Agricultural Economics Report No. 80 December 1971

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PRESENT STRUCTURE and PROJECTED IMPACT of the 1967 Wholesome Meat Law on the NORTH DAKOTA MEAT INDUSTRY

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by

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December, 1971

FOREWORD

On December 15, 1967, the Federal Wholesome Meat Act was signed into law. The 1967 Wholesome Meat Law gave state legislatures until December 15, 1969, to initiate state inspection of livestock slaughter and meat processing firms that were not previously federally inspected. Federal inspection was to become mandatory in those states not having an acceptable state inspection program prior to December 15, 1969. Individual states were allowed an additional year beyond the December 15 deadline if the state could demonstrate satisfactory progress in establishing a meat inspection program which met federal standards.

In January of 1968 the Agricultural Economics Department at North Dakota State University, upon request of the North Dakota Frozen Food Locker Association, conducted a study of the North Dakota meat industry to provide information needed by the state legislators in adopting a meat inspection program. North Dakota legislators elected to have a state inspection program. However, because insufficient funds were allocated to implement the state law, federal authorities announced that a federal inspection program would be administered in North Dakota effective April 16, 1970.

Results of the study conducted in the state suggested that implementation of the 1967 Wholesome Meat Law, as it was originally written, would require larger adjustments and would have a greater impact upon the meat industry in North Dakota and the rest of the United States than was expected when the law was passed in 1967. As a result, amendments to the Wholesome Meat Law were introduced in Congress. Information presented within this report was used as testimony before both the Senate and House Subcommittee hearings on meat inspection during April and June, 1970. This information was used as testimony in support of the Curtis Amendment (Senate Bill 3592) which was passed on July 6, 1970. The Curtis Amendment amended the Wholesome Meat Law to allow custom slaughtering and processing of uninspected meat for farmers for their own consumption to be performed in the same establishment where inspected meat is sold.

The data presented in this study were obtained and analyzed prior to the passage of the Curtis Amendment; therefore, the projected changes concerning the custom slaughter exemption reflect the adjustments that would have occurred if the original law had not been amended.

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The North Dakota livestock slaughtering and meat processing industry contained 201 firms in 1967. Eight of these firms were federally inspected (FI) and the remaining 193 firms were nonfederally inspected (NFI).

NFI meat plants are an important part of the North Dakota meat industry, not only from the standpoint of firm numbers, but also in terms of services provided, the number of livestock slaughtered, and the quantity of meat processed. North Dakota NFI plants accounted for 31 percent of the cattle slaughtered, 100 percent of the hogs slaughtered, and 66 percent of the total meat processed in North Dakota in 1967.

The North Dakota NFI meat industry was not found to be highly concentrated when the state was considered as one market. The industry contained a large number of relatively small firms, none of which possessed a significant share of the market. However, the concentration for the entire state does not apply to the local markets served by one or two meat plants. Therefore, specific communities were considered to have high levels of concentration.

North Dakota did not adopt a state meat inspection program that met federal approval. As a result, federal authorities announced federal takeover of North Dakota meat inspection effective April 16, 1970. A mail survey taken in March, 1970, revealed that 23 percent of the firm managers planned to initiate federal inspection. However, the majority of the meat plant managers in North Dakota planned to be exempt from the Wholesome Meat Act of 1967. Fifty-two percent of the firm managers indicated they would adjust their business operation to qualify for one of the two exemptions by discontinuing either the retail or custom portion of their meat business. Twelve percent of the meat plant managers indicated they would discontinue their meat business entirely. Therefore, by projecting the plans of the responding meat plant managers over the entire 193 NFI plants, it was estimated that by the end of 1970 approximately 44 plants would be federally inspected, 100 plants would be exempt, and 24 would be discontinued.

The Wholesome Meat Act of 1967 will have both beneficial and detrimental effects on firms in the North Dakota meat industry. Some plants will leave the industry and the remaining plants will become larger and more specialized.

The NFI meat plants in North Dakota are small primarily because the state is sparsely populated and most individual plants serve relatively small trade areas.

Although the annual net incomes from North Dakota NFI meat plants are relatively low, the incomes have been adequate to keep a large number of firms in the industry. The incomes of meat plants are low because of the small size of the firms, and because the incomes from many meat plants are only a part of the owners' total income.

In many geographic areas of the state, the meat plant was found to be the only source of fresh meat. Therefore, if the meat firm in such an area discontinued, members of that local community would lose their only existing source of fresh meat, and the custom slaughtering and processing services. The fresh meat supply may be provided by plants in neighboring towns or by using meat counter facilities of existing grocery stores. However, the custom livestock slaughtering and processing services will probably be lost entirely because livestock producers are unlikely to transport livestock long distances for custom services.

The decision of firm managers to discontinue part of their present operation to qualify for either a retail or custom exemption may be only a temporary situation. The loss of income due to discontinuing part of the services of the plant may result in eventual discontinuation of the plant. The closing of a local meat plant would also result in a reduction in employment and the loss of income generated in the community by the spending of the meat plant.

Some firms in the North Dakota meat industry will find the Wholesome Meat Act to be beneficial. Firm owners may be able to increase the size of their operation by capturing a larger share of the market vacated by discontinued plants. Firms may also increase the size of their market by distributing meat to neighboring towns that no longer have a fresh meat market. Operating on a larger scale may also result in reduced costs due to economies of size and therefore increase the profits to the meat plant owners. Changes in facilities brought about by the Wholesome Meat Act will likely improve the appearance of meat plants. Improving the physical appearance alone may result in increased meat sales because consumers purchasing products for consumption discriminate on cleanliness and appearance of facilities.

PRESENT STRUCTURE AND PROJECTED IMPACT OF THE 1967 WHOLESOME MEAT LAW ON THE NORTH DAKOTA MEAT INDUSTRY

Edward V. Dunn and Dennis Clark Morris*

INTRODUCTION

The United States has witnessed a steadily rising population and increasing per capita incomes which have brought about sharp increases in the demand for red meat.[1] This increase in the demand for meat has resulted in an increase in livestock numbers and the number of livestock slaughtered. However, the situation in North Dakota has differed from the national trend. While the number of cattle slaughtered in North Dakota has varied significantly between years, the total number of cattle slaughtered in the state has increased very little. The number of cattle slaughtered in 1967 was only slightly higher than the number slaughtered in 1944 (183,400 in 1967[2] compared to 144,700 in 1944[3]). Although the number of cattle being slaughtered in North Dakota has increased only slightly in the last 23 years, the number of beef calves being produced in the state has been increasing rapidly. The surplus of the number of calves produced over the number slaughtered have been exported from North Dakota to be slaughtered in other states.

North Dakota hog slaughter is currently only a small fraction of the total number slaughtered in 1944. Hog slaughter decreased from 549,000 in 1944[4] to 23,600 in 1967.[5] Sheep slaughter has decreased by about one-third during the last 20 years. In 1967, 199,600 sheep were slaughtered[6] compared with 382,000 in 1944.[7]

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[1]Moore, John R. and Richard G. Waish, Market Structure of the Agricultural Industries, the Iowa State University Press, 1966, p. 40.

[2]United States Department of Agriculture, Statistical Reporting Service, Livestock Slaughter, Washington, D. C., April, 1968, p. 11.

[3]United States Department of Agriculture, Agricultural Marketing Service, Crop Reporting Board, Commercial Livestock Slaughter, Washington, D. C., July, 1958, p. 12.

[4]Ibid., p. 78.

[5]United States Department of Agriculture, Statistical Reporting Service, Livestock Slaughter, op. cit., p. 29.

[6]Ibid., p. 23

[7]United States Department of Agriculture, Agricultural Marketing Service, Commercial Livestock Slaughter, op. cit., p. 111.

The large decrease in the number of livestock of all classes slaughtered in North Dakota in 1957 through 1959 was largely due to the closing of Armour plants at West Fargo and Grand Forks. Beef and sheep slaughter numbers increased in 1961 with the opening of the Siouxland Dressed Beef slaughtering plant in West Fargo.

The North Dakota livestock slaughtering and meat processing industry does not typify the United States meat industry as a whole. The United States meat packing industry was one of the first of the major agricultural industries to develop an organization characterized by dominant, large-scale, vertically and horizontally integrated firms.[8] However, several changes have occurred that have altered the description of the United States meat industry. The North Dakota meat packing industry has not witnessed the changes that have occurred on the national levels, such as a decline in the relative importance of "major packers," increased specialization, mechanization, and rapid application of new technology.

The nonfederally inspected (NFI) meat firms are an important part of North Dakota's livestock slaughtering and meat processing industry. The NFI plants accounted for all of the commercial hog slaughter in the state, one-third of the cattle slaughtered, and processed a substantial share of the total meat processed in North Dakota in 1967.

Until the Wholesome Meat Act of 1967 was passed, North Dakota meat packers selling meat in intrastate commerce were subject to only periodic state sanitation inspection or city regulations. The passage of the Wholesome Meat Act makes it mandatory that all plants in North Dakota comply with physical and sanitation requirements and that these plants be subject to regular inspection unless they qualify for a retail or custom exemption.

The Wholesome Meat Act gave legislators in all states, including North Dakota, the alternative of allowing federal takeover of a meat inspection program or adopting a state meat inspection program. However, the state programs adopted were to contain rules and regulations which were equally as stringent as those outlined in the Wholesome Meat Act of 1967.

OBJECTIVES OF THE STUDY

The general objective of this study was to gain knowledge of the North Dakota nonfederally inspected meat industry with respect to structural and performance aspects, and to determine the expected impact of the Wholesome Meat Act of 1967 on the North Dakota meat industry.

The specific objectives of the study were:

1. To determine the characteristics of the North Dakota livestock slaughtering and meat processing industry with respect to the location, size and number of firms.

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[8] Moore, op. cit., p. 38.

2. To determine the level of concentration, the extent of product differentiation, the amount of specialization, and the level of vertical integration in North Dakota's livestock slaughtering and meat processing industry.

3. To determine the profit levels of the North Dakota meat industry.

4. To obtain descriptive information on the North Dakota nonfederally inspected meat industry for use by the North Dakota legislature in establishing a meat inspection program for the state.

5. To determine the expected effects of the Wholesome Meat Act of 1967 on the North Dakota nonfederally inspected meat industry.

SOURCE OF DATA AND SCOPE OF STUDY

This study considered all livestock slaughtering and meat processing firms which operated within North Dakota during 1967. Data were collected from both federally inspected and nonfederally inspected firms, but the primary emphasis of this study is on the industrial organization of the nonfederally inspected livestock slaughtering and meat processing industry in North Dakota.[9]

A personal interview of the entire population of meat plants operating in 1967 was conducted. The primary data obtained from the firm managers included a description of the operation, present inspection status, slaughtering and processing volume, services performed, amount of meat sold, labor employed, net earnings, additional sources of income, and future plans for their meat operations.

Near the completion of this study (March, 1970) a second survey of the North Dakota nonfederally inspected meat industry was taken to determine the future plans of meat plant owners in light of the Wholesome Meat Act of 1967.

PROCEDURE OF ANALYSIS

Bain's industrial organization model is used as the basis for this study. The model in essence states that market structure affects market conduct and in turn market conduct affects the market performance of an industry.[10]

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[9]Hereafter the term, "livestock slaughtering and meat processing industry" or "meat industry," will refer to the nonfederally inspected firms in North Dakota unless otherwise stated.

[10]Bain, Joe S., Industrial Organization, John Wiley and Sons, Inc., New York, 1959, pp. 1-18.

For analysis, the firms are stratified according to various criteria. The most frequent means of stratification used are firm size (according to output and number of employees), services offered, and type of inspection.

The market structure variables covered in this study are the number and size of firms, specialization, concentration, product differentiation, and the location of plants. The primary market performance variable analyzed is that of net income.

MARKET STRUCTURE OF THE NORTH DAKOTA MEAT INDUSTRY

The North Dakota livestock slaughtering and meat processing industry[11] is composed of both federally inspected (FI) and nonfederally inspected (NFI) plants. In 1967 there were a total of 201 meat plants in operation in North Dakota. Eight of the 201 plants were operated under inspection of the federal government, while the remaining 193 plants were operated as NFI plants.[12] Seven of the eight FI firms were located in Cass County.

The North Dakota livestock slaughtering and meat processing plants were found to be quite evenly dispersed throughout the state (Figure 1). Cass County had the largest number of firms with 14, followed by Morton with 11 and Ward with 9. Billings, Slope, Sioux, and Kidder counties were the only four counties in North Dakota that did not have a single meat firm in operation in 1967.

Nonfederally inspected meat plants are an important part of the North Dakota meat industry, not only from the standpoint of firm numbers, but also in terms of services provided and total volume of livestock slaughtered and meat processed.

The NFI plants account for all (Table 1) of the North Dakota commercial hog slaughter (49,612 head in 1967). None of the eight FI plants engage in the slaughter of hogs so the state is completely dependent on the NFI plants for this service. NFI plants also slaughtered 74,458 head of cattle, or 31 percent of the total number of cattle slaughtered in North Dakota in 1967. The federally inspected plants slaughtered 163,200 head, or 66 percent of the total cattle slaughtered.

Sheep slaughtered in North Dakota were primarily slaughtered in FI plants. The FI plants accounted for 112,000 head of the sheep slaughtered in 1967 while an insignificant number were slaughtered and processed in NFI plants.

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[11]Because of the common practice in North Dakota of conducting slaughtering and processing within the same plant, firms slaughtering livestock and processing meat will be treated as a single industry.

[12]Multiplant operations are nonexistent in the North Dakota NFI meat industry; therefore, "plant" designation is synonymous with the "firm."

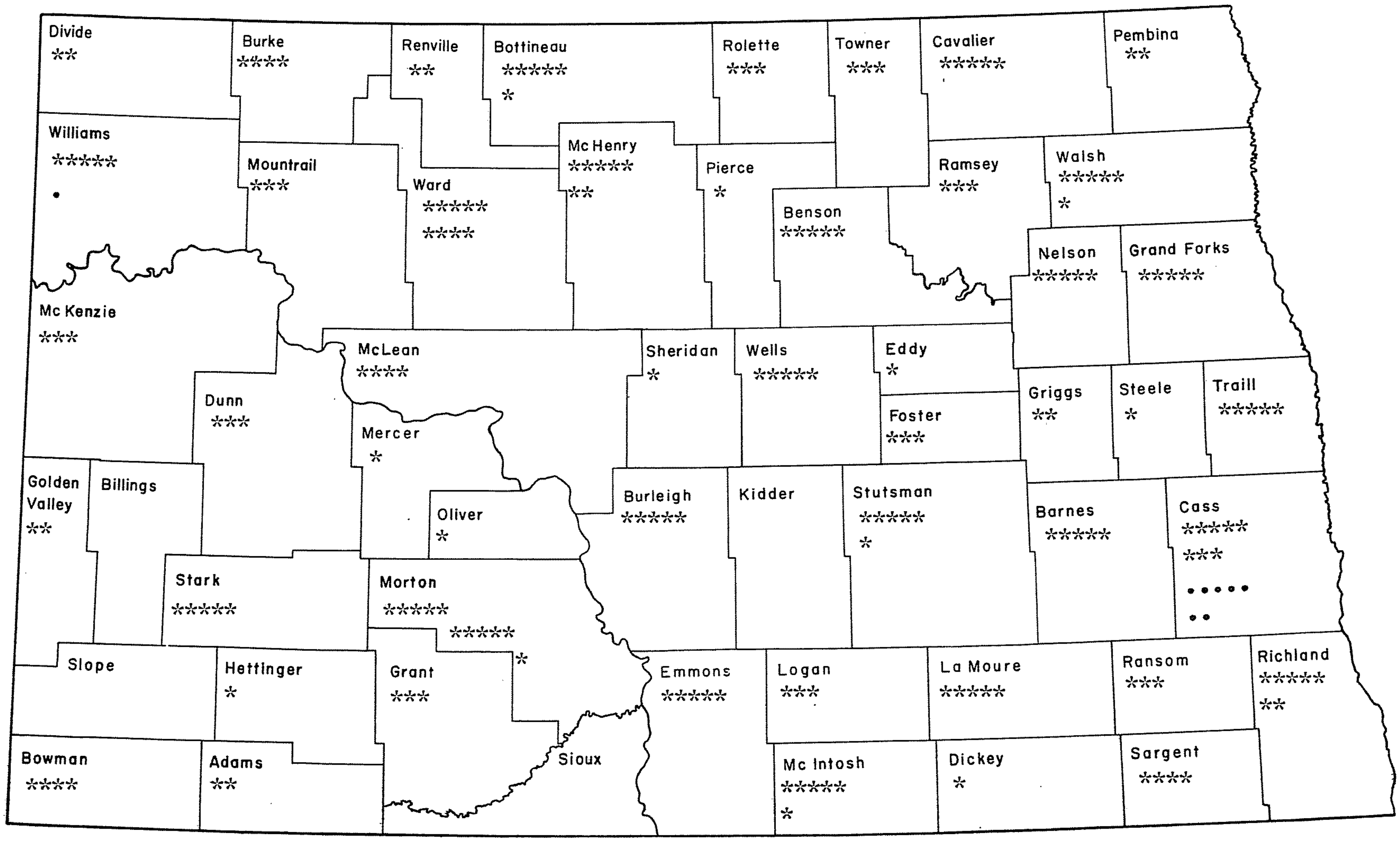

Figure 1. Distribution of Federally and Nonfederally Inspected Livestock Slaughtering and Meat Processing Firms in North Dakota, 1967.

Federally Inspected Firms - x
Nonfederally Inspected Firms - •

TABLE 1. NUMBER OF FIRMS, NUMBER OF LIVESTOCK, AND POUNDS OF MEAT PROCESSED BY FEDERALLY AND NONFEDERALLY INSPECTED PLANTS IN NORTH DAKOTA, 1967.

Type of Plant	Number of Firms	No. of Livestock Slaughtered			Lbs. Processed
		Hogs	Beef	Sheep	
Federally Inspected	8	0	163,200	112,000	28,574,000
Nonfederally Inspected	193	49,612	74,458	*	56,282,000
TOTAL	201	49,612	237,658	112,000	84,856,000

*Insignificant number slaughtered and processed.

NFI plants process the majority of the total meat, accounting for 56,282,000 pounds, or 66 percent of the total meat processed in North Dakota in 1967. The federally inspected plants processed 28,574,000 pounds, or 34 percent, during the same year.

Four variables are used to describe the market structure of the NFI meat firms in North Dakota: number and size of firms, integration, specialization, and product differentiation.

Number and Size of Firms

There were 193 NFI meat plants operating in North Dakota in 1967. Trends in firm numbers and patterns of entry and exit were not analyzed due to the unavailability of data pertaining to the number of meat packers operating in North Dakota in years prior to 1967.

The size of each NFI livestock slaughtering and meat processing firm was measured in terms of the volume of meat processed by each firm and also by the number of persons employed.[13] Many firms provided both slaughtering and processing services. To avoid double counting, only pounds of meat processed were used as a measurement of output to designate firm size.

Plant Volumes

The North Dakota NFI meat industry was found to be made up of plants that have a wide variation in size. The plants ranged in total processing volume from 4,000 pounds to over one million pounds of meat processed annually with an average of 291,616 pounds per plant.

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[13] Employee's figures also include labor of owner and family workers in the meat plant.

The NFI meat plants, for the purpose of this study, were divided into four size groups according to the volume of meat processed (Table 2). Size Group I includes firms that processed up to 299,999 pounds of meat during 1967. Group II includes meat plants that had annual processing volumes ranging from 300,000 pounds to 599,999 pounds, while Group III contains firms with volumes of 600,000 to 999,999 pounds annually. Group IV includes all firms that had annual volumes of more than one million pounds.

TABLE 2. SIZE DISTRIBUTION OF NONFEDERALLY INSPECTED MEAT PROCESSING FIRMS ACCORDING TO VOLUME OF MEAT PROCESSED IN NORTH DAKOTA, 1967.

Size Group	Annual Volume (Pounds)	Total		Percent of Total		Average Volume Per Firms (Pounds)
		Firms	Volume	Firms	Volume	
I	0-299,999	121	15,252,000	71.2	27.1	126,000
II	300,000-599,999	29	11,425,000	17.7	20.3	394,000
III	600,000-999,999	13	8,893,000	7.6	15.8	684,000
IV	Over 1,000,000	7	20,712,000	4.1	36.8	2,959,000
TOTAL		170[a]	56,282,000	100.0	100.0	

[a]Processing volumes were available from 170 firms.

The majority of the NFI meat plants in North Dakota in 1967 operated on a relatively small scale. Nearly three-fourths of the NFI firms were in the smallest size group with processigg volumes of less than 300,000 pounds of meat annually. Each of the successively larger groups contained fewer firms. The percentage of the total firms in each of the four groups ranged from 71.2 percent in Group I to 4.1 percent in Group IV. The percentage of the total processing volume contributed by each of the size groups did not vary nearly as much as the absolute number of firms in each group.

Seventy-one percent of the total NFI plants in the state were in Size Group I. This means that nearly three-fourths of the NFI meat firms in North Dakota in 1967 processed less than 300,000 pounds of meat annually. These 300,000 pounds represent less than 900 pounds of meat processed per day, or approximately the equivalent of one and one-half beef carcasses per work day. Although Size Group I contained nearly three-fourths of the total number of firms in the state, this group accounted for only slightly more than one-fourth (27.1 percent) of the total meat processed in North Dakota. The firms in Group I contributed an average of 0.22 percent of the total meat processed per plant in the North Dakota NFI meat plants. The average volume processed by Group I plants was 126,000 pounds of meat.

There were considerably fewer meat plants in Group II than in Group I (29 in Group II compared to 121 in Group I). Group II, with 29 firms, contained the second largest number, accounting for 17.1 percent of the total. The average processing volume for firms in Group II was 394,000 pounds. Although Group II contained 76 percent fewer firms than Group I, Group II firms processed only 25 percent less meat than the firms in Group I (15,252,000 pounds for Group I compared to 11,425,000 for Group II). Firms in Group II contributed an average of 0.7 percent of the total output per firm.

Size Group III contained 13 firms or 7.6 percent of the total firms in the state. The 13 firms in Group III processed a total of 8,893,000 pounds of meat, or an average of 684,000 pounds per firm. The firms in Group III contributed the lowest percentage (15.8 percent) of the total meat processed. The average contribution to the total meat processed by each firm in Group III was 1.2 percent.

Group IV, the largest size classification, contained firms with processing volumes over one million pounds annually. There were seven firms (4.1 percent) in Group IV, the fewest of any size group. Although the seven firms in Group IV accounted for only 4.1 percent of the total number of NFI meat plants, these firms accounted for 36.8 percent of the total meat processed in the NFI meat plants in North Dakota. Each firm in Group IV contributed an average of 5.2 percent to the total meat processed in NFI plants.

The volume of meat plants was compared to the type of operation to determine whether a relationship existed between plant volume and type of operation. Meat plants that were operated strictly as a meat business and meat plants that were vertically integrated with a feedlot tended to have larger volumes than firms of other descriptions (Table 3). These two types of operations were the only description classifications that contained firms in the largest two size groups. Nineteen percent (11.9 + 7.5) of the strictly meat plants and 29 percent (21.4 + 7.2) of the meat plant-feedlots were in Groups III and IV.

Plants that are operated as strictly meat plants had a wide variation in volume, with some firms in each of the four size groups. Over half, 52 percent, of the strictly meat plants were in Size Group I, with the remaining 48 percent dispersed throughout the other three size groups. There were 28 percent, 12 percent, and 8 percent of the strictly meat plants in Groups II, III, and IV, respectively. Thirty-six percent of Group I firms were strictly meat plants, while 73 percent of Groups II and III were strictly meat plants. Eighty-three percent of the firms in Group IV were operated as strictly meat plants.

The majority of meat plants that were operated in conjunction with a grocery store were plants with a small volume of meat sales or a small custom volume. Ninety-three percent of the grocery store-meat plants were in Group I. Only 7 percent of the meat plant-grocery stores were in Size Group II and there were no firms of this description in Groups III or IV.

TABLE 3. SIZES OF NONFEDERALLY INSPECTED MEAT PLANTS BY TYPE OF OPERATION, NORTH DAKOTA, 1967.

Size Group[a]	Strictly Meat Plant[b]		Meat Plant-Grocery Store		Meat Plant-Creamery		Meat Plant-Feedlot		Meat Plant-Farm or Ranch		Meat Plant-Other[c]		Total for All Types of Operations
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
I	35	52.2	39	92.9	3	60.0	8	57.1	10	100.0	2	100.0	97
II	19	28.4	3	7.1	2	40.0	2	14.3					26
III	8	11.9					3	21.4					11
IV	5	7.5					1	7.2					6
TOTAL	67	100.0	42	100.0	5	100.0	14	100.0	10	100.0	2	100.0	140[d]

[a]Refer to Table 2 for size group descriptions.

[b]Meat plants that were strictly a meat business were plants that were not operated in conjunction with any other business.

[c]Includes meat plants that were operated in conjuntion with another business other than the five classifications listed.

[d]Information regarding both size and type of operation were available from 140 meat plants.

Meat plants that were operated as part of a creamery were also all in Size Groups I and II, with 60 percent and 40 percent of the plants in each of these two groups, respectively.

There was a wide range in the sizes of meat plants that were operated in conjunction with feedlots. Over half (57 percent) of the meat plant-feedlot operations were in Size Group I. Some of the larger NFI meat plants were operated as a feedlot in conjunction with the meat plant. Fourteen percent were in Group II, while 21 percent and 7 percent of the feedlot-meat plants were in Size Groups III and IV, respectively.

All ten of the meat plants that were a part of a farm or ranch and both of the meat plants that reported "other" business associated with their meat plant were in the smallest size group.

Number of Employees

The second measurement of firm size to be used in this study is number of employees. The North Dakota NFI meat plants employed 531 full-time and an additional 188 part-time employees in 1967. Employee numbers, as used in this study, include owner and family labor as well as hired employees.

In terms of number of employees per firm it can be concluded that the majority of the NFI meat plants in North Dakota operated on a relatively small scale. Twenty-one firms (11.1 percent) operated their meat business without any full-time employees but were dependent on part-time workers for their entire labor supply (Table 4). The majority of firms (120 out of a total of 189) employed only one or two persons. Fifty

TABLE 4. SIZE DISTRIBUTION OF NONFEDERALLY INSPECTED MEAT PLANTS ACCORDING TO NUMBER OF FULL-TIME EMPLOYEES, NORTH DAKOTA, 1967.

Number of Full-Time Employees	Number of Firms	Percent of Total Firms
0	21	11.1
1	50	26.5
2	70	37.0
3	21	11.1
4	14	7.4
5-9	5	2.6
10-25	6	3.2
Over 25	2	1.1
TOTAL	189[a]	100.0

[a]Employee information was available from 189 firms.

firms (26.4 percent) had only one full-time employee and 70 firms (37.0 percent) had two full-time employees. There were 21 firms (11.1 percent) that had three full-time employees and 14 (7.4 percent) with four full-time employees. Firms employing from five to nine persons were grouped together, with five plants (2.6 percent) in this group. There were six firms (3.2 percent) that hired between 10 and 25 employees and only two plants that hired over 25 full-time employees.

Firms in Size Group I employed the largest number of employees, but had the lowest average number of employees per plant (Table 5). Group I firms reported a total of 161 full-time employees. A few of the firms in Group I had no full-time employees but relied on part-time workers to handle the entire work load. The average number of full-time employees in Group I plants was 1.5 persons with a range from zero to four persons per plant.

Firms in Group II employed 75 full-time employees. The range in the number of persons employed by firms in this size group was from one to five with an average of 2.88 persons per plant.

A total of 79 persons were employed full-time by Group III firms. The number of persons employed full-time by firms in Group III ranged from 2 to 15 with an average of 6.58 employees per firm.

The largest size classification, Group IV, had a total of 100 full-time employees. The average number of persons employed in Group IV firms was 20.0 with a range from 5 to 52 employees. Group IV firms hired the second largest total number of full-time employees but had the highest average number of employees per plant.

TABLE 5. DISTRIBUTION OF FULL-TIME EMPLOYEES ACCORDING TO PROCESSING VOLUME OF NONFEDERALLY INSPECTED MEAT PLANTS, NORTH DAKOTA, 1967.

Size Group[a]	Number of Firms Reporting	Number of Employees		
		Total	Range	Average
I	107	161	0-4	1.50
II	26	75	1-5	2.88
III	12	79	2-15	6.58
IV	5	100	5-52	20.00
TOTAL	150[b]	415[c]		

[a]Refer to Table 2 for size group descriptions.

[b]Employee information was available from 150 firms that had sufficient data to be classified as to volume processed.

[c]The remaining 116 employees were employed by the 39 firms with employee information but no processing information available.

Concentration

Concentration takes into consideration both size and number of firms in an industry and measures the amount of output that is controlled by a few firms in the industry.

The North Dakota NFI meat industry was not found to be highly concentrated in 1967. The industry was made up of a large number of relatively small firms, none of which possessed a significant share of the market. Although the degree of concentration was low, the industry did not approach atomistic dimensions and consequently there was a small degree of interdependence among sellers. Because of the relatively large number of firms that were present in the North Dakota NFI meat industry and the evidence that the largest firms did not control a significant amount of the output, the low level of concentration was conducive to a high degree of competition.

The results of a trade area study conducted in North Dakota revealed that businesses selling convenience items, including meat, are dependent on persons living within a radius of ten miles for approximately 80 percent of their sales volume.[14] Therefore, although there was a total of 193 NFI meat firms in North Dakota the concentration for the entire state did not apply to individual local markets served by a single plant. Many specific areas of North Dakota were served by only one or two meat plants. This means that although the North Dakota nonfederally inspected meat industry had a low level of concentration, many local markets had a very high level of concentration.

The four largest NFI meat plants in North Dakota processed 26.2 percent (Table 6) of the total meat processed by NFI plants in 1967 with an average of approximately 8 percent per firm. The largest four firms in North Dakota, although small in comparison with typical federally inspected plants in the United States, had a large output in comparison with the remaining meat firms in North Dakota. The four next largest firms contributed 13 percent, or about 3 percent each to the total meat processed, bringing the percent of the total meat processed in the eight largest firms to 39.2 percent. The 20 and 50 largest firms contributed 55.4 and 77.7 percent of the total processing, respectively. The remaining 121 firms in the industry accounted for only 23.3 percent of the total processing in NFI plants.

Specialization

Specialization in this study refers to number of species handled in a plant and type of services provided. Data were collected on the number of sheep, beef, and hogs slaughtered. Firms were also classified as

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[14] Trade Area Survey, Devils Lake, North Dakota Region, Cooperative Extension Service, North Dakota State University, Extension Bulletin Number 6, October, 1969, p. 6.

TABLE 6. RELATIVE IMPORTANCE OF THE FOUR, EIGHT, TWENTY, AND FIFTY LARGEST FIRMS IN THE LIVESTOCK SLAUGHTERING AND MEAT PROCESSING INDUSTRY, NORTH DAKOTA, 1967.

Size Group of Firms	Pounds Processed (1,000 Pounds)	Percent of Total Pounds Processed
4 largest	14,750	26.2
8 largest	22,074	39.2
20 largest	31,156	55.4
50 largest	43,732	77.7
All firms	56,282	100.0

to retail, custom, and wholesale on basis of the type of customers to whom the plant operators sold products or provided services to (Table 7).

The North Dakota NFI meat firms were not found to be highly specialized according to species. Of the 126 firms that slaughtered livestock, all but two slaughtered both beef and hogs. As previously indicated, sheep accounted for an insignificant amount of the total slaughter in NFI firms.

TABLE 7. NUMBER OF NONFEDERALLY INSPECTED MEAT FIRMS ACCORDING TO TYPE OF SERVICE PROVIDED, NORTH DAKOTA, 1967.

Type of Service	Number of Firms	Percent of Total Firms
Custom slaughtering and processing only	8	4.1
Retail services only	8	4.1
Custom and retail services	171	88.6
Wholesale services only	6	3.2
TOTAL	193	100.0

There was little specialization evident when firms were classified according to type of service provided. There were only 22 firms specializing in a single type of service. Eight firms specialized in custom slaughtering and processing, eight others in retail trade and six firms in providing wholesale services. The remaining 171 firms engaged in providing custom slaughtering and processing services as well as selling meat in retail trade.

As previously discussed, firms specialized in providing custom services and firms that engage exclusively in retailing meat are exempt from the Wholesome Meat Act of 1967. The eight firms specialized in custom slaughtering and processing and the additional eight firms which provided retail services only qualified for exemption from the Wholesome Meat Act of 1967. This means a total of 16 firms (8.2 percent) qualified for exemption from the Wholesome Meat Act, while the remaining 177 firms (91.8 percent) were subject to the provisions of the law. The firms which were specialized in providing wholesale services were also subject to the law.

Vertical Integration

Vertical integration was found to play an important role in the North Dakota NFI meat industry with over 90 percent of the firms integrated to some extent in 1967. A relatively large number (see Table 8) of the meat firm owners in North Dakota have integrated their meat operations vertically by providing more than one link of the marketing chain between the livestock producer and the meat consumer. In this study any step in the marketing chain that precedes or succeeds slaughtering and processing was considered to be vertical integration. Some of the more common integrated functions present in the North Dakota NFI meat industry included retailing, wholesaling, farming or ranching, livestock feeding, and providing locker services for customers.

The most popular service provided by North Dakota meat plants was meat retailing. One hundred seventy-nine firms (92.7 percent) engaged in retailing meat. The second most common practice of North Dakota NFI meat plant owners was customer locker service, with 113 firm owners (58.5 percent) providing locker service to their customers. Eighteen plant owners (9.3 percent) were involved in livestock feeding, 12 owners (6.2 percent) operated farms or ranches in addition to their meat business, and six plant owners (3.1 percent) sold meat wholesale.

Product Differentiation

Fresh meats are difficult to differentiate once meat is cut and ready for the consumer. It is also difficult for a meat plant owner to achieve strong customer attachment to the brand of his product. Consumers are usually more concerned with meat grades, brightness, leanness, and other appearance characteristics of meat than they are with meat brands. Meat cuts from plants that do not employ a meat grader (as was the case in all the NFI plants in North Dakota during 1967) may not be

TABLE 8. NUMBER OF NONFEDERALLY INSPECTED MEAT FIRMS PERFORMING VARIOUS INTEGRATED FUNCTIONS, NORTH DAKOTA, 1967.[a]

Operation	Number of Firms[b]	Percent of Total Firms
Retailing	179	92.7
Wholesaling	6	3.1
Farming or ranching	12	6.2
Feeding	18	9.3
Provide lockers	113	58.5

[a]Any step in the marketing chain that precedes or succeeds slaughtering and processing is considered to be vertical integration.

[b]Many firms engaged in more than one integrated function. Therefore, the total number of firms in the column will exceed the number of nonfederally inspected firms (193) in North Dakota.

standardized as are meat cuts that are federally graded. An exception exists in the case of NFI plants that purchase, process, and resell federally graded meat. In firms that do not handle federally graded meat the firm owners may put emphasis on product quality because of the absence of standard grades.

Because of the small size of the typical NFI North Dakota meat firms and their dependence on a local market to sell their products, it would appear that product differentiation would have little effect upon prices received and the amount of meat a firm sells. Consumers would, therefore, not normally show strong brand attachment or differentiate between the products of various firms.

EFFECT OF WHOLESOME MEAT ACT

The Wholesome Meat Act of 1967 will no doubt affect the structure of the North Dakota livestock slaughtering and meat processing industry. It is expected that the number of plants will be reduced and the average size of the remaining plants will increase as a result of the new law. Some small volume plants will no doubt choose to discontinue rather than attempt to make major financial investments to bring their facilities up to the specifications of the Wholesome Meat Act.

Many plants will modify their operations to qualify for retail or custom exemptions. This modification will have an effect of increasing the amount of specialization and decreasing the level of integration of meat plants in North Dakota.

The Wholesome Meat Act of 1967 will also heighten the barriers to entry into the North Dakota meat industry. The legal barrier, which previously was almost nonexistent for firms entering on an intrastate basis, will now be quite significant. Any firm contemplating entry into the industry will have to comply with the minimum requirements of the meat inspection program in North Dakota.

Future Plans of Meat Plant Managers

Because North Dakota did not adopt a state meat inspection program that met federal approval, federal authorities announced that the federal government would take over inspection of meat plants in North Dakota effective April 16, 1970.

The results of a March, 1970, survey indicated that many hypothesized changes regarding the North Dakota meat industry would actually occur. The results of the survey revealed that 23 percent of the firm managers planned to initiate federal inspection (Table 9). This indicates that approximately 44 of the 193 North Dakota meat plants that operated as NFI meat plants in 1967 will initiate federal inspection.

Fifty-two percent of the firm managers indicated that they planned to qualify for one of the two exemptions to the Wholesome Meat Act. Thirty-one percent of the firms' managers planned to discontinue custom slaughtering and processing and continue retailing meat in order to qualify for a retail exemption. The remaining 21 percent of the managers that planned to be exempt indicated they would discontinue retailing of meat and operate on an exclusively custom basis. Projecting these percentages over the entire 193 NFI firms, it was expected that approximately 60 firms would be retail exempt and approximately 40 would be custom exempt. Either of these two alternatives would allow plants to be exempt from the Wholesome Meat Act, so approximately 100 firms were expected to specialize in either meat retailing or custom services and operate their plants as exempt plants.

Twelve percent of the meat plant managers indicated that they would discontinue their meat operations entirely. The remaining 13 percent of the managers indicated they had "other" future plans. Separating the custom service from the retail business by having two separate facilities or plans to sell the meat business were the two most frequent replies for "other" future plans. Projecting the percentage of the managers that planned to discontinue altogether to the total of the 193 firms indicated that approximately 24 plant managers would discontinue their meat businesses entirely.

It should be noted that changes in meat plant operations to qualify for retail or custom exemptions may only be temporary. Plant operators that discontinue either custom or retail services will lose one of their sources of income which may cause these plants to eventually discontinue. Therefore, it is expected that the long-run impact of the Wholesome Meat Act will result in a larger number of plant closings than is indicated by the short-run plans of meat plant owners.

TABLE 9. FUTURE PLANS OF NONFEDERALLY INSPECTED MEAT PLANT MANAGERS FOR THEIR MEAT OPERATIONS, NORTH DAKOTA, MARCH, 1970.

Future Plans	Number Responding		Percent of Firms		Projection to Population[a]	
Initiate federal inspection		22		22.7		44
Qualify for exemption						
Retail exemption	30		30.9		60	
Custom exemption	20		20.6		40	
Total		50		51.5		100
Discontinue meat business		12		12.4		24
Other[b]		13		13.4		26
TOTAL		97		100.0		194[c]

[a]The percent of responding firms indicating each of the various "future plans" was multiplied by 193 to project the impact on the total 193 NFI meat plants in North Dakota.

[b]Future plans provided by respondents that were not listed as choices on the questionnaire.

[c]Column does not total 193 due to rounding error.

Influence of Firm Size on Future Plans

Future plans of North Dakota NFI meat plant managers were compared with plant size to determine the relationship between the volume of a plant and the future plans of the firm manager. Based on 87 mail questionnaires from plant managers that indicated future plans and also had firm volumes available, it appeared, as was expected, that a higher percentage of the larger-sized firms planned to initiate federal inspection. Over 50 percent of the managers of each of the larger size groups (Groups II, III, and IV) indicated that they planned to initiate federal inspection of their plants while only 13 percent of the firms in Group I planned to qualify for federal inspection (Table 10).

More firms in Group IV (75 percent) than in any other group planned to initiate federal inspection. Fifty-three percent of Group II firms and 50 percent of the firms in Group III planned to qualify for federal inspection. Size Group I had the lowest percent (13 percent) of managers that indicated they planned to have federal inspection of their plants.

TABLE 10. NUMBER AND PERCENT OF MANAGERS OF NONFEDERALLY INSPECTED MEAT PLANTS INDICATING ALTERNATIVE FUTURE PLANS FOR THEIR MEAT FIRMS ACCORDING TO PLANT SIZE, NORTH DAKOTA, 1970.[a]

	Size Group[b]								
	I		II		III		IV		
Future Plans	Number of Firms	Percent of Firms	Number of Firms	Percent of Firms	Number of Firms	Percent of Firms	Number of Firms	Percent of Firms	Total For All Size Groups
Initiate federal inspection	8	12.9	8	53.3	3	50.0	3	75.0	22
Qualify for exemption	40	48.5	5	33.3	2	33.3	1	25.0	48
Discontinue	10	16.1	1	6.7	1	16.7	0	0.0	12
Other	4	6.5	1	6.7	0	0.0	0	0.0	5
TOTAL	62	100.0	15	100.0	6	100.0	4	100.0	87[c]

[a]Future plans data were collected in March, 1970, and size groups are based on 1967 data.

[b]Refer to Table 2 for size group descriptions.

[c]Information regarding both future plans of managers and volume data were available from 87 meat plants.

A definite relationship between the firm managers that planned to qualify for one of the two exemptions and firm size did not exist. However, a slightly higher percentage of managers of the smaller plants planned to qualify for a custom or retail exemption than did plant managers in the three larger size groups. Forty-nine percent of the plant managers in the Size Group I planned to alter their present operations in order to be eligible for one of the two exemptions. Substantially fewer managers in the larger size groups planned to be exempt. Thirty-three percent of the managers of both Groups II and III firms and 25 percent of the managers in Group IV indicated that they planned to become exempt.

A relationship between firm size and the decision to discontinue operations did not exist. The largest percentages of firm managers that planned to discontinue their meat operation were in Groups I and III with 16 percent of the managers in these two groups that planned to discontinue. Seven percent of the managers in Group II planned to close while none of these managers of Group IV indicated plans to discontinue their meat business.

Attitudes Toward Wholesome Meat Act

The attitudes of North Dakota NFI meat plant operators toward the Wholesome Meat Act in relation to their own plant was obtained. This information revealed that 12 percent of the managers expected the effects of the law to be beneficial to their plant, 78 percent felt the effects would not be beneficial, and 10 percent indicated the law would not affect their plant.

Ninety-one percent of the meat plant managers were of the opinion that the Wholesome Meat Act of 1967 required excessive and unreasonable investments to bring their plants into compliance with the specifications outlined in the law. Nine percent felt that required investments in new or remodeled facilities were reasonable and would prove to be profitable changes. The average estimated cost per plant for remodeling or rebuilding to comply with federal regulations was $13,000.

Fifteen percent of the operators felt the law speeded up changes that managers should have made anyway, while 85 percent of the managers indicated that they would not have made these changes if it were not for the Wholesome Meat Act.

NET INCOMES OF NORTH DAKOTA NFI MEAT PLANTS

The measurement of profit rates of firms is useful in evaluating an industry because profits provide the basis for several indicators of market performance. Profits also serve an important function in determining the ability of meat plants to make the necessary investments required to qualify meat plants for federal inspection.

Annual net income figures were used to analyze the profitability of the North Dakota NFI meat industry. The net incomes for the meat plant reported on the 1967 federal income tax return plus wages or salaries paid to the firm owner were used to establish the net incomes of meat plants. Obtaining net income in this manner approximates accounting profit in that the interest cost of the owner's investment is not deducted. Aggregate profits were used to determine the profitability of the North Dakota nonfederally inspected meat industry.

The North Dakota NFI meat plants were characterized as having low net incomes. The average net income for firms in each size group increased as the size classification was increased from Size Group I through Size Group IV (Table 11). This means that as the volume of the plants increased, the average net income also increased. However, a wide variation existed in the net incomes of firms within each size group. For instance, there were firms in Group I that had net incomes three times as large as the average net income for all firms in Group I.

TABLE 11. ANNUAL NET INCOMES OF NONFEDERALLY INSPECTED MEAT PLANTS ACCORDING TO PLANT SIZE, NORTH DAKOTA, 1967.

		Net Income Per Firm	
Size Group[a]	Number of Firms	Range (dollars)	Average (dollars)
I	104	-300-12,000	4,100
II	26	300-27,000	6,800
III	10	3,400-25,000	14,000
IV	4	12,000-43,000	22,800
TOTAL	144[b]		

[a]Refer to Table 2 for size group descriptions.

[b]Net income figures were available from 144 plants.

The firms in Size Group I had annual net incomes which ranged from -$300 to $12,000. The average net income for Size Group I firms was $4,000.

Plants in Size Group II had an average net income of $6,800 which was $2,700 above the average net income for the plants in Size Group I. A large variation of net incomes existed among the firms in Group II with incomes ranging from $300 to $27,000.

There was a substantial difference in the average net incomes of the firms in Group II and Group III. Group III firms had an average net income that was $7,200 higher than the average for Group II firms ($14,000 for Group III compared to $6,800 for Group II). Meat plants in Group III had a range of net incomes from $3,400 to $25,000.

Group IV, the group containing the largest volume plants, had an average net income per firm of $22,800. The average net income for firms in Group IV was $8,800 higher than the average net income for Group III. Firms in Group IV also had a wide range in net incomes ranging from $12,000 to $43,000.

The integration and diversification practices of North Dakota NFI meat plants were compared with net incomes of firms to determine the relationship between the type of firm[15] and the net income of the firms. Strictly meat plants and meat plant-feedlots were the two classifications that contained firms with the highest net incomes (Table 12). These two categories contained the only types of operations with firms that had annual net incomes over $20,000.

The strictly meat plants and meat plant-feedlots had the highest percentage (40.3 and 38.5 percent, respectively) of the firms in the $5,000 to $9,999 net income category while the remaining four types of operations had the highest percent of firms in the less than $5,000 net income category. Eight percent of both strictly meat plants and meat plant-feedlots had net incomes over $20,000. However, the strictly meat plant classification included firms with net incomes in all five income categories.

Meat plants that were operated in conjunction with a creamery or a farm had the largest number of firms (80 percent for both) with net incomes less than $5,000.

The largest percentage (67 percent) of the meat plants operated in conjunction with a grocery store had net incomes under $5,000 and only 8 percent had incomes over $10,000.

Meat plants that were operated in conjunction with a creamery were all in the two lowest income categories. Eighty percent of the meat plant-creamery combinations had net incomes of less than $5,000 and only 20 percent had net incomes which ranged from $5,000 to $9,999. The percentage breakdown of net incomes of meat plants operated in conjunction with a farm or ranch was exactly the same as it was for the meat plant-creamery combinations: 80 percent with incomes under $5,000 and 20 percent with net incomes between $5,000 and $9,999.

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[15]Type of operation refers to both vertical integration and diversification enterprises which provide sources of additional income. Firm types include strictly meat plants, and firms that are operated as part of grocery stores, feedlots, creameries, and farms and ranches.

TABLE 12. DISTRIBUTION OF NET INCOMES OF NONFEDERALLY INSPECTED MEAT PLANTS BY TYPE OF OPERATION, NORTH DAKOTA, 1967.[a]

Net Income (dollars)	Strictly Meat Plant		Meat Plant-Grocery Store		Meat Plant-Creamery		Meat Plant-Feedlot		Meat Plant-Farm or Ranch		Meat Plant-Other	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Less than 5,000	24	35.8	26	66.7	4	80.0	4	30.8	8	80.0	2	100.0
5,000- 9,999	27	40.3	10	25.6	1	20.0	5	38.5	2	20.0		
10,000-14,999	10	14.9	2	5.1			2	15.3				
15,000-19,999	1	1.5	1	2.6			1	7.7				
Over 20,000	5	7.5					1	7.7				
TOTAL	67	100.0	39	100.0	5	100.0	13	100.0	10	100.0	2	100.0

[a]Future plans data are based on a March, 1970, survey. Net income information is based on 1967 data.

Meat plants that were operated in conjunction with a feedlot had the largest percentage (39 percent) of the firms of this classification in the $5,000 to $9,999 net income category. The meat plant-feedlot classification (as was true of the strictly meat plants) included firms with net incomes in all the net income categories. A total of 8 percent of the meat plant-feedlot operations had net incomes over $20,000.

North Dakota NFI meat plants were stratified according to net income to determine the distribution of net incomes for firms of different size and also to determine the level of net income for various sized firms (Table 13).

Over half of all the meat plants collectively had annual net incomes of less than $5,000. A total of 43 plants had net incomes between $5,000 and $9,999. Therefore, a total of 121 meat plants (84 percent) had annual net incomes of less than $10,000. Fifteen meat plants had net incomes between $10,000 and $14,999 and a total of eight firms had incomes of $15,000 or more.

Sixty-five plants in Group I had net incomes under $5,000. Twelve meat plants in Group II reported net incomes of less than $5,000 while only one firm in Group III and none of the firms in Group IV had incomes under $5,000.

The second category of income included plants with annual net incomes from $5,000 to $9,999. There were 33 plants in Size Group I that had net incomes between $5,000 and $10,000. Eight firms in Group II had incomes within this range as well as two plants of Group III firms. However, there were no plants in Group IV that had net incomes of less than $10,000.

Six plants in Group I had net incomes between $10,000 and $14,999. Four plants in Group II, also four plants in Group III, and only one plant in Group IV had net incomes within the $10,000 to $14,999 income range.

There were only eight firms that had net incomes above $15,000. Only one plant in Group II and one plant in Group IV had net incomes in the $15,000 to $19,999 income range. Neither Group I nor Group III had any firms in the income range from $15,000 to $19,999.

Firms within each size group that had net incomes of $20,000 or more were grouped together. The $20,000 and over category contained six firms: one plant in Group II, three plants in Group III, and two plants in Group IV. None of the plants in Size Group I had incomes of $20,000 or more.

Net incomes of the NFI meat plants were compared to North Dakota farm incomes to determine how meat plant incomes compared to the net incomes of other members of the rural community. The comparison was made with farm income because the NFI meat plants were located in rural communities.

TABLE 13. DISTRIBUTION OF NONFEDERALLY INSPECTED MEAT PLANTS ACCORDING TO SIZE AND NET INCOME OF PLANTS, NORTH DAKOTA, 1967.

	Size Group[a]								All Size Groups	
	I		II		III		IV			
Net Income (dollars)	Number of Plants	Percent of Plants	Number of Plants	Percent of Plants	Number of Plants	Percent of Plants	Number of Plants	Percent of Plants	Number of Plants	Percent of Plants
Less than 5,000	65	62.5	12	46.2	1	10.0			78	54.2
5,000- 9,999	33	31.7	8	30.8	2	20.0			43	29.9
10,000-14,999	6	5.8	4	15.4	4	40.0	1	25.0	15	10.4
15,000-19,999			1	3.8			1	25.0	2	1.4
Over 20,000			1	3.8	3	30.0	2	50.0	6	4.1
Total for each size group	104	100.0	26	100.0	10	100.0	4	100.0	144[b]	100.0

[a]Refer to Table 2 for size group descriptions.

[b]Net incomes were available from 144 meat plants.

Meat plant owners were experiencing approximately the same net incomes as other persons in the community. The average net income for meat plants was $5,800 in 1967 compared to $5,500 for North Dakota farmers.[16] Therefore, although net incomes for the meat industry were relatively low, the net income for meat plant owners was comparable to other community member incomes and adequate to keep meat firms in the industry.

Sources of Additional Income

The net incomes of the North Dakota NFI meat plants were low. However, this does not necessarily mean that the total income to meat plant owners was also low. Although the meat plants had low average net incomes, numerous meat plant owners had other sources of income to supplement the income from their meat plant.

The most common source of additional income was the sale of groceries (Table 14). Fifty-nine meat plant owners had a grocery store in conjunction with their meat firm. In some cases, the sale of groceries was a minor part of a meat plant while in other instances meat plants placed major emphasis on their grocery store and minor emphasis on the meat business.

TABLE 14. SOURCES OF ADDITIONAL NET INCOME FOR NFI MEAT PLANT OWNERS, NORTH DAKOTA, 1967.

Source of Additional Income	Number of Firms	Percent of Total Firms
None (strictly meat plants)	57	32.9
Grocery store	59	34.1
Creamery	5	2.9
Farm or ranch	28	16.2
Other	24	13.9
TOTAL	173[a]	100.0

[a]Information regarding additional sources of net income was available from 173 plants.

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[16]North Dakota Crop and Livestock Statistics, North Dakota State University, Ag Statistics No. 19, May, 1969, p. 73.

Farms and ranches provided additional income for 28 NFI meat plant owners. Five meat plant operators owned or managed creameries for additional income and 24 operators had "other" sources of additional income. This means a total of 116 (67 percent) meat plant operators had additional sources of income while only 57 (33 percent) meat plant owners were dependent on their meat plants for their entire income.

In addition to net income, there are several other measures of market performance that are unique in certain industries. One measure that may be applied to the North Dakota meat industry is how much the existing industry contributes to the social and economic welfare of rural communities. The North Dakota meat industry serves small local communities with a meat supply that may not be served under other market structures and also provides employment for people in the community.

Future Plans of Meat Plant Operators

The future plans of North Dakota NFI meat plant managers were compared with the corresponding net incomes of those managers to determine whether a relationship existed between the level of net income and future plans. Based on the 79 mail questionnaires that contained net income and future plan data, it appeared that there was little relationship between the net incomes of a firm and the future plans of the firm manager (Table 15).

Plans to initiate federal inspection were not strongly influenced by the net income of NFI meat firms in North Dakota. Twenty-five percent of the managers of firms with less than $5,000 net income planned to initiate federal inspection while 12 percent of the managers of firms with net incomes from $5,000 to $9,999 planned to qualify their meat plant for federal inspection. Sixty-seven percent of the managers of firms with net incomes from $10,000 to $14,999 and 33 percent of the managers of meat plants with net incomes between $15,000 to $19,999 indicated they planned to initiate federal inspection. None of the managers of plants with incomes over $20,000 planned to initiate federal inspection, but it should be noted that only two of the six firms in this income category responded to the mail questionnaire regarding future plans.

A larger percentage of the lower income than of the higher income firms planned to qualify for either retail or custom exemptions. Over half of the managers of meat plants with net incomes under $10,000 planned to become exempt from federal inspection, while approximately one-third of the plants with net incomes over $10,000 planned to be exempt.

A total of nine responding plant managers, with net income figures available, planned to discontinue their meat operation. There was no association between the decision to discontinue and the net incomes of these firms.

TABLE 15. FUTURE PLANS OF NONFEDERALLY INSPECTED MEAT PLANT MANAGERS ACCORDING TO MEAT PLANT NET INCOME, NORTH DAKOTA, 1970.[a]

	Net Incomes (dollars)										
	Less Than 4,999		5,000-9,999		10,000-14,999		15,000-19,999		Over 20,000		Total for Firms in All Income Groups
Future Plans	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Initiate federal inspection	10	25.0	3	12.0	6	66.7	1	33.33	0	0.0	20
Qualify for exemption	22	55.0	17	68.0	3	33.3	1	33.33	1	50.0	44
Discontinue	4	10.0	4	16.0	0	0.0	1	33.33	0	0.0	9
Other	4	10.0	1	4.0	0	0.0	0	0.0	1	50.0	6
TOTAL	40	100.0	25	100.0	9	100.0	3	100.0	2	100.0	79[b]

[a]Data concerning future plans of managers were obtained in a March, 1970, survey. The net income figures are for 1967.

[b]Data regarding both future plans and net incomes were available from 79 meat plants.

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