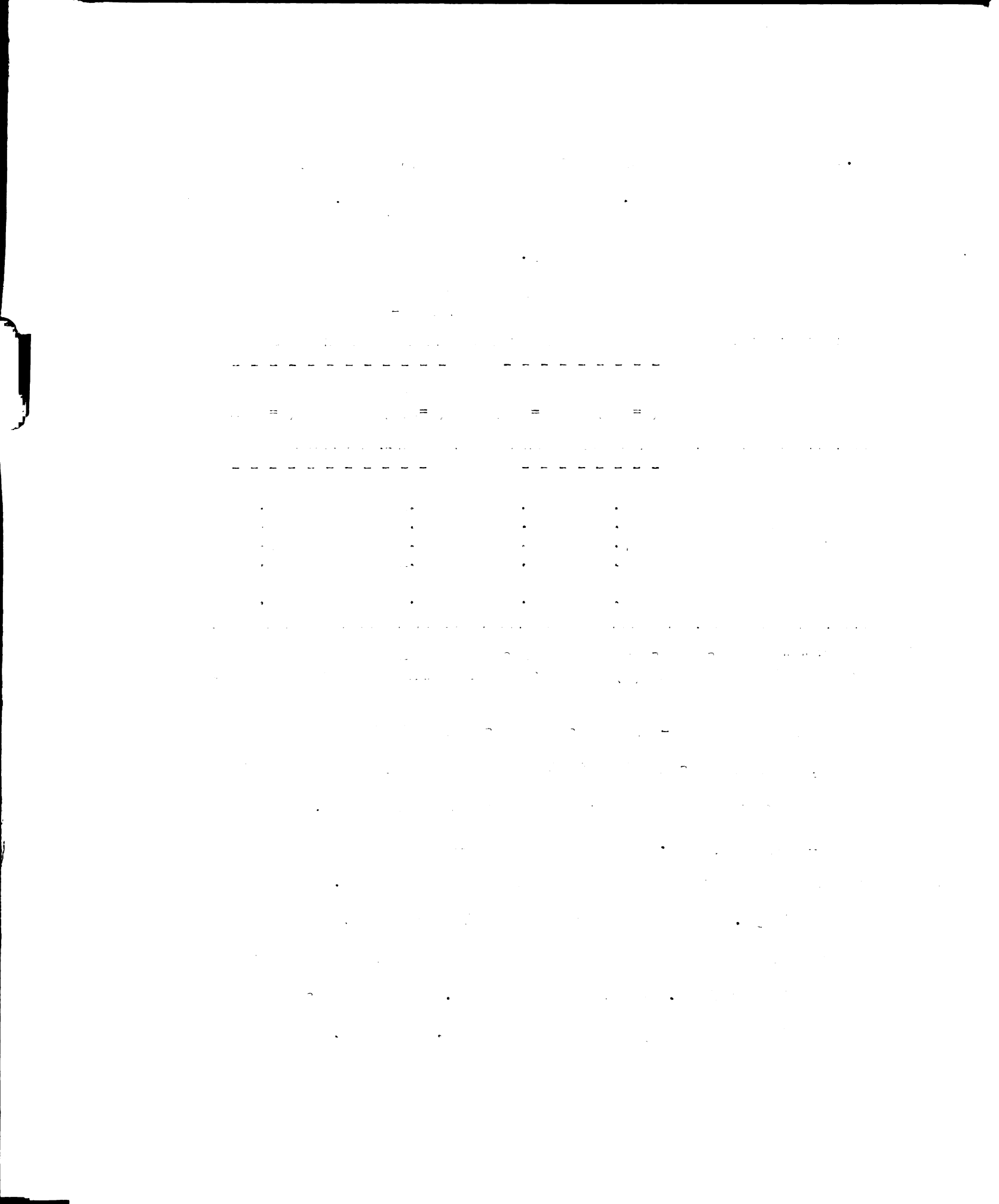


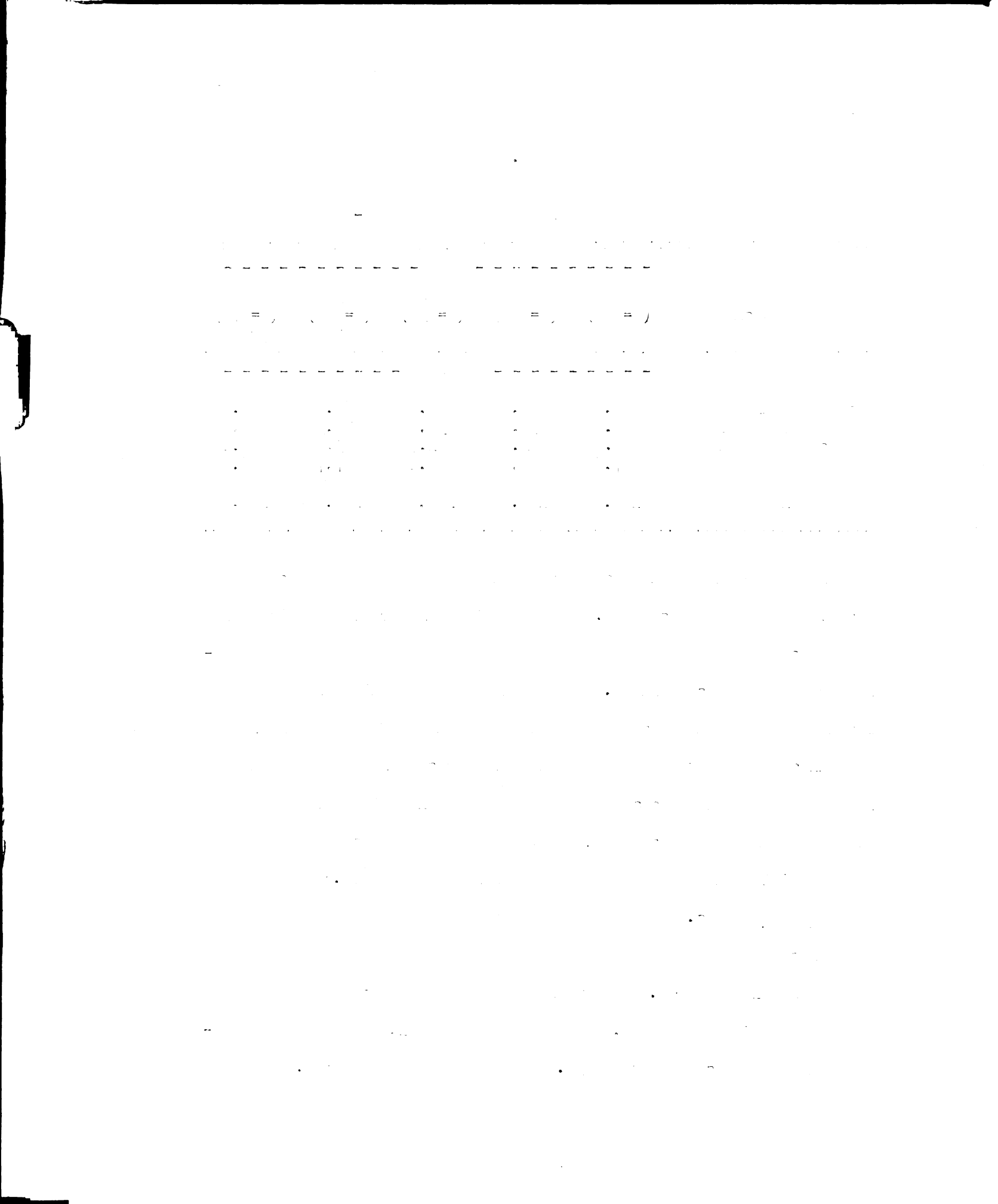
TABLE 3.6

RESPONDENTS WHO JOINED THE CLEVELAND MILK MARKET AND THE DAIRY PRODUCT THEY PREVIOUSLY MARKETED, 1953-1956

Dairy Product Previously Marketed	Year 1953 (N=225)	1954 (N=322)	1955 (N=293)	1956 (N=130)	Total (N=970)
	Per cent				
Inspected milk	53.3	57.7	62.1	66.2	59.2
Manufacturing milk	36.4	35.1	30.0	22.3	32.2
Farm separated cream	2.7	1.9	1.7	3.8	2.2
New producer	7.6	5.3	6.2	7.7	6.4
Total	100.0	100.0	100.0	100.0	100.0

Again the time period is not sufficient to determine trends although observations may be justified. The proportion of former inspected milk producers increased from year to year while the per cent of former manufacturing producers declined. If this is the trend, it could be the result of an ever increasing proportion of fluid producers available in the milkshed compared to manufacturing producers. Although there is a lack of evidence in this study to support an explanation for such a trend it could mean this market will, to an ever increasing degree, be in competition with other fluid markets for new producers.

Toledo Joiners. Approximately the same proportion of producers in each classification can be observed in the Toledo market as was evident in the Cleveland market. Former fluid producers represent the majority of those who joined with 62.0 per cent of the total. Former manufacturing milk producers account for 32.5 per cent, new producers 4.9



per cent, and farm separated cream producers only 0.6 per cent.

The declining proportion of manufacturing producers and the increasing number of inspected producers can also be observed in this market.

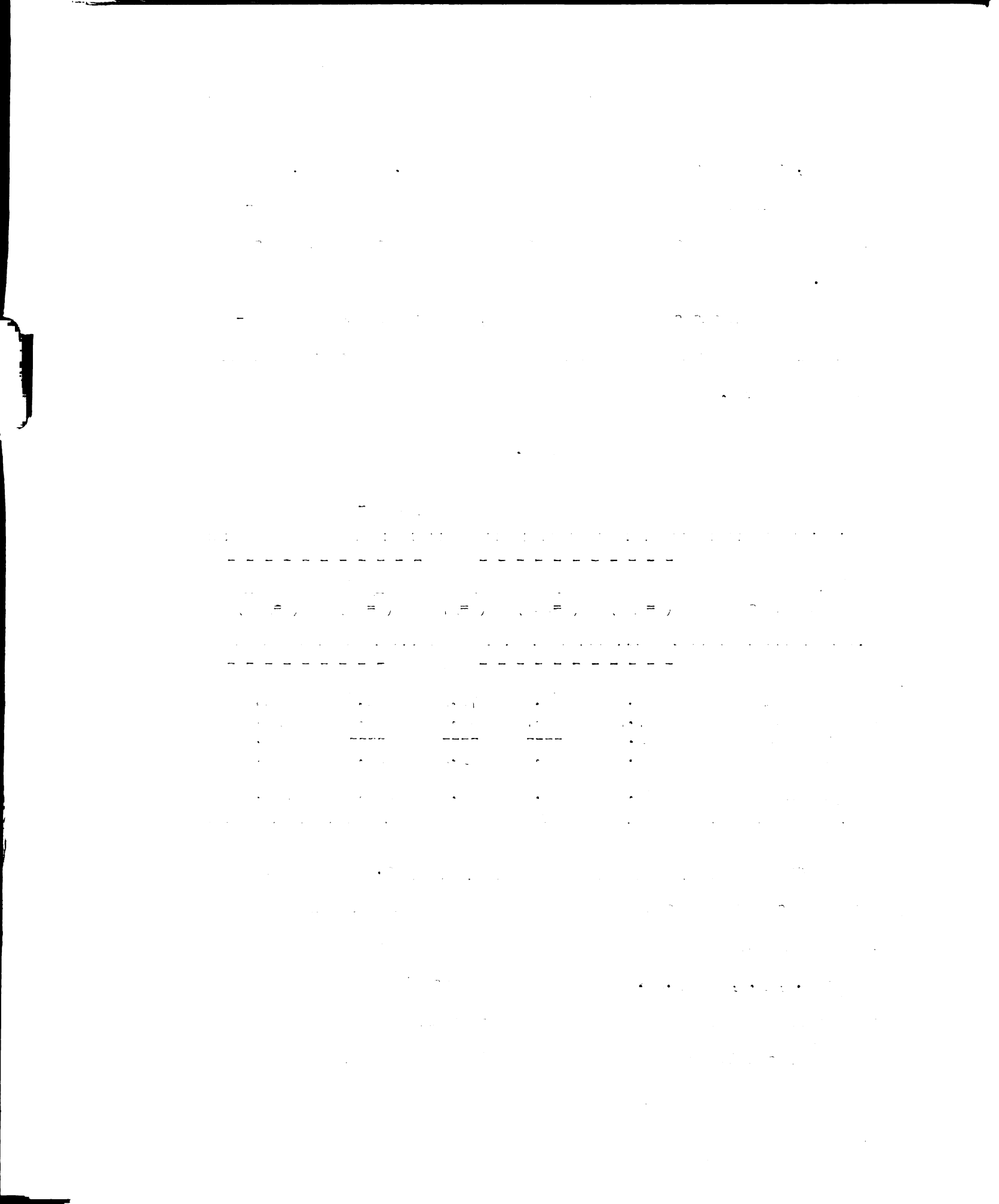
In the analysis section of this study, farm separated cream producers are grouped with manufacturing milk producers unless specifically stated otherwise.

TABLE 3.7

RESPONDENTS WHO JOINED THE TOLEDO MILK MARKET AND THE DAIRY PRODUCT THEY PREVIOUSLY MARKETED, 1953-1956

Dairy Product Previously Marketed	Year 1953 (N=130)	1954 (N=120)	1955 (N=97)	1956 (N=19)	Total (N=366)
	Per Cent				
Inspected milk	58.5	60.0	71.1	52.6	62.0
Manufacturing milk	37.7	31.7	25.8	36.9	32.5
Farm separated cream	1.5	----	----	----	0.6
New producer	2.3	8.3	3.1	10.5	4.9
Total	100.0	100.0	100.0	100.0	100.0

Classification of Producers Who Left the Markets. The number of respondents to the questionnaire who left the Detroit, Cleveland, and Toledo milk markets during the years under study are summarized in Tables 3.8, 3.9, and 3.10. Producers were classified as to whether they were still producing milk for sale and those still producing were further classified as to the milk product they produced after leaving



the market. Percentages show the proportion who are still marketing milk and the product they are producing as well as those who have discontinued production.

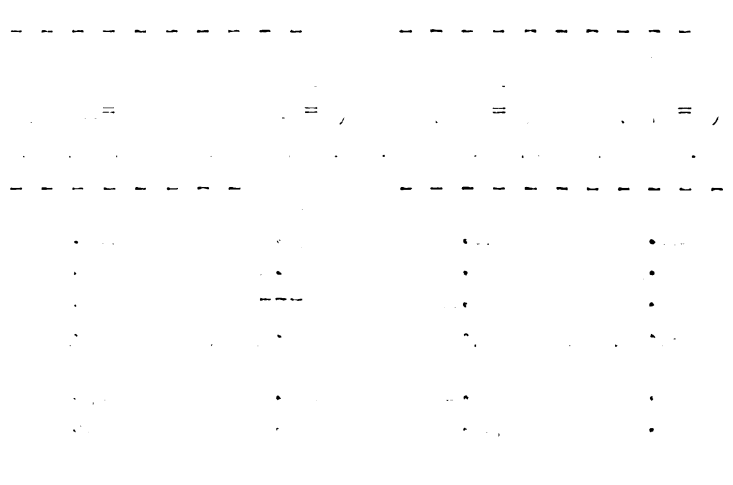
Those Who Left Detroit. A large proportion of the producers who left the Detroit market are no longer producing milk for sale. Nearly three out of every four, or 72.8 per cent, decided to discontinue milk production (Table 3.8). Of the 403 who are still producing, 295 are producing for other fluid markets. During the period of the present

TABLE 3.8

DAIRY PRODUCTS MARKETED BY RESPONDENTS AFTER LEAVING THE DETROIT MARKET, 1954-1956

Dairy Product Marketed	Year 1954 (N=572)	1955 (N=695)	1956 (N=216)	Total (N=1483)
	Per cent			
Inspected milk	21.5	21.9	9.2	19.9
Manufacturing milk	6.3	5.6	4.2	5.7
Farm separated cream	2.1	0.1	—	0.9
No reply	1.0	0.6	0.5	0.7
Total marketing milk	30.9	28.2	13.9	27.2
Not marketing milk	69.1	71.8	86.1	72.8
Total	100.0	100.0	100.0	100.0

study the Detroit market gained 327 respondents that had formerly produced for another fluid market and lost 295 to other inspected fluid markets, leaving a net gain of 32 producers. Adjusting these figures for a 100 per cent response, to correct for the difference in the



proportion who responded in each group, leaves a net gain of 11 producers or 0.9 per cent of the total inspected producers who changed markets.

Those Who Left Cleveland. The majority of those who left the Cleveland market are still producing milk for sale (Table 3.9). A large proportion of the 56.1 per cent who were still in production were producing for other fluid markets. Cleveland gained 574 respondents from competing fluid markets while losing 525. Adjusting these figures for a 100 per cent response for each group leaves a net gain of 13 producers or 0.4 per cent of the total fluid producers who changed markets.

TABLE 3.9

DAIRY PRODUCTS MARKETED BY RESPONDENTS AFTER LEAVING THE CLEVELAND MARKET, 1953-1956

Dairy Product Marketed	Year 1953 (N=290)	1954 (N=401)	1955 (N=404)	1956 (N=169)	Total (N=1264)
	Per cent				
Inspected milk	42.7	42.2	42.6	35.5	41.5
Manufacturing milk	13.8	11.2	9.6	20.1	12.5
Farm separated cream	0.7	0.7	1.0	0.6	0.8
No reply	0.7	1.0	2.2	0.6	1.3
Total marketing milk	57.9	55.1	55.4	56.8	56.1
Not marketing milk	42.1	44.9	44.6	43.2	43.9
Total	100.0	100.0	100.0	100.0	100.0

Those Who Left Toledo. The Toledo market resembles the Detroit market in that the majority of those who left decided to discontinue producing milk (Table 3.10). The 349 who discontinued producing milk represents 64.7 per cent of the total leaving the Toledo market.

TABLE 3.10

DAIRY PRODUCTS MARKETED BY RESPONDENTS AFTER LEAVING THE TOLEDO MARKET, 1953-1956

Dairy Product Marketed	Year 1953 (N=104)	1954 (N=171)	1955 (N=171)	1956 (N=93)	Total (N=539)
	Per cent				
Inspected milk	21.1	29.2	19.9	20.4	23.2
Manufacturing milk	4.8	9.9	11.1	16.1	10.4
Farm separated cream	1.0	0.6	----	----	0.4
No reply	1.0	1.8	1.2	1.1	1.3
Total marketing milk	27.9	41.5	32.2	37.6	35.3
Not marketing milk	72.1	58.5	67.8	62.4	64.7
Total	100.0	100.0	100.0	100.0	100.0

There were 227 former fluid respondents who joined the Toledo market and 125 respondents who left for other fluid markets during the three and one-half year study period. These figures adjusted for a 100 per cent response show a gain of 194 producers, or 29.0 per cent of those who changed, suggesting that the economic or institutional factors effecting these shifts in the three market areas favor the Toledo market. Although all markets experienced a gain, the percentage was not as great for Detroit and Cleveland as was the case in the Toledo market.

Reasons given by producers for this movement will be discussed in another section of the study.

Analytical Procedure

In addition to testing the hypothesis that producers decide to enter or leave a milk market because of price, various other factors which might influence their decision were examined. Comparisons were made of characteristics of the producers who entered and left the three markets and of certain selected characteristics of their farm enterprise. Statistical analysis in the form of simple regressions and chi-square analyses were employed.

Comparisons were made between markets, between groups of producers, and between the different years included in the study in an attempt to discover factors which might have influenced producers to enter or leave the three markets.

The null hypothesis, that producers enter a market regardless of the price differential between manufacturing and Class I, or manufacturing and blend, was tested by employing various simple regression models. The general model used was $Y = a + bx + u$ where $\underline{Y}$, the dependent variable, is the number of producers who joined the market during a specific month; $\underline{a}$ is the constant value; $\underline{b}$ is an estimated parameter; $\underline{x}$ is the independent variable or price differential; and $\underline{u}$ is the unexplained residual. The different variables employed in the model are outlined in the analysis section of this study.

Chi-square analysis was used to determine if the most important reason producers gave for joining was significantly related to certain characteristics of the producer. Various groupings of the different reasons given for joining the markets were made in an attempt to determine if a relationship existed.

CHAPTER IV

THE ANALYSIS

Introduction

The purpose of this study, as previously stated, is to examine the role of price in the producer's decision to enter or leave a milk market. Various other factors or characteristics were also tabulated, examined, and classified into two categories; 1) characteristics of the producer and his dairy enterprise, and 2) attitudes, actions, and reasons indicated by producers for joining or leaving any one of the three markets.

Comparisons were made between producer groups based on their former type of production and between the three markets to determine if certain patterns existed which might have a bearing on the producer's decision to enter or leave the markets.

The characteristics of the producer and his dairy enterprise which were tabulated and compared include:

1) The geographic location of the producer
2) Age of the producer
3) Size of the farm
4) Percentage of the farm owned
5) Tenure on present farm
6) Number of years shipped to the three markets
7) Size of herd
8) Per cent of income from milk.

Attitudes, actions and reasons for joining or leaving a particular market were solicited from producers in these categories:

1) Reasons for joining or leaving a market
2) Price increase expected
3) Month producer joined or left
4) Length of time producer considered his action
5) Other markets considered
6) Investment costs necessary to qualify for Grade A
7) Decision of producer if prices rise or decline
8) Number who plan to re-enter the market.

The assumption was made that differences found to exist between markets or between producer groups would shed some light on the reasons underlying the producer's decision to change markets.

Method of Analysis

In the first section of the analysis the various factors or characteristics were tabulated according to markets and by the former production of the producer. Differences were noted between markets and between producer "groups." The second section deals with analysis by chi-square computation where selected characteristics of the producer or his farm enterprise were compared to the most important reason producers gave for joining the market. The third section utilizes simple regression models to test the relationship of the price differential between Class I and manufacturing milk and the number joining the market during selected months. Tests were also made by comparing the differential between the blend price and the manufacturing price with selected months in which producers entered the market.

Section I

Factors Associated with Producers Joining or Leaving a Market

The Geographic Location of the Producer. The geographic location of producers who entered or left a market were plotted to determine if a consistent pattern existed with regard to their actions. Figures 2, 5, and 8 show the geographic location by counties of producers who entered the Detroit, Cleveland, and Toledo milk markets respectively, and those who left are indicated in Figures 3, 6, and 9.

All markets seem to follow a consistent pattern with the milkshed area for each market expanding to include proportionately more producers from the outlying areas. In the Detroit area a large percentage of those who joined from the outlying area are former manufacturing milk producers while in the Cleveland and Toledo areas the number of former inspected and manufacturing milk producers are about evenly divided. This indicates that perhaps the number of producers supplying the Detroit market could be increased by inducing manufacturing milk producers to join while it appears the Cleveland and Toledo markets must rely as much or more on inspected milk producers for any increase.

Producers who joined the markets were tabulated according to three concentric zones within each market. Zones were established to coincide as nearly as possible with the location differentials provided in the Detroit and Cleveland marketing orders. Fifteen mile radii were arbitrarily combined in establishing the zones. The first zone

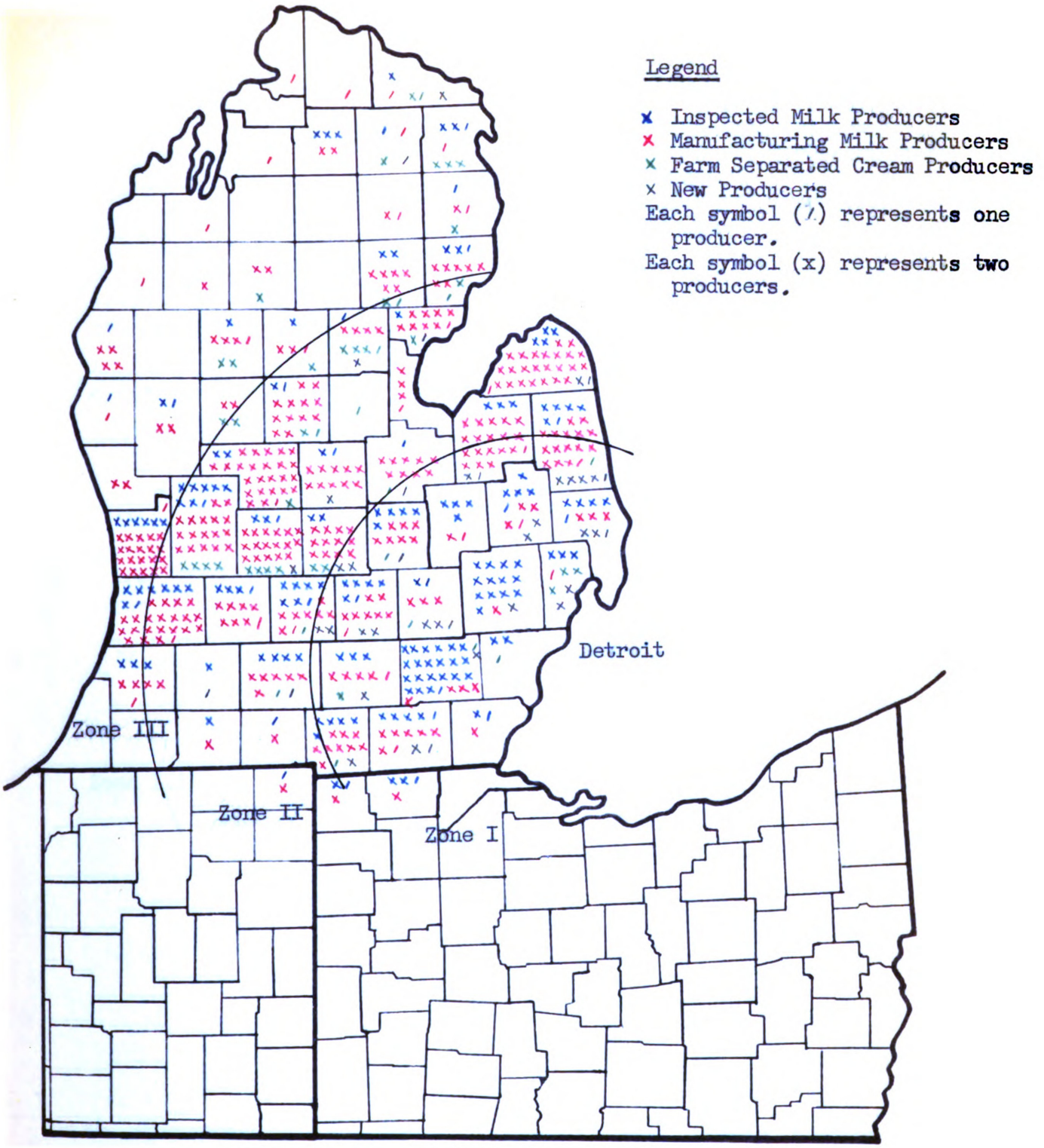


Figure 2

Location by Counties of Respondents Entering the Detroit Milk Market, 1954-1956.

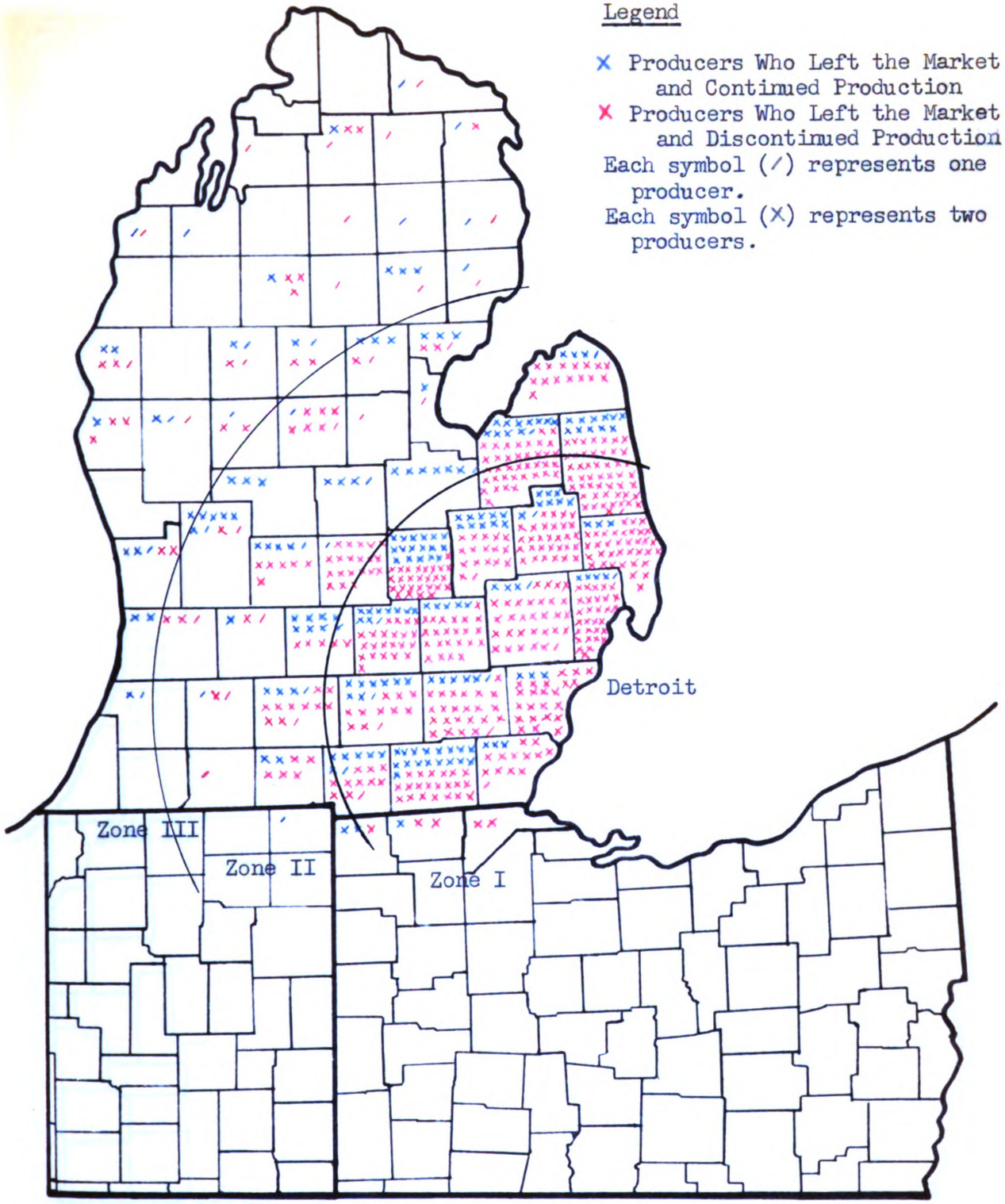


Figure 3

Location by Counties of Respondents Leaving the Detroit Milk Market, 1954-1956.

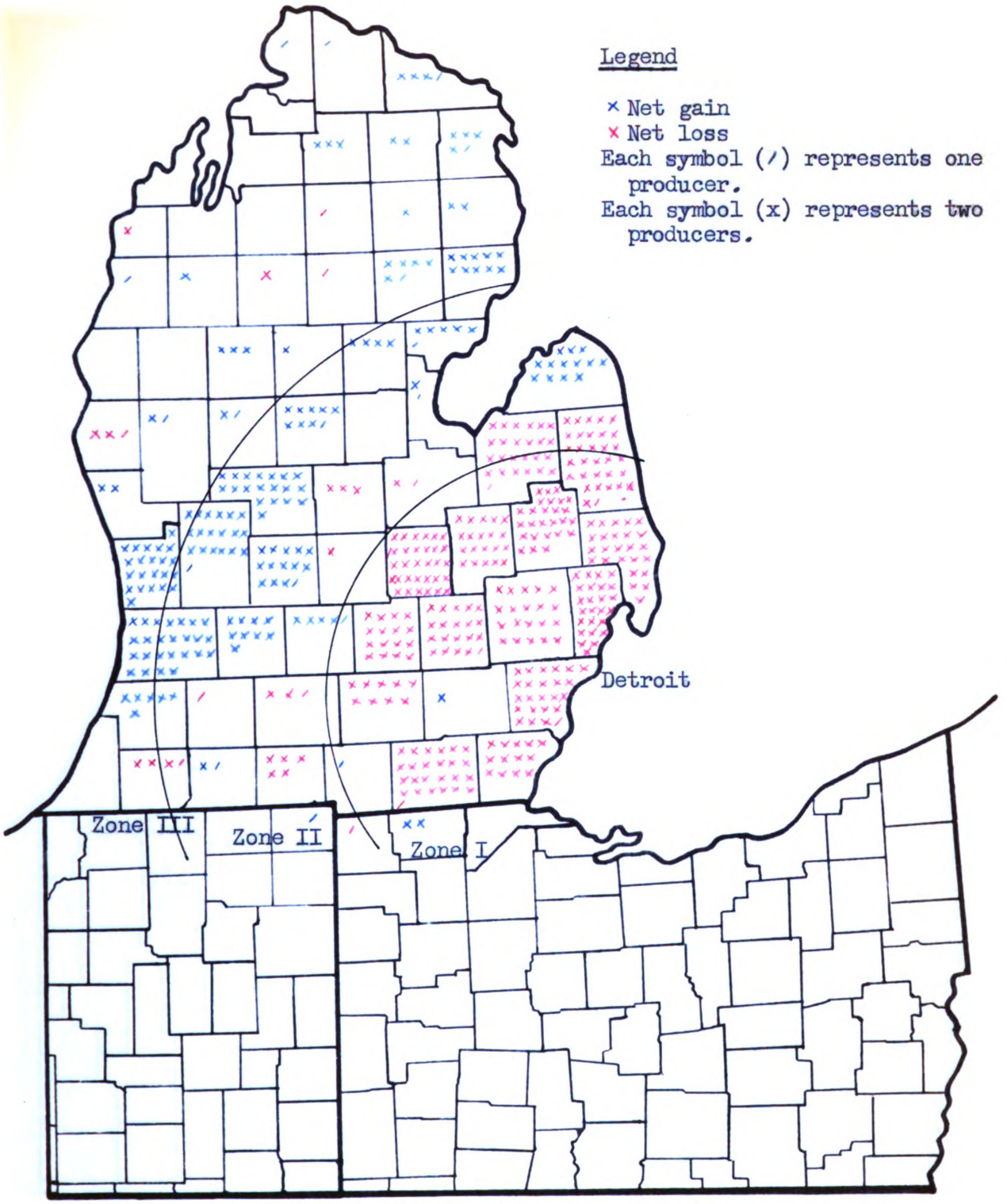


Figure 4

Net Gain and Loss by Counties of Respondents in the Detroit Milk Markets, 1954-1956.

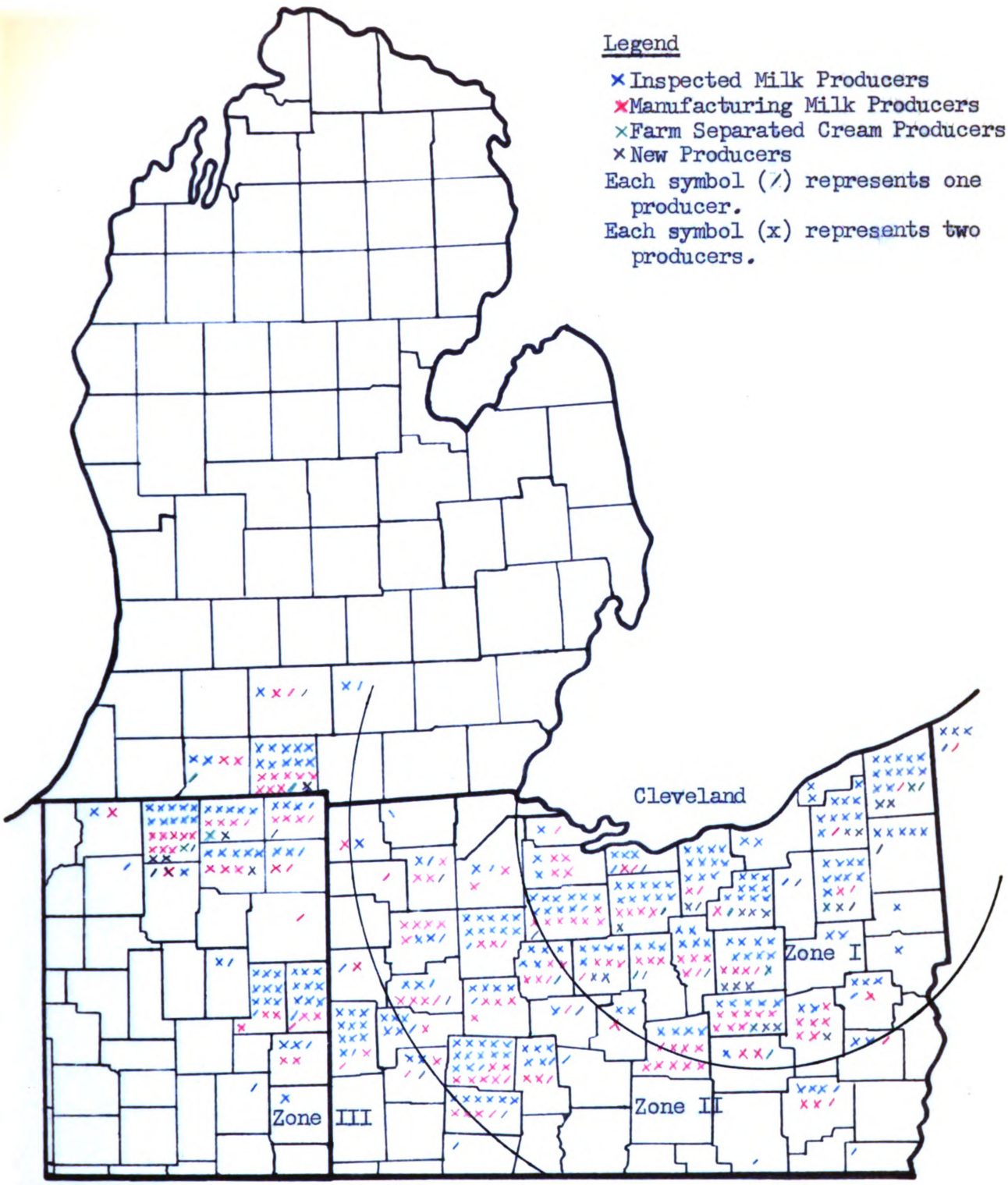


Figure 5

Location by Counties of Respondents Entering the Cleveland Milk Market, 1953-1956.

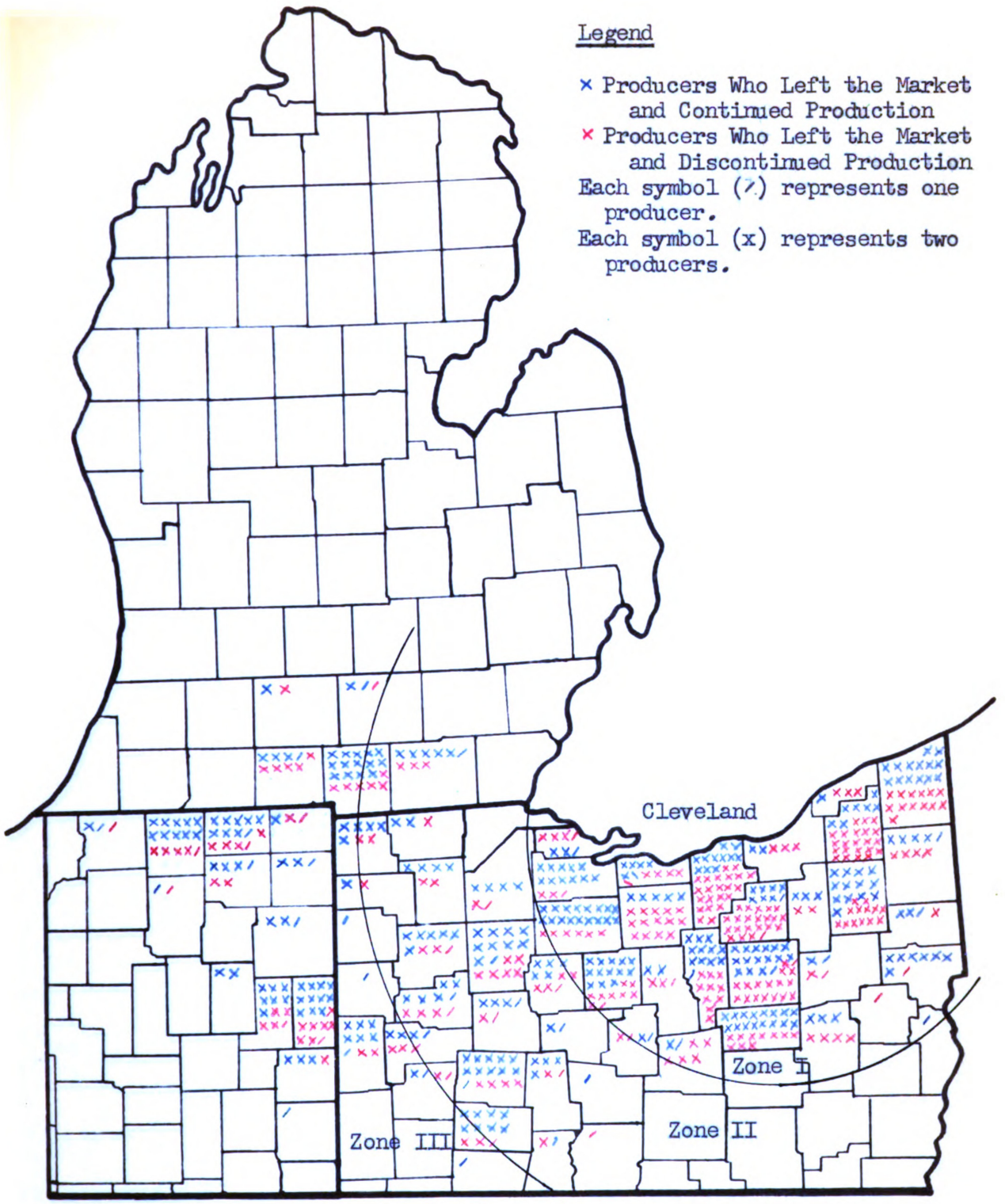


Figure 6

Location by Counties of Respondents Leaving the Cleveland Milk Market, 1953-1956.

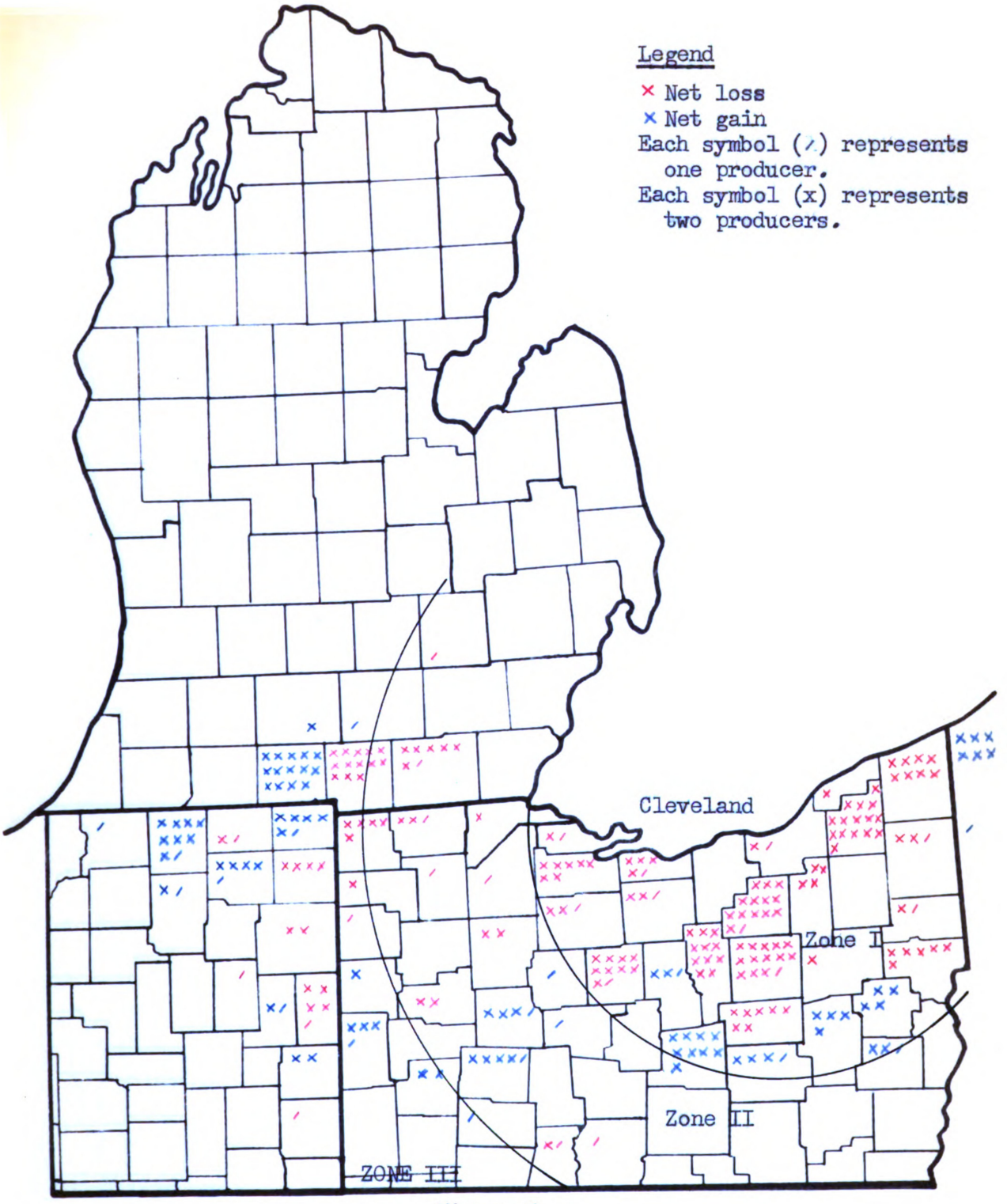


Figure 7

Net Gain and Loss by Counties of Respondents in the Cleveland Milk Market 1953-1956.

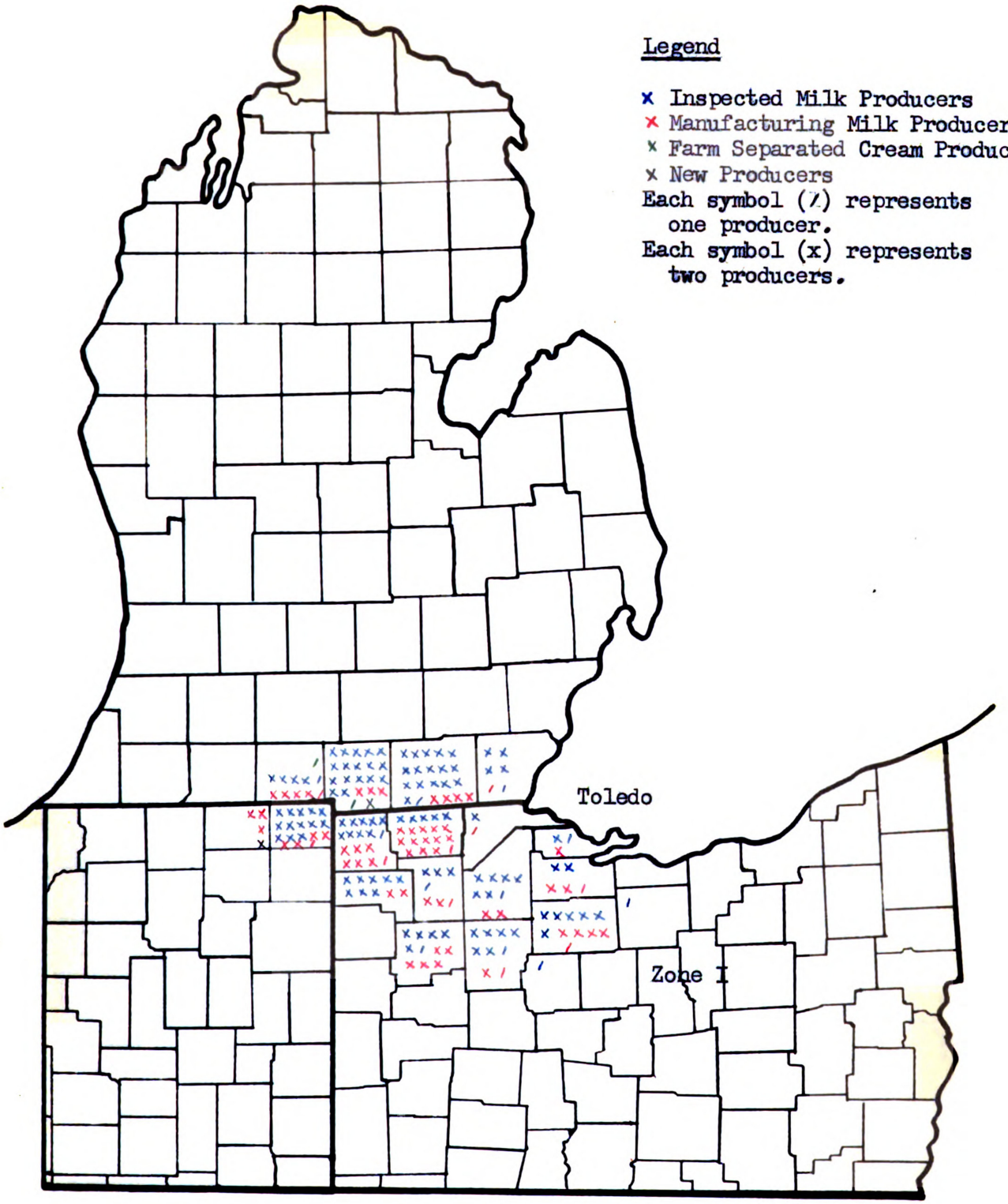


Figure 8

Location by Counties of Respondents Entering the Toledo Milk Market, 1953-1956.

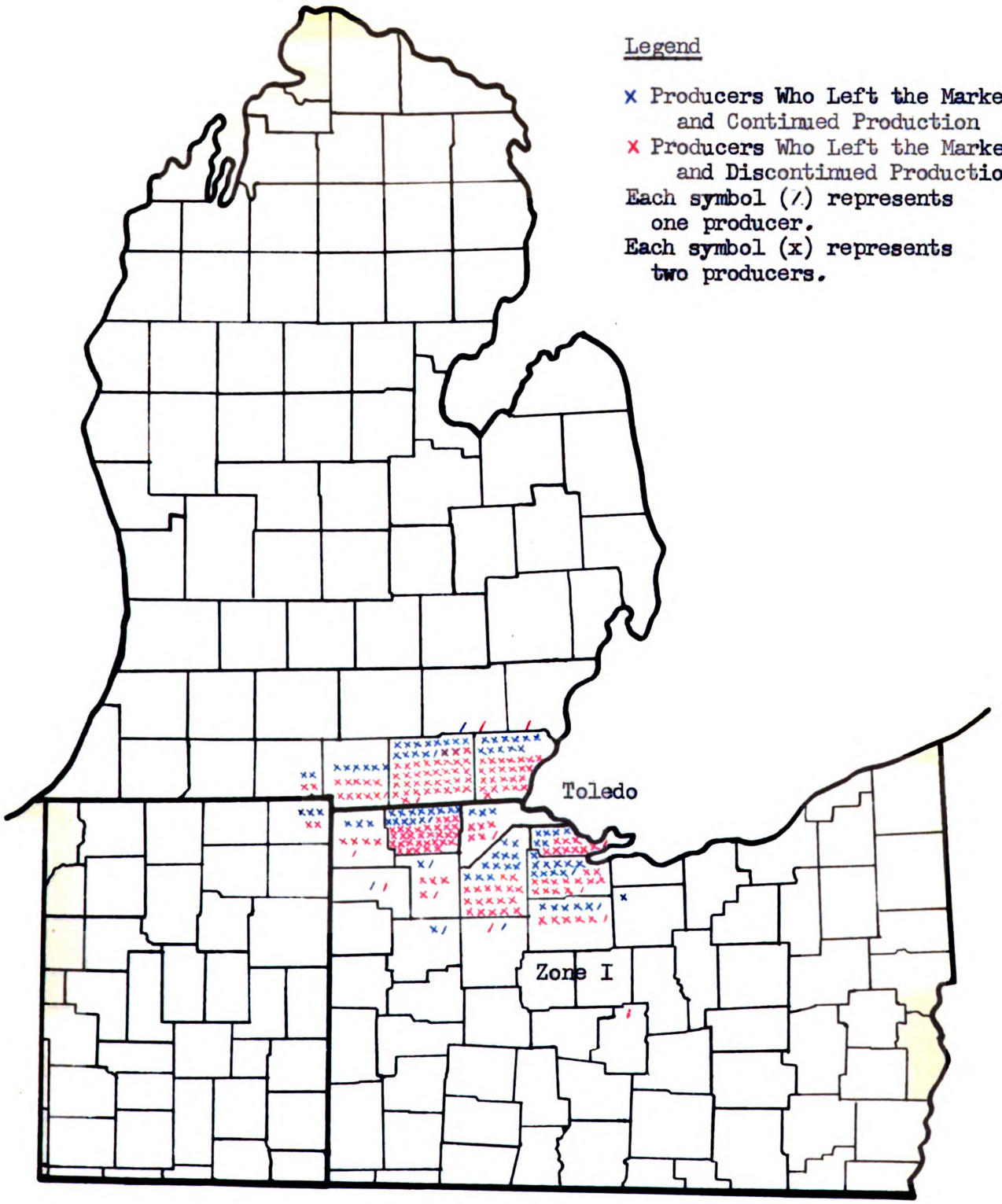


Figure 9

Location by Counties of Respondents Leaving the Toledo Milk Markets, 1953-1956.

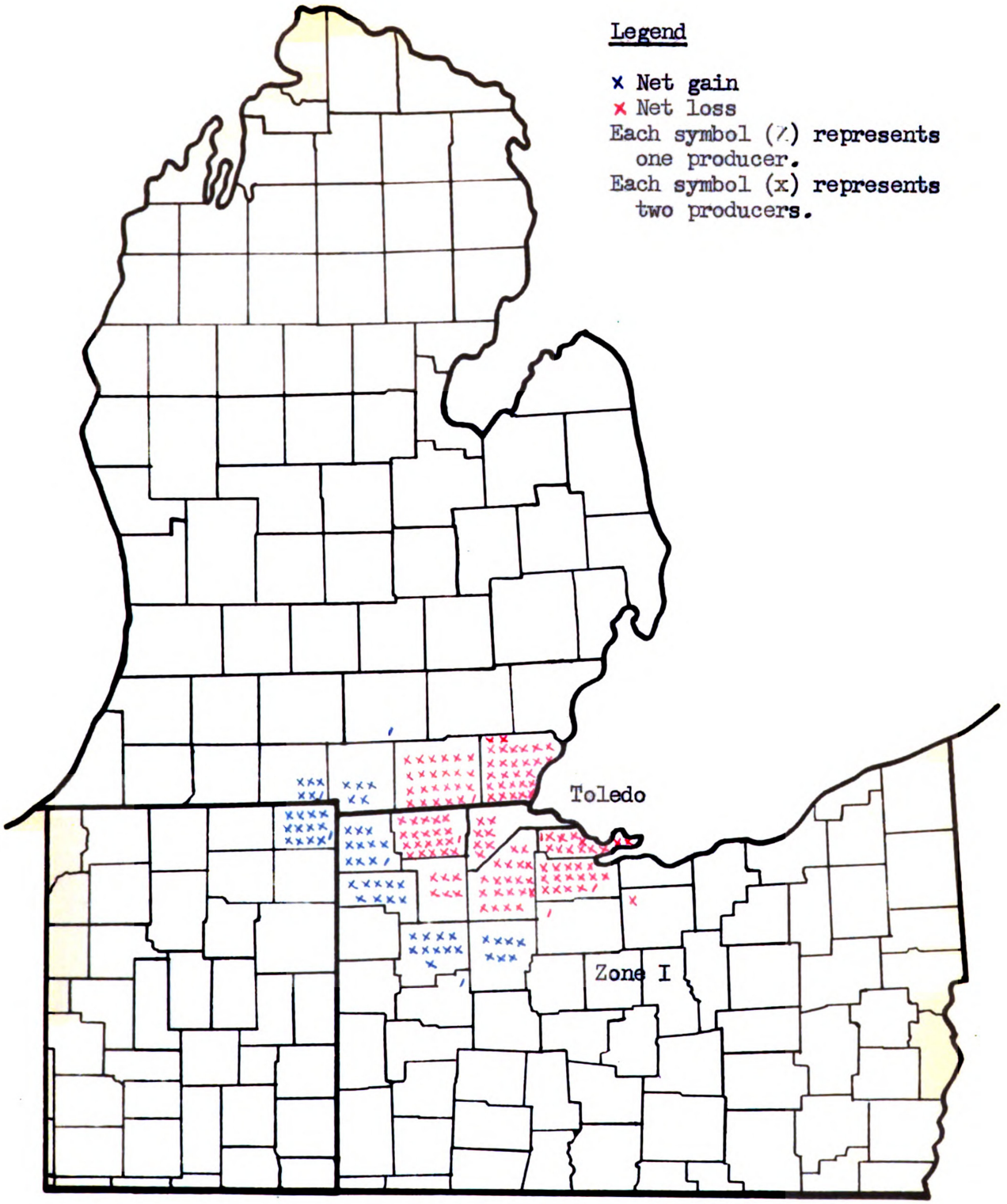


Figure 10

Net Gain and Loss by Counties of Respondents in the Toledo Milk Market, 1953-1956.

included an area covered by a 90 mile radius from a central point in the market area. Zone II is the area resulting from an extension of the radius from 90 miles to 120 miles. All area beyond the 120 mile radius is included in Zone III.

All producers joining the Toledo market were located in one zone in that market while producers from the remaining two markets were found to be located in all three zones. Figures 2 through 10 show the location of the zones for the Detroit, Cleveland, and Toledo milk markets respectively, and the movements within each.

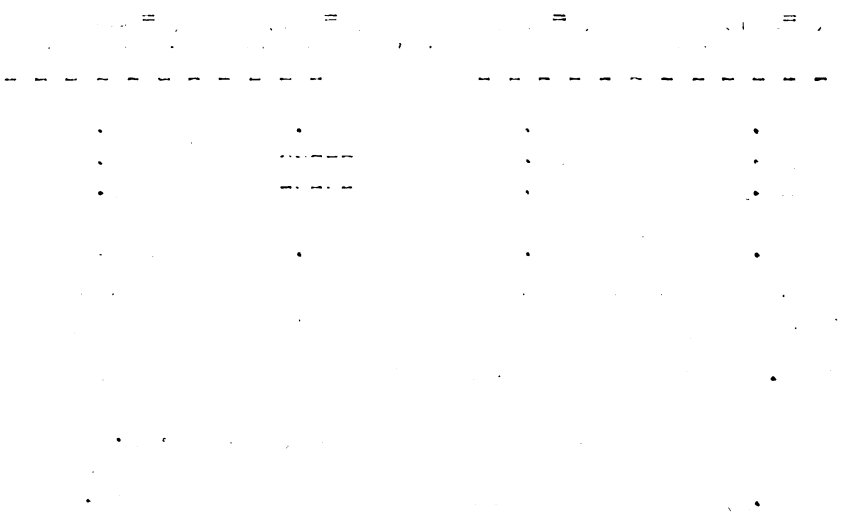
The number of former inspected milk producers who joined the three markets and the zones in which they are located are summarized in Table 4.1. The largest proportion of these producers were located

TABLE 4.1

LOCATION BY ZONES OF FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Zone	Detroit (N=327)	Cleveland (N=574)	Toledo (N=227)	Total (N=1128)
	- - - - - - - - - - - - - - Per cent - - - - - - - - - - - -
I	52.6	45.8	100.0	58.7
II	32.1	19.7	-----	19.3
III	15.3	34.5	-----	22.0
Total	100.0	100.0	100.0	100.0

in the first zone. In contrast, the largest proportion of former manufacturing milk producers were located in Zone II (Table 4.2). New producers (Table 4.3) were located primarily in the first zone.



If we can assume that those joining the market constitute a representative sample of the area, these data appear to substantiate von Thunen's land use theory that the less perishable and more easily transported products will be produced further away from a market.

TABLE 4.2

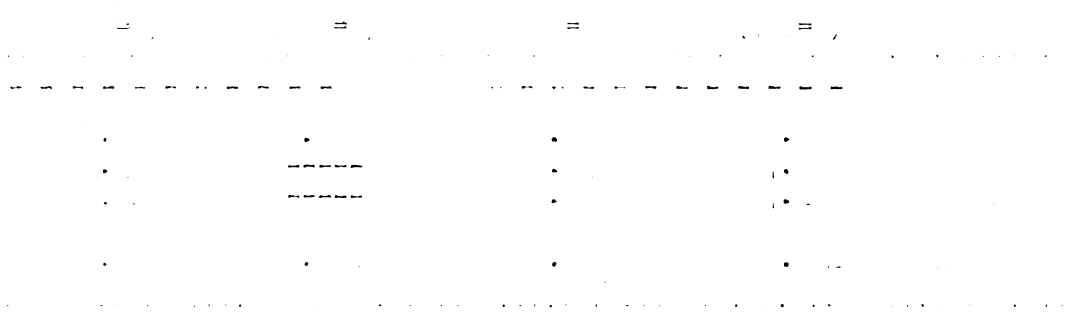
LOCATION BY ZONES OF FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

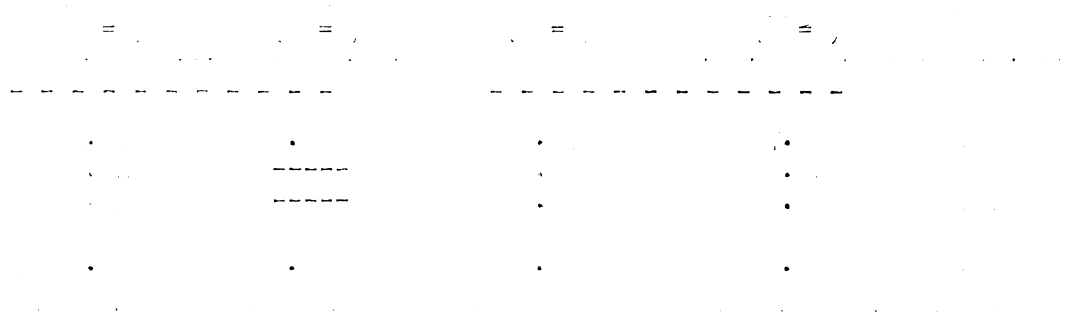
Zone	Detroit (N=767)	Cleveland (N=333)	Toledo (N=121)	Total (N=1221)
	- - - - - - - - - - - - - Per cent - - - - - - - - - - - - -			
I	24.6	30.0	100.0	33.6
II	53.7	35.1	-----	43.3
III	21.7	34.9	-----	23.1
Total	100.0	100.0	100.0	100.0

TABLE 4.3

LOCATION BY ZONES OF NEW MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Zone	Detroit (N=66)	Cleveland (N=62)	Toledo (N=18)	Total (N=146)
	- - - - - - - - - - - - - Per cent - - - - - - - - - - - - -			
I	66.7	72.6	100.0	73.3
II	28.8	4.8	-----	15.1
III	4.5	22.6	-----	11.6
Total	100.0	100.0	100.0	100.0





In Figures 4, 7, and 10 the net loss and gain for each market can be observed. In each market the close-in counties display a loss. Conversely, those that reveal a gain are the outlying counties of the milkshed. It could be generalized that the reduction of producers in the close-in counties probably indicates a small potential for expansion coupled with the overall reduction of dairy producers in the three market areas as observed in Table 3.1. The net gain of producers in the outlying areas indicates the market supply area is spreading with an increasing amount of the supply of inspected milk being attributed to this outlying area. The observed expansion of the marketing area also substantiates the theory of location and land utilization developed by von Thunen. As transportation becomes more readily available and less expensive, all zones expand, thus forcing the cream and butter zones further away from the market. Figures 2 through 10 show the result of this expansion and the incorporation of former manufacturing producers in the fluid market. This is particularly evident in the Detroit area.

The geographic location of the milkshed market also tends to substantiate von Thunen's theory. When the United States is considered as one market, the surplus production area will be centered in the Wisconsin-Minnesota surplus area. All three milkshed areas tend to locate in the direction of that surplus area and the expansion is primarily in that direction also.

The fact that the three milksheds expanded in several directions, including that of the Wisconsin-Minnesota surplus area, might be

explained in terms of Fetter's Law of Markets. The three markets, being in competition with each other, as well as with other markets, would tend to expand into areas where the price, less freight costs, is greater than their competitor's price. If the price of milk in a particular market increased while the price remained the same in competitive markets, expansion would theoretically occur in all directions. However, the expansion of a particular market might not be due entirely to price. Institutional factors such as hauling routes, availability of a handler, non-economic preferences, etc., might cause the observed expansion. Further detailed study would be necessary to determine why the milksheds expanded as they did.

While there is a lack of information at this point to determine the degree of influence of price as a factor in the expansion of these market areas, we might conclude that the market did provide institutional arrangements making it convenient for these producers to join. Reasons given for joining by producers in each of the zones will be analyzed in a later section of this study.

Age of Producers Entering or Leaving the Markets. It was hypothesized that the producer is concerned with receiving the most favorable price for his product. Thus it was presumed that the age of a producer would be a determining factor in qualifying for Grade A, as fixed assets needed for Grade A production generally accumulate with age. Ages of producers for the three markets are summarized in Tables 4.4 through 4.8.

A comparison of the age distribution of former inspected producers who entered the market shows that 56.1 per cent, 54.8 per cent, and 63.0 per cent of the producers who joined the Detroit, Cleveland, and Toledo markets respectively, were under 45 years of age (Table 4.4).

TABLE 4.4

AGE OF FORMER INSPECTED MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Age (Years)	Detroit (N=312)	Cleveland (N=548)	Toledo (N=216)	Total (N=1076)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
24 or less	4.8	4.2	4.2	4.3
25 - 34	23.1	21.4	24.5	22.5
35 - 44	28.2	29.2	34.3	29.9
45 - 54	23.1	21.0	19.9	21.4
55 - 64	14.1	14.4	11.1	13.7
65 and over	6.7	9.8	6.0	8.2
Total	100.0	100.0	100.0	100.0

A logical reason is not evident as to why the Toledo market experiences the youngest group of joiners. The same pattern, however, exists in the former manufacturing group with still larger percentages in the younger age group (Table 4.5).

In this group we observe 61.8 per cent, 66.2 per cent, and 75.9 per cent of the joiners in the Detroit, Cleveland, and Toledo markets respectively, are under the age of 45. The larger proportions of joiners under 45 years of age observed in the former manufacturing group and the new producer group (Table 4.6) would coincide with what might be the expected pattern.

TABLE 4.5

AGE OF FORMER MANUFACTURING MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Age (Years)	Detroit (N=741)	Cleveland (N=326)	Toledo (N=116)	Total (N=1183)
	- - - - - - - - - - - - - - Per cent - - - - - - - - - - -
24 or less	4.1	6.1	5.2	4.7
25-34	28.7	29.1	37.1	29.7
35-44	29.0	31.0	33.6	30.0
45-54	23.3	17.8	15.5	21.1
55-64	11.5	12.6	6.9	11.3
65 and over	3.4	3.4	1.7	3.2
Total	100.0	100.0	100.0	100.0

TABLE 4.6

AGE OF NEW PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND AND TOLEDO MILK MARKETS, 1953-1956

Age (Years)	Detroit (N=63)	Cleveland (N=58)	Toledo (N=17)	Total (N=138)
	- - - - - - - - - - - - - - Per cent - - - - - - - - - - -
24 or less	19.0	29.3	29.4	24.6
25-34	42.9	39.7	41.2	41.3
35-44	20.6	20.7	11.8	19.6
45-54	12.7	6.9	11.8	10.1
55-64	4.8	1.7	--	2.9
65 and over	--	1.7	5.8	1.5
Total	100.0	100.0	100.0	100.0

It seems reasonable to assume that the majority of new producers would come from the younger ranks as young farmers establish themselves as dairy farmers. It follows that former manufacturing producers who

make the change to Class I production would also come, to a large extent, from the younger age group as they improve their position as a dairy farmer. However, there is little conclusive evidence in comparing the markets. With the exception of a younger age group joining the Toledo market little difference was observable.

A more pronounced difference is notable in the age distribution of those who joined the markets as compared with all dairy producers of the area. Table 4.7 is a tabulation, based on the 1954 United States Census of Agriculture, of the age distribution of all dairy producers in the three market areas. It should be noted that the census age distribution shows the largest proportion of producers in the "45 and over" age group. This would probably indicate that it is the younger age group of producers who are more prone to make a change either in markets or in the class of milk they produce.

Tables 4.8 and 4.9 indicate the age distribution of producers who left the three markets. Those who left the market but are still producing milk for sale are found in Table 4.8. Since all producers who left had produced inspected milk, it is interesting to observe how closely the age distribution coincides with that of former inspected milk producers who joined the three markets. In the Detroit market 56.1 per cent of the producers who joined were under 45 years of age as compared with 57.2 per cent for those who left. In the Cleveland market a similar pattern was observed with 54.8 per cent of the joiners under age 45 while 53.6 per cent of the quitters were under this age.

TABLE 4.7

AGE DISTRIBUTION OF DAIRY FARMERS BY ECONOMIC SUBREGIONS[1]

Age (Years)	Economic subregions -28-	-48-	-49-	-50-	Total
	Per cent				
24 or less	1.8	1.6	1.5	0.9	1.6
25 - 34	15.1	13.0	13.2	10.9	13.5
35 - 44	23.4	22.8	23.7	22.9	23.3
45 - 54	22.4	24.5	23.8	23.9	23.5
55 - 64	21.6	20.5	22.0	22.4	21.6
65 and over	15.7	17.6	15.8	19.0	16.5
Total	100.0	100.0	100.0	100.0	100.0

[1] Subregions 49 and 50 coincide with the Detroit milkshed; 48 and 49 coincide with the Toledo market; and 28 and 48 coincide with the Cleveland milkshed.

Source: United States Census of Agriculture: 1954, Size of Operation by Type of Farm, Vol. 3, Part 2. U. S. Government Printing Office, Washington, D. C., pp. 503, 527, 531, and 535.

A wider difference existed in the Toledo market. Here 63.0 per cent of the joiners and 46.4 per cent of the quitters were under age 45. It seems apparent from these data that the Detroit and Cleveland markets attract the various age groups in about the same proportion as other markets attract producers away from them. The Toledo market, however, appears to attract a larger proportion of the younger aged producers (under 45) than are lured away by competitive markets.

When the producers who left the three markets and discontinued production were tabulated (Table 4.9) it was evident that this group followed closely the United States census age distribution of all

TABLE 4.8

AGE OF PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND CONTINUED PRODUCING MILK, 1953-1956

Age (Years)	Detroit (N=384)	Cleveland (N=679)	Toledo (N=179)	Total (N=1242)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
24 or less	1.8	2.2	1.7	2.0
25 - 34	21.6	20.9	17.3	20.6
35 - 44	33.8	30.5	27.4	31.1
45 - 54	22.7	19.4	24.6	21.2
55 - 64	14.1	17.1	19.0	16.4
65 and over	6.0	9.9	10.0	8.7
Total	100.0	100.0	100.0	100.0

dairy farmers of this area. It would seem logical to expect producers who discontinued dairy production to be from an older age group when we consider health, retirement, or a general reduction of farm activities

TABLE 4.9

AGE OF PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND DISCONTINUED MILK PRODUCTION, 1953-1956

Age (Years)	Detroit (N=911)	Cleveland (N=474)	Toledo (N=281)	Total (N=1666)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
24 or less	1.5	3.0	4.3	2.4
25 - 34	13.6	17.5	16.7	15.2
35 - 44	24.2	24.7	26.3	24.7
45 - 54	19.2	19.4	19.6	19.3
55 - 64	21.5	19.4	19.9	20.7
65 and over	20.0	16.0	13.2	17.7
Total	100.0	100.0	100.0	100.0

accompanying this age group. The data presented do not substantiate this explanation. With the exception of the Detroit market with 20.0 per cent of the producers in the 65 and over classification, which exceeds the census distribution for that age group, the age distribution for those who discontinued producing is generally younger than the census distribution for each category.

Size of Farm. Information was sought regarding the number of acres operated by producers entering and leaving the three markets to determine if a relationship existed between the size of the farm and the type of product formerly produced. It was hypothesized that producers on the larger farms would be more likely to have assets necessary to qualify for the more favorable prices associated with inspected milk production, which in turn influences their choice of markets.

The above situation was found to be generally true as indicated in Tables 4.10 through 4.13. Former inspected milk producers in each of

TABLE 4.10

ACRES OPERATED BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Acres Operated	Detroit (N=316)	Cleveland (N=513)	Toledo (N=224)	Total (N=1053)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
40 and under	.6	1.2	.9	.9
41 - 80	8.2	9.3	3.1	7.7
81 - 120	15.8	16.0	13.4	15.4
121 - 160	18.1	22.6	17.4	20.1
161 - 200	16.2	12.7	20.1	15.3
201 - 240	15.2	11.5	8.9	12.1
241 - 280	4.7	9.9	8.9	8.2
281 and over	21.2	16.8	27.3	20.3
Total	100.0	100.0	100.0	100.0

the markets operate larger farms than former manufacturing producers, who in turn operate larger farms than the category of new producers. This difference is particularly marked in the Toledo area as compared to Detroit and Cleveland. It is interesting to note that the producers who left to join another market operated smaller farms on the whole than former inspected producers who joined.

TABLE 4.11

ACRES OPERATED BY FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Acres Operated	Detroit (N=316)	Cleveland (N=513)	Toledo (N=224)	Total (N=1053)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
40 and under	1.2	2.0	0.8	1.4
41 - 80	9.9	12.6	13.4	10.9
81 - 120	18.2	19.4	14.3	18.1
121 - 160	22.1	19.4	26.9	21.9
161 - 200	16.5	18.7	17.7	17.2
201 - 240	10.8	6.5	12.6	9.9
241 - 280	6.3	8.8	4.2	6.7
281 and over	15.0	12.6	10.1	13.9
Total	100.0	100.0	100.0	100.0

The data appear to support the hypothesis that increased farm acreage is a factor in the producer's choice of a market. The trend toward increased size of farms presents the situation where an increasing number of producers might be expected to qualify for, and choose inspected milk markets.

TABLE 4.12

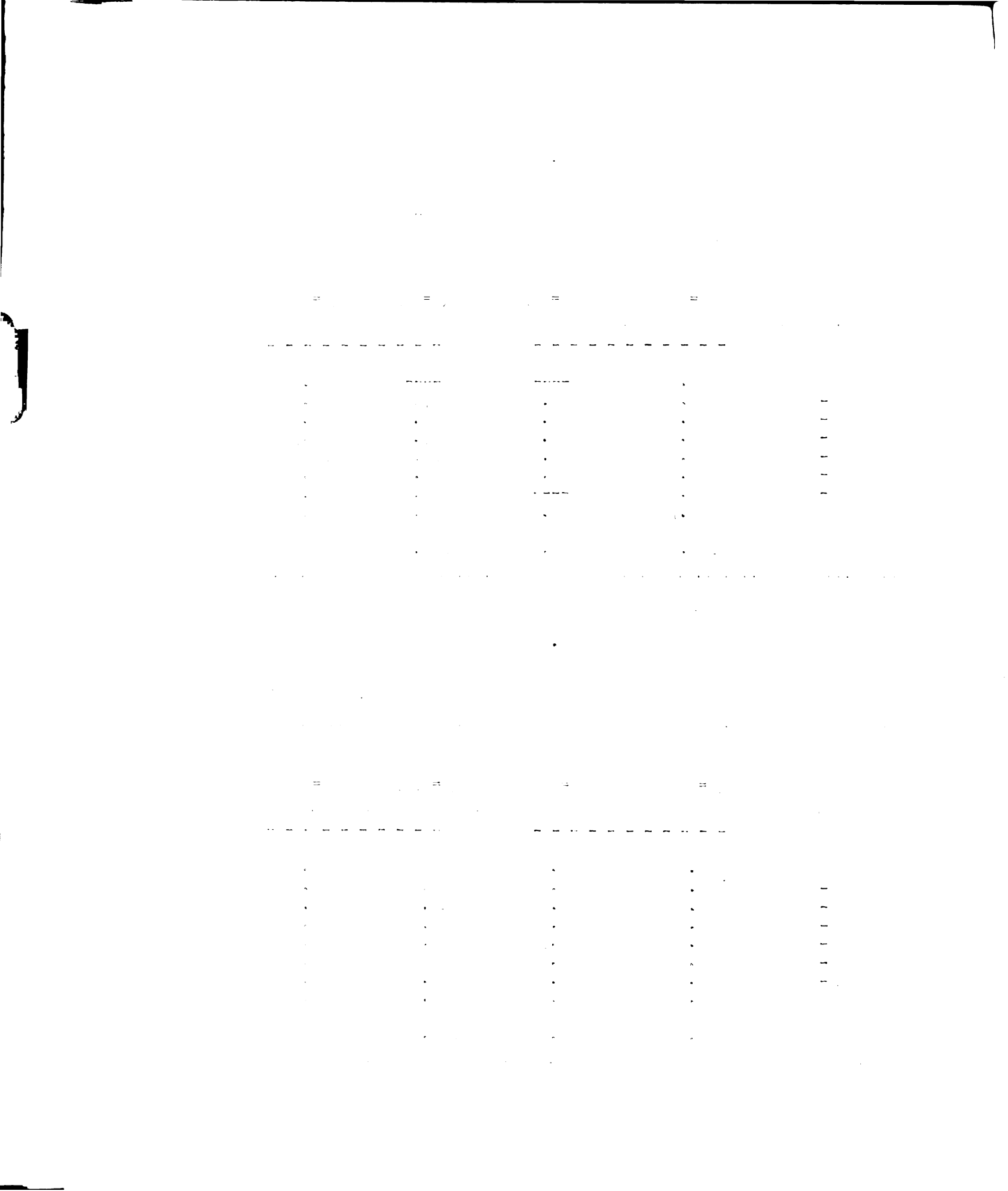
ACRES OPERATED BY NEW PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Acres Operated	Detroit (N=62)	Cleveland (N=50)	Toledo (N=17)	Total (N=129)
	- - - - - - - - - - - Per cent - - - - - - - - - - -			
40 and under	3.2	----	----	1.6
41 - 80	24.2	22.0	17.6	22.5
81 - 120	11.3	24.0	29.4	18.6
121 - 160	22.6	22.0	17.6	21.7
161 - 200	12.9	14.0	11.8	13.2
201 - 240	12.9	10.0	11.8	11.6
241 - 280	3.2	----	5.9	2.3
281 and over	9.7	8.0	5.9	8.5
Total	100.0	100.0	100.0	100.0

TABLE 4.13

ACRES OPERATED BY PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS BUT CONTINUED TO MARKET MILK, 1953-1956

Acres Operated	Detroit (N=385)	Cleveland (N=678)	Toledo (N=178)	Total (N=1241)
	- - - - - - - - - - - Per cent - - - - - - - - - - -			
40 and under	1.3	3.4	0.6	2.3
41 - 80	10.7	15.9	8.4	13.2
81 - 120	15.6	21.5	24.1	20.1
121 - 160	20.0	19.6	25.3	20.6
161 - 200	20.0	14.7	16.3	16.6
201 - 240	13.0	8.0	6.2	9.3
241 - 280	6.7	5.2	5.6	5.7
281 and over	12.7	11.7	13.5	12.2
Total	100.0	100.0	100.0	100.0



Percentage of the Farm Owned. In addition to acres operated, a response was solicited regarding the portion of the farm the producer owned. Tables 4.14 through 4.17 are a tabulation of this information indicated by those who joined or left the three markets.

It was hypothesized that producers who owned a large proportion of their land would have the necessary assets to capitalize on the price differential available for inspected milk production. If the hypothesis were true we would assume that former manufacturing producers, or those who formerly lacked the improvements necessary for production of inspected milk, would own a relatively smaller amount of the land they operated than the former inspected producers.

When the three markets were analyzed separately it was found that data collected from the Toledo and Cleveland producers tended to substantiate this hypothesis, while data from Detroit producers tended to be inconclusive.

There were 28.6 per cent of the former manufacturing producers in the Toledo market who owned 81 per cent or more of the land they operated. This is in contrast to the 35.8 per cent and 41.0 per cent of the former inspected producers who joined and left this market respectively.

Likewise the Cleveland market tends to substantiate the hypothesis. In this market 46.4 per cent of the former manufacturing producers owned 81.0 per cent or more of the land they operated. Of the former inspected producers who joined and left this market, 51.1 per cent and

TABLE 4.14

PER CENT OF ACRES OWNED BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Acres Owned (Per cent)	Detroit (N=317)	Cleveland (N=513)	Toledo (N=224)	Total (N=1054)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
None	18.3	22.4	25.9	21.9
1-10	---	0.3	0.4	0.3
11-20	1.3	0.6	0.9	0.9
21-30	4.1	1.8	3.1	2.7
31-40	4.1	2.7	7.1	4.1
41-50	8.5	6.4	8.0	7.4
51-60	2.8	3.5	7.1	4.1
61-70	7.9	4.7	5.4	5.8
71-80	5.4	5.9	6.3	5.8
81-90	4.4	4.9	5.4	4.8
91-100	43.2	46.8	30.4	42.2
Total	100.0	100.0	100.0	100.0

49.5 per cent respectively, owned 81 per cent or more of the land they operated.

However, in the Detroit market 51.0 per cent of the former manufacturing producers owned 81 per cent or more of the acres they operated as compared to 47.6 per cent of the former inspected producers who joined and 51.9 per cent of those who left this market.

When the totals for the three markets were compared little difference was observed. The proportion of producers who owned 81 per cent or more of the acres they operated were 47.5 per cent of the former manufacturing producers, 47.0 per cent of the former inspected producers who joined, and 49.0 per cent of the former inspected producers who left.

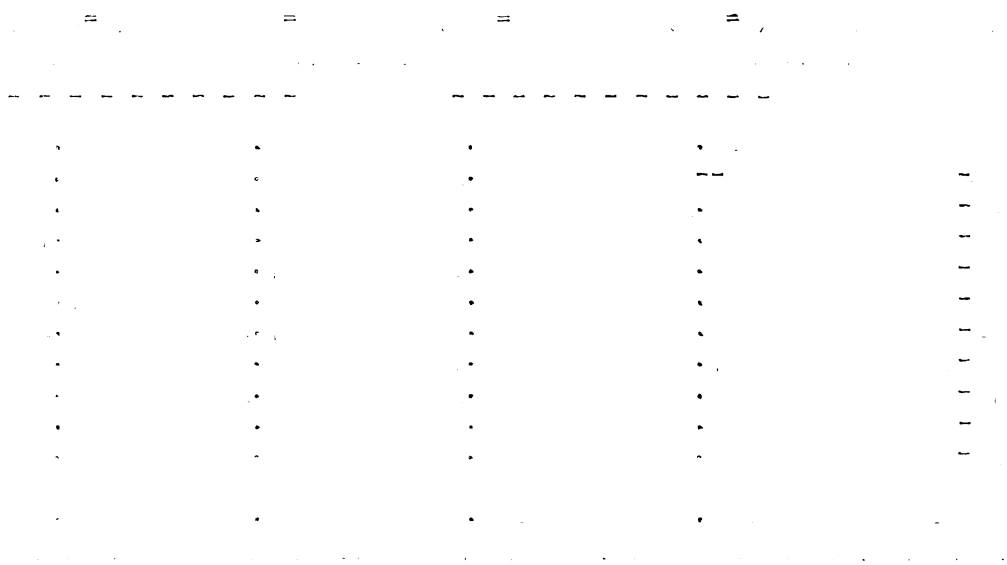


TABLE 4.15

PER CENT OF ACRES OWNED BY FORMER MANUFACTURED MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Acres Owned (Per cent)	Detroit (N=760)	Cleveland (N=293)	Toledo (N=119)	Total (N=1172)
	Per cent			
None	11.2	24.2	40.4	17.4
1-10	—	—	0.8	0.1
11-20	1.6	1.4	1.7	1.5
21-30	2.2	3.1	2.5	2.5
31-40	5.0	4.1	2.5	4.5
41-50	6.2	5.5	9.2	6.3
51-60	5.9	5.1	5.9	5.7
61-70	8.6	5.8	5.0	7.5
71-80	8.3	4.4	3.4	6.8
81-90	5.2	2.4	1.7	4.2
91-100	45.8	44.0	26.9	43.5
Total	100.0	100.0	100.0	100.0

TABLE 4.16

PER CENT OF ACRES OWNED BY NEW PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Acres Owned (Per cent)	Detroit (N=62)	Cleveland (N=50)	Toledo (N=17)	Total (N=129)
	Per cent			
None	27.4	36.0	58.8	34.9
1-10	—	—	—	—
11-20	—	—	—	—
21-30	—	—	5.9	0.8
31-40	4.8	—	—	2.3
41-50	3.2	4.0	—	3.1
51-60	8.1	6.0	—	6.2
61-70	8.1	—	5.9	4.7
71-80	3.2	2.0	—	2.3
81-90	1.6	2.0	—	1.5
91-100	43.6	50.0	29.4	44.2
Total	100.0	100.0	100.0	100.0

TABLE 4.17

PER CENT OF ACRES OWNED BY PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MARKETS AND CONTINUED PRODUCING MILK, 1953-1956

Acres Owned (Per cent)	Detroit (N=385)	Cleveland (N=678)	Toledo (N=178)	Total (N=1241)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
None	14.0	21.2	24.1	19.4
1-10	0.3	0.3	--	0.2
11-20	0.8	0.9	1.1	0.9
21-30	2.1	2.2	4.5	2.5
31-40	3.6	2.1	5.1	3.0
41-50	6.2	6.0	6.2	6.1
51-60	5.5	6.5	6.2	6.1
61-70	8.1	5.3	6.7	6.4
71-80	7.5	6.0	5.1	6.4
80-90	5.7	2.5	2.2	3.5
91-100	46.2	47.0	38.8	45.5
Total	100.0	100.0	100.0	100.0

Viewing together the size of the farm (acres operated) and the portion owned (per cent acres owned) it appears that the milk product that farmers market is more dependent upon the number of acres operated than on the percent of the acres owned. It would appear that as dairy farms become larger, an increasing number of these producers will make the necessary improvements to qualify for inspected milk production which in turn will influence their choice of markets.

Tenure on Present Farm. Producers were asked to indicate the number of years they have been operating their present farm. It was assumed that producers with more tenure would be more able to have

qualified for the price advantage possible in the production of Class I milk which in turn will influence their choice of markets. Answers elicited from producers are tabulated in Tables 4.18 through 4.21.

TABLE 4.18

TENURE ON PRESENT FARM OF FORMER INSPECTED PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Years	Detroit (N=308)	Cleveland (N=534)	Toledo (N=215)	Total (N=1057)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
5.0 and under	35.7	34.8	30.7	34.3
5.5 - 10.0	17.5	20.6	25.6	20.7
10.5 - 15.0	12.7	15.0	14.0	14.1
15.5 - 20.0	9.7	12.2	18.1	12.7
20.5 - 30.0	13.0	9.2	7.4	9.9
30.5 and over	11.4	8.2	4.2	8.3
Total	100.0	100.0	100.0	100.0

It should be noted that answers to this question support the observation that former inspected milk producers have been operating their present farm longer than former manufacturing milk producers as indicated by the percentage distribution of the two groups.

Producers who left the three markets were also observed to have operated their farms longer than manufacturing producers, thus adding support to the above hypothesis that farm tenure is a factor in the producer's choice of a market.

It is interesting to observe the difference between the three markets. There appears to be a tendency for producers who joined the

Detroit market to have greater farm tenure than those joining the Cleveland and Toledo markets. Thirty-four and one-tenth per cent of the former inspected producers and 21.9 per cent of the former manufacturing producers who joined the Detroit market had been operating their farms for 15.5 years or more. This compares with 29.6 per cent

TABLE 4.19

TENURE ON PRESENT FARM OF FORMER MANUFACTURING PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Years	Detroit (N=743)	Cleveland (N=326)	Toledo (N=117)	Total (N=1186)
	- - - - - - - - - - - Per cent - - - - - - - - - - -			
5.0 and under	36.6	39.0	49.6	38.5
5.5 - 10.0	25.6	26.4	20.5	25.3
10.5 - 15.0	15.9	13.8	15.4	15.3
15.5 - 20.0	8.6	9.8	5.1	8.6
20.5 - 30.0	8.5	7.0	7.7	8.0
30.5 and over	4.8	4.0	1.7	4.3
Total	100.0	100.0	100.0	100.0

of the former inspected producers and 20.8 per cent of the manufacturing producers who joined the Cleveland market. The Toledo joiners indicated 29.7 per cent former inspected producers and 14.5 per cent manufacturing producers operated their farms for 15.5 years or more. However, the opposite pattern appears to be true of producers who left the three markets. With this group greater tenure appeared in the group of Toledo producers with 44.6 per cent indicating they operated their farm 15.5

TABLE 4.20

TENURE ON PRESENT FARM OF NEW PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Years	Detroit (N=62)	Cleveland (N=51)	Toledo (N=17)	Total (N=130)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
5.0 and under	87.1	86.3	88.2	87.0
5.5 - 10.0	3.2	11.7	5.9	6.9
10.5 - 15.0	4.9	--	--	2.3
15.5 - 20.0	1.6	2.0	--	1.5
20.5 - 30.0	1.6	--	5.9	1.5
30.5 and over	1.6	--	--	0.8
Total	100.0	100.0	100.0	100.0

TABLE 4.21

TENURE ON PRESENT FARM OF PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MARKETS WHO CONTINUED PRODUCTION ON ANOTHER MARKET, 1953-1956[1/]

Years	Detroit (N=386)	Cleveland (N=679)	Toledo (N=177)	Total (N=1242)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
5.0 and under	30.1	29.1	26.0	29.0
5.5 - 10.0	22.8	22.7	13.6	21.4
10.5 - 15.0	14.0	14.4	15.8	14.5
15.5 - 20.0	13.2	9.6	10.7	10.9
20.5 - 30.0	10.1	14.3	15.8	13.2
30.5 and over	9.8	9.9	18.1	11.0
Total	100.0	100.0	100.0	100.0

1/ This question was not asked of producers who discontinued production.

years or more, compared with 33.8 per cent of the Cleveland and 33.1 per cent of the Detroit producers. The above situation may suggest that producers join the Toledo market sooner after establishing themselves on a farm and continue producing longer than do producers in the Detroit market with Cleveland producers being observed somewhere between the two. Additional study, however, would be necessary to substantiate this observation.

Time Spent at Dairy Farming. Producers from the Cleveland and Toledo markets were also asked the length of time they had been engaged in dairy farming. It was hypothesized that farmers who have produced milk for an extended period of time might be motivated to qualify for the higher prices of fluid milk production and would be more likely to decide to choose an inspected milk market.

The overall distribution (Tables 4.22 through 4.25) supports the above observation and shows a marked similarity to the pattern observed when "time on present farm" was tabulated. Former inspected milk producers indicate they have been engaged in dairy farming longer than manufacturing producers. Those in the latter group, however, have been operating dairy farms longer than the new producers.

The producers who left the Cleveland and Toledo markets but continue to market milk in other markets, also indicate they have been engaged in dairy farming longer than manufacturing producers.

It is of interest to note, however, the dissimilarity in the distribution pattern of those who left the two markets. The difference in the distribution between former inspected producers who entered and

TABLE 4.22

YEARS IN DAIRY FARMING INDICATED BY FORMER INSPECTED PRODUCERS WHO JOINED THE CLEVELAND AND TOLEDO MARKETS, 1953-1956

Years	Detroit 1/	Cleveland (N=528)	Toledo (N=205)	Total (N=733)
		- - - - - - - Per cent - - - - - - -		
5.0 and under		23.7	23.9	20.2
5.5 - 10.0		22.9	31.2	28.8
10.5 - 15.0		16.9	14.6	16.2
15.5 - 20.0		16.1	14.6	15.7
20.5 - 30.0		11.3	9.8	10.9
30.5 and over		9.1	5.9	8.2
Total		100.0	100.0	100.0

1/ Detroit producers were not asked this question.

those who left is not as great in the Cleveland market as was observed in the Toledo market. Eighteen and one-tenth per cent of those who discontinued production for the Toledo market had a milk production record dating back for 30.5 years or more, while 5.9 per cent of the former inspected producers who joined the market had produced milk for this length of time. Conversely, when the under 5.5 year category is observed, 23.9 per cent of those who joined this market and 11.4 per cent of those who withdrew were tabulated in this category. Differences as great as these were not evident in the Cleveland market.

TABLE 4.23

YEARS IN DAIRY FARMING INDICATED BY FORMER MANUFACTURING PRODUCERS WHO JOINED THE CLEVELAND AND TOLEDO MARKETS, 1953-1956

Years	Detroit [1]	Cleveland (N=308)	Toledo (N=113)	Total (N=421)
		- - - - - - Per cent - - - - - - - -		
5.0 and under		32.5	37.2	33.7
5.5 - 10.0		29.9	29.2	29.7
10.5 - 15.0		14.9	14.2	14.7
15.5 - 20.0		11.4	9.7	10.9
20.5 - 30.0		7.8	8.8	8.1
30.5 and over		3.5	0.9	2.9
Total		100.0	100.0	100.0

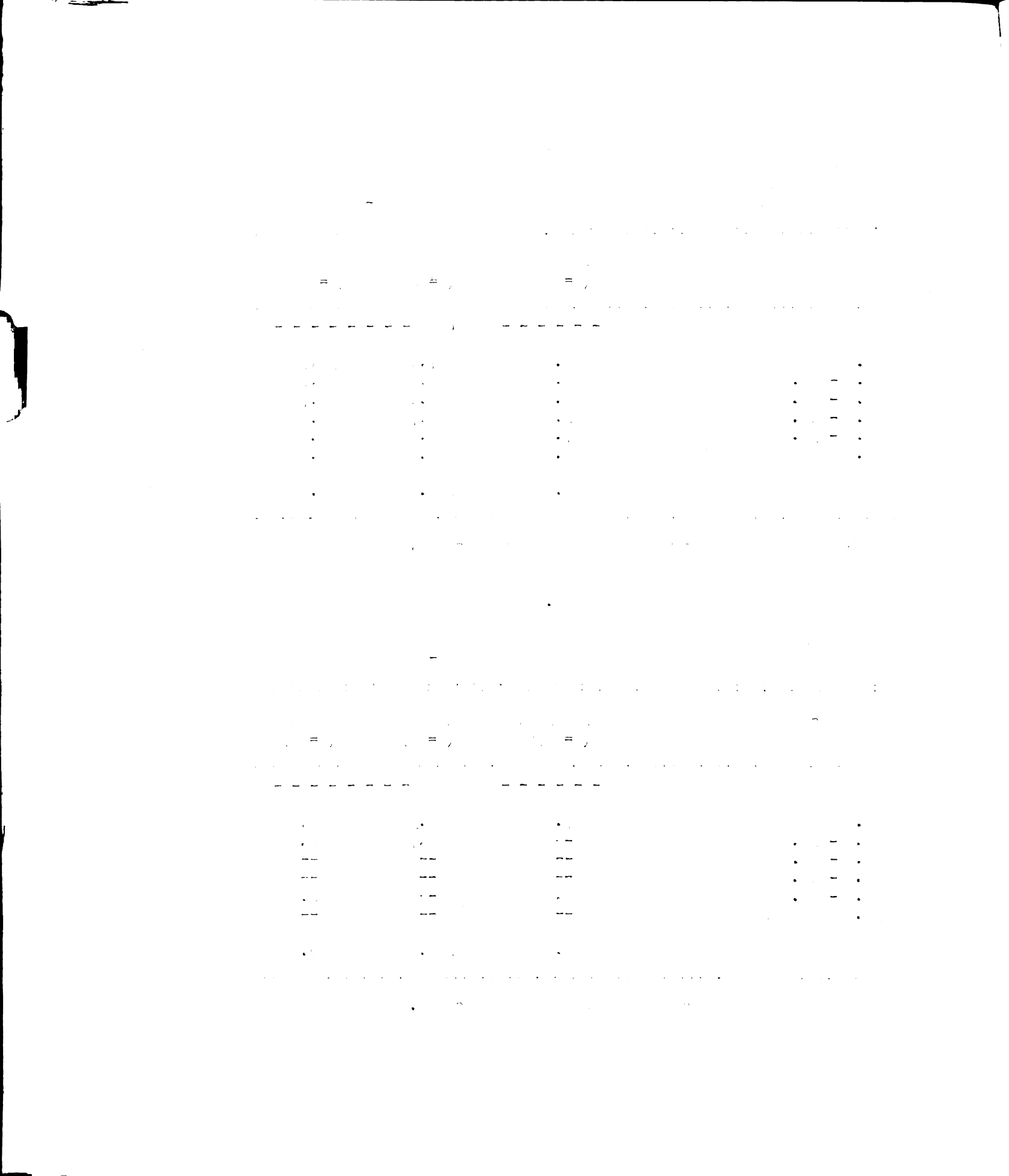
[1] Detroit producers were not asked this question.

TABLE 4.24

YEARS IN DAIRY FARMING INDICATED BY NEW PRODUCERS WHO ENTERED THE CLEVELAND AND TOLEDO MARKETS, 1953-1956

Years	Detroit [1]	Cleveland (N=48)	Toledo (N=15)	Total (N=63)
		- - - - - - Per cent - - - - - - - -		
5.0 and under		97.9	93.3	96.8
5.5 - 10.0		--	6.7	1.6
10.5 - 15.0		--	--	--
15.5 - 20.0		--	--	--
20.5 - 30.0		2.1	--	1.6
30.5 and over		--	--	--
Total		100.0	100.0	100.0

[1] Detroit producers were not asked this question.



The above situation gives further support to the assumption that producers join the Toledo market sooner after becoming established as dairy farmers and continue producing longer than do producers in the Cleveland market. Further observations regarding this assumption will be made in the following sections.

TABLE 4.25

YEARS IN DAIRY FARMING OF PRODUCERS WHO LEFT THE CLEVELAND AND TOLEDO MARKETS AND CONTINUED PRODUCING ON ANOTHER MARKET, 1953-1956[1]

Years	Detroit[2]	Cleveland (N=656)	Toledo (N=166)	Total (N=822)
		Per cent		
5.0 and under		16.3	11.4	15.3
5.5 - 10.0		24.7	18.1	23.4
10.5 - 15.0		16.5	21.1	17.4
15.5 - 20.0		15.2	12.6	14.7
20.5 - 30.0		15.7	18.7	16.3
30.5 and over		11.6	18.1	12.9
Total		100.0	100.0	100.0

[1] This question was not asked ot those who discontinued producing.
[2] Detroit producers were not asked this question.

Number of Years Producers Shipped to the Three Markets. Tables 4.26 and 4.27 show the distribution of producers according to the number of years they produced for the Detroit, Cleveland, and Toledo milk markets.

The data in Table 4.26 indicate that producers leaving the Cleveland market have generally been in the market a shorter period of time than

producers leaving the other two markets. Sixty-eight and three-tenths per cent of those leaving the Cleveland market shipped to this market for 10.5 years or less, compared to 56.0 per cent and 57.8 per cent leaving the Detroit and Toledo markets respectively. Although 8.3 per cent have been shipping to the Cleveland market for 30.5 years or longer, 15.1 per cent shipped to Cleveland for 20.5 years or longer compared to 18.9 per cent from Detroit and 18.3 per cent from Toledo during the same period.

TABLE 4.26

YEARS SHIPPED TO THE DETROIT, CLEVELAND, AND TOLEDO MARKETS BY PRODUCERS WHO DISCONTINUED PRODUCTION, 1953-1956

Years	Detroit (N=894)	Cleveland (N=469)	Toledo (N=284)	Total (N=1647)
	- - - - - - - - - - - Per cent - - - - - - - - - - -			
5.0 and under	33.3	42.9	32.8	35.9
5.5 - 10.0	22.7	25.4	25.0	23.9
10.5 - 15.0	16.0	9.8	13.7	13.8
15.5 - 20.0	9.1	6.8	10.2	8.6
20.5 - 30.0	12.2	6.8	13.4	10.9
30.5 and over	6.7	8.3	4.9	6.9
Total	100.0	100.0	100.0	100.0

The largest distribution difference appears in the under 5.5 category where the difference is 9.6 per cent between Detroit and Cleveland and 10.1 per cent between Toledo and Cleveland. No reason was evident to indicate why these differences existed.

TABLE 4.27

YEARS SHIPPED TO THE DETROIT, CLEVELAND, AND TOLEDO MARKETS BY PRODUCERS WHO CONTINUED PRODUCTION ON ANOTHER MARKET, 1953-1956

Years	Detroit (N=372)	Cleveland (N=644)	Toledo (N=174)	Total (N=1190)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
5.0 and under	49.2	58.5	37.4	52.5
5.5 - 10.0	19.6	23.0	30.5	23.0
10.5 - 15.0	10.5	7.9	8.6	8.9
15.5 - 20.0	5.9	5.6	9.8	6.3
20.5 - 30.0	12.6	3.4	10.3	7.3
30.5 and over	2.2	1.6	3.4	2.0
Total	100.0	100.0	100.0	100.0

Producers who left the three markets and are continuing production in another market were generally found to have been producing a shorter period of time in all three markets than were producers who discontinued production. Table 4.27 indicates that producers who left the Cleveland market had generally produced for this market a lesser number of years than producers leaving the Detroit and Cleveland markets. Eighty one and five-tenth per cent had produced for this market for less than 10.5 years compared with 68.8 per cent from Detroit and 67.9 per cent from Toledo during the same period. In addition 5.0 per cent from the Cleveland market had produced for 20.5 years or more while 15.0 per cent from Detroit and 13.7 per cent from Toledo had produced for the same period. The pattern was consistent with the producers who discontinued

production although again no logical reason could be determined for this difference.

Size of Herd. Wheeler[1] concluded that technological developments are leading to a higher degree of specialization on dairy farms. It would follow that to be competitive a farmer would have to maintain a certain minimum number of cows in his herd in order to spread these added fixed costs over more variable units. If a producer's herd is small and facilities inadequate for expansion without major expense, he may choose to discontinue his dairy enterprise rather than invest the capital needed for a more efficient unit. If this hypothesis is true we would expect to find a larger percentage of the producers with small herds discontinuing milk production.

Table 4.28 shows the average number of cows in the herd during the last twelve months for all producers who left the three markets, and the average number of cows producers who continue marketing milk for sale expect to have in their herds during the next twelve months. In all cases, except in the Toledo market in 1956, producers who are still producing milk for sale had a larger average sized herd than producers who discontinued marketing milk. Producers who continued producing milk averaged 15.2 per cent more cows per herd than producers who decided to discontinue production.

It is also interesting to note that the average producer who continues milk production expects to expand the size of his herd by 15.5

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[1]Wheeler, op. cit., pp. 996-1004.

per cent in the next twelve months. Regardless of whether or not this becomes a reality, the stated intention suggests a trend in attitude toward larger herds.

The overall distribution of answers indicate a trend toward larger herds (Tables 4.28 through 4.31). In all markets and with all "former production groups" the number of cows producers expect to have in their herd during the next twelve months is greater than the average herd size during the past twelve months. It is also interesting to note that the average producer in all markets had barn facilities that exceeded the number of cows he expected to have in his herd during the next twelve months. This indicates that perhaps farmers have the barn capacity to increase the size of their herd substantially without additional capital expense for buildings.

If we assume that former inspected milk producers joining the three markets are representative of all producers in the market, the average producer has the barn facilities to increase his herd size by approximately six cows, or one third. Facilities capable of still larger increases are evident with the former manufacturing and new producers.

The average producer who had formerly produced inspected milk had a larger herd than former manufacturing or new producers. This appears to substantiate the hypothesis that as the herd size increases a larger number of producers will complete the necessary requirements for Class I production.

TABLE 4.28

AVERAGE NUMBER OF COWS PER PRODUCER WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Market and year	Continued producing				Discontinued production	
	Number respondents	Average number of cows, last 12 months	Number respondents	Average number of cows, next 12 months	Number respondents	Average number of cows, last 12 months
1953						
Cleveland	161	16.8	156	18.3	99	14.6
Toledo	27	12.9	23	14.5	53	12.7
Total	188	16.2	179	17.8	152	13.9
1954						
Detroit	167	19.9	161	21.3	306	14.9
Cleveland	211	16.1	197	18.7	153	14.6
Toledo	67	15.9	60	16.9	81	13.7
Toledo	445	17.3	418	19.4	540	14.6
1955						
Detroit	189	20.7	182	25.0	429	15.4
Cleveland	214	16.5	209	20.1	164	16.0
Toledo	53	14.5	47	16.7	99	14.1
Total	456	18.0	438	21.7	692	15.3
1956						
Detroit	29	19.1	25	22.3	166	15.8
Cleveland	93	17.3	90	20.1	65	16.7
Toledo	34	14.6	26	18.0	51	15.0
Total	156	17.0	141	21.1	282	15.8
Total (all markets, all years)	1245	17.4	1176	20.1	1666	15.1

TABLE 4.29

AVERAGE NUMBER OF COWS IN THE HERD DURING THE PAST 12 MONTHS; AVERAGE NUMBER OF COWS EXPECTED IN THE HERD DURING THE NEXT 12 MONTHS; AND PRESENT FACILITIES FOR COWS; AS INDICATED BY FORMER INSPECTED MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Market and year	Cows past 12 months		Cows next 12 months		Present facilities	
	Number respondents	Average number cows	Number respondents	Average number cows	Number respondents	Average number cows
1953						
Cleveland	119	17.7	114	20.0	116	23.7
Toledo	75	18.1	71	19.8	73	23.2
Total	194	17.8	185	20.0	189	23.5
1954						
Detroit	104	15.5	107	18.1	108	21.9
Cleveland	180	16.4	179	18.5	182	21.1
Toledo	70	18.4	65	21.5	70	25.3
Total	354	16.5	351	18.9	360	22.2
1955						
Detroit	156	17.9	148	20.5	157	23.2
Cleveland	175	16.9	177	20.0	172	23.2
Toledo	68	18.1	67	22.0	65	23.2
Total	399	17.5	392	20.5	394	23.2
1956						
Detroit	51	16.8	50	19.4	49	22.7
Cleveland	79	16.5	84	19.3	82	24.3
Toledo	9	23.1	10	26.5	10	25.9
Total	139	17.1	144	19.8	141	23.8
Total 1953-56						
Detroit	311	16.9	305	19.5	314	22.7
Cleveland	553	16.8	554	19.5	552	22.8
Toledo	222	18.4	213	19.5	218	24.0
Total	1086	17.2	1072	19.8	1084	23.0

TABLE 4.30

AVERAGE NUMBER OF COWS IN THE HERD DURING THE PAST 12 MONTHS; AVERAGE NUMBER OF COWS EXPECTED IN THE HERD DURING THE NEXT 12 MONTHS; AND PRESENT FACILITIES FOR COWS; AS INDICATED BY FORMER MANUFACTURING MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Market and year	Cows past 12 months		Cows next 12 months		Present facilities	
	Number respondents	Average number cows	Number respondents	Average number cows	Number respondents	Average number cows
1953						
Cleveland	88	13.1	86	15.2	86	18.3
Toledo	47	14.7	47	17.0	48	19.6
Total	135	13.6	133	15.9	134	18.8
1954						
Detroit	357	13.3	354	16.2	358	19.2
Cleveland	115	14.3	115	17.1	117	20.0
Toledo	37	12.0	36	13.8	34	15.0
Total	509	13.4	505	16.2	509	19.1
1955						
Detroit	293	13.6	291	17.0	292	20.1
Cleveland	89	12.8	91	16.2	87	19.5
Toledo	24	12.3	22	16.5	25	20.2
Total	406	13.4	404	16.8	404	20.0
1956						
Detroit	106	14.8	105	19.7	107	22.8
Cleveland	29	12.2	32	16.8	31	21.1
Toledo	6	11.3	6	16.2	6	25.2
Total	141	14.1	143	18.9	144	22.6
Total 1953-56						
Detroit	756	13.6	750	17.0	757	20.1
Cleveland	321	13.4	324	16.3	321	19.5
Toledo	114	13.2	111	15.8	113	18.7
Total	1191	13.5	1185	16.7	1191	19.8

TABLE 4.31

AVERAGE NUMBER OF COWS IN THE HERD DURING THE PAST 12 MONTHS; AVERAGE NUMBER OF COWS EXPECTED IN THE HERD DURING THE NEXT 12 MONTHS; AND PRESENT FACILITIES FOR COWS; AS INDICATED BY NEW PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Market and year	Cows past 12 months		Cows next 12 months		Present facilities	
	Number respondents	Average number of cows	Number respondents	Average number of cows	Number respondents	Average number of cows
1953						
Cleveland	17	13.9	17	16.9	17	17.9
Toledo	3	8.3	3	10.0	3	13.3
Total	20	13.1	20	15.9	20	17.3
1954						
Detroit	19	11.4	29	16.0	27	19.2
Cleveland	16	13.0	16	17.4	16	23.3
Toledo	8	12.1	9	15.4	9	23.0
Total	43	12.1	54	16.3	52	21.1
1955						
Detroit	20	13.7	22	18.4	23	20.2
Cleveland	10	11.2	16	15.4	15	18.4
Toledo	3	14.0	3	16.0	3	16.3
Total	33	13.0	41	17.0	41	19.3
1956						
Detroit	10	15.0	14	19.2	14	23.3
Cleveland	5	10.0	8	16.4	5	18.2
Toledo	2	8.0	2	21.0	2	25.0
Total	17	12.7	24	18.4	21	22.2
Total 1953-56						
Detroit	49	13.1	65	17.5	64	20.5
Cleveland	48	12.6	57	16.5	53	19.7
Toledo	16	11.3	17	15.2	17	20.4
Total	113	12.6	139	16.8	134	20.2

Per Cent Income from Milk. In the Detroit area producers who joined and left the market indicated a larger proportion of their income from dairy as compared with the proportion indicated by producers in the Cleveland and Toledo markets (Tables 4.32 through 4.36). This implies that a greater degree of dairy specialization exists in the Detroit market. If the percentage of income from milk is a determining factor in the decision of producers to enter or leave a market, it might indicate that producers in the Detroit market generally receive a larger proportion of their income from milk before they decide to make a change. There is not sufficient evidence to explain why these distribution differences exist between markets.

Former inspected milk producers and new producers receive a larger proportion of their income from milk compared with former manufacturing producers. This exemplifies the degree of specialization in dairying by the three groups. It also suggests that as producers become qualified for Class I production they become more specialized in the dairy enterprise.

Tables 4.37 and 4.38 point out the degree of dairy specialization by zones of former inspected milk producers and former manufacturing producers who joined the three markets. It is interesting to note the similarity that exists. With both groups, former inspected and former manufacturing, and in both markets, Detroit and Cleveland, the distribution of producers according to the per cent of income from milk and the zone where they live follow a similar pattern.

TABLE 4.32

PER CENT INCOME FROM MILK INDICATED BY FORMER INSPECTED MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Per cent income	Detroit (N=280)	Cleveland (N=522)	Toledo (N=209)	Total (N=1011)
	- - - - - - - - - - Per cent - - - - - - - - - -			
10 and under	1.8	1.0	0.5	1.1
11 - 20	0.7	4.8	4.8	3.7
21 - 30	3.6	13.2	15.8	11.1
31 - 40	10.7	12.8	20.1	13.7
41 - 50	19.3	21.9	24.9	21.8
51 - 60	4.6	5.9	5.3	5.4
61 - 70	11.4	3.6	4.8	6.0
71 - 80	20.7	19.9	8.1	17.7
81 - 90	15.0	9.6	10.0	11.2
90 and over	12.2	7.3	5.7	8.3
Total	100.0	100.0	100.0	100.0

TABLE 4.33

PER CENT INCOME FROM MILK INDICATED BY FORMER MANUFACTURING MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Per cent income	Detroit (N=686)	Cleveland (N=307)	Toledo (N=103)	Total (N=1096)
	- - - - - - - - - - Per cent - - - - - - - - - -			
10 and under	1.4	2.6	—	1.6
11 - 20	2.8	5.9	6.8	4.0
21 - 30	11.1	16.3	16.5	13.1
31 - 40	14.6	18.6	20.4	16.2
41 - 50	22.9	19.5	28.2	22.5
51 - 60	5.1	6.2	5.8	5.5
61 - 70	7.7	5.5	4.8	6.8
71 - 80	18.7	13.7	13.6	16.8
81 - 90	8.0	5.5	2.9	6.8
90 and over	7.7	6.2	1.0	6.7
Total	100.0	100.0	100.0	100.0

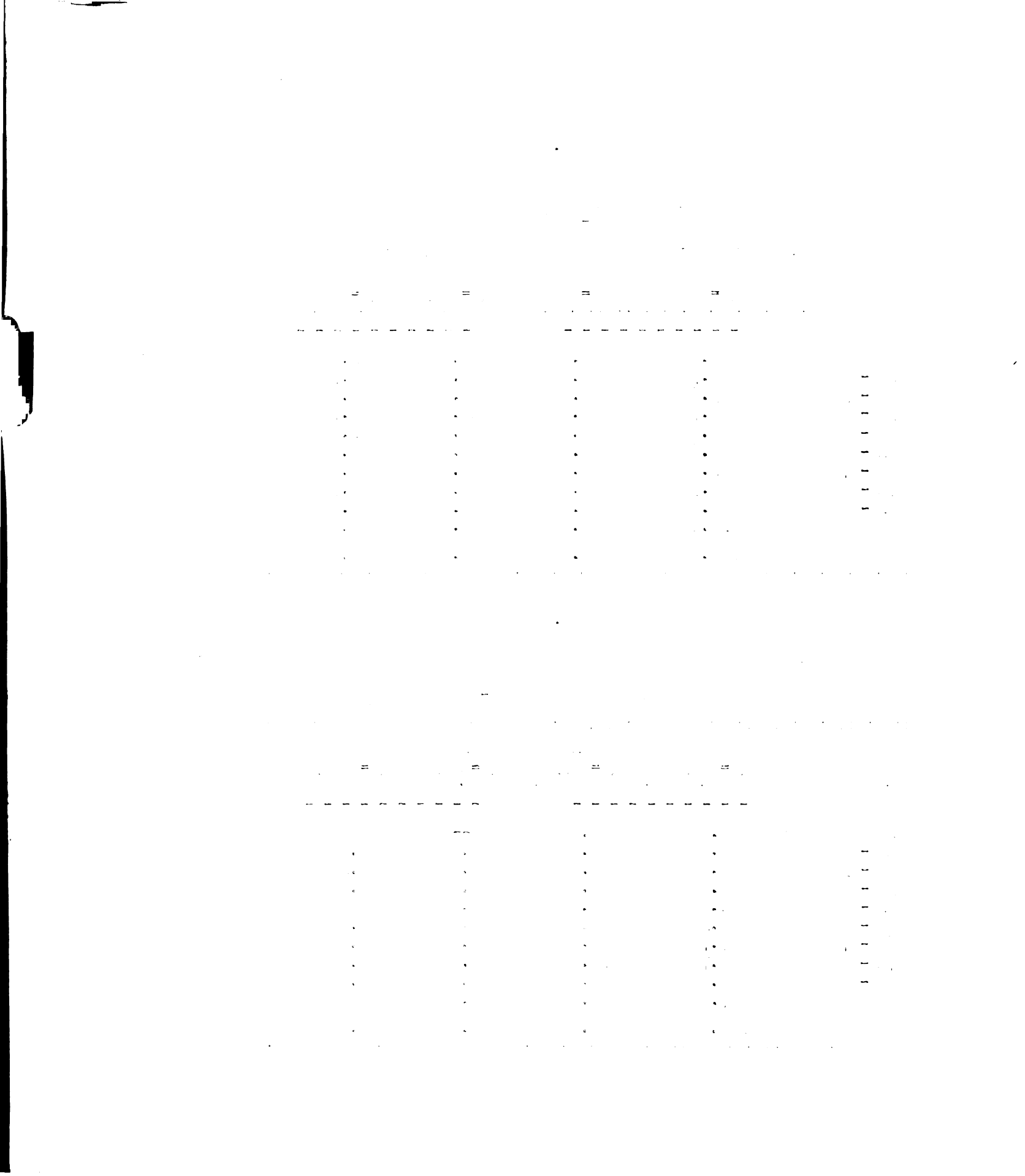


TABLE 4.34

PER CENT INCOME FROM MILK INDICATED BY NEW PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Per cent income	Detroit (N=41)	Cleveland (N=50)	Toledo (N=17)	Total (N=108)
	- - - - - - - - - - Per cent - - - - - - - - - -			
10 and under	2.4	---	---	0.9
11 - 20	---	2.0	---	0.9
21 - 30	---	8.0	41.1	10.2
31 - 40	7.3	8.0	---	6.5
41 - 50	12.2	4.0	23.5	10.2
51 - 60	2.4	14.0	---	7.4
61 - 70	9.8	8.0	---	7.4
71 - 80	22.0	18.0	11.8	18.5
81 - 90	19.5	20.0	11.8	18.5
90 and over	24.4	18.0	11.8	19.5
Total	100.0	100.0	100.0	100.0

TABLE 4.35

PER CENT INCOME FROM MILK INDICATED BY PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND DISCONTINUED PRODUCTION, 1953-1956.

Per cent income	Detroit (N=767)	Cleveland (N=431)	Toledo (N=246)	Total (N=1444)
	- - - - - - - - - - Per cent - - - - - - - - - -			
10 and under	0.9	2.1	2.8	1.6
11 - 20	3.0	4.4	7.7	4.2
21 - 30	7.7	10.5	24.0	11.3
31 - 40	9.9	10.2	15.8	11.0
41 - 50	21.3	19.0	24.4	21.1
51 - 60	4.7	5.6	4.1	4.8
61 - 70	8.7	5.6	2.8	6.8
71 - 80	20.7	19.0	9.8	18.4
81 - 90	10.3	12.5	4.1	9.9
90 and over	12.8	11.1	4.5	10.9
Total	100.0	100.0	100.0	100.0

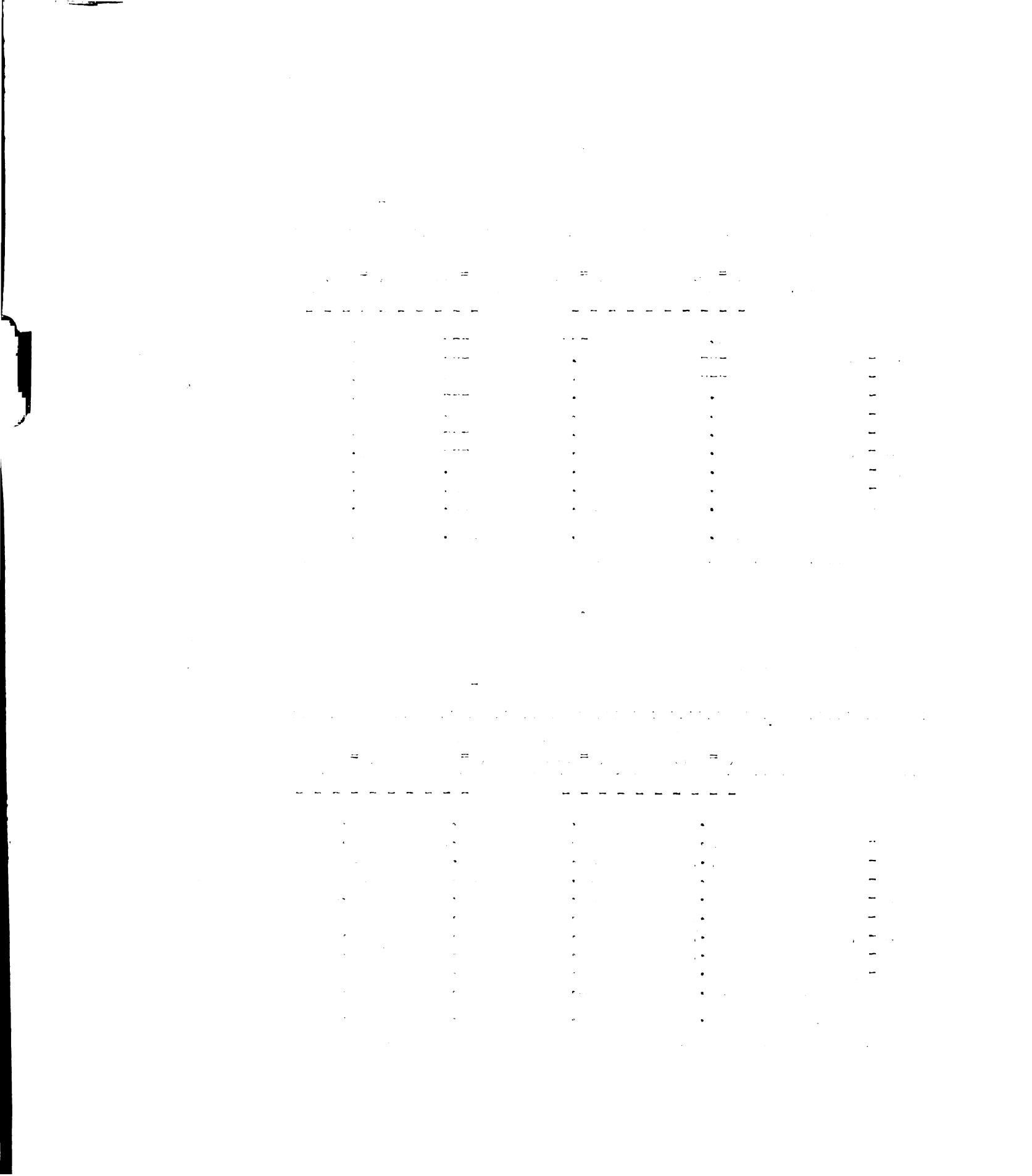


TABLE 4.36

PER CENT INCOME FROM MILK INDICATED BY PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND CONTINUED PRODUCING MILK, 1953-1956

Per cent income	Detroit (N=344)	Cleveland (N=598)	Toledo (N=150)	Total (N=1092)
	- - - - - - - - - - Per cent - - - - - - - - - -			
10 and under	0.3	3.0	4.0	2.3
11 - 20	0.9	6.4	11.3	5.3
21 - 30	4.3	13.2	16.7	10.9
31 - 40	7.0	14.4	20.7	12.9
41 - 50	16.0	19.9	19.3	18.6
51 - 60	5.5	6.0	3.3	5.5
61 - 70	11.6	5.7	5.4	7.5
71 - 80	22.7	14.0	14.7	16.8
81 - 90	15.7	9.4	1.3	10.3
91 and over	16.0	8.0	3.3	9.9
Total	100.0	100.0	100.0	100.0

It would appear from these data that producers who joined from Zone I, being relatively close to a large fluid market, are inclined to possess a higher degree of dairy specialization than producers joining from Zone II. Producers from Zone III, however, indicate a larger per cent of income from milk than those in Zone II. The latter suggests that as we move from Zone II to Zone III producers tend to be more highly specialized in dairy when they decide to make the change to the Detroit or Cleveland market. More evidence would be needed, however, to verify this hypothesis.

TABLE 4.37

PER CENT INCOME FROM MILK INDICATED BY FORMER INSPECTED MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND THEIR LOCATION BY ZONES, 1953-1956

Per cent income	Zone I	Zone II	Zone III	Total
	- - - - - - - - - - - Per cent - - - - - - - - - - -			
Detroit	(N=147)	(N=89)	(N=41)	(N=277)
1-50	30.6	48.3	29.3	36.1
51-100	69.4	51.7	70.7	63.9
Total	100.0	100.0	100.0	100.0
Cleveland	(N=221)	(N=101)	(N=181)	(N=503)
1-50	43.9	65.3	64.1	55.5
51-100	56.1	34.7	35.9	44.5
Total	100.0	100.0	100.0	100.0
Toledo	(N=209)			
1-50	66.1	--	--	66.0
51-100	33.9	--	--	34.0
Total	100.0			100.0
All markets	(N=577)	(N=190)	(N=222)	(N=989)
1-50	48.5	57.4	57.7	52.3
51-100	51.5	42.6	42.3	47.7
Total	100.0	100.0	100.0	100.0

TABLE 4.38

PER CENT INCOME FROM MILK INDICATED BY FORMER MANUFACTURING MILK PRODUCERS WHO ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND THEIR LOCATION BY ZONES, 1953-1956

Per cent income	Zone I	Zone II	Zone III	Total
	- - - - - - - - - - - Per cent - - - - - - - - - - -			
Detroit	(N=154)	(N=347)	(N=124)	(N=625)
1-50	46.1	61.4	36.3	52.6
51-100	53.9	38.6	63.7	47.4
Total	100.0	100.0	100.0	100.0
Cleveland	(N=100)	(N=86)	(N=101)	(N=287)
1-50	56.0	76.7	60.4	63.8
51-100	44.0	23.3	39.6	36.2
Total	100.0	100.0	100.0	100.0
Toledo	(N=101)			(N=101)
1-50	72.3	--	--	72.3
51-100	27.7	--	--	27.7
Total	100.0			100.0
All markets	(N=355)	(N=433)	(N=225)	(N=1013)
1-50	56.3	64.4	47.1	57.7
51-100	43.7	35.6	52.9	42.3
Total	100.0	100.0	100.0	100.0

Reasons for Joining or Leaving a Market. In an attempt to determine the most significant reasons for their decision, producers were asked to indicate why they decided to join or leave the three markets. Responses were solicited from those who joined the markets as to the most important reason and as to additional reasons which were a factor in their decision. Producers who left the market were also asked to list the reasons for their actions. Those who continued production were questioned further as to the basis of their choice of a new market.

Table 4.39 summarizes the most important reasons given by former inspected producers for joining the market. The data indicate that "higher price" is the most mentioned reason in each market with the exception of Detroit. It should be noted that 39.0 per cent of the respondents in the Detroit area indicated they changed because of "action of dairy" as compared with 13.3 per cent in the Cleveland market and 4.2 per cent in the Toledo area.

However, a large number of those who joined the Detroit market did not actually change markets. Sixty of the 121 producers who gave "action of dairy" did so because the dairy to which they shipped began marketing their milk within the city of Detroit. If these sixty respondents were excluded from the tabulations the 39.0 per cent who expressed "action of dairy" would become 24.4 per cent and all other categories would increase. "Higher price" would then become the most mentioned reason with 28.4 per cent of the responses and would make this category the most mentioned reason in each market. "Action of dairy" remains a

TABLE 4.39

MOST IMPORTANT REASON WHY PRODUCERS, WHO HAD FORMERLY MARKETED INSPECTED MILK, DECIDED TO ENTER THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS, 1953-1956

Most Important Reason[1]	Detroit (N=310)	Cleveland (N=528)	Toledo (N=211)	Total (N=1049)
	- - - - - - - Per cent - - - - - - -			
To get a higher price	22.9	31.8	62.6	35.4
Action of the dairy or its representative	39.0	13.3	4.2	19.1
Little additional expense for Grade A	0.3	----	----	0.1
Change necessary so decided to fix up to ship Grade A	1.6	0.8	----	0.8
Only market that would take milk	5.8	3.8	0.5	3.7
Farm changed hands - ship where last producer shipped	3.9	4.3	1.9	3.7
Convenience	0.6	7.6	1.9	4.4
Wanted to produce a better quality of milk	----	7.0	1.4	3.8
Inspection and/or milk dealer trouble	7.8	4.0	0.5	4.4
Miscellaneous	18.1	27.4	27.0	24.6
Total	100.0	100.0	100.0	100.0

[1] Throughout the remainder of the thesis these reasons will be referred to respectively as: (1) "higher price," (2) "action of the dairy," (3) "little expense," (4) "change necessary," (5) "only market," (6) "farm changed hands," (7) "convenience," (8) "better quality milk," (9) "inspection trouble," (10) "miscellaneous."

relatively more important reason in the Detroit market than in the other two.

The reader will recognize that the underlying motivation for some of the other reasons given might be interpreted in terms of higher price, but in the analysis the eight reasons listed in the tables will be considered as separate and independent.

Of the three producer groups, the former milk producers (Table 4.40) had the largest proportion of respondents who indicated "higher price" as the most important reason they joined. "Action of dairy" was the next most mentioned reason given and again indicates the influence of the dairy in producers' decisions.

The new producer group, however, indicated "farm changed hands" as the most mentioned single reason (Table 4.41). This may indicate that the relatively inexperienced new producer is more immediately concerned with marketing his product than in making his decision on the basis of comparative prices. Institutional factors, such as hauling routes, etc., may also make it more convenient for him to continue shipping to the same market as the former producer on the farm. Although frequently mentioned, the reason of "higher price" did not appear to be as important to this group as to the others.

When producers were asked to indicate other reasons (questionnaire is found in Appendix) in addition to the most important reason which may have entered into their decision to join the markets, responses ranged from a few who indicated no other reason to those who indicated

TABLE 4.40

MOST IMPORTANT REASON WHY PRODUCERS, WHO HAD FORMERLY MARKETED MANUFACTURING MILK, DECIDED TO ENTER THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS, 1953-1956

Most Important Reason	Detroit (N=738)	Cleveland (N=300)	Toledo (N=110)	Total (N=1148)
	- - - - - - - Per cent - - - - - - -			
To get a higher price	66.5	48.7	70.9	62.3
Action of the dairy or its representative	10.8	4.7	3.6	8.5
Little additional expense for Grade A	2.2	0.3	0.9	1.6
Change necessary so decided to fix up to ship Grade A	5.6	5.0	1.8	5.1
Only market that would take milk	1.5	8.0	4.6	3.5
Farm changed hands - ship where last producer shipped	1.1	4.7	5.5	2.4
Convenience	0.9	4.3	----	1.7
Wanted to produce a better quality of milk	1.8	3.0	----	1.9
Inspection and/or milk dealer trouble	0.9	1.7	----	1.0
Miscellaneous	8.7	19.6	12.7	12.0
Total	100.0	100.0	100.0	100.0

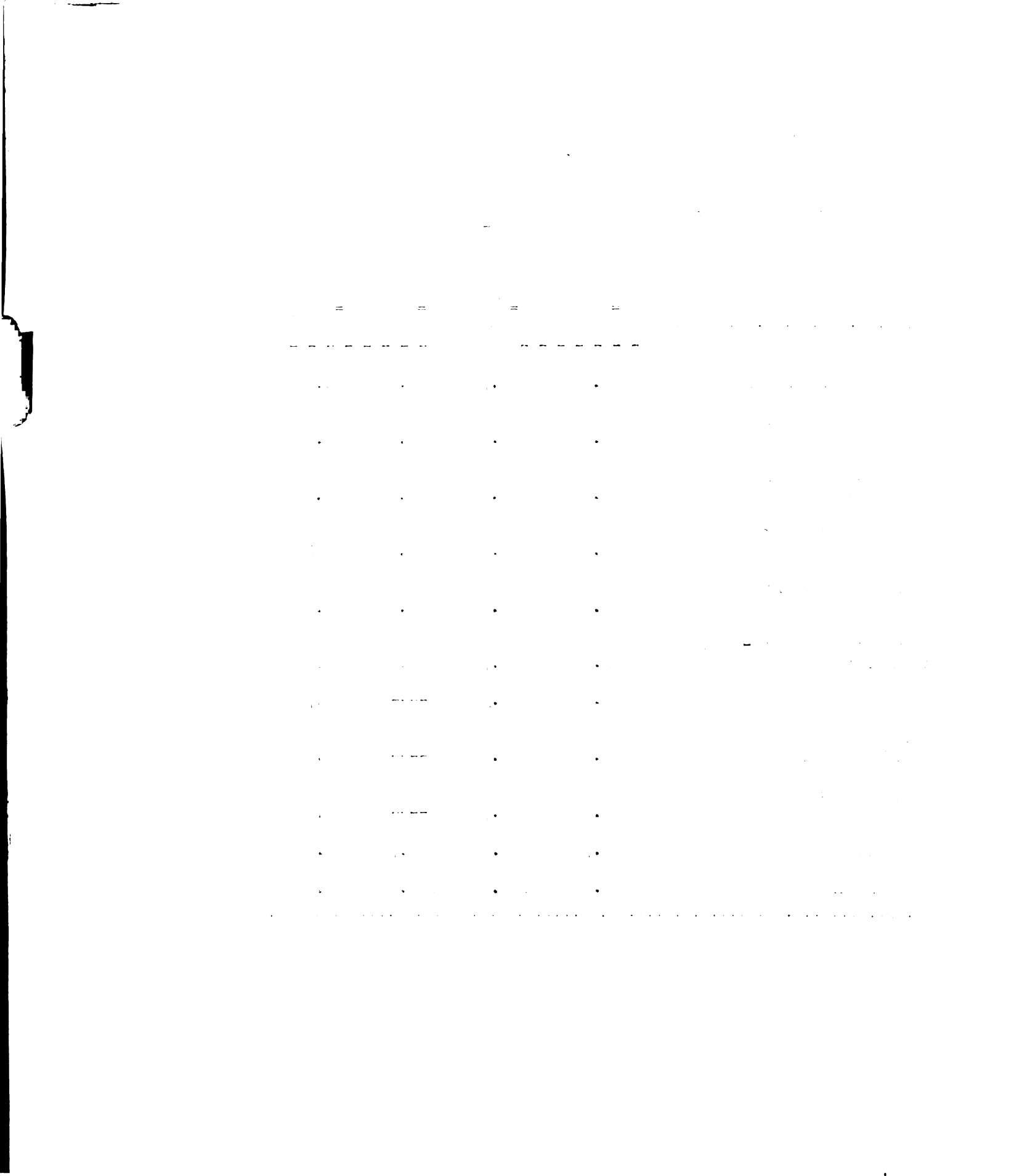
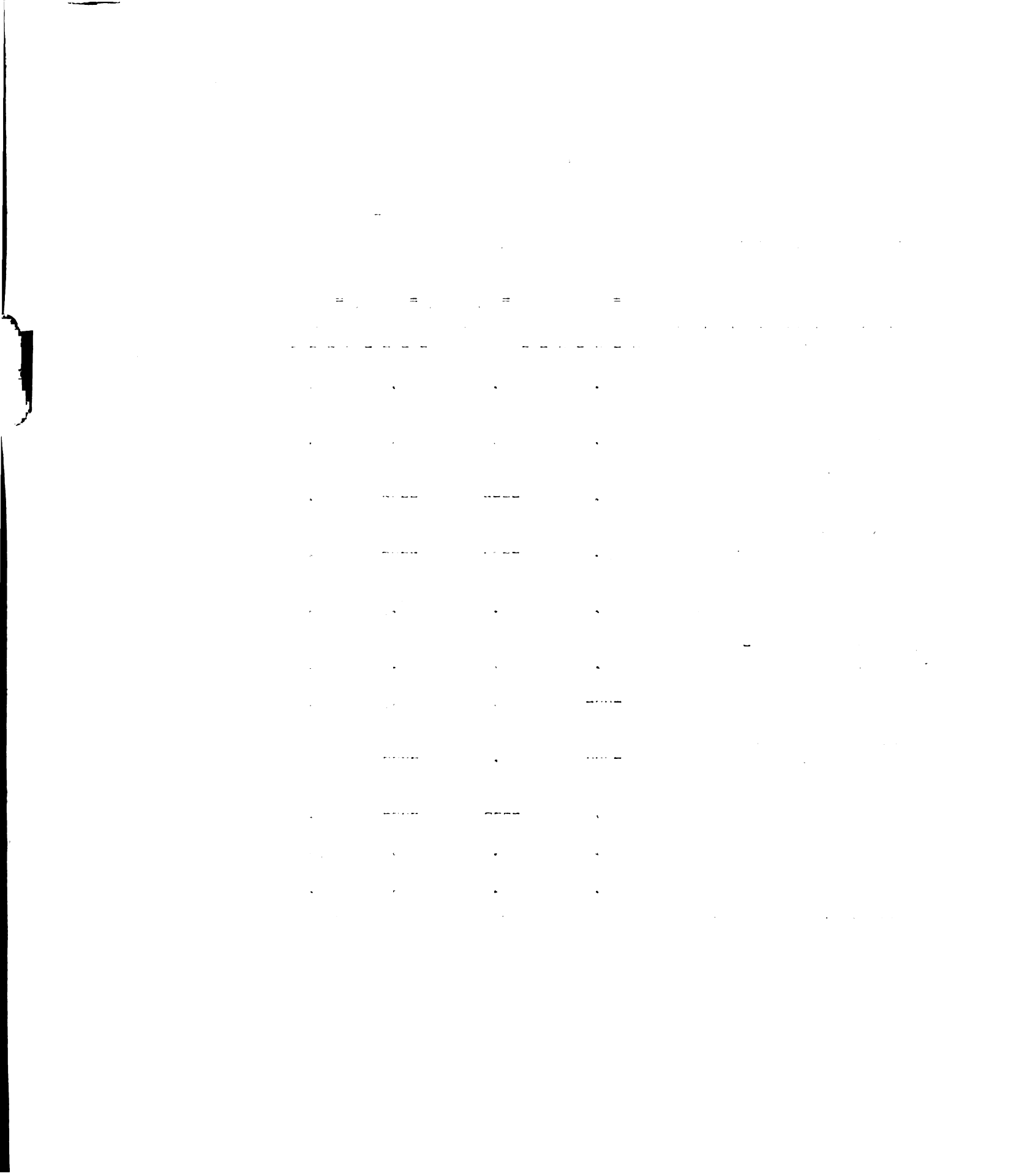


TABLE 4.41

MOST IMPORTANT REASON WHY NEW MILK PRODUCERS DECIDED TO ENTER THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS, 1953-1956

Most Important Reason	Detroit (N=56)	Cleveland (N=53)	Toledo (N=15)	Total (N=124)
	- - - - - - - - Per cent - - - - - - - -			
To get a higher price	23.2	15.1	20.0	19.4
Action of the dairy or its representative	8.9	1.9	6.6	5.7
Little additional expense for Grade A	1.8	----	----	.8
Change necessary so decided to fix up to ship Grade A	3.6	----	----	1.6
Only market that would take milk	16.1	5.7	6.7	10.5
Farm changed hands - ship where last producer shipped	26.8	28.3	20.0	26.6
Convenience	----	9.4	6.7	4.8
Wanted to produce a better quality of milk	----	3.8	----	1.6
Inspection and/or milk dealer trouble	3.6	----	----	1.6
Miscellaneous	16.0	35.8	40.0	27.4
Total	100.0	100.0	100.0	100.0



many. The overall distribution of the responses given by former inspected producers are shown in Table 4.42.

TABLE 4.42

REASONS WHY FORMER INSPECTED MILK PRODUCERS DECIDED TO ENTER THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Reasons	Detroit (N=233)	Cleveland (N=464)	Toledo (N=197)	Total (N=894)
	- - - - - - - Per cent[1] - - - - - - -			
To get a higher price	54.1	55.2	89.8	62.5
Action of the dairy or its representative	29.2	28.2	28.9	28.6
Little additional expense to sell Grade A	39.1	2/	2/	10.2
Change necessary so decided to fix up to ship Grade A	20.6	12.5	13.7	14.9
Only market that would take Grade A milk	27.9	14.0	3.0	15.2
Farm changed hands - ship where last producer shipped	12.4	14.0	8.1	12.3
General convenience	15.9	13.6	9.6	13.3
Wanted to produce a better quality of milk	17.2	2/	2/	4.5
Inspection trouble	17.2[3]	10.6	7.6	11.6
Milk dealer trouble	3/	15.5	5.6	9.3
Most profitable farm enterprise	26.6	2/	2/	6.9

1/ Percentage for each market totals over one hundred due to multiple reasons given by some producers.

2/ Not asked of the producers in this market.

3/ Milk dealer trouble and inspection trouble are combined.

Again "higher price" stands out as an important factor, being mentioned by a majority of producers in each of the markets. It is interesting to note that although 89.8 per cent of those who entered the Toledo market indicated "higher price" to be a factor in their decision, only slightly more than one-half of the Detroit and Cleveland respondents indicated price as a factor. This indicates a large proportion of those from the Detroit and Cleveland areas enter these markets for reasons other than price.

"Action of dairy" was indicated by more than one-fourth of the producers in all three markets indicating the important role of the dairy in influencing producers to enter a market.

A large proportion of the former manufacturing producers mentioned price as a reason for entering the market (Table 4.43). Other reasons mentioned most often include "little expense," "change necessary," "general convenience," and "better quality milk." "Action of dairy" was indicated by approximately one-fourth of the producers of this group.

The summary of reasons expressed by new producers is shown in Table 4.44. Fifty one and nine-tenths per cent indicated the reason "farm changed hands" while only 34.6 per cent said "higher price" was a factor. It is not apparent why relatively few of this group mentioned price as a reason for joining a market.

The reasons given by respondents who left the three markets and continued producing on another market are summarized in Table 4.45.

TABLE 4.43

REASONS WHY FORMER MANUFACTURING MILK PRODUCERS DECIDED TO ENTER THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Reasons	Detroit (N=761)	Cleveland (N=329)	Toledo (N=112)	Total (N=1202)
	Per cent[1]			
To get a higher price	89.0	81.2	95.5	87.4
Action of the dairy or its representative	22.7	28.0	30.4	24.9
Little additional expense to sell Grade A	34.2	[2]	[2]	21.6
Change necessary so decided to fix up to ship Grade A	41.1	45.9	50.0	43.3
Only market that would take Grade A milk	21.4	13.7	13.4	18.6
Farm changed hands - ship where last producer shipped	3.7	10.6	15.2	6.7
General convenience	53.1	51.1	47.3	52.0
Wanted to produce a better quality of milk	37.7	[2]	[2]	23.9
Inspection trouble	1.3	2.1	5.4	1.9
Milk dealer trouble	[3]	4.0	0.9	1.2
Most profitable farm enterprise	29.6	[2]	[2]	18.7

[1] Percentage for each market totals over one hundred due to multiple reasons given by some producers.

[2] Not asked of the producers in this market.

[3] Milk dealer trouble and inspection trouble are combined.

TABLE 4.44

REASONS WHY NEW PRODUCERS DECIDED TO ENTER THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Reasons	Detroit (N=63)	Cleveland (N=52)	Toledo (N=18)	Total (N=133)
	- - - - - - - Per cent[1] - - - - - - -			
To get a higher price	33.3	30.7	50.0	34.6
Action of the dairy or its representative	12.7	19.2	27.8	17.3
Little additional expense to sell Grade A	31.7	[2]	[2]	15.0
Change necessary so decided to fix up to ship Grade A	17.5	13.5	5.6	14.3
Only market that would take Grade A milk	23.8	26.9	5.6	22.6
Farm changed hands - ship where last producer shipped	52.4	53.8	44.4	51.9
General convenience	19.0	23.1	22.2	21.1
Wanted to produce a better quality of milk	3.2	[2]	[2]	1.5
Inspection trouble	---	1.9	---	0.8
Milk dealer trouble	---	---	---	---
Most profitable farm enterprise	38.1	[2]	[2]	18.0

[1] Percentage for each market totals over one hundred due to multiple reasons given by some producers.

[2] Not asked of the producers in this market.

TABLE 4.45

REASONS GIVEN BY PRODUCERS, WHO CONTINUED PRODUCING, FOR LEAVING THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS, 1953-1956

Reasons 1/	Detroit (N=388)	Cleveland (N=665)	Toledo (N=177)	Total (N=1230)
	- - - - - - - - Per cent - - - - - - - -			
To get a higher price	53.6	35.3	9.0	37.3
Inspection trouble	29.6	31.6	47.5	33.3
Milk dealer trouble	9.5	10.8	6.8	9.8
Reduce hauling costs	10.6	12.0	2.3	10.2
Dealer changed markets	0.3	1.4	1.7	1.1
Avoid expense of bulk handling	0.5	0.3	0.6	0.4
Better milk pick up time	0.5	1.2	---	0.8
Farm changed hands	4.1	4.5	5.7	4.6
Miscellaneous	18.8	26.6	30.5	23.1

1/ Some producers gave more than one answer.

It is interesting to note the differences in the response of producers from the three markets. Fifty three and six-tenths per cent of the Detroit respondents mentioned "higher price" as a reason for leaving while 35.3 per cent of those leaving the Cleveland market and only 9.0 per cent from Toledo express this as a reason. Former Toledo producers, however, listed "inspection trouble" as the most often mentioned reason with 47.5 per cent of the respondents giving this answer.

This compares with 31.6 per cent of the Cleveland and 29.6 per cent of the Detroit producers who indicated "inspection trouble" as a factor in their decision.

When producers who left the Cleveland and Toledo markets were asked why they selected their present market, "best price" was the most mentioned reason (Table 4.46). The Cleveland respondents appear to have been influenced more by economic reasons such as "best price" and "hauling costs less." While "best price" was the most mentioned reason given by former Toledo producers, the reasons "only market available" and "more reasonable inspection" were mentioned by a larger proportion of the producers in this market as compared with Cleveland.

TABLE 4.46

REASONS GIVEN BY PRODUCERS WHO LEFT THE CLEVELAND AND TOLEDO MARKETS FOR SELECTING THEIR PRESENT MARKET, 1953-1956[1]

Reasons[2]	Cleveland (N=534)	Toledo (N=140)	Total (N=674)
	- - - - - Per cent - - - - -		
Best price	33.3	20.7	30.7
Only market available	9.9	14.3	10.8
Hauling costs less	19.9	12.1	18.3
More reasonable inspection	11.2	17.9	12.6
Hauler shifted so producer followed	0.2	--	0.1
Influence of dealer or representative	13.9	6.4	12.3
Miscellaneous	26.4	34.3	28.0

[1] These data were not available for the Detroit Market.

[2] Some producers gave more than one answer.

Various reasons were expressed by producers who discontinued producing milk (Table 4.47). The most mentioned reason, however, is associated with price as 44.1 per cent from Detroit, 41.9 per cent from Cleveland, and 33.4 per cent from Toledo indicated "cost of production too great and/or price too low." "Illness, age, or death" was the next most mentioned reason expressed by 19.3 per cent of the respondents in the three markets.

Other miscellaneous reasons such as "sold cows," "went into other work or enterprise," and "sold farm or quit farming," do not indicate the underlying reason for this action. Many economic factors would probably be mentioned if the underlying reason for these actions were probed.

Responses by producers as to why they decided to join or leave the three markets do not conclusively support the hypothesis that producers enter or leave a market because of price. Although price is a major factor in the producers' decision, only in the former manufacturing milk group did a majority of the respondents indicate "higher price" as the most important reason for joining the market. "Higher price," however, is a factor with a majority of the former inspected and manufacturing milk producers as shown by the proportion who indicated this as a reason influencing their joining.

A smaller proportion of those who left expressed "higher price" as influencing their decision to leave. In fact, only in the Detroit market did a majority of the producers who left for another market indicate "higher price" was a factor in their decision.

TABLE 4.47

REASONS GIVEN BY PRODUCERS, WHO DISCONTINUED PRODUCTION, FOR LEAVING THE DETROIT, CLEVELAND, OR TOLEDO MARKETS, 1953-1956

Reasons 1/	Detroit (N=1068)	Cleveland (N=552)	Toledo (N=344)	Total (N=1964)
	- - - - - - - - Per cent - - - - - - - -			
Disease problem in cows	3.3	1.6	3.5	2.9
Inspection trouble	5.0	7.4	11.6	6.8
Illness, age or death	20.1	21.2	14.0	19.3
Labor problems	12.9	17.4	14.5	14.5
Opposed making major investments	2.8	3.6	6.1	3.6
Cost of production too great--price too low	44.1	41.9	33.4	41.6
Sold cows	7.3	7.2	4.1	6.7
Went into other work or enterprise	7.6	12.3	9.3	9.2
Sold farm or quit farming	13.2	14.9	14.8	14.0
Miscellaneous	4.7	10.0	14.2	7.8

1/ Some producers gave more than one answer.

Price Increase Expected. The majority of producers who joined the Detroit, Cleveland, and Toledo markets indicated price was a factor in their decision. When asked how much more per hundred weight they expected to receive, a broad range of answers was stated. Table 4.48 summarizes the responses of 1607 producers who entered the markets.

TABLE 4.48

EXPECTED INCREASE IN THE PRICE OF MILK PER HUNDRED WEIGHT, AS INDICATED BY PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS, 1953-1956

Expected increase per cwt.	Response (N=1607)
	Per cent
Less than before change	9.4
No increase expected	12.7
.01 - .24	6.3
.25 - .44	7.3
.45 - .64	9.5
.65 - .84	12.7
.85 - 1.04	31.8
1.05 - 1.24	3.7
1.25 - 1.44	2.6
1.45 and over	4.0
Total	100.0

It is interesting to note that over 22 per cent changed markets and did not expect a higher price. In fact, 9.4 per cent expected to receive less. Reasons other than price evidently influenced this group to make the change.

Of the group who did anticipate an increase in price, 54.8 per cent expected an increase of 65 cents or more while about one-fourth of the respondents expected less than 65 cents. Although it is the expected price that influences the decision of producers to change markets rather than the actual price he receives, the response to this question

indicates that, if price is an important factor, small price increases over their former market do not influence many producers. The majority of producers did not decide to enter the market until the expected price increase was 65 cents or more above their former market.

The price incentive needed to induce manufactured milk producers to improve their facilities in order to qualify for Class I production is greater than that needed to induce one who is already an inspected milk producer to change markets. Table 4.49 shows the number of former inspected and manufactured milk producers who entered the three markets and the expected increase in price per hundredweight.

Former inspected milk producers were nearly evenly divided between those who expected a price increase and those who did not. Indications are that a large proportion of this group decided to change markets for reasons other than price. The average expected price increase indicated was 55 cents. Again we might assume that producers do not generally change markets for a small price differential.

In contrast, 97.8 per cent of the former manufacturing producers expected an increase. The average expected price increase was 93 cents. This suggests that this group is willing to make the necessary investment to qualify as an inspected milk producer if the price differential between manufacturing and inspected milk is approximately a dollar per hundredweight.

Of the producers who left the three markets and are producing for another market, about one-fourth expected no increase while 7.0 per cent

TABLE 4.49

AVERAGE EXPECTED INCREASE IN THE PRICE OF MILK PER HUNDREDWEIGHT AS INDICATED BY FORMER INSPECTED MILK PRODUCERS AND FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS, 1953-1956

Product formerly marketed	Increase expected: Number of producers	Increase expected: Average amount expected	Producers not expecting increase	No reply	Total number Producers
		Dollars			
Inspected milk					
Detroit[1]	56	.91	69	202	327
Cleveland	151	.46	207	216	574
Toledo	139	.51	25	63	227
Total	346	.55	301	481	1128
Manufacturing milk					
Detroit	558	.95	3	123	684
Cleveland	221	.87	14	77	312
Toledo	96	.96	2	21	119
Total	875	.93	19	221	1115

[1] The Detroit questionnaires asked for a response if the producer formerly produced manufacturing milk. The Cleveland and Toledo questionnaires asked how much more the producers believed he was receiving regardless of what his former production was.

expected to receive less (Table 4.50). Approximately one half of the producers who left the Detroit market expected an increase in price within a 25 cent to 64 cent range. This compares with 35.7 per cent and 18.1 per cent for the Cleveland and Toledo markets respectively. It appears from these data that producers who left the Detroit market expected a better price situation in a new market than those who left

TABLE 4.50

EXPECTED INCREASE IN THE PRICE OF MILK PER HUNDREDWEIGHT, AS INDICATED BY PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS, 1953-1956 1/

Expected increase per cwt.	Detroit (N=213)	Cleveland (N=347)	Toledo (N=83)	Total (N=643)
	- - - - - - - - Per cent - - - - - - - -			
Less than before change	3.3	5.8	21.7	7.0
No increase expected	16.9	23.6	47.0	24.4
.01 - .24	7.0	25.9	13.2	18.1
.25 - .44	25.4	23.6	14.5	23.0
.45 - .64	24.4	12.1	3.6	15.1
.65 - .84	7.5	4.0	----	4.7
.85 - 1.04	10.3	3.8	----	5.4
1.05 - 1.24	2.4	----	----	0.8
1.25 - 1.44	0.9	0.6	----	0.6
1.45 and over	1.9	0.6	----	0.9
Total	100.0	100.0	100.0	100.0

1/ These producers were delivering milk to another market.

the Cleveland market, and former Cleveland producers expected to have this same price advantage over former Toledo producers.

Month Producer Joined or Left. Respondents were tabulated according to the month they joined or left the three markets to determine if the time of entering and leaving follows certain seasonal patterns and if so, to attempt to determine why they exist.

Former inspected milk producers joining the Detroit market (Table 4.51) appeared to follow a distinct seasonal pattern. The data

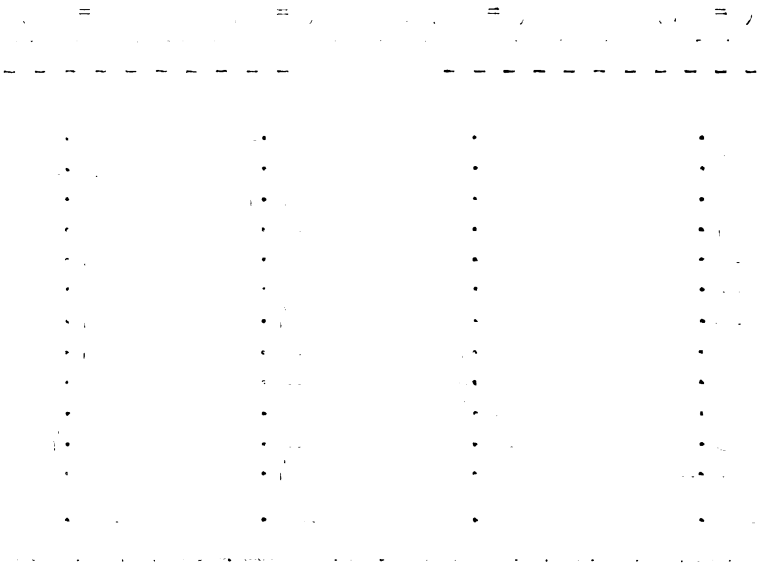
TABLE 4.51

MONTH FORMER INSPECTED MILK PRODUCERS ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Month[1]	Detroit (N=257)	Cleveland (N=488)	Toledo (N=217)	Total (N=980)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
January	4.4	8.4	5.1	6.5
February	2.9	9.0	4.6	6.3
March	4.0	12.5	3.7	8.2
April	27.6	8.2	16.1	15.4
May	15.6	5.1	2.3	7.4
June	11.3	5.1	1.8	6.1
July	12.4	4.9	7.4	7.6
August	8.0	4.7	13.4	7.6
September	4.0	10.1	12.9	9.0
October	5.4	11.9	12.9	10.3
November	3.3	12.1	12.4	9.7
December	1.1	8.0	7.4	5.9
Total	100.0	100.0	100.0	100.0

[1] Respondents were tabulated to the nearest full year.

discloses that 66.9 per cent of the respondents joined during the months April through July. This was generally a low blend price period during which producers would not ordinarily be expected to join. Due to the base plan, however, the seasonal price decline during the summer months is not as great for the Detroit market as that which generally prevails in other inspected markets. Therefore, those who joined during this period might be explained in terms of more favorable prices relative to their former market and the fact that these are the months immediately preceding the base forming months. Other joiners might be attributed to "action of the dairy" during this period, particularly during the



month of April when the dairies to which these producers shipped began marketing their milk within the city of Detroit.

Cleveland and Toledo respondents indicate a different time pattern for joining. With the exception of the 16.1 per cent who joined the Toledo market in April, the proportion who joined these markets during the period April through July is substantially smaller than for Detroit. These time periods follow closely the seasonal price pattern prevalent in the markets with the most producers joining when the price is highest during the fall and winter months. The overall distribution gives some evidence to support the hypothesis that producers join because of price.

The proportion of former manufacturing milk producers who joined the three markets follow, to some extent, the pattern indicated by former inspected producers (Table 4.52). The Cleveland and Toledo producers generally joined during the fall and winter months while there were fluctuations in the distribution pattern exhibited in the Detroit market. Thirty three and one-tenth per cent of all Detroit respondents joined in July and August, indicating again the possibility that the base establishing months that follow may have influenced their decision.

The distribution of new producers (Table 4.53) shows considerable fluctuation with no seasonal pattern apparent. However, there appears to be a marked decline in the proportion who joined the Cleveland and Toledo markets during the summer months which might follow the seasonal price pattern in these markets.

TABLE 4.52

MONTH FORMER MANUFACTURING MILK PRODUCERS ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Month[1]	Detroit (N=660)	Cleveland (N=300)	Toledo (N=114)	Total (N=1074)
	Per cent			
January	5.6	9.7	7.0	6.9
February	3.5	7.3	6.1	4.8
March	2.9	8.0	7.0	4.7
April	7.1	5.3	14.9	7.5
May	5.3	5.7	3.5	5.2
June	8.6	5.3	3.5	7.2
July	16.7	5.3	9.7	12.8
August	16.4	5.7	4.4	12.1
September	7.7	8.7	7.0	7.9
October	12.6	12.0	10.5	12.2
November	8.9	14.7	8.8	10.5
December	4.7	12.3	17.6	8.2
Total	100.0	100.0	100.0	100.0

[1] Respondents were tabulated to the nearest full year.

TABLE 4.53

MONTH NEW PRODUCERS ENTERED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Month[1]	Detroit (N=53)	Cleveland (N=52)	Toledo (N=16)	Total (N=121)
	Per cent			
January	5.7	3.8	18.8	6.6
February	3.8	3.8	12.5	4.9
March	11.3	15.4	12.5	13.3
April	5.7	11.5	12.6	9.1
May	15.1	11.5	18.8	14.1
June	5.7	5.8	----	4.9
July	11.3	----	----	4.9
August	9.4	2.0	6.2	5.8
September	3.8	13.5	6.2	8.3
October	9.4	11.5	6.2	9.9
November	11.3	13.5	6.2	11.6
December	7.5	7.7	----	6.6
Total	100.0	100.0	100.0	100.0

[1] Respondents were tabulated to the nearest full year.

Table 4.54 shows considerable fluctuation in the monthly distribution of producers who left the three markets. As a consequence no observations could be made relative to seasonal price patterns for those who continued producing. With the exception of the Detroit market, there is no apparent evidence in the study to explain the heavy exodus of producers from these markets during the period of August through November.

TABLE 4.54

MONTH PRODUCERS, WHO CONTINUED PRODUCING, LEFT THE DETROIT, CLEVELAND AND TOLEDO MILK MARKETS, 1953-1956

Month[1]	Detroit (N=373)	Cleveland (N=614)	Toledo (N=156)	Total (N=1143)
	Per cent			
January	8.0	7.7	5.8	7.5
February	6.2	9.4	13.5	8.9
March	4.3	9.4	13.5	8.3
April	8.9	8.8	7.7	8.7
May	2.7	2.6	7.7	3.3
June	5.6	2.4	8.3	4.3
July	9.7	9.0	8.3	9.1
August	12.9	9.1	10.3	10.5
September	14.7	10.3	9.0	11.5
October	12.3	5.5	7.0	8.0
November	9.1	15.2	5.7	11.9
December	5.6	10.6	3.2	8.0
Total	100.0	100.0	100.0	100.0

[1] Respondents were tabulated to the nearest full year.

The data summarized in Table 4.55 suggests that producers do not readily discontinue production during the summer months when pasture is available. There was lack of evidence to support further observations in terms of either price or seasonal patterns.

TABLE 4.55

MONTH PRODUCERS, WHO DISCONTINUED PRODUCTION, LEFT THE DETROIT, CLEVELAND AND TOLEDO MARKET, 1953-1956

Month[1]	Detroit (N=894)	Cleveland (N=481)	Toledo (N=290)	Total (N=1665)
	- - - - - - - - - - Per cent - - - - - - - - - -			
January	6.7	10.0	6.9	7.7
February	8.6	10.2	11.0	9.5
March	9.5	9.2	12.1	9.8
April	8.8	7.7	11.0	8.9
May	6.8	6.9	10.7	7.5
June	3.2	2.5	6.5	3.6
July	4.3	4.1	2.8	4.0
August	11.3	6.4	6.5	9.1
September	11.3	10.6	6.5	10.3
October	10.6	9.7	5.9	9.5
November	9.9	12.3	9.7	10.5
December	9.0	10.4	10.4	9.6
Total	100.0	100.0	100.0	100.0

[1] Respondents were tabulated to the nearest full year.

Length of Time Producer Considered His Action. A period of consideration inevitably precedes the actual movement of a producer from one market to another. It was assumed important to consider the length of time producers considered changing as it could indicate how rapidly producers move into a market in response to an incentive.

Table 4.56 shows the length of time inspected producers considered entering the market for the Detroit, Cleveland, and Toledo areas. In the Detroit market the time lag for considering the move was relatively shorter than the other two markets. Nearly 20 per cent stated they considered the change for a month or less and 60.9 per cent said they had seriously considered the change for six months or less. Approximately 20 per cent had considered the change for more than one year.

TABLE 4.56

TIME FORMER INSPECTED MILK PRODUCERS CONSIDERED ENTERING THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Months	Detroit (N=151)	Cleveland (N=267)	Toledo (N=153)	Total (N=571)
	- - - - - - - - - - Per cent - - - - - - - - - -			
1 - 6	60.9	48.3	31.8	47.3
7 - 12	18.6	19.9	25.3	21.0
13 - 18	4.0	1.1	3.9	2.6
19 - 24	7.9	17.6	18.2	15.2
Over 24	8.6	13.1	20.8	13.9
Total	100.0	100.0	100.0	100.0

The time lag for former inspected producers who joined the Cleveland market was slightly greater than that of Detroit with 48.3 per cent instituting the change with six months or less of consideration and 31.8 per cent considering the decision for over a year. Of the former inspected producers that joined the Toledo market, 39.0 per cent considered the change for 19 months or longer. The difference in the time lag

for the three markets might be attributed to a certain degree to the availability of the market concerned.

As might be expected the time lag for former manufacturing producers (Table 4.57) is greater than that for inspected producers since economic and institutional factors are involved to a greater degree. A major problem facing the former manufacturing producer was that of meeting the health requirements of the fluid markets. Not only would this problem delay the decision to change but additional time would be needed to make the necessary improvements.

TABLE 4.57

TIME FORMER MANUFACTURING MILK PRODUCERS CONSIDERED ENTERING THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, 1953-1956

Months	Detroit (N=581)	Cleveland (N=219)	Toledo (N=88)	Total (N=888)
	- - - - - - - - - - - - Per cent - - - - - - - - - - - -			
1 - 6	31.0	25.6	34.1	30.0
7 - 12	24.4	32.8	23.8	26.5
13 - 18	5.9	3.7	5.7	5.3
19 - 24	20.0	24.2	18.2	20.8
Over 24	18.7	13.7	18.2	17.4
Total	100.0	100.0	100.0	100.0

Several tendencies are worthy of note. The average length of time spent in considering the change to another market was 18.1 months for all respondents in the three markets. This might suggest that the producer is influenced to a greater extent by price over a long period rather than by short term economic incentives. The tendency is for

former manufacturing milk producers to consider a change in markets longer than former inspected milk producers. In addition former inspected producers entering the Toledo markets tend to consider the change longer than those entering the Cleveland market, and those from Detroit tend to consider the change the longest. Little difference is noted in the length of time former manufacturing producers from the separate markets considered transferring to another market.

Other Markets Considered. Information was solicited from producers relative to the number of other markets they considered before joining the Cleveland and Toledo markets (Table 4.58). The same information was asked of those who left these two markets and joined another (Table 4.59). It was hoped to gain some insight as to the extent producers explore the possibility of other markets before deciding on a particular one and to determine the extent to which markets compete with one another.

TABLE 4.58

NUMBER OF OTHER MARKETS CONSIDERED BY PRODUCERS WHO JOINED THE CLEVELAND AND TOLEDO MILK MARKETS, 1953-1956

Number of Markets Considered	Cleveland (N=925)	Toledo (N=363)	Total (N=1288)
	- - - - - - - Per cent - - - - - - -		
None	62.9	68.9	64.5
1	22.3	18.7	21.3
2	10.6	9.4	10.3
3	4.0	3.0	3.7
4	0.2	--	0.2
Total	100.0	100.0	100.0

It is interesting to note the close similarity in the proportion of producers in the different categories in those who joined as well as those who left the three markets. Over 60 per cent from both groups, or approximately two out of three producers, disclosed they considered no market other than the one they joined. About 20 per cent considered one additional market.

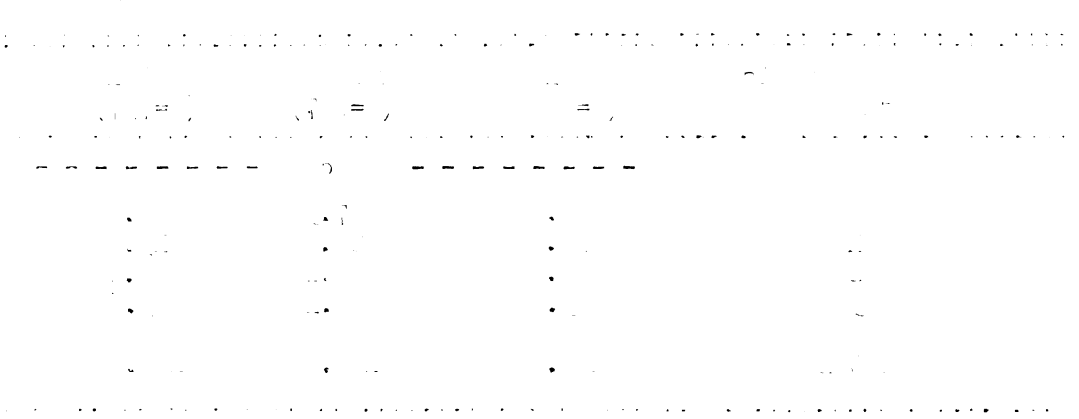
TABLE 4.59

NUMBER OF MARKETS CONSIDERED BY PRODUCERS WHO LEFT THE CLEVELAND AND TOLEDO MARKETS IN ADDITION TO THEIR PRESENT MARKET, 1953-1956

Number of Markets Considered	Cleveland (N=648)	Toledo (N=147)	Total (N=797)
	- - - - - - - - Per cent - - - - - - - -		
None	68.5	67.3	68.4
1	19.8	20.4	19.8
2	8.2	8.2	8.2
3	3.5	4.1	3.6
Total	100.0	100.0	100.0

It would appear from these data that either no other market is immediately available for the majority of the producers, or that they do not shop around a great deal to select a market. Regardless of the reasons, the results indicate that producers have, or exhibit, little choice in selecting a market.

Investment Necessary to Qualify for Grade A. The investment necessary to qualify as an inspected milk producer in the Detroit, Cleveland or Toledo markets undoubtedly influenced producers' decisions to join one of these markets. Producers were asked to disclose the



amount they had invested in facilities during the past two years to qualify for one of the markets to determine the proportion who had to invest as well as the average amount invested.

As might be expected the percentage of former inspected milk producers that invested in facilities was the lowest (Table 4.60).

TABLE 4.60

PRODUCERS WHO INDICATED INVESTMENT WAS MADE IN THE PAST TWO YEARS TO QUALIFY AS AN INSPECTED MILK PRODUCER FOR THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, CLASSIFIED ACCORDING TO THE FORMER DISPOSITION OF THEIR MILK, 1953-1956

Market	Former disposition of milk: Inspected milk	Manufacturing milk	Farm separated cream	New producers
	Per cent			
Detroit	(N=327) 67.0	(N=684) 95.3	(N=83) 95.2	(N=69) 82.6
Cleveland	(N=572) 67.7	(N=317) 88.3	(N=22) 95.5	(N=65) 73.9
Toledo	(N=229) 69.4	(N=119) 85.7	(N=2) 100.0	(N=17) 70.6
All markets	(N=1128) 67.8	(N=1120) 92.3	(N=107) 95.3	(N=151) 77.5

Sixty seven and eight-tenths per cent of the former inspected milk producers indicated investments were made. This compares with 92.3 per cent for former separated cream producers and 77.5 per cent for new producers.

These data indicate that a large majority of the producers who joined the market were required to invest in facilities before they could enter. This investment in turn probably delayed their entrance into the market after the decision was made.

TABLE 4.61

AVERAGE COSTS OF FIXING UP TO SELL INSPECTED MILK ON THE DETROIT, CLEVELAND, OR TOLEDO MILK MARKETS AS RELATED TO THE TYPE OF PRODUCT FORMERLY PRODUCED, 1953-1956 1/

Market and Year	Product formerly produced: Inspected Milk	Manufacturing Milk	Farm Separated Cream	New Producer	All Producers
	Dollars				
Detroit					
1954	1258.10	1269.35	1906.22	995.00	1345.95
1955	853.03	1268.33	1351.15	1068.24	1164.18
1956	816.67	1563.02	1671.88	1304.17	1365.46
Cleveland					
1953	1050.84	1741.89	2358.33	776.00	1331.54
1954	953.93	1486.93	1745.00	1592.00	1207.75
1955	1240.76	1225.31	1500.00	1880.83	1287.40
1956	1036.60	1752.50	2950.00	931.67	1282.13
Toledo					
1953	1143.27	1751.36	1585.00	780.00	1423.37
1954	846.67	1532.19	2/	410.00	1048.26
1955	1514.71	2101.50	2/	1835.00	1624.03
1956	3191.25	1376.67	2/	100.00	2128.75
All markets and all years	1095.27	1401.72	1759.80	1141.45	1291.07

1/ Averages are computed for the number of respondents who submitted cost figures.

2/ No producers for this year.

A summary of the average amount producers invested during the past two years is shown in Table 4.61. The investment made by former inspected milk producers ranged from $10. for minor changes to $17,370. for new facilities. The average for this group was $1095.27. Investment ranged from $10. to $16,620. for former manufacturing producers with an average of $1401.72 or $306.45 more than former inspected producers. Farm separated cream producers averaged $1759.80 for investments that ranged from $10. to $7990. New producers made an investment of from $10. to $8050. with an average of $1141.45 per producer. The average cost for all producers in all markets was $1291.07.

These data imply that investment necessary to qualify for inspected milk production is a factor in the decision of producers to change markets. Incentives must be attractive enough in the inspected milk market to encourage producers to make the needed investment. The availability of capital required for this investment would be an additional factor influencing the producer's decision.

Decision of Producers if Prices Rise or Decline. In an attempt to gain insight as to the supply response, producers were asked to indicate what they might do if there were a rise or decline in the price of milk (Table 4.62).

It should be noted that 84.7 per cent of the producers stated they would make no change if a price rise occurred. Fourteen and six-tenths per cent indicated they would produce more milk and 0.7 per cent said they would produce less.

TABLE 4.62

RESPONSE INDICATED BY PRODUCERS TO AN INCREASE OR DECREASE IN THE PRICE OF MILK IN DETROIT, CLEVELAND, AND TOLEDO MARKETS, 1953-1956

	Detroit	Cleveland	Toledo	Total
	- - - - - - - - - - - Per cent - - - - - - - - - - -			
If Price Rises	(N=1142)	(N=979)	(N=377)	(N=2498)
Produce more	13.8	15.7	14.1	14.6
Produce less	0.5	1.0	0.5	0.7
Make no change	85.7	83.3	85.4	84.7
Total	100.0	100.0	100.0	100.0
If Price Declines	(N=1112)	(N=965)	(N=370)	(N=2447)
Produce more	9.9	8.5	7.8	9.0
Produce less	4.0	5.2	7.8	5.1
Make no change	69.6	69.6	73.8	70.3
Stop producing	16.5	16.7	10.6	15.6
Total	100.0	100.0	100.0	100.0

When asked what their reaction would be to a price decline, the response of "make no change" was not as great as indicated for a price rise. Seventy and three-tenths per cent expressed this decision while 15.6 per cent stated they would get out of the milk business. It is of interest to note that in the Detroit and Cleveland markets the proportion of producers who said they would produce more milk if the price declined is greater than those who said they would produce less.

The data suggest that a price change will bring varied responses, few of which follow the law of supply. Apparently many producers do not intend to adjust their production to a price rise or decline. In addition, some producers implied they would react in opposition to

the law of supply, i.e., they would actually produce more when the price declined and less in response to a price rise. The fixed assets associated with the dairy enterprise may be the underlying factor causing this reaction or it might be explained in terms of the need for a fixed income. Further study, however, would be necessary to determine the motivation underlying these responses.

Number Who Plan to Re-enter the Market. A certain percentage of the producers who leave a market do so because of a temporary interruption in their production for this market. In an attempt to determine the proportion who considered themselves only temporarily out of the market, producers were asked to indicate if they planned to rejoin within the next two years. Approximately one producer out of five who continued production indicated they planned to return to their former market (Table 4.63). It is interesting to note the similarity in distribution in the three markets. It suggests that perhaps the ratio of one out of five might be a normal pattern rather than the result of conditions in a certain market. There is lack of evidence to explain why those who left a market plan to re-enter. We might assume that they were satisfied with the market but that there were circumstances other than their own decision which caused them to leave.

Twelve and one-tenth per cent of those who discontinued production stated they planned to resume shipping within two years. The above situation appears to be quite consistent in each market which would again lead to the conclusion that this proportion might be generally expected to resume producing in their former market.

TABLE 4.63

DECISION OF PRODUCERS WHO LEFT THE DETROIT, CLEVELAND, OR TOLEDO MARKET RELATIVE TO PLANS TO RE-ENTER THE MARKET WITHIN A TWO YEAR PERIOD, 1953-1956

	Detroit	Cleveland	Toledo	Total
	- - - - - - - - - - Per cent - - - - - - - - - -			
Producing on Another Market	(N=306)	(N=492)	(N=132)	(N=930)
Plan to resume	22.2	19.3	22.0	20.6
Do not plan to resume	77.8	80.7	78.0	79.4
Total	100.0	100.0	100.0	100.0
Not Producing Milk	(N=821)	(N=455)	(N=261)	(N=1537)
Plan to resume	12.9	12.3	9.2	12.1
Do not plan to resume	87.1	87.7	90.8	87.9
Total	100.0	100.0	100.0	100.0

Section II

Dependency of Variables

Producers were analyzed to determine if a significant relationship existed between the most important reason they gave for joining the market and certain of their characteristics that might have influenced their decision. This relationship was tested by the use of the chi-square statistic. Categories chosen for analysis were:

1) Month producer joined
2) Geographic location of the producer (zones)
3) Per cent of income from milk
4) Size of farm
5) Percentage of the farm owned
6) Age of the producer
7) Size of herd during last 12 months
8) Size of herd expected next 12 months

Producers in each category were analyzed with the "most important reason" for joining the market. The analysis was made using each of the three producer groups of the three markets combined, as well as separate analyses within each market. The null hypothesis, that these characteristics are independent of each other, was tested.

The term "independent," in this context, means the distribution of one characteristic should be the same regardless of the other characteristic.[1] Thus in Table 4.65, the proportion of producers who gave the reason "higher price" for the various months should be the same, or approximately so, as those giving the other reasons for the

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[1]Wilfred J. Dixon and Frank J. Massey, Introduction to Statistical Analysis, (New York: McGraw-Hill Book Company Inc.), p. 224.

corresponding months if the hypothesis of independence is to be accepted. The expected proportions for independence thus become those calculated for the column entitled "all reasons." All x^2 tests in the study were tested at the .05 level of significance.

Various x^2 groupings of the "most important reason" were also employed. Thus Table 4.65 illustrates the various "groupings" that were found to be statistically significant when the tests were made with former inspected milk producers to determine if a relationship existed between the "most important reason" they joined and the month they joined. The column "other reasons" results from the combination of all reasons given other than the one(s) listed as a separate column in the table. (The list of reasons appears in a previous section of the study, Tables 4.39 through 4.41). Several of the reasons were combined since they were mentioned by too few respondents to be meaningful when analyzed separately.

The significant and non-significant categories for the combined markets, as well as for each market, are shown in Table 4.64. Only those categories observed to be statistically significant were tabulated and analyzed.

Month Producers Joined. In reference to Table 4.65, it appears that producers who join the market during the latter half of the year rather than the first were more inclined to mention "higher price." All months, from June through January, indicated a larger than expected proportion of producers. It is not clear why this pattern exists as

TABLE 4.64

SIGNIFICANT AND NON-SIGNIFICANT CHI-SQUARE RELATIONSHIPS EXISTING BETWEEN THE MOST IMPORTANT REASONS PRODUCERS JOINED AND CERTAIN OF THEIR CHARACTERISTICS

Category	Combined Markets			Detroit			Cleveland			Toledo		
	I	II	III	I	II	III	I	II	III	I	II	III
Month joined	S	S	N	S	S	N	S	N	N	N	S	0
Location (zone)	S	N	S	S	N	S	S	N	N	X	X	X
Income from milk	S	S	N	S	N	N	N	N	S	N	N	0
Size of farm	S	N	N	S	N	N	S	N	S	N	N	0
Per cent owned	N	N	S	N	N	N	N	N	S	N	N	0
Age of producer	N	N	S	N	N	N	N	N	S	N	N	0
Present herd	N	N	N	S	N	S	N	N	N	N	N	0
Expected herd	N	N	N	N	S	N	S	N	N	N	N	0

I Former inspected producers
II Former manufacturing producers
III New producers
S Significant relationships
N Non-significant relationships
0 Too few respondents to justify analysis
X Only one zone in the Toledo area

these months do not completely coincide with the seasonal price pattern of the three markets. It might indicate the months when the price differential between the former market and the present market was the greatest. Further study would be required to determine if this were the case.

It must be remembered, however, that the high percentages observed during these months may not be due as much to "higher price" as to the lack of other more important reasons. Thus the degree of emphasis attached to each can not be determined.

TABLE 4.65

RELATIONSHIP OF THE MONTH FORMER INSPECTED MILK PRODUCERS JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Month	Most important reason: Higher Price (N=371)	Action of the dairy (N=200)	Other reasons (N=478)	All reasons (N=1049)
	Per cent			
January	8.3	4.5	6.3	6.7
February	4.6	6.5	9.6	7.2
March	5.7	6.0	11.1	8.2
April	11.0	32.0	14.2	16.5
May	4.9	18.0	10.3	9.8
June	8.3	8.5	6.9	7.7
July	8.4	5.5	6.3	6.9
August	8.9	3.0	6.5	6.7
September	10.8	3.5	7.3	7.8
October	15.1	5.0	5.9	9.0
November	8.6	4.5	10.0	8.5
December	5.4	3.0	5.6	5.0
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	130.0	33.9	22
Col. 1 and all others	74.4	19.7	11
Col. 2 and all others	79.0	19.7	11

The proportionate distribution of producers who indicated "action of dairy" also contributed to the dependency. April, May, and June show a higher than expected proportion of producers who indicated this reason. This deviation is also difficult to explain since May and June

are generally high milk production months and dairies would normally be expected to refrain from recruiting additional producers.

The distribution of producers who indicated "other reasons" varied with each x^2 grouping. As previously indicated, the percentage observed in any one column is directly related to the distribution in the other columns. Therefore, "other reasons" could be explained in a negative way by saying the higher than expected proportions observed here are the direct result of a less than expected proportion in the other reasons. In subsequent analysis of the x^2 groupings this interpretation of "other reasons" will be assumed.

When the former inspected milk producers from the Detroit market were analyzed using the same characteristics (Table 4.66) a slightly different pattern was observed. The major variance from the expected appears as a larger per cent in June, July, and August for "higher price," and a higher than expected percentage in April and May from producers who answer "action of dairy." While the three summer months are not a period of seasonal high price, prices in the Detroit market are generally higher than other inspected markets in the area. Also, these months occur immediately prior to the base forming period in this market. Producers expressing this answer were possibly looking at the long run price rather than at the price prevailing during the month in which they joined. Their immediate concern may have been in establishing a base.

The large proportion of those answering "action of dairy" during April and May might be explained by the number of producers who

indicated this reason because the dairies to which they shipped began marketing their milk within the city of Detroit.

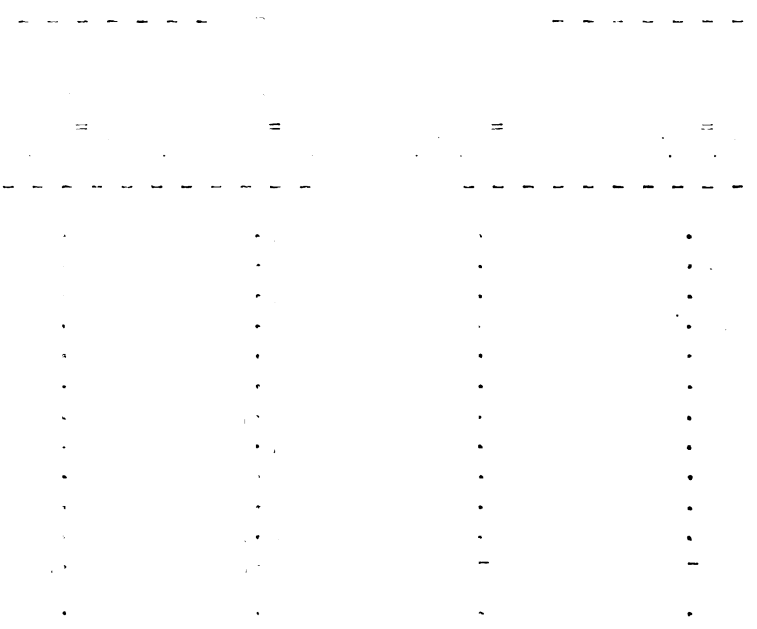
TABLE 4.66

RELATIONSHIP OF THE MONTH FORMER INSPECTED MILK PRODUCERS JOINED THE DETROIT MARKET AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1954-1956.

Month	Most important reason: Higher Price (N=71)	Action of the dairy (N=121)	Other reasons (N=118)	All reasons (N=310)
	Per cent			
January	8.5	1.6	7.6	5.5
February	1.4	3.3	3.4	2.9
March	2.8	2.5	7.6	4.5
April	16.9	43.8	20.4	28.7
May	9.9	24.0	14.4	17.1
June	15.5	7.4	13.6	11.6
July	16.9	7.4	12.7	11.6
August	11.2	2.5	7.6	6.5
September	2.8	2.5	4.2	3.2
October	8.5	2.5	5.1	4.8
November	5.6	2.5	1.7	2.9
December	-	-	1.7	0.7
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	54.3	33.9	22
Col. 1 and all others	22.3	19.7	11
Col. 2 and all others	43.3	19.7	11

A larger than expected percentage of the former inspected producers (Table 4.67) who indicated they joined the Cleveland market because of "higher price" entered the market in June through October. With the



exception of March, a higher percentage of those answering "action of dairy" joined in January through June. There is insufficient evidence to explain why this pattern existed.

No significant relationship appeared when "months" and "reasons" were analyzed using former inspected producers in the Toledo market.

TABLE 4.67

RELATIONSHIP OF THE MONTH FORMER INSPECTED MILK PRODUCERS JOINED THE CLEVELAND MARKET AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Month	Most important reason: Higher Price (N=168)	Action of the dairy (N=70)	Other reasons (N=290)	All reasons (N=528)
	Per cent			
January	9.5	10.0	6.6	8.0
February	5.4	12.9	13.1	10.6
March	8.9	11.4	14.1	12.1
April	6.0	12.9	10.7	9.5
May	5.4	10.0	9.3	8.1
June	11.3	11.4	4.8	7.8
July	4.8	-	4.5	4.0
August	5.4	1.4	4.1	4.2
September	11.3	5.7	7.9	8.7
October	16.6	10.0	5.9	9.8
November	8.9	5.7	12.4	10.4
December	6.5	8.6	6.6	6.8
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	46.7	33.9	22
Col. 1 and all others	34.1	19.7	11
Col. 2 and all others	11.1	19.7	11

Former manufacturing milk producers were analyzed using the same x^2 groupings as were used with the former inspected group. When these groups from each market were combined and tested (Table 4.68) all the x^2 groupings were observed to be statistically significant.

TABLE 4.68

RELATIONSHIP OF THE MONTH FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Month	Most important reason: Higher Price (N=715)	Action of the dairy (N=98)	Other reasons (N=335)	All reasons (N=1148)
	Per cent			
January	7.8	2.0	8.7	7.6
February	4.8	7.1	7.7	5.8
March	4.2	9.2	7.2	5.5
April	7.3	10.2	9.0	8.0
May	5.5	18.4	9.2	7.7
June	8.0	19.4	7.5	8.8
July	13.7	11.2	6.8	11.5
August	13.1	5.1	8.1	11.0
September	7.1	7.1	8.1	7.4
October	12.0	3.1	10.1	10.7
November	9.2	4.1	10.1	9.0
December	7.3	3.1	7.5	7.0
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	80.6	33.9	22
Col. 1 and all others	44.3	19.7	11
Col. 2 and all others	52.1	19.7	11

The distribution of this group shows a marked similarity to the former inspected group. With the exception of September, a higher than expected percentage of those giving "higher price" as a reason joined the market during June through January. Also a larger than expected proportion giving "action of dairy" entered the market during February through June.

The same explanation seems probable for the manufacturing group as with the inspected group. The lack of conformity with the seasonal price pattern and "action of dairy" given during a period of high milk production makes it difficult to explain the producers' reasons for joining.

The distribution differences observed were significant when manufacturing producers who joined the Detroit market were tested (Table 4.69). Producers indicating "higher price" joined during July through November in greater numbers than expected. Those who answered "action of dairy" entered during February through June in numbers greater than would be expected for independence. A lack of respondents to the above two reasons in December and January also contributed to this dependency.

The differences observed when former manufacturing producers from the Cleveland market were analyzed were not significant. Why a relationship existed in the Detroit market and not in this market is not apparent from the data at hand.

A significant difference was observed, however, when former manufacturing producers from the Toledo market were analyzed (Table 4.70).

TABLE 4.69

RELATIONSHIP OF THE MONTH FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT MARKET AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1954-1956.

Month	Most important reason: Higher Price (N=491)	Action of the dairy (N=80)	Other reasons (N=167)	All reasons (N=738)
	Per cent			
January	7.1	2.5	9.6	7.2
February	5.1	5.0	3.6	4.7
March	2.2	10.0	4.8	3.7
April	5.9	12.5	12.0	8.0
May	4.9	20.0	10.2	7.7
June	8.8	21.2	7.2	9.8
July	16.5	13.8	10.8	14.9
August	16.5	5.0	12.5	14.3
September	7.3	2.5	7.8	6.9
October	13.6	2.5	7.8	11.1
November	8.4	3.8	8.3	7.9
December	3.7	1.2	5.4	3.8
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	85.4	33.9	22
Col. 1 and all others	49.7	19.7	11
Col. 2 and all others	62.1	19.7	11

As no seasonal pattern was apparent that might account for the dependency, a plausible explanation could not be found for the fluctuation observed in the distribution.

The x^2 results obtained when the new producers were analyzed were too small to be significant when the markets were combined or when they

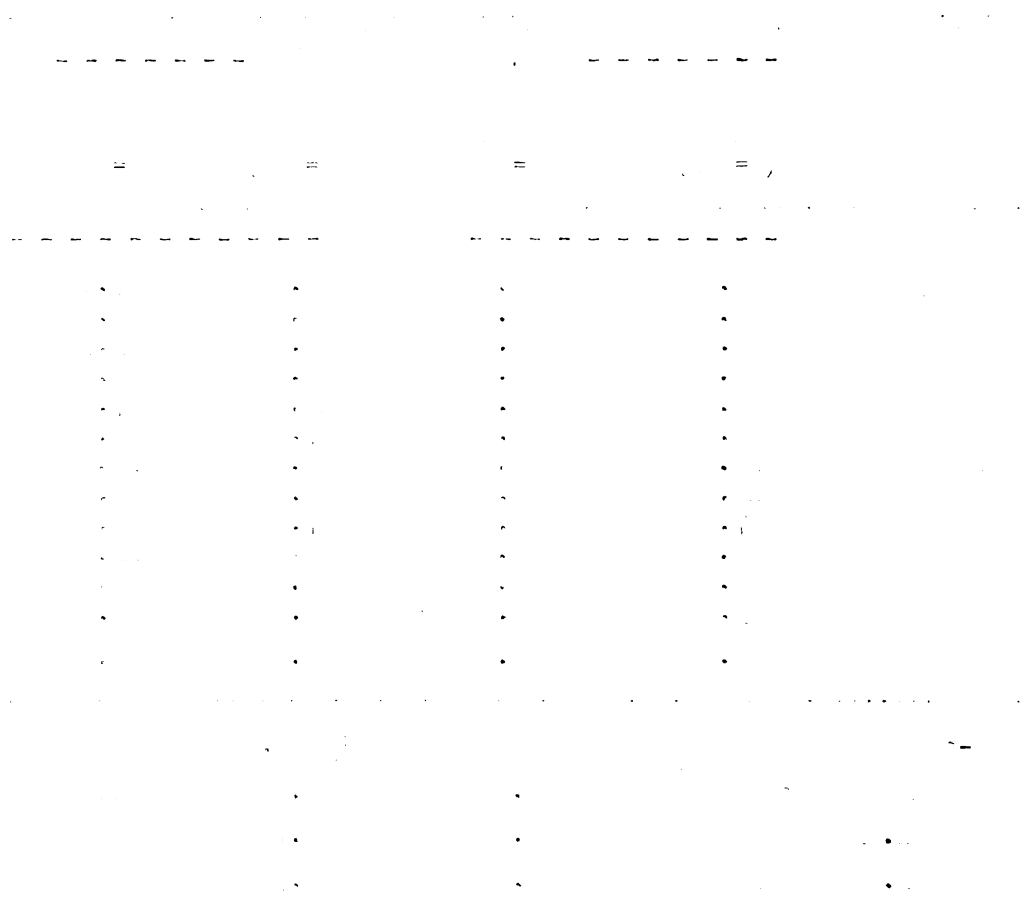


TABLE 4.70

RELATIONSHIP OF THE MONTH FORMER MANUFACTURING MILK PRODUCERS JOINED THE TOLEDO MARKET AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Month	Most important reason: Higher Price (N=78)	Other Reasons (N=32)	All Reasons (N=110)
	Per cent		
January	6.4	6.2	6.4
February	3.8	12.5	6.4
March	9.0	9.4	9.1
April	18.0	9.4	15.5
May	5.1	3.1	4.5
June	1.3	12.5	4.5
July	12.8	-	9.1
August	3.8	-	2.7
September	2.6	18.8	7.3
October	11.5	3.1	9.1
November	6.4	12.5	8.2
December	19.3	12.5	17.2
Total	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	27.1	19.7	11

were analyzed separately. This would infer that no relationship exists between the month new producers join and the reason they give for joining.

Geographic Location of the Producer (Zones). A significant difference was observed when former inspected milk producers from the three markets were analyzed to determine if a relationship existed between the location of these producers by zones and the most important reason they joined (Table 4.71).

TABLE 4.71

RELATIONSHIP OF THE LOCATION OF FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Zone	Most important reason: Price (N=371)	Action of dairy (N=200)	Only market (N=39)	Farm changed hands (N=39)	Convenience (N=46)	Better quality milk (N=40)	Inspection trouble (N=46)	Other reasons (N=268)	All reasons (N=1049)
	Per cent								
I	53.7	61.5	46.2	64.1	71.7	60.0	39.1	63.4	58.2
II	14.8	25.5	20.5	20.5	13.0	20.0	41.3	19.0	19.6
III	31.5	13.0	33.3	15.4	15.3	20.0	19.6	17.6	22.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	56.6	23.7	14
Col. 1 and all others	31.3	6.0	2
Col. 2 and all others	14.2	6.0	2

Producers located in Zone III mentioned "higher price," and those in Zone I and II mentioned "action of dairy," more often than would be expected if no relationship existed. It would appear that action of the dairy influences the decision of a producer to a greater degree in areas close to the market, while the price has a greater degree of influence for those located a greater distance from the market.

Although the number of those responding to any one of the reasons other than "higher price" and "action of dairy" is relatively small, these also contribute to the resulting relationship. A higher than expected proportion of those in Zones II and III indicated "only market." This could imply that a wider choice of markets was available to producers in Zone I resulting in the large proportion of producers in Zones II and III expressing this reason. Of the 39 producers who expressed "farm changed hands," a comparatively larger percentage were located in Zone I and II inferring that producers close to the market are more inclined to continue shipping to the same market as the former producer.

Producers located in Zone I responded with the reason "convenience" more often than would be expected. "Convenience" in this context refers to convenience of location, hauling, Grade A facilities and equipment, etc. It seems logical to assume that producers near the market would indicate this reason more often due to a more intensified milkshed area thus making it more "convenient" to obtain a market and transportation for their milk.

Producers located in Zones I and II tend to indicate "better quality milk." Those located in Zone II also tend to indicate "inspection trouble" more often than expected for independence.

The difference in distribution was observed to be significant when former inspected producers in the Detroit market were analyzed separately (Table 4.72). Proportions higher than those expected if

TABLE 4.72

RELATIONSHIP OF THE LOCATION OF FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1954-1956

Zone	Most important reason: Higher Price (N=71)	Action of Dairy (N=121)	Other Reasons (N=118)	All Reasons (N=310)
	Per cent			
I	38.0	68.6	44.1	52.3
II	40.9	21.5	39.0	32.6
III	21.1	9.9	16.9	15.1
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
Col. 1 and all others	7.7	6.0	2
Col. 2 and all others	21.2	6.0	2

independence existed were observed in Zones II and III for "higher price" and in Zone I for "action of dairy." These data infer that producers located a greater distance from the market are more strongly influenced by price while the close-in producers are influenced more readily by "action of dairy."

Former inspected producers in the Cleveland market are analyzed in Table 4.73. Producers in Zone III answered "higher price" and those in Zone II indicated "action of dairy" in proportions to indicate dependency. This again indicates the preference of "higher price" as the most important reason by producers living in the distant zone while "action of dairy" appears to be more prevalent in an area closer to the market.

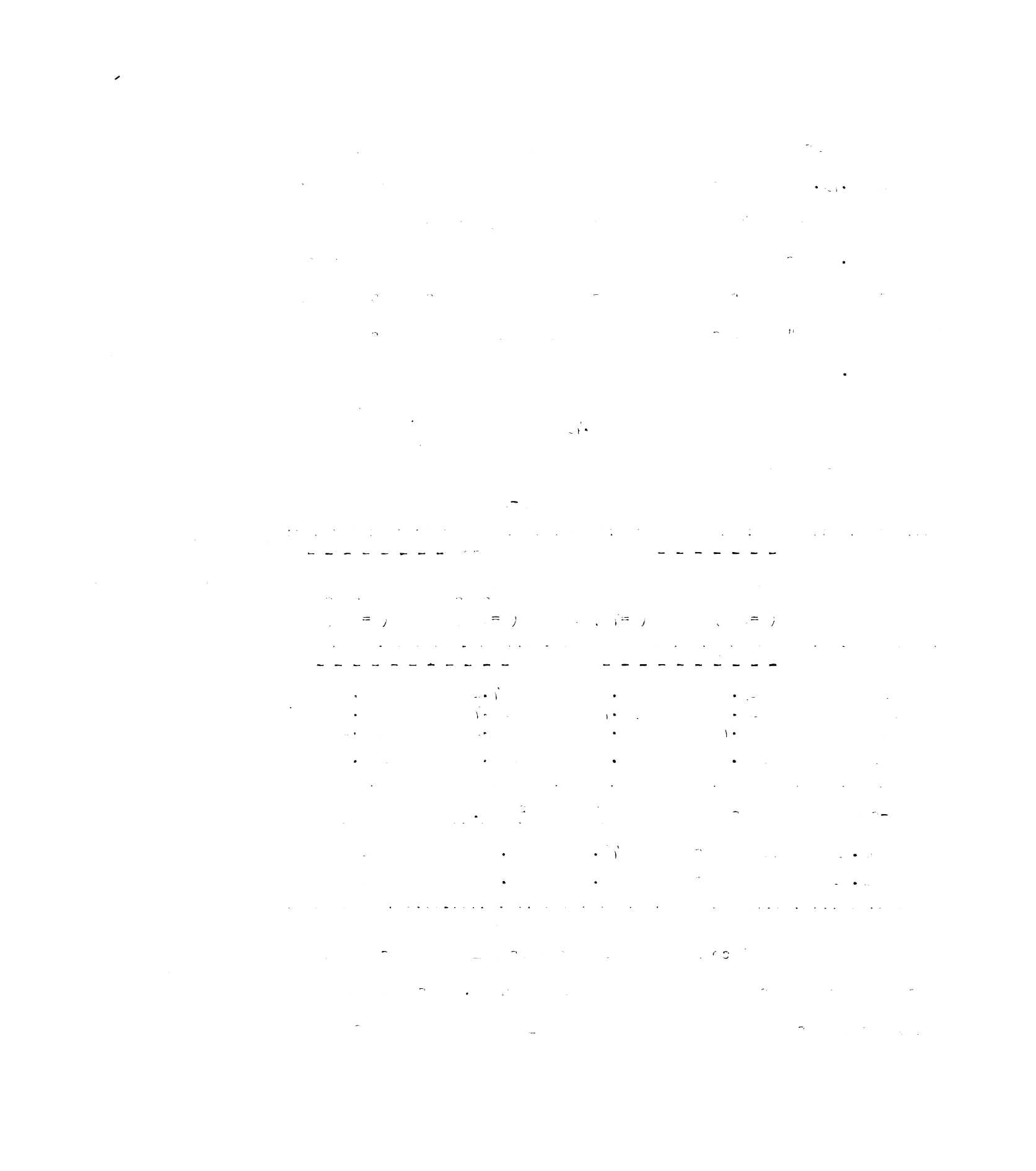
TABLE 4.73

RELATIONSHIP OF THE LOCATION OF FORMER INSPECTED MILK PRODUCERS WHO JOINED THE CLEVELAND MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

	Most important reason			
Zone	Higher Price (N=168)	Action of Dairy (N=70)	Other Reasons (N=290)	All Reasons (N=528)
	Per cent			
I	23.8	44.3	57.2	44.9
II	15.5	35.7	18.7	19.9
III	60.7	20.0	24.1	35.2
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
Col. 1 and all others	72.2	6.0	2
Col. 2 and all others	15.5	6.0	2

The Toledo market could not be analyzed as all producers joining this market were observed to be located in one zone. A significant relationship was not evident when comparing location and the most



important reason expressed by former manufacturing producers. No plausible explanation could be determined.

The location of new producers, however, appeared to be related to the most important reason they gave for joining.

Table 4.74 shows the distribution when new producers from the three combined markets were observed. The distribution of "higher price" did not appear to be significantly dependent on location. A significance was observed when producers answering "farm changed hands" were compared with their location.

TABLE 4.74

RELATIONSHIP OF THE LOCATION OF NEW PRODUCERS WHO JOINED THE DETROIT, CLEVELAND AND TOLEDO MILK MARKETS AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Zone	Most important reason: Higher Price (N=24)	Farm Changed Hands (N=33)	Other Reasons (N=67)	All Reasons (N=124)
	Per cent			
I	66.6	51.5	88.0	74.2
II	16.7	30.3	6.0	14.5
III	16.7	18.2	6.0	11.3
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
Col. 1 and all others	1.1	6.0	2
Col. 2 and all others	12.7	6.0	2

It appears from the distribution that Zone II and III producers would be more inclined to give this reason for joining than those in Zone I. This infers that new producers who are located in Zones I or II are more likely to continue to produce for the same market as did the previous tenant.

When the markets were examined separately a significant relationship was observed only in the Detroit market (Table 4.75).

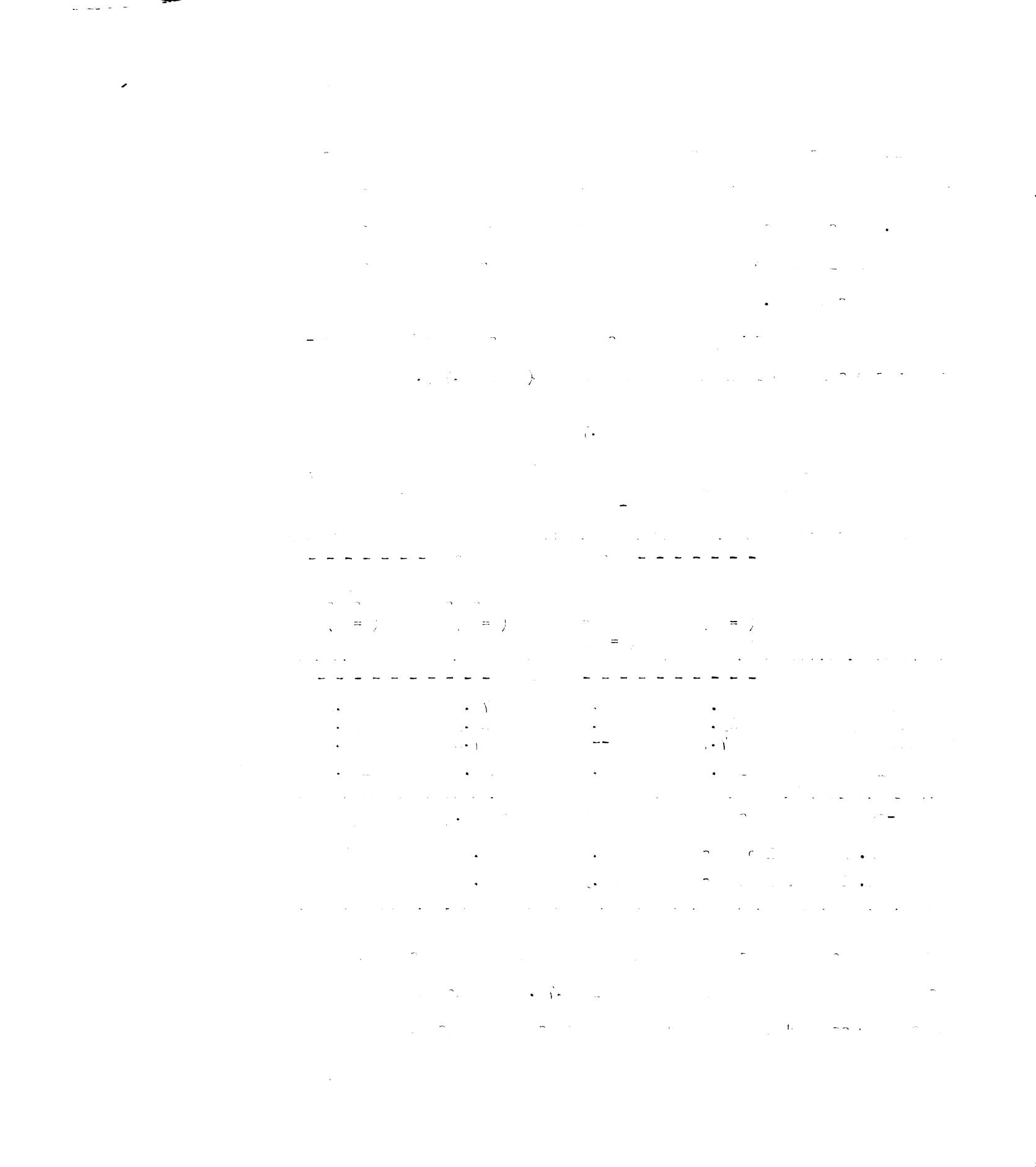
TABLE 4.75

RELATIONSHIP OF THE LOCATION OF NEW PRODUCERS WHO JOINED THE DETROIT MARKET AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1954-1956

Zone	Most important reason: Higher Price (N=13)	Farm Changed Hands (N=15)	Other Reasons (N=28)	All Reasons (N=56)
	Per cent			
I	69.2	40.0	78.6	66.1
II	23.1	60.0	14.3	28.6
III	7.7	—	7.1	5.3
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
Col. 1 and all others	0.4	6.0	2
Col. 2 and all others	10.3	6.0	2

New producers from this market followed approximately the same pattern as the combined group tabulated in Table 4.74. The distribution of those expressing "higher price" followed closely the distribution of



all producers and therefore no significant relationship exists. The proportion indicating "farm changed hands" varied significantly.

When new producers from the three markets were observed, "farm changed hands" was stated by a larger than expected proportion in Zones II and III. New producers from Detroit, however, indicated this higher proportion only in Zone II. Factors responsible for this variance was not evident.

Per Cent Income from Milk. An analysis was made between the per cent of income from milk and the most important reason given for joining. Table 4.76 shows the relationship when former inspected milk producers from the three markets were analyzed.

A significant difference was observed when producers answering "higher price," "action of dairy," and "other reasons" were analyzed and when those expressing "higher price" and "other reasons" were compared. The relationship between "action of dairy" and "other reasons" did not prove significant.

It appears from these data that, with the exception of the 1 per cent to 20 per cent group, producers receiving 60 per cent or less of their income from milk are more inclined to indicate "higher price" than those receiving more. The above situation is contrary to what would normally be expected to occur. Why producers who receive a small proportion of their income from milk mention "higher price" more often than those receiving a larger percentage is not clear. Further study would be necessary to determine why this relationship exists.

TABLE 4.76

RELATIONSHIP OF THE PER CENT INCOME RECEIVED FROM MILK PRODUCTION BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Per cent Income from Milk	Most important reason: Higher Price (N=347)	Action of Dairy (N=178)	Other Reasons (N=428)	All Reasons (N=953)
	Per cent			
1 - 20	3.8	4.5	5.8	4.8
21 - 30	12.7	8.4	11.2	11.2
31 - 40	16.7	10.1	12.4	13.6
41 - 50	23.6	20.8	20.6	21.7
51 - 60	6.6	6.7	4.4	5.7
61 - 70	4.3	7.9	6.8	6.1
71 - 80	16.4	16.3	18.9	17.5
81 - 90	11.3	15.7	9.8	11.4
91 - 100	4.6	9.6	10.1	8.0
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	26.7	26.3	16
Col. 1 and all others	19.2	15.5	8
Col. 2 and all others	9.55	15.5	8

When the inspected producers group in each market was analyzed, only Detroit indicated a significant difference (Table 4.77).

The significant x^2 grouping, "action of dairy" and "all others," could be attributed mainly to the larger than expected proportion of those who received 41 per cent or more of their income from milk and indicated "action of dairy." These observations follow a pattern

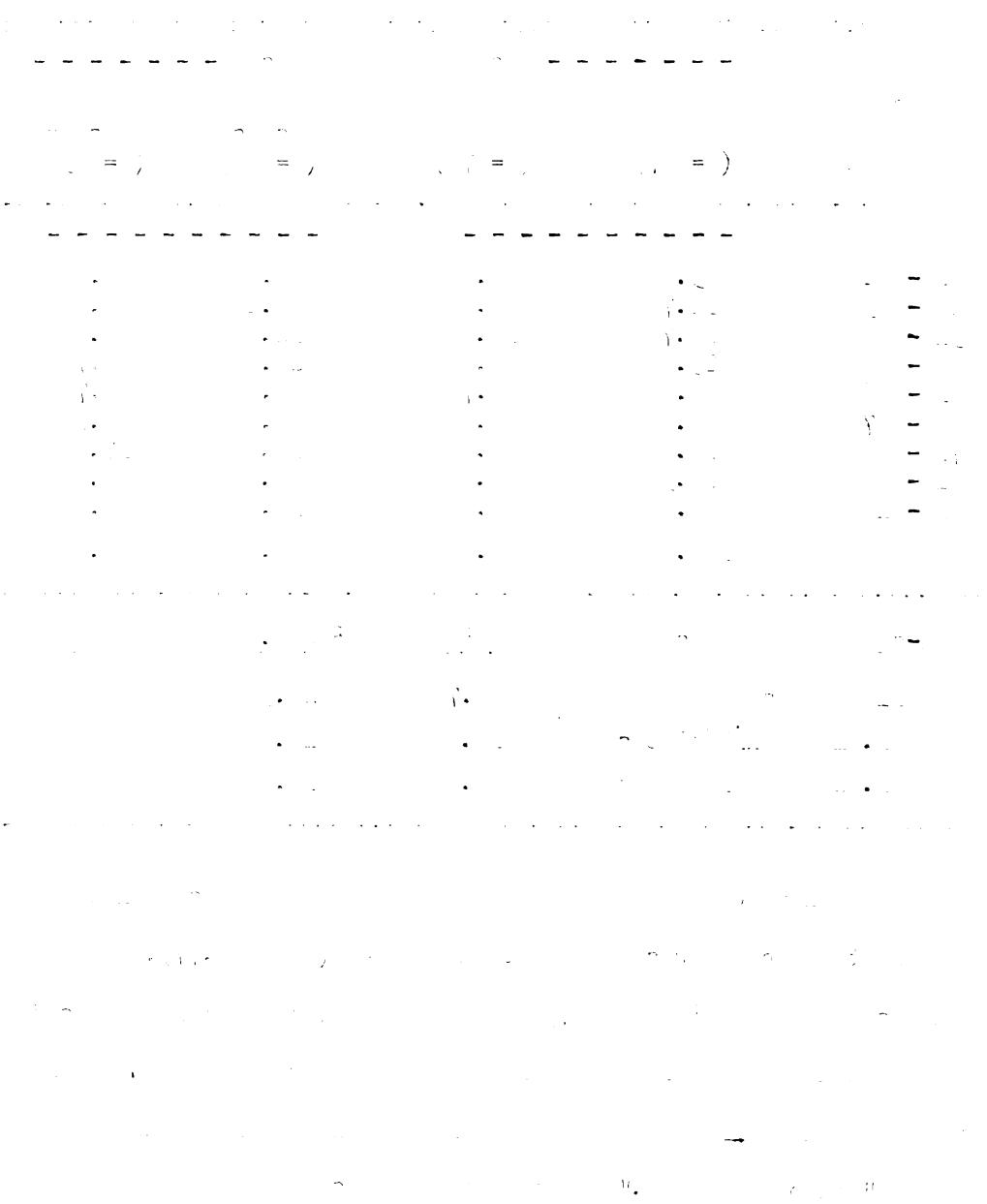


TABLE 4.77

RELATIONSHIP OF THE PER CENT INCOME RECEIVED FROM MILK PRODUCTION BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT MILK MARKET AND THE MOST IMPORTANT REASON GIVEN FOR JOINING, 1954-1956

Per cent Income from Milk	Most important reason: Higher Price (N=64)	Action of Dairy (N=103)	Other Reasons (N=101)	All Reasons (N=268)
	Per cent			
1 - 20	1.5	1.9	4.0	2.6
21 - 30	9.4	1.9	2.0	3.7
31 - 40	17.2	4.9	12.9	10.8
41 - 50	18.8	19.4	18.7	19.1
51 - 60	1.5	6.8	5.0	4.9
61 - 70	9.4	10.7	12.9	11.2
71 - 80	23.4	18.5	20.7	20.5
81 - 90	9.4	23.3	9.9	14.9
91 -100	9.4	12.6	13.9	12.3
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	26.2	26.3	16
Col. 1 and all others	15.4	15.5	8
Col. 2 and all others	16.8	15.5	8

similar to that observed when inspected producers from all markets were analyzed.

The overall distribution of answers from former manufacturing producers in the three markets show a significant relationship between per cent income from milk and the reason "convenience" (Table 4.78).

The limited number of observations in this category may present a sample which is not representative for each income group.

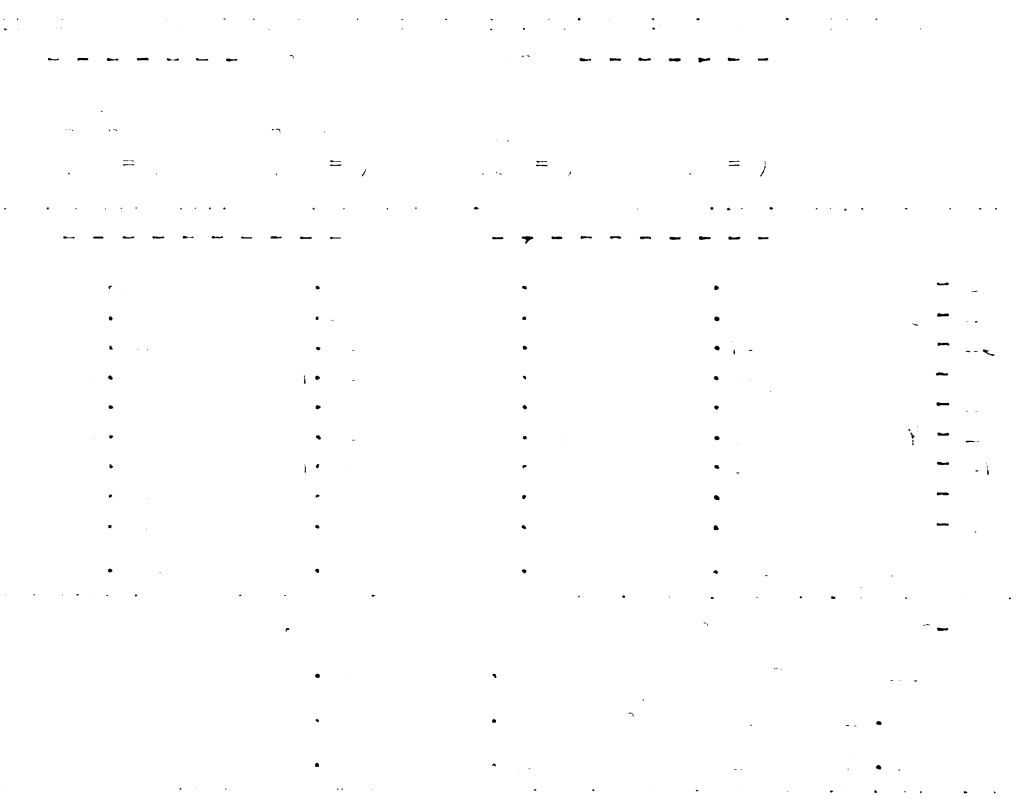


TABLE 4.78

RELATIONSHIP OF THE PER CENT INCOME RECEIVED FROM MILK PRODUCTION BY FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Per cent Income	Most important reason: Higher Price (N=658)	Action of Dairy (N=83)	Convenience (N=39)	All Reasons (N=1035)
	Per cent			
1 - 20	5.2	7.2	--	5.5
21 - 30	13.2	13.3	23.1	13.4
31 - 40	14.6	16.9	15.4	15.8
41 - 50	22.3	22.9	10.3	22.1
51 - 60	5.2	1.2	12.8	5.7
61 - 70	8.4	7.2	--	7.1
71 - 80	17.2	12.1	23.1	16.7
81 - 90	7.7	6.0	5.1	6.9
91 - 100	6.2	13.2	10.2	6.8
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
Col. 1, 2, and all others	23.3	26.3	16
Col. 1 and all others	10.6	15.5	8
Col. 3 and all others	16.0	15.5	8

The resulting fluctuation in distribution accounts for the dependency observed. No additional significant relationships are noted.

When the three markets were considered separately regarding income, no x^2 groupings were observed to be significant.

Only in the Cleveland market did a significant relationship appear when the new producer group was analyzed (Table 4.79). Due to the

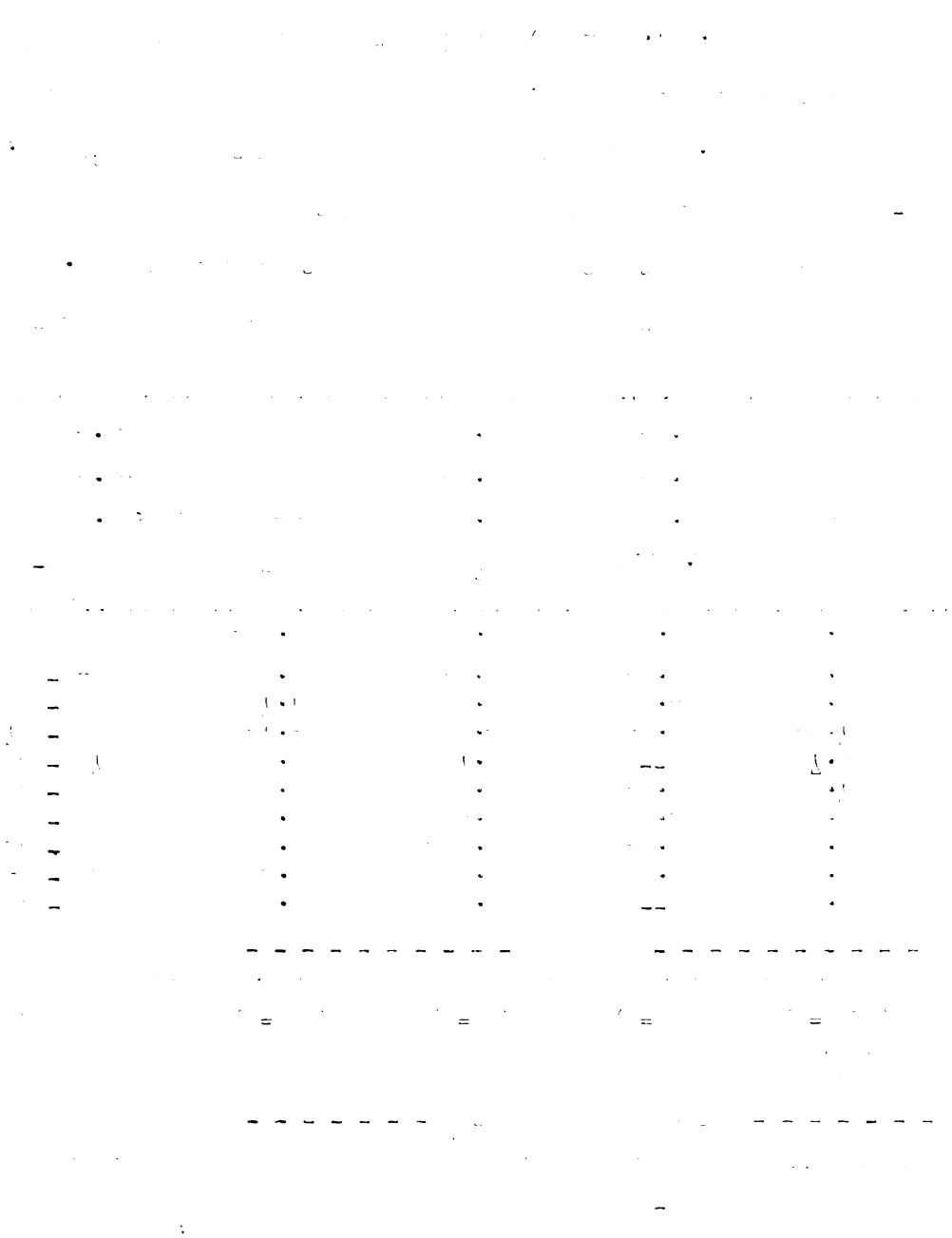


TABLE 4.79

RELATIONSHIP OF THE PER CENT INCOME RECEIVED FROM MILK PRODUCTION BY NEW PRODUCERS WHO JOINED THE CLEVELAND MILK MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Per cent Income	Most important reason: Higher Price (N=7)	Farm Changed Hands (N=14)	Other Reasons (N=25)	All Reasons (N=46)
1 - 30	14.3	7.1	12.0	10.9
31 - 60	14.3	57.2	12.0	26.1
61 - 90	57.1	21.4	56.0	45.6
91 -100	14.3	14.3	20.0	17.4
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
Col. 1 and all others	0.8	7.8	3
Col. 2 and all others	10.4	7.8	3

limited number of observations, the validity of the observations is open to question. Proceeding with the supposition that the sample is representative, the 31 per cent to 60 per cent income group indicates "farm changed hands" more often than would be expected if no relationship existed.

Size of Farm. A statistically significant relationship was observed between acres operated and the most important reason for joining expressed by former inspected milk producers of the three markets. The proportion of producers in each acreage category and the most important reason for joining are tabulated in Table 4.80.

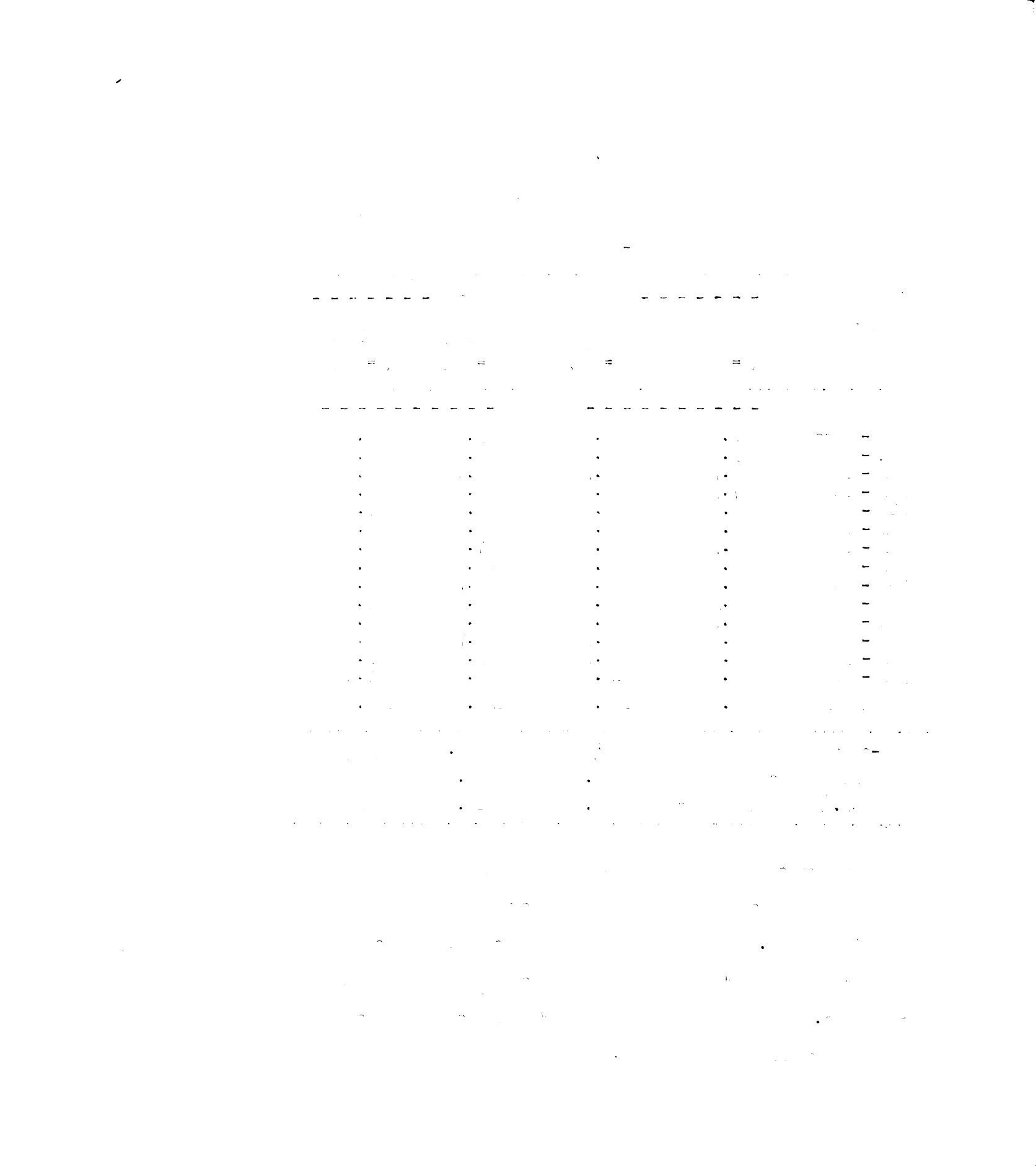
TABLE 4.80

RELATIONSHIP OF THE ACRES OPERATED BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING 1953-1956

Acres Operated	Most important reason: Higher Price (N=350)	Action of Dairy (N=190)	Other Reasons (N=445)	All Reasons (N=985)
	Per cent			
60 - less	1.7	2.1	3.6	2.6
61 - 80	3.4	6.8	6.3	5.4
81 - 100	3.7	4.7	9.2	6.4
101 - 120	7.7	10.0	9.9	9.1
121 - 140	8.6	9.5	5.8	7.5
141 - 160	14.9	12.1	11.0	12.6
161 - 180	5.7	6.3	7.2	6.5
181 - 200	8.9	5.8	10.1	8.8
201 - 220	6.3	3.2	4.7	5.0
221 - 240	6.3	13.7	5.0	7.1
241 - 260	3.7	2.1	5.6	4.3
261 - 280	4.9	4.7	2.7	3.8
281 - 300	4.2	3.7	3.6	3.8
301 - over	20.0	15.3	15.3	17.1
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	54.9	38.9	26
Col. 1 and all others	23.9	22.4	13

The data substantiate the expected concern with regard to price on the part of producers who operate larger farms with a greater capital investment involved. Producers who operate farms of 261 acres or more indicated "higher price" in larger proportions than operators of 120 acres or less. The category "other reasons" includes the largest proportion of small farm operations.



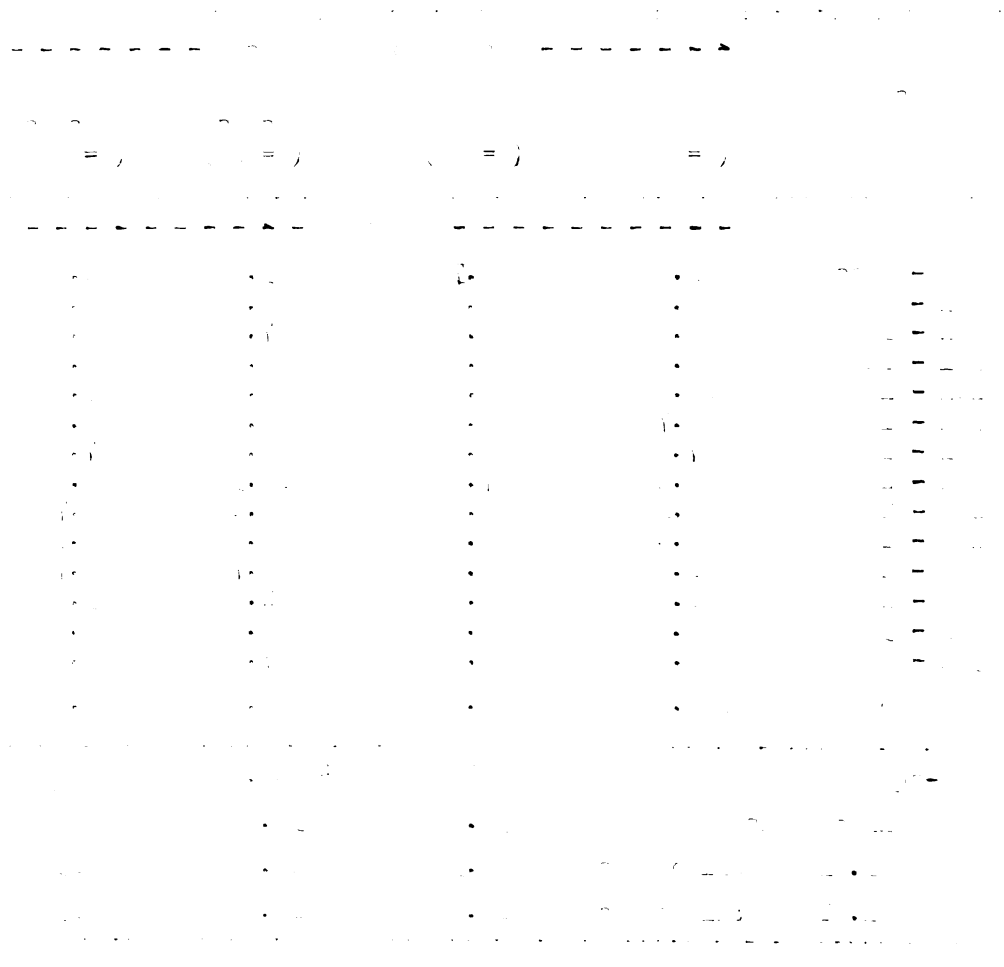
In the Detroit market a significant relationship may be noted when the x^2 grouping "action of dairy" and "all other reasons" was tested (Table 4.81).

TABLE 4.81

RELATIONSHIP OF THE ACRES OPERATED BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT MILK MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1954-1956

Acres Operated	Most important reason: Higher Price (N=69)	Action of Dairy (N=116)	Other Reasons (N=116)	All Reasons (N=310)
	Per cent			
60 - less	1.5	1.7	3.4	2.3
61 - 80	5.8	4.3	6.9	5.6
81 - 100	5.8	2.6	7.8	5.3
101 - 120	10.1	6.0	13.8	10.0
121 - 140	10.1	10.3	3.4	7.6
141 - 160	8.7	13.8	8.6	10.6
161 - 180	7.3	6.9	6.9	7.0
181 - 200	10.1	7.8	10.3	9.3
201 - 220	10.1	0.9	5.2	4.7
221 - 240	5.8	18.1	5.2	10.3
241 - 260	1.5	1.7	1.7	1.7
261 - 280	2.9	4.3	2.6	3.3
281 - 300	5.8	5.2	6.9	6.0
301 - over	14.5	16.4	17.3	16.3
Total	100.0	100.0	100.0	100.0

Chi-square grouping	x^2	x^2 at .05	d f
All columns	35.1	38.9	26
Col. 1 and all others	9.3	22.4	13
Col. 2 and all others	28.3	22.4	13



It appears that producers who operate 120 acres or less were influenced less by "action of dairy" than those with farms exceeding this amount. It is interesting to note that when "higher price" was analyzed with respect to acres operated the observed difference was not great enough to be significant.

In contrast, the former inspected group in the Cleveland market indicate that the relationship between "higher price" and acres operated is significant. As noted above, producers who operate 120 acres or less were less inclined to indicate price as an important factor than those operating 120 acres or more. The producers with 120 acres or less show a tendency to indicate "action of dairy" while those with 100 acres or less tend to favor "convenience" as well. The Cleveland market indicates that a significant relationship exists when all reasons listed in Table 4.82 were tested.

In the Toledo market no significant relationship was observed when responses of former inspected producers were analyzed. Likewise, reasons expressed by former manufacturing producers and new producers did not indicate a statistically significant relationship when analyzed with acres operated.

Percentage of Farm Owned. Among former inspected producer and manufacturing producer groups in the three separate markets, as well as the combined markets, a significant relationship was not evident when the percentage of the farm owned was analyzed with the most important reason for entering the market. A significant relationship

TABLE 4.82

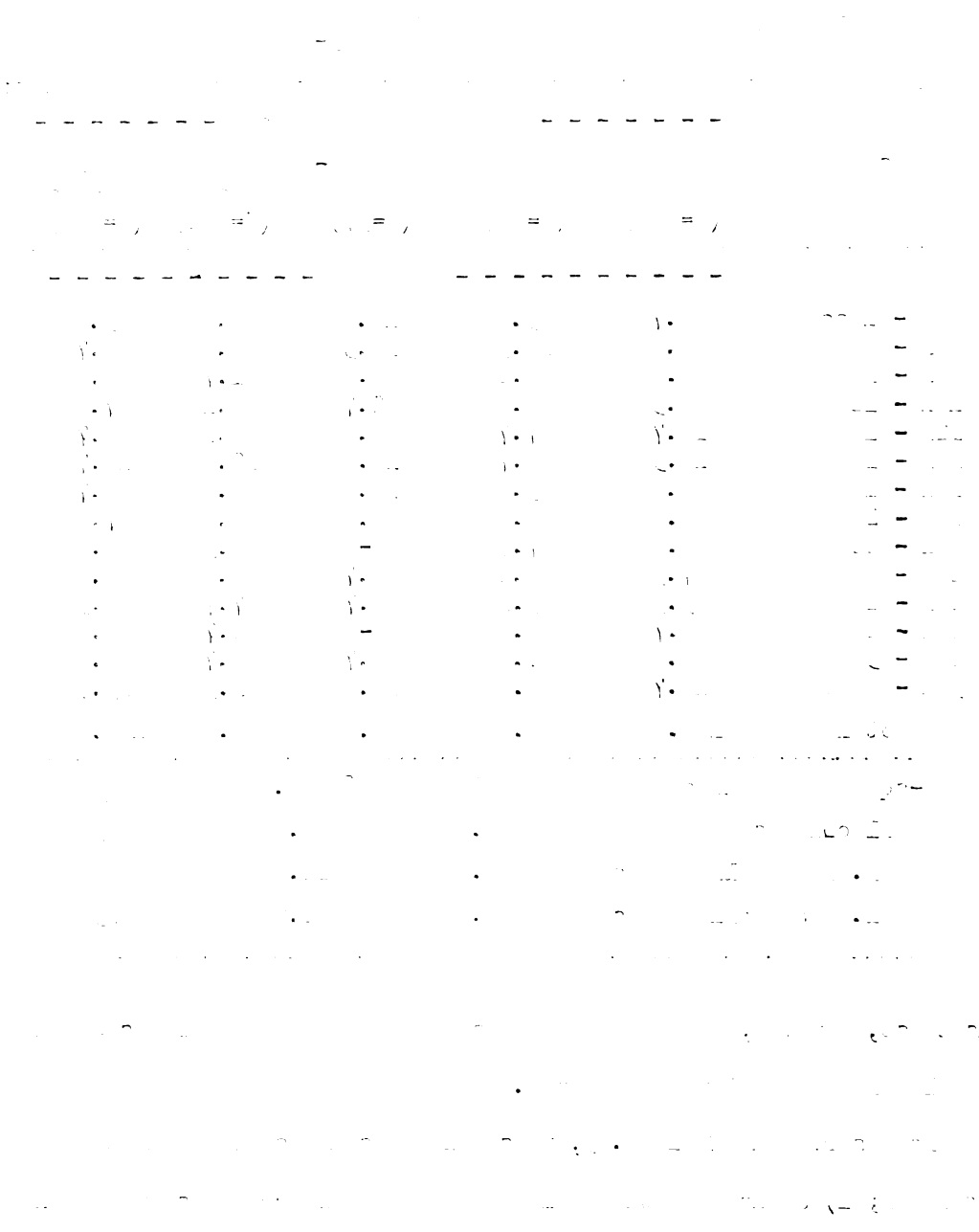
RELATIONSHIP OF ACRES OPERATED BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE CLEVELAND MILK MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Acres Operated	Most important reason: Higher Price (N=150)	Action of Dairy (N=65)	Convenience (N=37)	Other Reasons (N=222)	All Reasons (N=474)
	Per cent				
60 - less	0.7	3.1	10.8	3.6	3.1
61 - 80	4.0	12.3	16.3	5.4	6.7
81 - 100	4.0	9.2	10.8	11.7	8.9
101 - 120	5.3	15.4	2.7	8.1	7.8
121 - 140	10.7	7.7	5.4	8.1	8.7
141 - 160	15.3	10.7	18.9	12.6	13.7
161 - 180	6.0	3.1	10.8	5.4	5.7
181 - 200	8.0	1.5	5.4	9.0	7.4
201 - 220	6.0	7.7	-	6.3	5.9
221 - 240	7.3	6.2	2.7	5.4	5.9
241 - 260	3.3	3.1	2.7	7.7	5.3
261 - 280	6.7	6.2	-	2.7	4.2
281 - 300	4.0	1.5	2.7	2.7	3.0
301 - over	18.7	12.3	10.8	11.3	13.7
Total	100.0	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	61.9	55.8	39
Col. 1 and all others	26.1	22.4	13
Col. 2 and all others	16.3	22.4	13

did exist, however, when new producers for the combined markets and in the Cleveland market were analyzed.

As observed in Table 4.83, this relationship is primarily the result of; 1) a disproportionately high number of producers owning 91 per cent or more of their farm indicating higher price, and



2) a disproportionately high number who own none of their farm indicating "farm changed" hands as the most important reason for entering this market.

TABLE 4.83

RELATIONSHIP OF THE PER CENT OF ACRES OWNED BY NEW PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Acres Owned (Per cent)	Most important reason: Higher Price (N=23)	Farm Changed Hands (N=26)	Other Reasons (N=62)	All Reasons (N=111)
	Per cent			
None	21.7	53.9	29.0	33.3
1 - 90	13.1	11.5	25.8	19.8
91 - 100	65.2	34.6	45.2	46.9
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	9.6	9.5	4
Column 1 and all others	3.9	6.0	2

Table 4.84 indicates a similarly disproportionate distribution in the Cleveland market. Because of the small number of producers included in this group, these two situations may not be representative.

Age of the Producer. A significant relationship was not evident when the age of former inspected producers and manufacturing producers, and the most important reason for joining was analyzed for the combined markets as well as in the three separate markets. Statistically

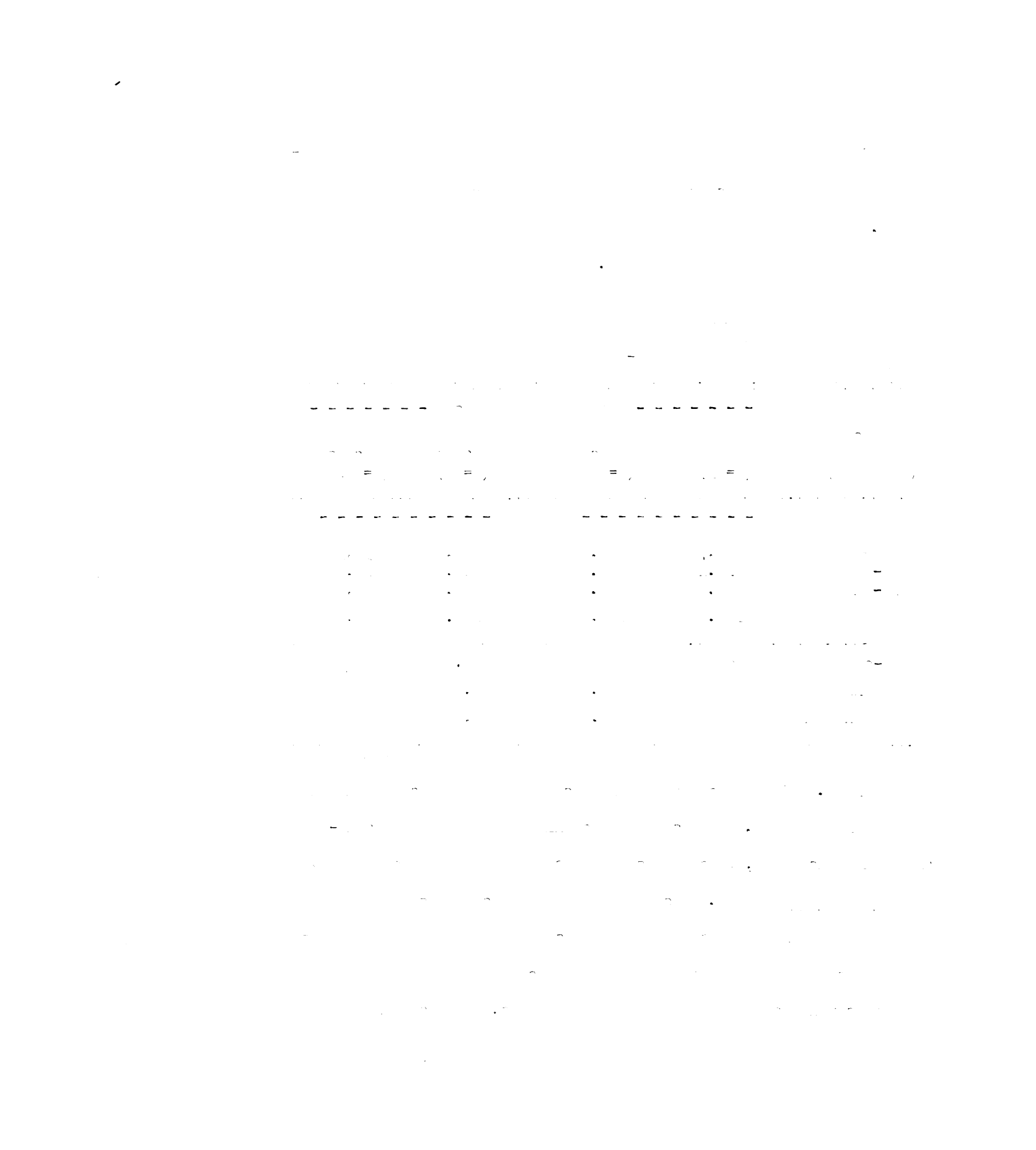


TABLE 4.84

RELATIONSHIP OF THE PER CENT OF ACRES OWNED BY NEW PRODUCERS WHO JOINED THE CLEVELAND MILK MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Acres Owned (Per cent)	Most important reason: Higher Price (N=7)	Farm Changed Hands (N=10)	Other Reasons (N=26)	All Reasons (N=43)
	Per cent			
None	14.3	70.0	26.9	34.9
1 - 90	-	-	23.1	14.0
91 - 100	85.7	30.0	50.0	51.1
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	11.3	9.5	4
Col. 1 and all others	4.1	6.0	2
Col. 2 and all others	7.6	6.0	2

significant relationships were observed for the new producer group in the Cleveland market as well as when the three markets were combined (Tables 4.85 and 4.86).

In each case a large proportion of the producers 29 years of age or less indicated "farm changed hands" as their most important reason for joining. No reason is evident to explain why new producers indicated "farm changed hands" more often than those in the older age groups. The relationship between "higher price" and age was non-significant.

TABLE 4.85

RELATIONSHIP OF THE AGE OF NEW PRODUCERS WHO JOINED THE DETROIT, CLEVELAND, AND TOLEDO MILK MARKETS, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Age	Most important reason: Higher Price (N=22)	Farm Changed Hands (N=30)	Other Reasons (N=75)	All Reasons (N=127)
	Per cent			
-24	27.3	43.3	10.7	21.3
25-29	27.3	33.3	22.7	26.0
30-39	22.7	16.7	25.3	22.8
40-over	22.7	6.7	41.3	29.9
Total	100.0	100.0	100.0	100.0

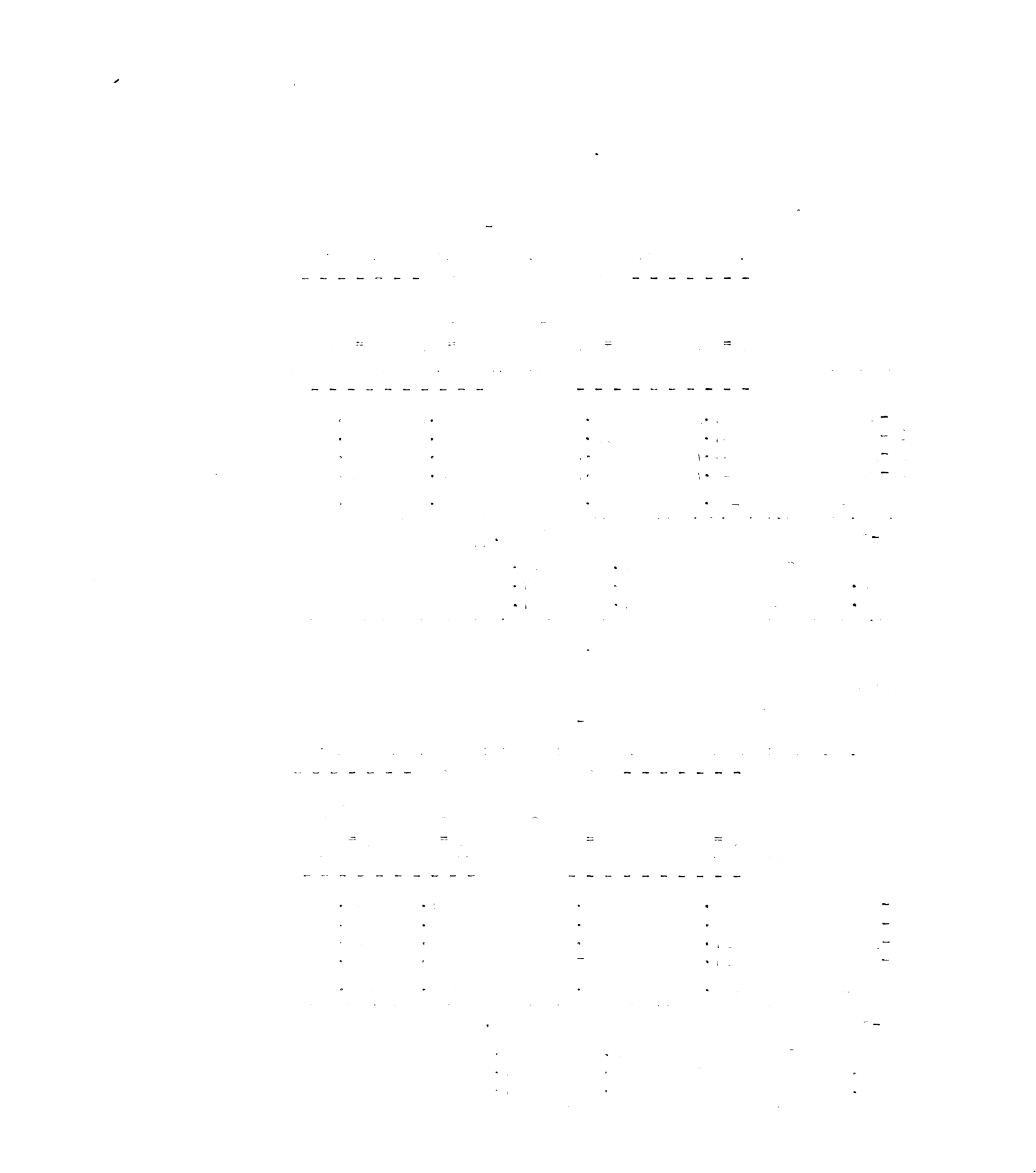
Chi-square groupings	x^2	x^2 at .05	d f
All columns	21.9	12.6	6
Col. 1 and all others	0.9	7.8	3
Col. 2 and all others	17.6	7.8	3

TABLE 4.86

RELATIONSHIP OF THE AGE OF NEW PRODUCERS WHO JOINED THE CLEVELAND MILK MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

Age	Most important reason: Higher Price (N=8)	Farm Changed Hands (N=14)	Other Reasons (N=28)	All Reasons (N=50)
	Per cent			
-24	12.5	50.0	17.8	26.0
25-29	12.5	35.7	28.6	28.0
30-39	37.5	14.3	28.6	26.0
40-over	37.5	-	25.0	20.0
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	11.0	12.6	6
Col. 1 and all others	3.4	7.8	3
Col. 2 and all others	9.6	7.8	3



Size of Herd During Last Twelve Months. The former inspected milk producers in the Detroit market were the only group where the relationship was observed to be significant between the size of the herd during the last twelve months and the most important reason given for joining (Table 4.87).

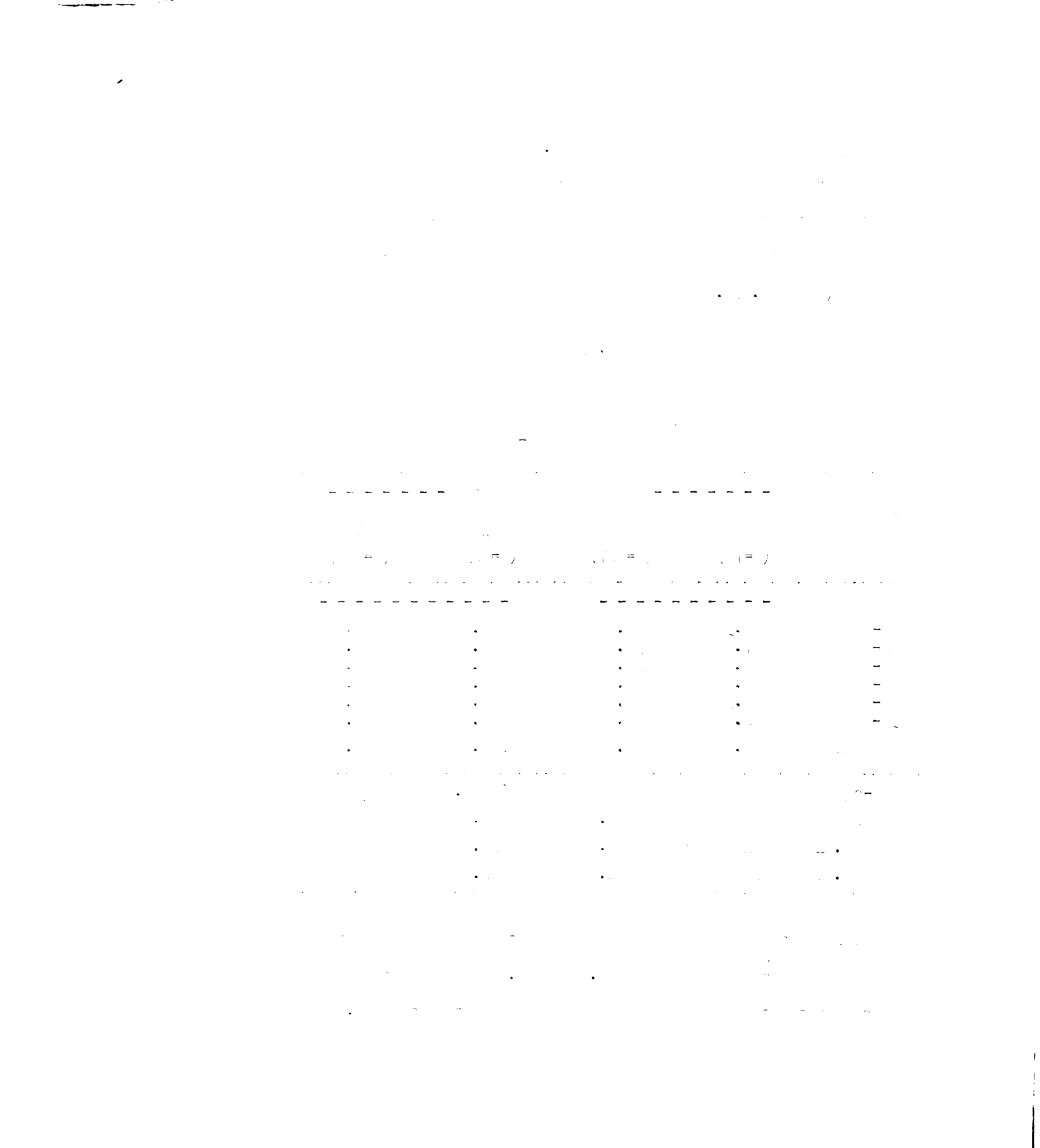
TABLE 4.87

RELATIONSHIP OF THE SIZE OF HERD DURING THE LAST TWELVE MONTHS INDICATED BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE DETROIT MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1954-1956

	Most important reason			
Size of Herd	Higher Price (N=70)	Action of Dairy (N=117)	Other Reasons (N=113)	All Reasons (N=300)
	Per cent			
0-10	24.3	8.5	19.5	16.3
11-15	37.1	32.5	28.3	32.0
16-20	24.3	31.6	28.3	28.7
21-25	8.6	12.0	15.0	12.3
26-30	4.3	6.9	3.6	5.0
31-over	1.4	8.5	5.3	5.7
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	16.4	18.3	10
Col. 1 and all others	8.9	11.1	5
Col. 2 and all others	11.8	11.1	5

The relationship between higher price and size of the herd was not great enough to be significant at the .05 level. However, a significant relationship was observed when action of the dairy was considered.



The data imply that producers with herds of ten cows or less indicated "action of dairy" less often than would be expected if dependency did not exist, while producers with herds of eleven cows or more generally indicated this reason more often. It appears that producers with small herds, ten cows or less, are more influenced by higher price and other reasons than by "action of dairy."

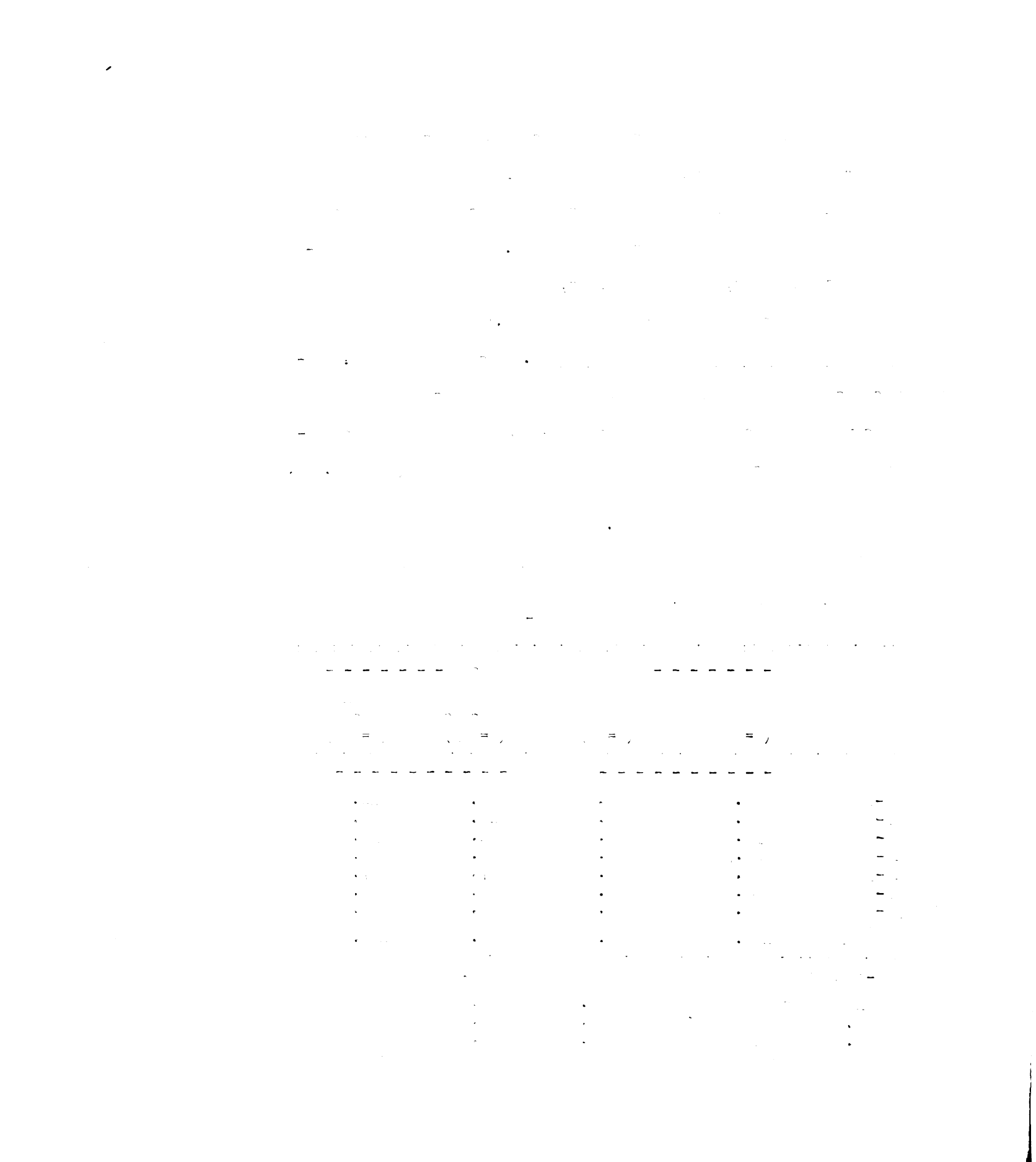
Size of Herd Expected Next Twelve Months. A significant relationship was observed in the Cleveland market for former inspected milk producers when the most important reason they gave for joining was analyzed with expected size of herd for a twelve month period (Table 4.88).

TABLE 4.88

RELATIONSHIP OF THE SIZE OF HERD EXPECTED DURING THE NEXT 12 MONTHS INDICATED BY FORMER INSPECTED MILK PRODUCERS WHO JOINED THE CLEVELAND MILK MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

	Most important reason			
Size of Herd	Higher Price (N=163)	Action of Dairy (N=68)	Other Reasons (N=283)	All Reasons (N=514)
	Per cent			
0-10	12.9	5.9	13.8	12.5
11-15	24.5	42.6	23.0	26.0
16-20	30.6	29.4	31.1	30.7
21-25	11.7	13.2	16.6	14.6
26-30	8.0	5.9	7.8	7.6
31-35	4.3	1.5	4.9	4.3
36-over	8.0	1.5	2.8	4.3
Total	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	22.7	21.0	12
Col. 1 and all others	9.3	12.6	6
Col. 2 and all others	14.3	12.6	6



Although 163 out of 514 producers indicated "higher price" as the most important reason they gave for joining, no relationship was evident when this reason was analyzed with the expected size of herd. A disproportionately large group of producers with herds of 11 to 15 cows who indicated "action of dairy" and the relatively low number in the other categories result in the dependency.

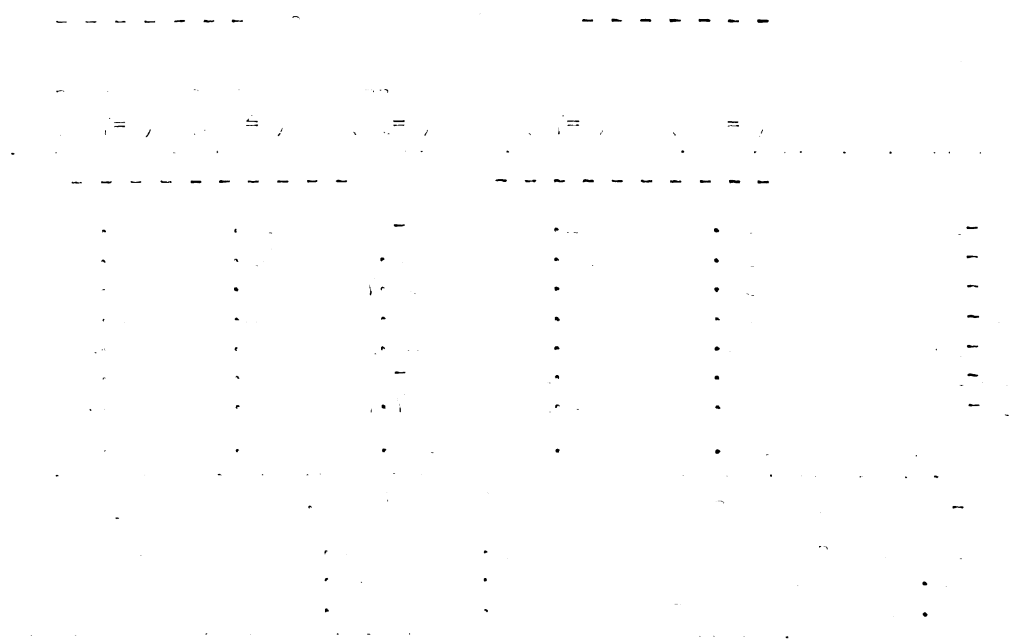
Four hundred eighty five of the 723 former manufacturing producers in the Detroit market indicated "higher price" as the most important reason for joining (Table 4.89). A significant relationship may be

TABLE 4.89

RELATIONSHIP OF THE SIZE OF HERD EXPECTED DURING THE NEXT 12 MONTHS INDICATED BY FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT MILK MARKET, AND THE MOST IMPORTANT REASON THEY GAVE FOR JOINING, 1953-1956

	Most important reason				
Size of Herd	Higher Price (N=484)	Action of Dairy (N=78)	Change Necessary (N=39)	Other Reasons (N=122)	All Reasons (N=723)
	Per cent				
0-10	13.4	11.5	-	16.4	13.0
11-15	38.2	32.0	41.0	23.8	35.3
16-20	33.3	35.9	30.7	34.4	33.6
21-25	10.6	15.4	10.3	11.5	11.2
26-30	2.9	2.6	10.3	8.2	4.1
31-35	1.0	1.3	-	0.8	1.0
36-over	0.6	1.3	7.7	4.9	1.8
Total	100.0	100.0	100.0	100.0	100.0

Chi-square groupings	x^2	x^2 at .05	d f
All columns	33.0	21.0	12
Col. 1 and all others	21.4	12.6	6
Col. 2 and all others	2.6	12.6	6



noted between this group and the expected herd size, with a proportionately large number of producers who state an expected herd size of 15 cows or less indicating "higher price."

Section III

Decisions to Join a Market as Related to Price

As stated previously in this study, the marketing orders regulating minimum prices processors must pay for milk purchased in the Detroit, Cleveland, and Toledo milk markets have a provision providing a means of adjusting the price of Class I milk to an over or under supply of what is considered to be adequate. This provision adjusts the minimum price of Class I milk each month. As a result the price may vary from month to month because of this "adjuster." It is theorized that if the price is reduced, production will drop due to 1) producers not being willing to supply the same amount at a lower price, and 2) fewer producers will supply the market at the reduced price.

This section of the study will evaluate the relationship between the number of former manufacturing producers who joined the three markets and the price differentials between manufacturing milk and Class I milk using the simple regression model, $Y = a + bx + u$. A second group of equations employing the same model are used to evaluate the number who joined relative to the differential between the blend price and the manufacturing price. Former manufacturing producers are used in this analysis since it was felt the average price of 13 midwest plants most closely approximated the price received by this group prior to entering the market.

Results

The equations that were fitted are divided into six major groups based upon the different dependent variables used. The former manufacturing milk producers from each of the three markets are tabulated in two different ways, thus making the six major dependent variable groupings. The producers from each market were first tabulated according to the month they entered the market. These tabulations were then combined into four monthly periods which included the months of December through March, April through July, and August through November. They were thus chosen so as to coincide as nearly as possible with the seasonal price pattern in each market.

Various combinations of the independent variable were fitted to each of the six dependent variable groups to determine the relationship between the variables. The results of each group are presented in tabular form and analyzed from the standpoint of relationships indicated by the regression equation.

Group I - Detroit Joiners Tabulated by Months

The first group of equations are those relative to former manufacturing milk producers who entered the Detroit milk market. The number of joiners were tabulated each month and the relationships observed between the dependent variable and the various prices (independent variables) are recorded in Table 4.90.

The coefficient of determination (r^2) is the percentage of the number that join each month which can be explained by the independent

TABLE 4.90

RELATIONSHIP OF VARIOUS INDEPENDENT VARIABLES TO THE NUMBER OF FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT MILK MARKET EACH MONTH, 1954-1956

Equation	Independent Variable	r [2]	Test Statistic (t_b) [3]
1.	Net class I price[1] for the month corresponding to that of the dependent variable.	.041	1.09
2.	Net class I price[1] for the month previous to that of the dependent variable.	.138	2.12
3.	Average net class I price[1] for the two months previous to that of the dependent variable.	.206	2.69
4.	Net blend price[2] for the month corresponding to that of the dependent variable.	.024	.82
5.	Net blend price[2] for the month previous to that of the dependent variable.	.003	.27
6.	Average net class I price[2] for the two months previous to that of the dependent variable.	.001	.13[4]

[1] Class I price minus the price of the 13 midwest mfg. plants.

[2] Blend price minus the price of the 13 midwest mfg. plants.

[3] "t" value at the 5% level of significance = 1.70, df = 28.

[4] Equation is negatively correlated.

variable. The "t" test statistic is used to determine if the relationship is significant at the 5 per cent level. The level of significance for this group is a "t" value of 1.70 which means that the value obtained in our test statistic must be 1.70 or greater before the null hypothesis that producers enter a market regardless of the price differential, will be rejected.

Two equations, number 2 and 3 in Table 4.90, indicate a relationship great enough to reject the null hypothesis. A significant relationship was not evident in the other equations. Approximately 14 per cent of those who joined during a specific month could be explained by the price differential between Detroit Class I and the 13 midwest manufacturing plants for the previous month. However, the average price differential for a one and two month lag (equation 3) indicates an even greater relationship with approximately one fifth of the producers joining as a result of the average price differential.

Equation number 6 results in a negative correlation. To obtain a negative correlation more producers would have joined because of a lower price which is highly improbable. Since the "t" test indicates no significance we can probably assume this negative relationship is due to chance.

Group II - Cleveland Joiners Tabulated by Months

In group two the dependent variable, based on former manufacturing producers who entered the Cleveland market, was tabulated according to the month in which the producer joined. This was tested with the

various independent variables and the results recorded in Table 4.91. The level of significance for this group is 1.68 indicating that all six equations are significant.

In this group the price differential between the Cleveland blend and the 13 midwest manufacturing plants appears to explain the joining of more producers than the Cleveland Class I-thirteen-midwest-plant-price-differential as contrasted to an opposite reaction in the Detroit Market. Although the price differential corresponding to the month the producers joined indicated a relationship, this relationship was not as great as that indicated by price differentials for the previous month or for the average of the two previous months.

The conclusion might be drawn that more producers are influenced by the blend price than by Class I prices and that a one to two month price lag is more influential than the current price.

Group III - Toledo Joiners Tabulated by Months

Former manufacturing milk producers who joined the Toledo market were tabulated according to the month they joined and then compared to price differentials present in the Toledo market to determine what relationship existed. Table 4.92 indicates these relationships. All equations with the exception of number 4 were significant at the 5 per cent level.

However, the proportion of the number who joined which can be explained by various price differentials is very low. Equation 3

TABLE 4.91

RELATIONSHIP OF VARIOUS INDEPENDENT VARIABLES TO THE NUMBER OF FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE CLEVELAND MILK MARKET EACH MONTH, 1953-1956

Equation	Independent Variable	r^2	Test Statistic (t_b) 3/
1.	Net class I price 1/ for the month corresponding to that of the dependent variable.	.165	2.81
2.	Net class I price 1/ for the month previous to that of the dependent variable.	.221	3.37
3.	Average net class I price 1/ for the two months previous to that of the dependent variable.	.254	3.69
4.	Net blend price 2/ for the month corresponding to that of the dependent variable.	.181	2.97
5.	Net blend price 2/ for the month previous to that of the dependent variable.	.246	3.61
6.	Average net blend price 2/ for the two months previous to that of the dependent variable.	.262	3.77

1/ Class I price minus the average price of the 13 midwest mfg. plants.

2/ Blend price minus the average price of the 13 midwest mfg. plants.

3/ "t" value at the 5% level of significance = 1.68, df = 40.

TABLE 4.92

RELATIONSHIP OF VARIOUS INDEPENDENT VARIABLES TO THE NUMBER OF FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE TOLEDO MILK MARKET EACH MONTH, 1953-1956

Equation	Independent Variable	r^2	Test Statistic (t_b) 3/
1.	Net class I price 1/ for the month corresponding to that of the dependent variable.	.067	1.70
2.	Net class I price 1/ for the month previous to that of the dependent variable.	.067	1.69
3.	Average net class I price 1/ for the two months previous to that of the dependent variable.	.094	2.03
4.	Net blend price 2/ for the month corresponding to that of the dependent variable.	.058	1.56
5.	Net blend price 2/ for the month previous to that of the dependent variable.	.066	1.69
6.	Average net blend price 2/ for the two months previous to that of the dependent variable.	.084	1.92

1/ Class I price minus the average price of the 13 midwest mfg. plants.

2/ Blend price minus the average price of the 13 midwest mfg. plants.

3/ "t" value at the 5% level of significance = 1.68, df = 40.

indicates that 9 per cent was the largest proportion of joiners who could be explained by the average price differentials.

Group IV - Detroit Joiners Tabulated by Periods

In Group IV the dependent variable is composed of the number of former manufacturing milk producers who joined the Detroit market during four month periods. The relationships resulting from the various independent variables are recorded in Table 4.93. The level of significance needed to reject the null hypothesis is 1.94.

The negative correlation of equations 2 and 3 would lead to the illogical conclusion that a greater number of producers joined when the price was low. In addition the level of significance in equations 1 and 4 is not great enough to assume other than a chance relationship. There is a lack of proof to substantiate the assumption that producers join this market during a seasonal period of high prices and refrain from joining during a period of low prices.

Group V - Cleveland Joiners Tabulated by Periods

Identical periods used in the Detroit market were used in formulating the dependent variable in the Cleveland market. Former manufacturing producers were tabulated by these periods and compared with the independent variables to determine the degree of relationship (Table 4.94).

In contrast to the Detroit market a significant relationship was observed in equations number 1 and 3. Nearly one-third of those who joined can be explained by the price differential between Cleveland

TABLE 4.93

RELATIONSHIP OF VARIOUS INDEPENDENT VARIABLES TO THE NUMBER OF FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE DETROIT MILK MARKET, 1954-1956 [1]

Equation	Independent Variable	r^2	Test Statistic (t_b) [4]
1.	Net class I price[2] for the period corresponding to that of the dependent variable.	.042	.51
2.	Net class I price[2] for the period previous to that of the dependent variable.	.206	1.25[5]
3.	Net blend price[3] for the period corresponding to that of the dependent variable.	.012	.27
4.	Net blend price[3] for the period previous to that of the dependent variable.	.635	3.23[5]

[1] Producers were tabulated according to the period in which they joined. The months making up the periods were: December through March; April through July, and August through November of each year.

[2] Class I price minus the average price of the 13 midwest mfg. plants.

[3] Blend price minus the average price of the 13 midwest mfg. plants.

[4] "t" value at the 5% level of significance = 1.94, df = 6.

[5] Equation is negatively correlated.

TABLE 4.94

RELATIONSHIP OF VARIOUS INDEPENDENT VARIABLES TO THE NUMBER OF FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE CLEVELAND MILK MARKET, 1953-1956 1/

Equation	Independent Variable	r^2	Test Statistic (t_b) 4/
1.	Net class I price 2/ for the period corresponding to that of the dependent variable.	.325	2.08
2.	Net class I price 2/ for the period previous to that of the dependent variable.	.069	.82 5/
3.	Net blend price 3/ for the period corresponding to that of the dependent variable.	.399	2.44
4.	Net blend price 3/ for the period previous to that of the dependent variable.	.062	.77 5/

1/ Producers were tabulated according to the period in which they joined. The months making up the periods were: December through March; April through July, and August through November, of each year.

2/ Class I price minus the average price of the 13 midwest mfg. plants.

3/ Blend price minus the average price of the 13 midwest mfg. plants.

4/ "t" value at the 5% level of significance = 1.83, df = 9.

5/ Equation is negatively correlated.

Class I and the average price of the 13 midwest manufacturing plants for this period. Approximately 40 per cent can be explained by the price differential between the Cleveland blend price and the average price of the 13 midwest plants for the corresponding period. It is interesting to note that the corresponding equations in the Detroit market (Table 4.93) indicated only a 1 per cent and 4 per cent relationship respectively, which was not great enough to be significant.

Group VI - Toledo Joiners Tabulated by Periods

Former manufacturing producers were tabulated using the same time periods as were used with Detroit and Cleveland. Similar independent variables were used to determine the degree of relationship (Table 4.95).

Although no negative relationships were observed, the test statistic (t_b) indicates a level far below 1.81 which is required to indicate a significant relationship.

Summary of Regression Equations

It appears from the results of the regression equation that if price is a major factor influencing the entering of producers into a market, it must be the long term advantage rather than a short period of one or two months. In all of the equations where a significant relationship was found to exist the proportion of joiners which could be explained by the various price differentials was small. This indicates that apparently factors other than a short term price differential influences the decision of a large majority of the producers.

TABLE 4.95

RELATIONSHIP OF VARIOUS INDEPENDENT VARIABLES TO THE NUMBER OF FORMER MANUFACTURING MILK PRODUCERS WHO JOINED THE TOLEDO MILK MARKET, 1953-1956 [1]

Equation	Independent Variable	r^2	Test Statistic (t_b) [4]
1.	Net class I price [2] for the period corresponding to that of the dependent variable.	.002	.12
2.	Net class I price [2] for the period previous to that of the dependent variable.	.026	.49
3.	Net blend price [3] for the period corresponding to that of the dependent variable.	.001	.07
4.	Net blend price [3] for the period previous to that of the dependent variable.	.019	.42

[1] Producers were tabulated according to the period in which they joined. The months making up the periods were: December through March; April through July, and August through November, of each year.

[2] Class I price minus the average price of the 13 midwest mfg. plants.

[3] Blend price minus the average price of the 13 midwest mfg. plants.

[4] "t" value of the 5% level of significance = 1.83, df = 9.

When equations were constructed using the number who joined during the four month time period, little relationship could be found. An exception was observed in the Cleveland market when the number who joined was equated to the price differentials, both Class I and blend, for the corresponding periods. It is difficult to explain why a relationship exists in this particular market and not in the other two. The clue to this irregularity was not apparent in this study. A further study of the economic and institutional factors relating to these inconsistencies between markets would be needed.

CHAPTER V

SUMMARY AND CONCLUSIONS

This thesis reported on a study conducted in the Detroit, Cleveland, and Toledo milk marketing areas. Mail questionnaires were sent to all producers who entered or left the three markets from January 1, 1953 through July 1, 1956. A total of 5967 producers responded.

The study attempted to examine factors which may have influenced the producer's decision to enter or leave a particular milk market. It was hypothesized that producers decide to enter or leave a particular market because of price.

All producers were tabulated according to the market they joined or left. Those who joined were examined further according to the dairy product they previously marketed, i.e.; 1) former inspected milk producers, 2) former manufacturing producers, 3) farm separated cream producers, and 4) new producers. In most cases, the former manufacturing and farm separated cream producers were combined and analyzed as former manufacturing producers. Producers who left the markets were divided into those who continued to produce and those who discontinued milk production.

In an attempt to discover factors which might have influenced the producer's decision to enter or leave one of the three markets, comparisons of the characteristics, actions, and attitudes of producers

were made between markets, between producer groups, and between the different years included in the study.

Producers with certain characteristics were also compared with the most important reason they gave for joining a market and tested for significance using the chi-square statistic.

With the use of the simple regression model $Y = a + bx + u$, an attempt was made to determine the relationship of price to the month producers joined the market.

The hypothesis of this study was generally supported when producers in the three markets combined indicated the reasons for their devisions. Sixty two and five-tenths per cent of all former inspected milk producers, 87.4 per cent of all manufacturing producers, and 34.6 per cent of all new producers indicated "higher price" as a reason for joining. Thirty seven and three-tenths per cent of the producers who left for other milk markets indicated "higher price" as a reason and 30.7 per cent indicated "best price" as their reason for choosing their present market. Forty one and six-tenths per cent of those who discontinued production indicated "cost of production too great--price too low" as a reason. With the exception of new producers who joined the three markets, "higher price" was the most mentioned reason by all groups.

However, variations were found to exist between markets. Producers joining the Toledo market mentioned "higher price" more frequently as contrasted to Cleveland joiners who mentioned this reason least often. Producers who continued to produce on another market after they left the Detroit market mentioned price most frequently, while those leaving the Toledo market mentioned it least often.

The degree of importance with which producers ranked "higher price" was indicated when they were asked to specify the "most important reason" for joining a market. Again, with the exception of new producers, "higher price" was listed most frequently with all producers and by a majority of manufacturing producers. New producers indicated "farm changed hands" as the most mentioned reason for joining with "higher price" ranking second.

Exceptions to the hypothesis were observed, however, as many producers did not indicate "higher price" as a factor in their decision, and many who did, specified some other reason as more important. Former inspected producers rated "action of dairy" second in importance to "higher price" and former manufacturing producers credited reasons relating to the "convenience" of producing Grade A milk as second in importance. "Inspection trouble" ranked second to "higher price" as a factor influencing the decision of producers to leave the Detroit and Cleveland markets to produce for another market and ranked first with Toledo producers of this group. However, in the overall analysis, price ranks as the leading determining factor for the majority of producers.

Over 12 per cent of the producers who joined the market expected no increase and 9.4 per cent indicated they expected to receive less. The average price increase expected by former inspected producers was 55 cents per hundredweight. The average manufacturing producer expected to receive an increase of 93 cents per hundredweight.

Approximately 70 per cent of the producers leaving the three markets also expected a price increase with Detroit producers expecting the greatest and Toledo producers anticipating the least amount of increase. These observations further substantiate the hypothesis that producers enter or leave a market because of price incentives.

Little relationship was observed when the month former manufacturing producers joined was correlated with the price differential between manufacturing and Class I, or manufacturing and the blend price in the three markets. The highest coefficient of determination (.254) was found when a price, obtained by averaging the difference between the Class I price and the manufacturing price for the two months prior to the month the producer joined, was correlated with the number who joined that month. From these data we might conclude that monthly price fluctuations have little effect on the number of producers who join, and those who join because of price probably look at the long term advantage.

All three markets were observed to have expanded geographically, thus indicating a favorable price in peripheral areas of the market. The largest proportion of former inspected producers and new producers who joined the markets were located in Zone I, while the largest proportion of former manufacturing producers were located in Zone II. Those who joined the Detroit market included a majority of manufacturing producers, while those who joined the Cleveland and Toledo markets were evenly divided between manufacturing and inspected producers.

Former inspected producers generally considered entering the market for a shorter period of time than did former manufacturing producers. The average time involved by all respondents in considering the change was 18.1 months, indicating the decision to enter a market is generally not the result of a short period of economic gain.

Over 60 per cent of the respondents stated they considered no other market than the one they joined, indicating producers have, or exhibit, little choice in the selection of a market.

Former inspected producers generally received a larger proportion of their income from milk than did former manufacturing producers. Both inspected and manufacturing producers in Zone I were more highly specialized than producers in Zone II. Detroit producers indicated the largest percentage of income from milk.

In general, inspected milk producers tended to operate larger farms. In the inspected group those with larger farms appeared to be the most concerned with higher price. From this it could be concluded that as farm size increases, the proportion of inspected producers will increase. These producers in turn are more influenced by price in their choice of a market. With the exception of the Detroit market, where the results were inconclusive, the data generally substantiated the hypothesis that inspected milk production and the resultant price advantage are associated with farm ownership.

The type of milk product marketed was found to be associated with the age of the operator. Former manufacturing producers were observed to be younger than inspected producers which supports the conclusion

that the necessary capital investments required for Grade A production are more prevalent among the older age group. Producers who discontinued production were generally younger than the average of all dairy farmers in this area. The ages of producers in the Detroit and Cleveland markets were approximately the same, while the Toledo market had a younger age group. Producers 45 years old or less appear to be the most inclined to transfer markets or change to another enterprise or occupation. Those who are older are more permanently established in dairy production in a particular market and generally lack the qualifications or interest in starting a new occupation, while younger producers are generally more mobile. However, younger producers do not appear to change more often because of price.

Former inspected producers who joined the markets and producers who continued producing after they left the markets generally had the largest average herd size during the past twelve months. Former manufacturing producers and those who discontinued production generally had the second largest herds, while new producers were observed to have the smallest herds.

The average producer in all groups planned to increase his herd size within twelve months and indicated facilities were available for this expansion. This indicates the expected continuation of a favorable milk price.

Inspected milk producers were observed to be generally associated with farm tenure indicating that as farm tenure increases, more producers qualify for Grade A production and the higher price associated with it.

A similar pattern was observed regarding the years producers had been dairy farming. As the period a producer had been engaged in dairy farming increased, the more prevalent were the qualifications required for inspected milk production and the higher prices associated with it.

Sixty seven and eight-tenths per cent of the inspected milk producers, 92.3 per cent of the manufactured producers, 95.3 per cent of the former cream producers, and 77.5 per cent of the new producers indicated an investment was needed during the past two years to qualify as a producer on the Detroit, Cleveland, or Toledo market. The average amount of investment necessary was $1095.27 for former inspected producers, $1401.72 for former manufacturing producers, $1759.80 for farm separated cream producers and $1141.45 for new producers. The amount of investment necessary undoubtedly had an influence on the producer's decision to enter the market. Incentives must be attractive enough in the inspected milk market to encourage producers to acquire the capital for the needed investments if production is to be adequate for the needs of the market.

A large majority of the producers who joined the markets indicated they did not intend to adjust their production to a rise or decline in the price of milk. Still others stated they would produce more if the price declined or less if the price increased. This proposed action, which would be contradictory to the law of supply, might be explained by the need for a fixed income or the fixed assets associated with the dairy enterprise.

Over three-fourths of those who continued production after leaving the three markets plan to resume shipping within two years, thus indicating relatively high satisfaction towards the three markets.

The three markets in the study generally exhibited a price advantage over other markets in the outlying areas of the milkshed as indicated by the expansion of the milkshed; the number who joined or left because of price; and the difference in the expected increase by those who joined or left the market.

Producers generally work to become eligible for the premium prices received from inspected production as indicated by factors such as the size of farm; per cent of acres owned; age of the operator; tenure on present farm; size of herd; and the percentage of income derived from milk production.

Several significant relationships were observed to exist when producers with selected characteristics, actions, or attitudes were compared with their "most important" reason for joining.

Former manufacturing and inspected producers who stated "higher price" as the most important reason were generally inclined to join the market during the latter half of the year; be located in areas distant from the market; receive from 21 per cent to 60 per cent of their income from milk; operate 261 acres or more; and expected to have a herd size of 15 cows or less during the next 12 months. There was no relationship observed when producers of various ages; with different herd sizes; and different percentage of acres owned were analyzed with those who stated "higher price." The inconsistencies in the total

pattern precludes conclusions as to the general characteristics of producers giving "higher price."

Reasons other than "higher price" were also observed to be significant when compared with selected characteristics, actions, and attitudes of the producer.

Former inspected and manufacturing producers who indicated "action of dairy" as the most important reason for joining were generally inclined to join the market during the first half of the year and were more apt to be located closer to the market than those who answered "higher price." They were more inclined to receive 41 per cent or more of their income from milk production; operate 121 acres or more; and have a herd size of ten cows or more at present and expect to have from 11 to 15 cows during the next twelve months. On the basis of these relationships it could be concluded that the action of the dairies is generally more influential in the decision of those with medium to large dairy farms.

New producers who gave the reason "farm changed hands" were generally located in the areas more distant from the market; received 31 per cent to 60 per cent of their income from milk production; and were 29 years of age or less.

The following general conclusions may be drawn on the basis of the analysis of the data included in the study:

1) Price is a major factor in the decisions of producers who join or leave a particular milk market, but various reasons other than price are also influential in their decision.

2) The average dairy producer considers joining a market for more than a year and manufacturing producers consider the change for a longer time than do inspected producers.

3) Monthly price fluctuations have little or no effect on the number of producers who join a market each month or on the amount they produce.

4) Producers who join because of price are influenced by what they consider to be the long term price advantage.

5) The Detroit, Cleveland, and Toledo markets generally exhibit a price advantage over other milk markets in the peripheral areas.

6) Producers who left the three markets were generally satisfied with the market as indicated by the number who plan to re-enter.

7) Most milk producers consider an inspected market to be economically advantageous over manufacturing or cream markets and strive to become more specialized.

8) Milk producers in the three market areas have, or exhibit, little choice in the selection of a market.

9) Younger producers are more inclined to transfer to other markets or change to another enterprise or occupation because they are less permanently established in dairy farming and generally have the advantage in other job opportunities.

10) Dairies generally have more influence in the decision of the more specialized producer on the medium to large farms.

APPENDIX I

MAIL QUESTIONNAIRE SENT TO CLEVELAND AND TOLEDO JOINERS

Your Name _____ Age _____

County and State in which you live: _____ State _____

1. Name and address of the company to which you are now shipping your milk

Name of Company	Address of Plant Receiving Your Milk
_____	_____

2. Name and address of company to which you shipped your milk before you started shipping to the Cleveland (Toledo) Fluid Milk Market.

Name of Company	Address of Plant Receiving Your Milk
_____	_____

3. Which of the following did you ship to this company?

- ☐ Inspected milk for bottling
- ☐ Milk for manufacturing
- ☐ Farm-separated cream

4. Would you please list the most important reasons why you joined the Cleveland (Toledo) market.

_____

_____

_____

5. Would you please check any of the following reasons which may have entered into your decision to join the Cleveland (Toledo) Market. If any of these reasons are about the same as your most important reason please check them anyway.

- ☐ To receive a higher price for my milk.
- ☐ Representatives of the company to which I am now selling my milk urged me to ship inspected milk to them.
- ☐ I wanted to sell inspected milk. Cleveland (Toledo) was the only market that would take my milk.

☐ I just took over this farm, or this herd of cows, so I continued to ship to the same company to which the former producer shipped.

☐ I wanted the convenience of a milkhouse and other facilities anyway so I decided to produce inspected milk.

☐ I decided to change markets because of the milk inspector in my former market.

☐ I decided to change markets because of the milk dealer in my former market.

6. At the time you selected the Cleveland (Toledo) Market, what other markets did you also consider?

Name of Company	Address
Name of Company	Address
Name of Company	Address

If you considered no other markets, please check here. _____

7. About how much more money per hundredweight do you believe you are receiving for your milk now that you have joined the Cleveland (Toledo) Market as compared with your former market? $_____

8. In your present farm operation, how many acres do you own? _____ How many do you rent or share crop? _____

9. About what per cent of your total farm income do you receive from the sale of your milk? _____%. (Do not include the sale of dairy livestock).

10. On an average, about how many milking cows did you have in your herd during the past 12 months? _____

11. About how many cows do you plan to have in your milking herd during the next 12 months? _____

12. About how many cows will your present stanchion space and other facilities accommodate? _____

13. About how long had you been giving serious consideration to shipping your milk to the Cleveland (Toledo) Market? _____

14. How long have you been operating your present farm? ___Yrs.___Months

15. How long have you been a dairy farmer on your own? ___Yrs.___Months

16. Would you please estimate how much money you have spent on each of the following items in the past two years for the purpose of qualifying as a Cleveland (Toledo) Fluid Milk Producer. Include any costs of remodeling or repairing which you did in order to meet the inspection requirements.

Amount of money spent in the past two years in order to qualify for the Cleveland (Toledo) Market.

Barn or milking parlor $_____ Plumbing and electrical work $_____

Milk house ..... $_____ Other expenses: please list

Hot water heater ..... $_____ _____ $_____

Milk Cooler..... $_____ _____ $_____

Milk cans and can racks$_____ _____ $_____

17. If the price of inspected milk should happen to rise 50 cents per hundredweight within the next year would you

☐ Produce more milk

☐ Produce less milk

☐ Make no changes in your production plans

18. If the price of inspected milk should happen to decline 50 cents per hundredweight within the next year would you

☐ Produce more milk

☐ Produce less milk

☐ Make no changes in your production plans

☐ Get out of the milk business and do something else

Other comments: _____

_____

_____

MAIL QUESTIONNAIRE SENT TO DETROIT JOINERS

Your Name _____ Age _____

1. Name and address of company to which you are now shipping your milk.

_____ _____
Name of Company Address of Receiving Station

2. Name and address of company to which you shipped your milk before you became a producer for the Detroit Fluid Milk Market.

_____ _____ _____

Which of the following were you shipping to this company?

☐ Inspected milk for bottling

☐ Milk for manufacturing

☐ Farm-separated cream

3. We would like to know why you decided at this time to ship inspected milk to the Detroit Market. Would you please list what you consider to be the most important reason why you joined the market.
The most important reason why I joined the market was:

_____

_____

_____

4. Would you please check any of the following reasons that might have contributed to your decision to join the market. If any of these reasons are about the same as your most important reason please check them anyway.

☐ To receive a higher price for my milk.

☐ Representatives from the company to which I am now selling urged me to ship inspected milk to them.

☐ I had little expense to equip so I could sell inspected milk.

☐ I had to make some improvements or changes if I was going to keep cows, so I decided to fix up so I could ship inspected milk.

☐ I wanted to sell inspected milk. Detroit was the only market that would take my milk.

☐ I just took over this farm, or this herd of cows, so I continued to ship to the same company to which the former producer shipped.

☐ I wanted the convenience of a milkhouse and the other facilities anyway so I decided to produce inspected milk.

☐ I wanted to improve the quality of the milk I was shipping.

☐ I decided to change markets because of the milk inspector or milk dealer in my former market.

☐ I can make more money shipping inspected milk than in any other form of farm enterprise.

5. If you were producing manufacturing milk before joining the Detroit Market, about how much more money per hundredweight do you believe you will receive for your milk now that you have joined the Detroit Market? _____

6. Would you please estimate how much money you have spent on each of the following items in the last two years for the purpose of qualifying as a Detroit Fluid Milk producer. Include any costs of remodeling or repairing in order to meet the inspection requirements.

	Amount of money spent in past two years for purpose of qualifying
Barn or milking parlor	$_____
Milk house	$_____
Hot water heater	$_____
Milk cooler	$_____
Milk cans and can racks	$_____
Plumbing and electrical work	$_____
Other: Please specify	
_____	$_____
_____	$_____

7. In your present farm operation how many acres do you own? _____

   How many do you rent?_____ How many do you share crop?_____

8. About what per cent of your total farm income do you receive from the sale of your milk?_____ (Do not include the sale of dairy livestock.)

9. On an average, about how many cows did you have in your milking herd during the past 12 months?_____

10. About how many cows do you plan to have in your milking herd during the next 12 months?_____

11. About how many cows will your present stanchion space and other facilities accommodate?_____

12. About how long had you been giving serious consideration to shipping your milk to the Detroit Market?

    _____Years _____Months

13. How long have you been operating your present farm?

    _____Years _____Months

14. If the price of inspected milk should happen to rise 50 cents per hundredweight within the next year would you:

    ☐ Produce more milk

    ☐ Produce less milk

    ☐ Make no change in your production plans

15. If the price of inspected milk should happen to decline 50 cents per hundredweight within the next year would you:

    ☐ Produce more milk

    ☐ Produce less milk

    ☐ Make no changes in your production plans

    ☐ Get out of milk production and do something else

Other comments if any: _____

_____

_____

MAIL QUESTIONNAIRE SENT TO PRODUCERS WHO LEFT THE CLEVELAND AND TOLEDO MARKETS

Your Name_____ Age_____

County and State in which you live: _____County _____State

1. Name and address of the company to which you shipped your milk while you were shipping to the Cleveland Fluid Milk Market.

Name of Company	Address of Plant Receiving Your Milk

2. Are you still producing milk? ☐ Yes ☐ No

If your answer is YES, please complete questions 3 through 16.
If your answer is NO, complete questions 17 through 22 on page 4.

3. If you are still producing milk, what is the name and address of the company to which you are now shipping your milk?

Name of Company	Address of Plant Receiving Your Milk

4. Which of the following are you now shipping?

☐ Inspected

☐ Milk for manufacturing

☐ Farm-separated cream

5. Will you please list the most important reasons why you stopped sending milk to the Cleveland Market.

1)_____

2)_____

3)_____

6. At the time you selected your present market, what other markets did you also consider?

Name of Company	Address
Name of Company	Address

Name of Company _____ Address _____

If you did not consider any other markets please check here._____

7. What were your most important reasons for choosing your present market instead of one of the other markets which were available to you?

_____

_____

_____

8. If you are producing inspected milk for another fluid milk market how much more money per hundredweight do you receive for your milk than you would receive by sending it to the Cleveland Market?

_____

9. Do you plan to ship to the Cleveland Fluid Milk Market again in the next two years? ☐ Yes ☐ No

10. On an average, how many milking cows did you have in your herd during the past 12 months? _____

11. About how many milking cows do you plan to have in your herd during the next 12 months? _____

12. In your present farm operation, how many tillable acres do you own? _____ How many do you rent or share crop? _____

13. About what per cent of your total income do you receive from the sale of milk? _____%. (Do not include the sale of dairy livestock.)

14. How long had you been shipping to the Cleveland Market? ___Yrs. ___Mos.

15. How long have you been operating your present farm? ___Yrs. ___Mos.

16. How long have you been a dairy farmer on your own? ___Yrs. ___Mos.

Other comments: _____

_____

_____

FOR THOSE WHO ARE NOT NOW PRODUCING MILK

17. The most important reasons why I decided to discontinue producing milk were:

_____

_____

_____

18. How many cows did you have in your milking herd during the last twelve months you shipped to Cleveland? _____

19. About what per cent of your total farm income did you receive from dairying? _____%. (Do not include the sale of your dairy livestock.)

20. How long did you produce milk for the Cleveland Market?

_____ Years _____Months

21. About how long had you been giving serious consideration to stop producing milk?

_____ Years _____Months

22. Do you think you will be producing milk again in the next two years?

☐ Yes ☐ No

Other comments:

_____

_____

_____

MAIL QUESTIONNAIRE SENT TO PRODUCERS WHO LEFT THE DETROIT MARKET

Your Name_____ Age_____

1. Name and address of company to which you were shipping your milk before leaving the Detroit Fluid Milk Market.

_____ _____
Name of Company Address of Receiving Station

2. Are you still producing milk? ☐ Yes ☐ No

IF YES, complete questions 3 through 14. IF NO, complete questions 15 through 20 on page 4.

3. If you are still producing milk, what is the name and address of the company to which you are now shipping your milk?

_____ _____
Name of Company Address of Receiving Station

Which of the following do you ship:

☐ Inspected milk

☐ Milk for manufacturing

☐ Farm-separated cream

4. We would like to know why you decided to discontinue shipping inspected milk to the Detroit Market. Would you please list what you consider to be the most important reasons why you withdrew from the market in the space provided.

The most important reasons why I decided to discontinue shipping inspected milk to Detroit were: _____

_____

_____

5. If you are producing inspected milk for another market about how much more money per hundredweight do you receive for your milk than you would receive by sending it to the Detroit Market? $_____

6. Do you plan to ship to the Detroit Fluid Milk Market again in the next two years? ☐ Yes ☐ No

7. On an average, how many cows did you have in your milking herd during the past 12 months? _____

8. About how many cows do you plan to have in your milking herd during the next twelve months? _____

9. In your present farm operation, how many tillable acres do you own? _____ How many do you rent? _____ How many do you share crop? _____

10. About how many acres do you use for the following purposes:

To grow hay and roughage for your cows _____ acres
To grow feed grains for your cows _____ acres
As pasture for your cows _____ acres
To grow other crops _____ acres

11. About what per cent of your total farm income comes from the sale of your milk? _____%. (Do not include the sale of dairy livestock.)

12. Do you think you will ship your milk to the Detroit Market again in the next two years? ☐ Yes ☐ No

13. How long had you been shipping your milk to the Detroit Market?
_____Years _____Months

14. How many years have you been operating your present farm?
_____Years _____Months

Other comments if any: _____

_____

15. If you are not producing milk, would you please list the most important reasons why you discontinued producing milk?

The most important reasons why I decided to discontinue producing milk were: _____

_____

16. About how many cows did you have in your milking herd during the last 12 months you shipped milk? _____

17. About what per cent of your farm income did you receive from dairying? _____%. (Do not include the sale of your dairy livestock.)

18. How long did you produce milk for the Detroit Market? ___Yrs. ___Mos.

19. About how long have you been giving serious consideration to stop producing milk? _____Years _____Months.

20. Do you think you will be producing milk again in the next two years? ☐ Yes ☐ No

Other comments if any:_____

_____

_____

APPENDIX II

TABLE 1

CLASS I PRICES AND THE AVERAGE THIRTEEN MID-WEST PLANT PRICES, 1952-1956

Year and Month	Average Thirteen Mid-west Plant Price	Detroit Class I Price	Cleveland Class I Price	Toledo Class I Price
	Dollars			
1952				
November	3.87	5.30	5.77	5.57
December	3.62	4.90	5.52	5.32
1953				
January	3.47	4.64	5.41	5.21
February	3.38	4.59	4.91	5.16
March	3.28	4.60	4.92	4.67
April	3.18	4.64	4.36	4.43
May	3.12	4.59	4.32	4.07
June	3.11	4.75	4.32	4.07
July	3.13	4.73	4.60	4.30
August	3.15	4.74	4.96	4.31
September	3.21	4.78	5.06	4.65
October	3.27	4.83	5.17	4.86
November	3.30	4.64	5.26	4.94
December	3.28	4.47	5.17	4.68
1954				
January	3.22	4.32	4.99	4.76
February	3.07	4.32	4.54	4.34
March	3.02	4.28	4.50	4.27
April	2.87	4.11	3.73	3.59
May	2.79	4.06	3.68	3.54
June	2.77	4.18	3.65	3.55
July	2.87	4.20	4.12	3.99
August	2.95	4.26	4.69	4.55
September	3.01	4.48	4.88	4.67
October	3.11	4.54	4.94	4.89
November	3.15	4.43	4.98	5.02
December	3.14	4.28	4.85	4.72
1955				
January	3.08	4.23	4.73	4.48
February	3.03	4.16	4.23	4.03
March	3.02	4.31	4.23	4.03
April	2.94	4.30	3.77	3.77
May	2.88	4.43	4.21	3.77
June	2.86	4.44	4.22	3.76
July	2.91	4.44	4.28	4.01
August	3.00	4.46	4.81	4.53
September	3.06	4.50	4.92	4.67
October	3.11	4.54	4.89	4.89
November	3.16	4.59	4.76	4.94
December	3.16	4.45	4.76	4.82

TABLE 1 - Continued

Year and Month	Average Thirteen Mid-west Plant Price	Detroit Class I Price	Cleveland Class I Price	Toledo Class I Price
	- - - - - - - - - - - - - - Dollars - - - - - - - - - - - - - -			
1956				
January	3.13	4.60	4.79	4.63
February	3.08	4.41	4.35	4.18
March	3.04	4.33	4.37	4.14
April	3.03	4.49	4.46	4.12
May	3.04	4.99	5.09	4.64
June	3.04	4.97	5.13	4.71

Source: Compilation of Statistical Material, Federal Order No. 75, Prepared by the Marketing Administrator, Cleveland, Ohio, October, 1956; Federal Order No. 24, Prepared by Marketing Administrator, Detroit, Michigan, January 1959; and Federal Order No. 30, Prepared by Marketing Administrator, Toledo, Ohio, November, 1958.

TABLE 2

BLEND PRICES AND THE THIRTEEN MID-WEST PLANT AVERAGE PRICES, 1952-1956

Year and Month	Average Thirteen Mid-west Plant Price	Detroit Blend Price	Cleveland Blend Price	Toledo Blend Price
	- - - - - - - - - - - - - Dollars - - - - - - - - - - - - -			
1952				
November	3.87	5.03	5.33	5.46
December	3.62	4.61	5.03	5.14
1953				
January	3.47	4.38	4.89	4.96
February	3.38	4.31	4.47	4.85
March	3.28	4.27	4.43	4.38
April	3.18	4.20	3.88	4.15
May	3.12	4.08	3.75	3.78
June	3.11	4.14	3.79	3.80
July	3.13	4.22	4.17	4.11
August	3.15	4.24	4.47	4.20
September	3.12	4.37	4.69	4.61
October	3.27	4.49	4.84	4.84
November	3.30	4.33	4.88	4.83
December	3.28	4.15	4.68	4.47
1954				
January	3.22	4.02	4.47	4.44
February	3.07	3.96	4.16	4.03
March	3.02	3.89	4.07	3.91
April	2.87	3.70	3.34	3.38
May	2.79	3.58	3.24	3.28
June	2.77	3.62	3.31	3.35
July	2.87	3.77	3.78	3.87
August	2.95	3.88	4.27	4.47
September	3.01	4.12	4.45	4.63
October	3.11	4.19	4.53	4.87
November	3.15	4.16	4.53	4.94
December	3.14	4.03	4.41	4.55
1955				
January	3.08	4.00	4.25	4.23
February	3.03	3.93	3.91	3.83
March	3.02	4.00	3.87	3.79
April	2.94	3.93	3.44	3.57
May	2.88	3.89	3.68	3.48
June	2.86	3.88	3.74	3.52
July	2.91	4.03	4.00	3.85
August	3.00	4.06	4.46	4.41
September	3.06	4.15	4.54	4.62
October	3.11	4.23	4.53	4.81
November	3.16	4.33	4.49	4.87
December	3.16	4.17	4.43	4.68

TABLE 2 - Continued

Year and Month	Average Thirteen Mid-west Plant Price	Detroit Blend Price	Cleveland Blend Price	Toledo Blend Price
	- - - - - - - - - - - - - Dollars - - - - - - - - - - - - -			
1956				
January	3.13	4.30	4.44	4.40
February	3.08	4.13	4.08	3.98
March	3.04	4.03	4.05	3.96
April	3.03	4.10	4.11	3.92
May	3.04	4.43	4.48	4.34
June	3.04	4.29	4.47	4.39

Source: Compilation of Statistical Material, Federal Order No. 75, Prepared by the Marketing Administrator, Cleveland, Ohio, October, 1956; Federal Order No. 24, Prepared by Marketing Administrator, Detroit, Michigan, January, 1959; and Federal Order No. 30, Prepared by Marketing Administrator, Toledo, Ohio, November, 1958.

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