

# **Livestock Marketing In Ohio**

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**OHIO AGRICULTURAL  
EXPERIMENT STATION**

**Wooster, Ohio**

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# LIVESTOCK MARKETING IN OHIO

G. F. HENNING AND EDGAR A. MILLER

## DEVELOPMENT OF LIVESTOCK MARKETING

Prior to 1800, little livestock was produced in Ohio. Marketing was direct, with farmers slaughtering their own livestock for consumption or selling to neighbors. Afterward, as small towns developed local butchers handled meat, usually along with the general store. They purchased livestock from the farmer, "butchered" it, and sold it to consumers. Later, butcher shops developed, and butchers had their own slaughter houses. This system continues today. Many towns and cities erected slaughter houses for use by local butchers through payment of a fee. These city-owned slaughter houses continued through World War I, and a few were used in Ohio as late as World War II.

Livestock farmers in the early 1800's were soon producing more than could be consumed as meat in Ohio. Needing to expand their marketing, some shipped livestock down the Ohio and Mississippi River for sale at New Orleans, then a small town. This proved satisfactory for some time, but livestock prices were so low that at times the total revenue received was less than costs of transportation and other expenses.

A second method of marketing was driving livestock over trails to Baltimore, Philadelphia, and other Eastern cities for slaughter. This system developed around the 1805 to 1810 period and was the principal marketing system during the early Colonial period. It continued until the development of railroads.<sup>1</sup>

A pork slaughtering and packing industry became important in Cincinnati and grew to national prominence during the 1820 to 1850 period.<sup>2</sup> During this time two important developments occurred in the packing industry. One was the merger into one business organization of both slaughtering and packing operations, and a second was extensive division of labor operations within the plant.

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<sup>1</sup>For additional information of the early history of livestock marketing, see Research Bulletin 810, "Development and Operation of Terminal Livestock Markets in Ohio." by G. F. Henning, M. B. Evans, E. A. Miller and others, Ohio Agricultural Experiment Station, Wooster, Ohio, July 1958. This publication gives other early references.

<sup>2</sup>According to Charles F. Goss in "Cincinnati the Queen City", page 334, and Henry A. Ford, "History of Cincinnati," page 328, a man named Richard A. Fosdick, who started pork slaughtering in 1810, was the first local packer at Cincinnati. Rudolph A. Clemen, in the "American Livestock and Meat Industry", page 93, wrote that "Elisha Mills was the first regular packer in the West who established himself as a packer in Cincinnati in 1818. However, it is probable that there were some small packers—farmer packers—as early as 1811."

Gradually as volume of livestock increased and railroad transportation developed which permitted the massing of large volumes of livestock, terminal markets began to replace market operations. Cincinnati Union Stockyards was incorporated in 1871<sup>3</sup> and was formed by combining two other markets, one of which began in 1859. The first regularly established livestock market at Cleveland began in 1878, giving way to the Cleveland Stockyards Company in 1881.

### **Growth of Auction Markets**

The first auction sale in Ohio took place in March 1856 at London, Ohio.<sup>4</sup> This market continued operation until 1912. At first it was primarily a feeder cattle sale, but after 1900 became primarily a horse auction. It declined with the rise of terminal markets.

The next auction appeared in 1911 in Berlin, Ohio. It was organized by a group of Mennonite farmers. During the twenties and early thirties improved rural roads, new highways and greater availability of trucks brought about a large expansion of auction markets. By 1935 there were 61 auctions operating in 44 counties in the state, and by 1957 there were 74 operating, but the number declined to 60 in 43 counties by 1962.

### **Importance of Transportation**

Transportation developments have been a key link in the evolving business organizations concerned with the movement of meat products from point of production to point of consumption. Driving, river transportation, railroads and railroad refrigeration all had an important influence in the industry. Cheap river transportation was another link which helped pork packing become a large business in Cincinnati during the 1850's.

Railroad's and refrigerated railroad cars were a necessity which permitted the huge centralized packing business to grow in many large Midwestern cities.

Transportation for the past 150 years and refrigeration since 1870 have been the key functions that have brought about a rather constant change in the structure, number and location of business organizations involved in transferring and processing livestock from the farm into edible meat for sale to the consumer. The terminal livestock market with commission selling evolved between 1860 and 1890 as the most efficient method of bringing buyer and seller together.

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<sup>3</sup>See Ohio Research Bulletin 810, page 7, for additional information.

<sup>4</sup>S. H. Heffron—Sale Day at London, Ohio. Thesis presented for the Master of Arts Degree at The Ohio State University, 1931.

During the dynamic period after World War 1, roads and motor trucks brought about a new, more flexible system of transportation. This permitted development of a marketing structure closer to the point of production and forced a gradual movement away from the large centralized packing plants and terminal markets.

During the past 150 years, business organizations involved in movement and marketing of livestock and meat from producer to consumer have constantly changed. Business firms have passed through periods of growth, prosperity, and eventual decline as changes in transportation, refrigeration, and centers of livestock production have evolved. This process is continuous; it is currently underway as packing plants continue to move closer to sources of livestock production, and it may be expected to continue into the future.

### **TRENDS OF LIVESTOCK MARKETED IN OHIO AND UNITED STATES COMPARED TO FEDERAL SLAUGHTER AND POPULATION**

#### **Cattle**

In 1962 Ohio ranked thirteenth in the nation in cattle marketings and marketed approximately 2.2 percent (771,000 head) of the total U. S. cattle marketed, (Table 1).<sup>5</sup> Receipts from all cattle and calves sold in Ohio represented about 13 percent of the estimated cash receipts from the sale of all agricultural commodities for the state.<sup>6</sup>

Chart 1 presents the trend that has occurred in cattle marketings in Ohio for the past 27 years as compared to increases in U. S. population and U. S. federal slaughter of cattle.

The slope of lines in Chart 1 and the calculations in Table 1, show that the number of cattle marketed and slaughtered has increased faster than U. S. population growth.

United States population increased 24.4 percent between the 1945-1954 average and that of 1962, but at the same time Ohio's population increased slightly more or 26.7 percent. Ohio cattle marketings have increased much more than population growth and have kept pace with U. S. marketings. During the 1945-1954 period Ohio marketed 2.17 percent of the total cattle marketed in the U. S. as compared to the same percentage for the year 1962.

A study of Ohio and U. S. marketings up to 1962 indicates that Ohio will not vary very much from developments for the U. S. during

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<sup>5</sup>Meat Animals (Mt. An. 1-1) U. S. Department of Agricultural Statistical Reporting Service, page 4.

<sup>6</sup>1962 Ohio Farm Income, Department of Agricultural Economics and Rural Sociology, Ohio State University.

TABLE 1

Trends in Cattle Marketings Compared to United States and Ohio Population.

	1945- 1954 (Average)	1950	1962	Percentage Change From The 1945-1954 Average to 1962
(Thousands, or 000 omitted)				
U.S. Population	149,335	180,670	185,822 <sup>1/</sup>	+24.4%
Ohio Population	7,972	9,706	10,097 <sup>1/</sup>	+26.7%
U.S. Federal Slaughter (Head)	14,194	19,394	20,338	+43.3%
U.S. Marketings (Head)	24,500	34,378	36,339	+48.3%
Ohio Marketings (Head)	531	680	790	+48.8%

<sup>1/</sup> Population Estimated July 1, U.S. Bureau of Census

Source: U.S. Statistical Abstract, Livestock and Meat Statistics, and Meat Animals.

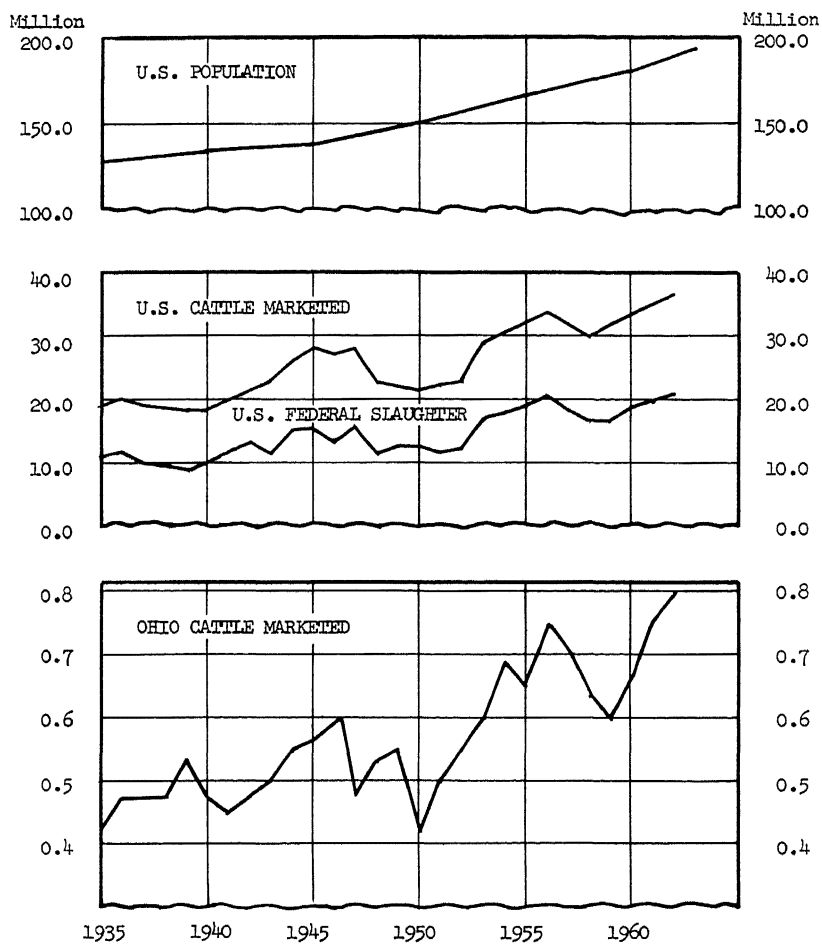
the immediate years ahead. During the period from 1945-1954, Ohio's population increased nearly 22 percent along with rapid urbanization, increased expansion of industrial facilities and road-building. This would indicate a good nearby market for agricultural commodities including meat.

### Calves

Marketing of calves from Ohio presented a different trend situation than cattle, Chart 2 and Table 2. Calves marketed for the U. S. followed much the same pattern as did cattle up to 1955, but for Ohio it was a declining trend after 1945. After 1956 calf marketings in Ohio declined far more than was true of the U. S. In the 1956 census, the number of farms reporting milk cows was down 39 percent from the 1954 figure, and the number of milk cows was down about 20 percent for the same period.

This trend for Ohio may continue a few more years but it would seem that the adjustment will have been made by the time the present beef cattle production cycle turns down. United States federal slaughter for recent years indicates a shift has started. The period between now and 1965 should be observed closely for a shift in the trend.

Chart 1: Number Ohio Cattle Marketed Compared to U.S. Population, U.S. Cattle Marketed, and U.S. Federal Slaughter, Yearly, 1935-1962



Source: Ohio Population, Growth and Distribution, Department of Industrial and Economic Development, 1962. Livestock Meat and Statistics, 1957, U.S.D.A. Meat Animals, Disposition by States, 1945-1961, U.S.D.A.

TABLE 2

Trends in Calf Marketings Compared to United States  
and Ohio Population

	1945- 1954 (Average)	1960	1962	Percentage Change From The 1945-1954 Average to 1962
(Thousands, or 000 omitted)				
U.S. Population	149,335	180,760	185,822 <sup>1/</sup>	+24.4%
Ohio Population	7,972	9,706	10,097 <sup>1/</sup>	+26.7%
U.S. Federal Slaughter (Head)	6,487	5,260	4,980	-23.2%
U.S. Marketings (Head)	13,092	12,054	12,081	- 7.7%
Ohio Marketings (Head)	377	201	189	-49.9%

<sup>1/</sup> Population estimated July 1, U.S. Bureau of Census

Source: Statistical Abstract, Livestock and Meat Statistics, and Meat Animals.

### Trends in Ohio Hog Marketings

In 1962 Ohio ranked as the seventh largest state in hog production, with total marketings of 4,102,000 head,<sup>7</sup> and Ohio marketed 5.0 percent of the total United States production for that year. For Ohio farmers in 1961, hog sales were the third largest source of cash receipts, with a total of \$151,735,000. This was 14.5 percent of all cash receipts.<sup>8</sup> Hogs have been an important source of income for Ohio farmers for many years.

Ohio's population growth since 1944, Table 3, has increased slightly faster than that of the United States. United States federally inspected hog slaughter increased more than United States and Ohio's population growth, but Ohio hog marketings have been on a slightly downward trend in recent years compared to an increase for the United States, Table 3. For the past three years Ohio marketings have stabilized with U. S. marketings.

### Trends in Ohio Marketings of Sheep and Lambs

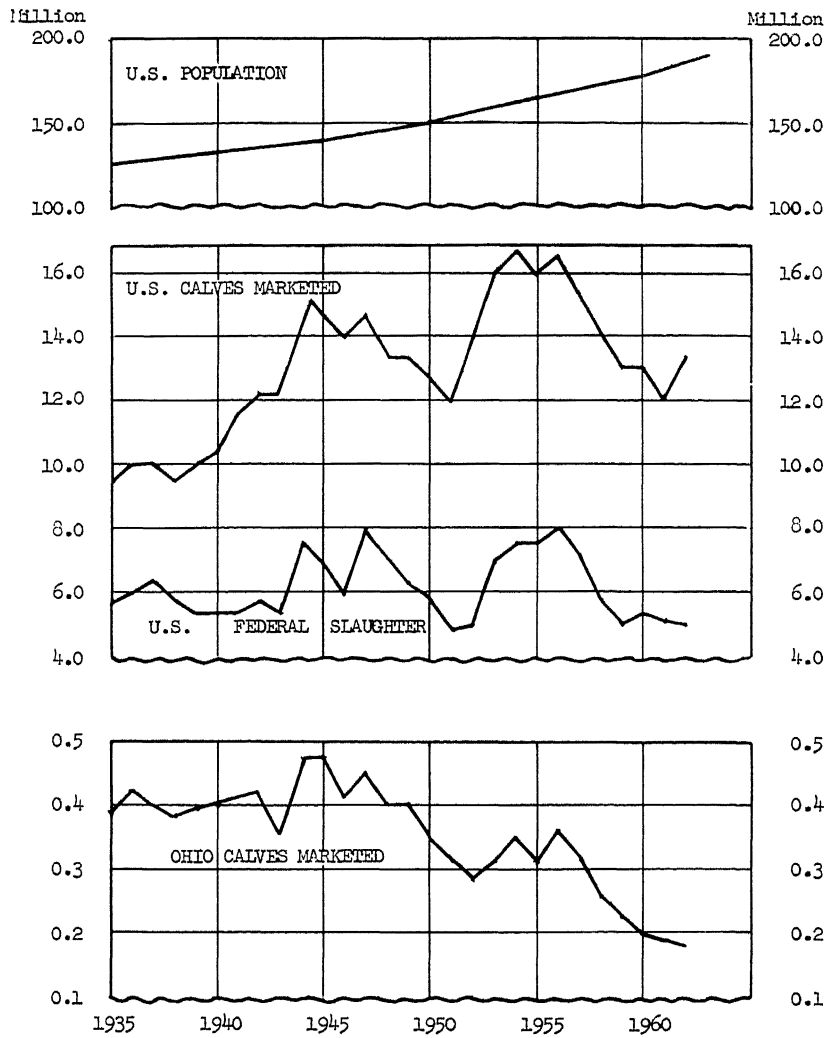
From 1944 to 1951 Ohio and United States sheep and lamb marketings consistently decreased. Low point for Ohio was 1951 with 527,000 marketed. After 1952 Ohio sheep and lamb marketings

<sup>7</sup>Meat Animals (Mt. An. 1-1) Statistical Reporting Service, Crop Reporting Board, United States Department of Agriculture.

<sup>8</sup>Ohio Farm Income 1960 AE 325, Department of Agricultural Economics.



Chart 2: Number Ohio Calves Marketed Compared to U.S. Population, U.S. Calves Marketed, and U.S. Federal Slaughter, Yearly, 1935-1962



Source: Ohio Population, Growth and Distribution, Department of Industrial and Economic Development, 1962. Livestock Meat and Statistics, 1957, U.S.D.A. Meat Animals, Disposition by States, 1945-1961, U.S.D.A.

TABLE 3

Trends in Hog Marketings Compared to United States  
and Ohio Population

	1945- 1954 (Average)	1960	1962	Percentage Change From The 1945-1954 Average to 1962
(Thousands, or 000 omitted)				
U.S. Population	149,335	180,670	185,822 <u>1/</u>	+24.4%
Ohio Population	7,972	9,706	10,097 <u>1/</u>	+26.7%
U.S. Federal Slaughter (Head)	52,329	65,153	67,770	+29.5%
U.S. Marketings (Head)	68,692	79,938	81,596	+18.8%
Ohio Marketings (Head)	4,295	4,064	4,102	- 4.5%

1/ Population estimated July 1, U.S. Bureau of Census.

Source: Statistical Abstract, Livestock and Meat Statistics, and Meat Animals.

TABLE 4

Trends in Sheep and Lambs Marketings Compared to  
United States and Ohio Population

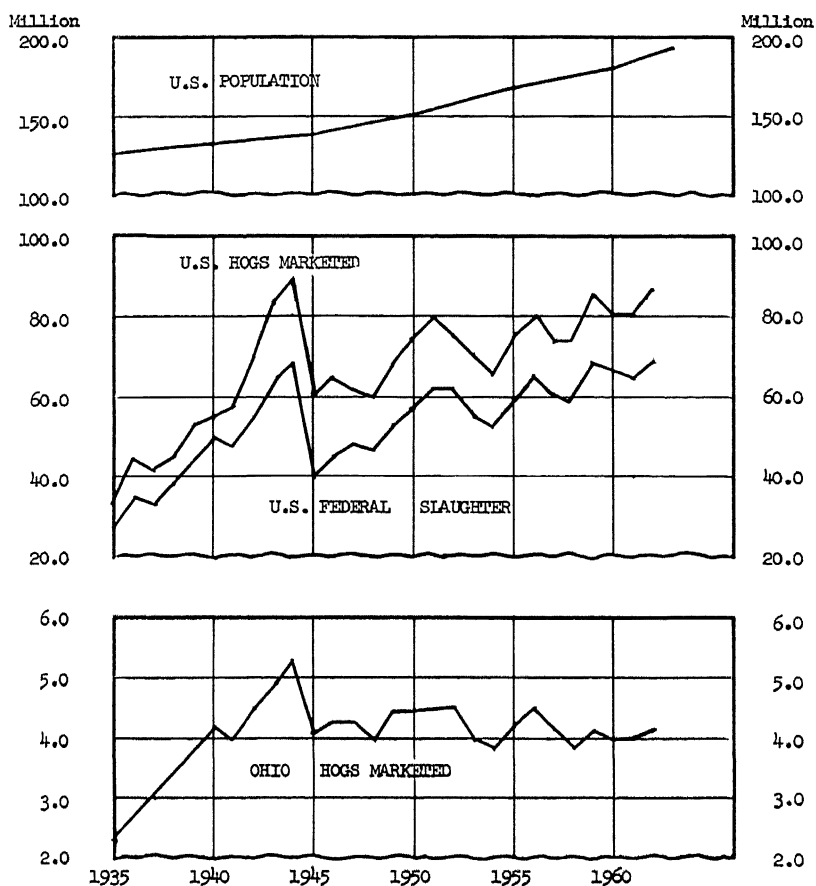
	1945- 1954 (Average)	1960	1962	Percentage Change From The 1945-1954 Average to 1962
(Thousands, or 000 omitted)				
U.S. Population	149,335	180,670	185,822 <u>1/</u>	+24.4%
Ohio Population	7,972	9,706	10,097 <u>1/</u>	+26.7%
U.S. Federal Slaughter (Head)	14,817	14,036	14,692	- 0.8%
U.S. Marketings (Head)	23,403	22,634	22,399	- 4.3%
Ohio Marketings (Head)	727	746	724	- 0.4%

1/ Population estimated July 1, U.S. Bureau of Census

Source: U.S. Statistical Abstract, Livestock and Meat Statistics, and Meat Animals.

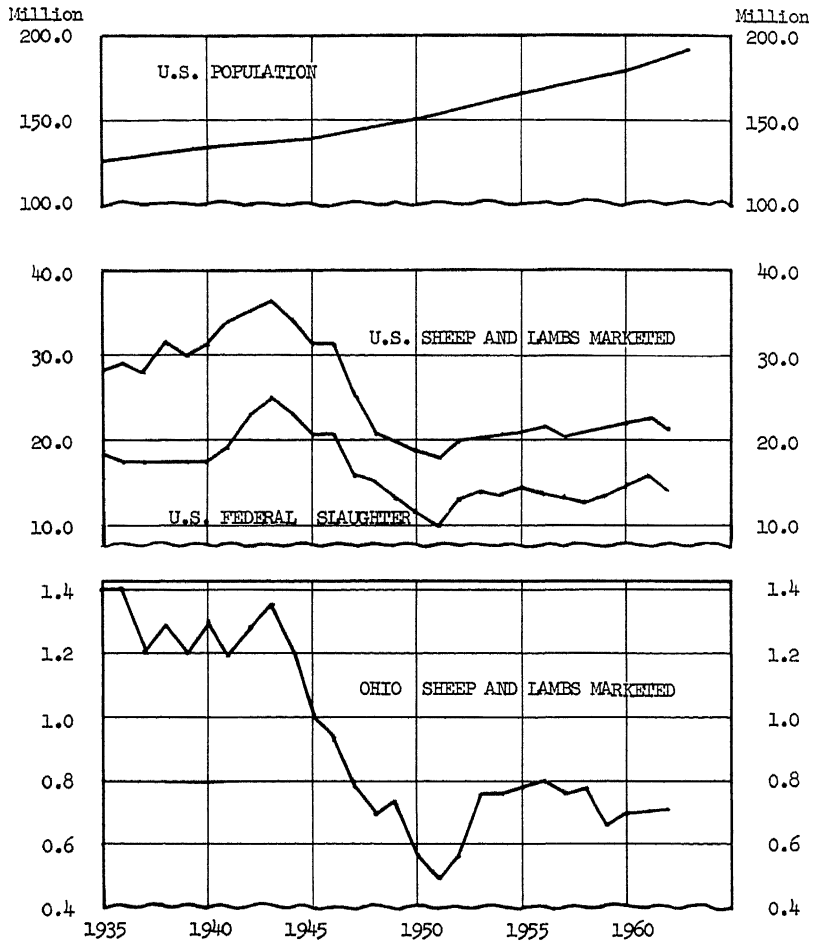
increased about the same as did United States marketings. Total Ohio marketings in 1962 were 727,000 head, up slightly from 1960, but U. S. marketings were slightly higher. Therefore Ohio marketings may follow the same pattern for 1963-1965 as that for the nation.

Chart 3: Number Ohio Hogs Marketed Compared to U.S. Population, U.S. Hogs Marketed, and U.S. Federal Slaughter, Yearly, 1935-1962



Source: Ohio Population, Growth and Distribution, Department of Industrial and Economic Development, 1962. Livestock Meat and Statistics, 1957, U.S.D.A. Meat Animals, Disposition by States, 1945-1961, U.S.D.A.

Chart 4: Number Ohio Sheep and Lambs Marketed Compared to U.S. Population, U.S. Sheep and Lambs Marketed, and U.S. Federal Slaughter, Yearly, 1935-1962



Source: Ohio Population, Growth and Distribution, Department of Industrial Economic Development, 1962. Livestock Meat and Statistics, 1957, U.S.D.A. Meat Animals, Disposition by States, 1945-1961, U.S.D.A.

## MEAT SLAUGHTERING PLANTS IN OHIO

Meat slaughtering plants in Ohio were started by Richard A. Fosdick at Cincinnati in 1810, and Elisha Mills with a small slaughter operation during 1818." Since, Ohio has maintained an important slaughtering industry. Table 5 shows the number of plants operating in Ohio and the U. S. for the past five census periods.

Packing plants in Ohio have increased slowly in number and have maintained a constant position relative to the United States. When considering the packing plants with more than 20 employees, Ohio has maintained a constant position in recent years, having about 8.0 percent of the total U. S. plants.

Table 6 compares Ohio commercial slaughtering operations for selected years since 1945 with national slaughter. The census of manufacturers' information points out that the Ohio slaughtering industry has maintained about the same relative volume of slaughtering cattle and hogs as was the situation fifteen years ago. But for calves, sheep and lambs, Ohio has decreased in importance.

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"Charles F. Goss, "Cincinnati the Queen City", p. 334 and Henry A. Ford, "History of Cincinnati", p. 328, and Rudolph A. Clemen, "The American Livestock and Meat Industry", p. 93.

Table 5  
Number of Packing Plants, Ohio and United States for  
Selected Years

Year	All Plants			Number of Plants Having Over 20 Employees Per Plant		
	Ohio	U.S.	Ohio Percent	Ohio	U.S.	Ohio Percent
1929	120	1277	9	---	---	--
1939	158	1478	11	---	---	--
1947	176	2153	8	111	832	13
1954	193	2367	8	70	933	8
1958	212	2801	8	79	977	8

Source: United States Department of Commerce, Bureau of Census, Census of manufacturing for given year.

Table 6

Number of Animals Slaughtered in Commercial Meat Packing Plants  
in Ohio as a Percentage of the Number Slaughtered in the  
United States 1945-1962

	1945	1950	1955	1959	1960	1961	1962
Cattle	4.7	5.0	4.5	4.7	4.7	4.5	4.5
Calves	2.8	3.7	2.6	2.2	1.9	1.9	1.8
Hogs	4.7	5.5	5.8	5.4	5.8	5.2	5.2
Sheep and Lambs	1.6	1.7	1.6	1.2	1.1	1.1	1.0

See Table 15

#### OHIO MEAT CONSUMPTION COMPARED TO OHIO SLAUGHTER AND MARKETINGS BY FARMERS

Ohioans consumed more beef in 1961 (873,928,000 pounds) than was marketed by Ohio farmers or commercially slaughtered by Ohio packers (Table 8) assuming that the per capita consumption of beef in Ohio was the same as the United States average of 88.0 pounds. Per capita consumption of beef of the U. S. (Table 7) has increased during the past 10 years. Table 8 compares Ohio commercial slaughter and Ohio marketings of cattle and other livestock with estimated consumption. Ohio's commercial beef slaughter was about 75 percent of its estimated beef consumption for the years 1961 and 1962. But Ohio marketings of beef cattle supplied only about 50 percent of the state's estimated beef consumption.

Chart 1 and Table 1 show that Ohio cattle marketings in 1962 when compared to the 10-year average (1945-1954) had increased about twice as fast as Ohio and United States population growth over the same period. Since Ohio slaughterers supply only about three-fourths of the beef required for Ohio consumption under the above assumption, Ohio farmers have a strong locational advantage over farmers further west.

Table 8 for the years 1961 and 1962 shows similar relationships between Ohio commercial slaughter and Ohio marketings for calves, hogs, sheep and lambs. Ohio marketings of calves for 1962 were 35.5 percent of estimated consumption, hogs 83 percent, and sheep and lambs 62.3 percent. For all four species of livestock, Ohio marketings

Table 7  
Per Capita Consumption for the United States of Beef,  
Veal, Pork, Lamb and Mutton, 1950-1963

(Pounds)

Year	Beef	Veal	Pork	Lamb & Mutton
1950	63.4	8.0	69.2	4.0
1952	62.2	7.2	72.4	4.2
1955	82.0	9.4	66.8	4.6
1956	85.4	9.5	67.3	4.5
1957	84.6	8.8	61.1	4.2
1958	80.5	6.7	60.2	4.2
1959	81.4	5.7	67.6	4.8
1960	85.2	6.2	65.2	4.8
1961	88.0	5.7	62.3	5.1
1962	89.1	5.5	63.9	5.2
1963 <u>1/</u>	95.1	5.0	64.9	4.9

1/ Preliminary

Source: Livestock and Meat Statistics, U.S.D.A. Agricultural Marketing Service, Statistical Bulletin No. 230, and Supplement for 1961; National Food Situation, May 1963, Economic Research Service, U.S.D.A.

were well under state consumption, based on national averages of consumption.

A similar situation exists when comparing commercial slaughter with Ohio consumption as shown in Table 8. About 50 percent more cattle were slaughtered in Ohio than marketed. This was well under total consumption. In the case of calves, commercial slaughter was less than Ohio marketings but many calves marketed were purchased for feeding. Thus it may be doubtful if there was a net export of calves. Hog slaughter and marketings were about equal so it can be concluded that exports from Ohio about equalled imports from other states. Sheep and lamb slaughter was very low in relation to

Table 8: Comparison of Ohio Slaughter, and Ohio Marketings of Livestock with Ohio  
Estimated Consumption of Meat for the Years 1961 and 1962

(Adjusted to pounds of dressed weight)

		Cattle	Calves	Hogs	Sheep & Lambs
Ohio Estimated Consumption (dressed weight)	1961	873,928,000	56,606,000	618,701,000	50,648,000
	1962	899,643,000	55,536,000	646,208,000	52,504,000
Ohio Commercial Slaughter (dressed weight)	1961	656,618,000	15,398,000	519,821,000	7,714,000
	1962	664,159,000	14,434,000	549,841,000	7,178,000
Ohio Marketings (dressed weight)	1961	439,132,000	20,391,000	519,534,000	32,800,000
	1962	433,813,000	20,077,000	536,068,000	32,731,000
Percentage Ohio Slaughter is of Ohio Estimated Consumption	1961	75.1%	27.2%	84.0%	15.2%
	1962	73.8%	26.0%	85.1%	13.7%
Percentage Ohio Marketings are of Ohio Estimated Consumption	1961	50.2%	36.0%	83.9%	64.8%
	1962	48.2%	35.5%	82.9%	62.3%

See Table 15



marketings and it can be concluded that marketings of live sheep and lambs out of Ohio were large in relation to those purchased from other states.

With this additional information, there is speculation as to changes in the above relationships which can be expected to occur in the next decade. After studying the data for the past 30 years the writers estimate that the cattle trend will remain much the same and that hog marketings and slaughter trends may move upward. The same no doubt will apply to calves. However, lambs and sheep are difficult to estimate.

#### **THE NUMBER OF LIVESTOCK MARKETED IN OHIO FOR THE YEARS 1950-55,-'60,-'61, and-'62 BY AREAS AND COUNTIES**

The U. S. Department of Agriculture<sup>10</sup> makes available annually the numbers of cattle, calves, hogs, sheep and lambs marketed by states, but does not indicate the numbers marketed by counties. Therefore, an estimate must be made for county or area marketings if such information is needed. When comparisons are made for volume available between marketing firms within areas, such information can best be obtained by using county figures.

The Crop and Livestock Reporting Service makes available annually by counties the number of livestock on farms on January 1. Since livestock numbers may change from year to year, it is important that an annual figure be used. In this study it was assumed that the number of livestock marketed by counties for a particular year would be in proportion to the number of livestock on farms by counties for January 1 of that year. At this time of year many farmers who have purchased feeder livestock from September through December will have them on their farms January 1. Since numbers change annually, it was the thinking and belief of the writers that the January 1 information is the best data available each year to use in estimating county or area livestock marketings within Ohio.

Therefore, the number of livestock reported on farms each January 1 by counties, and the percentage each county had of the state total was the basis for distributing the marketings by counties from the data made available to states by the U. S. Department of Agriculture.<sup>11</sup> Tables 9 and 10, and Charts 5, 6, 7 and 8 were developed by the above described method.

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<sup>10</sup>Meat Animals—Farm Production, Disposition, and Income by States, by Year, U.S.D.A., Statistical Reporting Service, Crop Reporting—by years 1961-1962 (etc.)

<sup>11</sup>Since marketings are made available annually only by states the writers selected the above described method as the most desirable for this study.

### **Recent Trends of Numbers of Livestock Marketed by Areas in Ohio**

Table 9 presents the changes during recent years in the marketing of slaughter cattle and calves\* by the nine geographical Ohio areas. Areas by counties are given in Chart 11 and Table 14. Table 9 shows that the 11 counties in northwestern Ohio more than doubled their marketings of cattle for the period. The central and western areas had the largest absolute number increases while marketings were larger in the western central parts of the state. Increase for the state from 1950 through 1962 was nearly 85 percent.

Calf marketings for slaughter in Ohio declined nearly 50 percent for the 12-year period. The difference in the trends for cattle and calves was largely due to the build up in the beef cattle cycle and decline in dairy cattle numbers as previously noted.

Hog marketings (Table 10) were largest in central and southwestern Ohio, accounting for nearly 45 percent of the total. The trend for the western part of the state declined relatively little for the 12-year period. The northeastern and southeastern areas had the largest percentage declines from the 1950 period. Other than these two areas the volume of hogs marketed over the past decade was rather stable. Hence marketing agencies were able to depend upon a rather stable volume for most of the state.

Lamb marketings increased 25 percent or more for 9 of the 11 areas during the past decade. Eastern and southeastern Ohio had increases slightly under 15 percent. At the present time, central, western, and northern Ohio are the areas marketing nearly 60 percent of the sheep and lambs.

Estimated marketings by counties are published in the next section and the Appendix. These changes in counties and areas are of importance to individual agencies marketing livestock.

#### **Marketing of Cattle, Calves, Hogs, Sheep and Lambs by Counties for 1955 and 1961**

Charts 5 and 6 point out the number of cattle and calves marketed by counties for 1955 and 1961. The top figure indicates the number marketed for 1955 and the bottom figure for 1961. For example, note Williams County in the Northwestern corner of the state. The top figure was 7.7 for the year 1955 and 10.5 for the year 1961, which means the actual number of cattle marketed was 7,700 in 1955 and 10,500 in 1961.

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\*See preceding page for basis of estimating marketings by counties.

Table 9

Number of Cattle and Calves Marketed for Slaughter Estimated by Nine Ohio Areas  
for Years 1950, 1955, 1960, 1961,  
and 1962\*

Areas	Coun- ties	Cattle					Calves				
		1950	1955	1960	1961	1962	1950	1955	1960	1961	1962
Northwestern	11	44,600	71,600	72,200	89,900	91,290	38,800	33,400	23,300	22,600	21,860
Northern	10	41,600	66,200	61,900	76,400	78,280	36,200	30,900	19,900	19,100	18,730
Northeastern	12	59,400	90,900	79,700	99,300	101,740	51,700	42,300	25,600	24,900	24,330
Western	9	56,500	89,400	83,200	104,800	108,670	49,100	41,500	26,800	26,300	25,990
Central	12	73,500	122,500	112,800	136,200	139,650	63,800	57,300	36,300	34,000	33,410
Eastern	7	35,100	50,600	50,600	61,800	62,770	30,500	23,600	16,300	15,500	15,010
Southwestern	8	38,600	63,900	55,200	69,500	71,760	33,600	29,800	17,600	17,400	17,170
Southern	8	32,400	50,900	48,000	58,100	58,910	28,100	23,600	15,400	14,500	14,110
Southeastern	11	47,300	70,000	61,400	75,000	76,930	41,200	32,600	19,800	18,700	18,390
Ohio	88	429,000	676,000	625,000	771,000	790,000	373,000	315,000	201,000	193,000	189,000

\* See Chart 11 for the grouping of counties in each area and the preceding pages for method of estimating marketings by counties and areas .

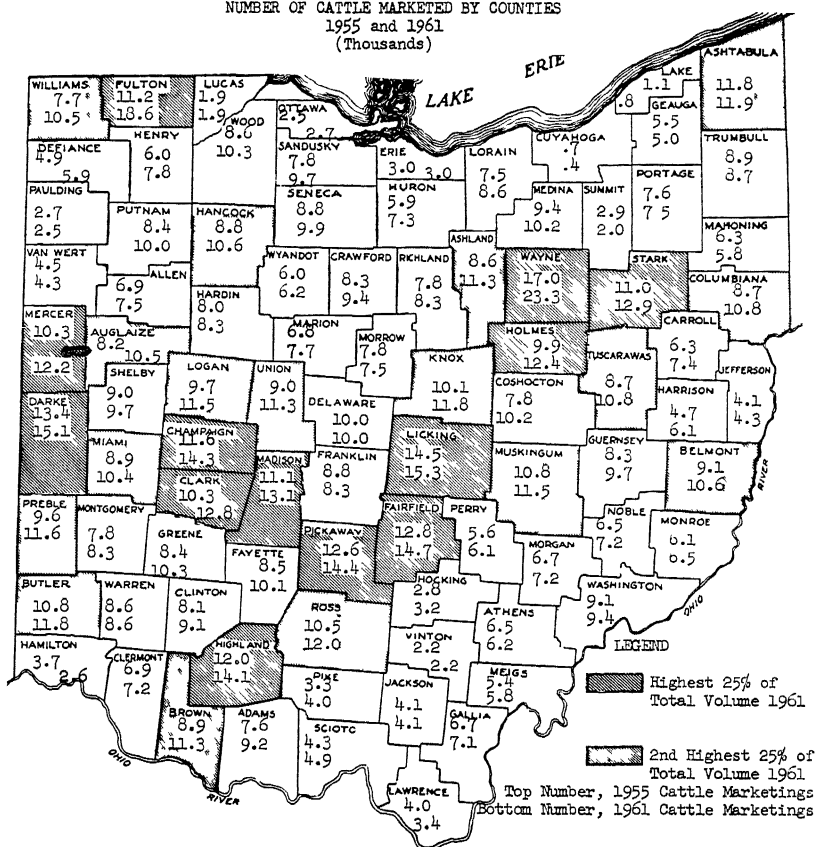
Table 10

Number of Hogs, Sheep, and Lambs Marketed for Slaughter Estimated by Nine Ohio Areas  
for Years 1950, 1955, 1960, 1961, and 1962\*

Area	Coun- ties	Hogs					Sheep and Lambs				
		1950	1955	1960	1961	1962	1950	1955	1960	1961	1962
Northwestern	11	552,000	512,500	531,600	531,500	536,620	55,100	70,200	72,900	72,600	71,580
Northern	10	404,700	400,700	375,200	371,100	378,650	88,200	122,500	119,200	116,100	116,670
Northeastern	12	198,200	195,600	167,400	155,300	157,070	20,200	30,500	29,700	28,000	27,690
Western	9	738,200	684,400	678,300	671,100	691,200	81,300	110,100	109,900	108,300	107,870
Central	12	1,120,300	1,069,500	1,047,700	1,036,700	1,067,810	159,700	217,000	205,300	197,500	194,940
Eastern	7	152,100	146,400	138,600	134,300	131,670	45,900	51,100	53,700	51,200	53,060
Southwestern	8	811,800	768,700	765,200	764,800	780,320	40,300	56,500	54,000	52,600	51,310
Southern	8	282,400	246,700	248,300	245,600	248,180	17,900	24,300	23,200	23,500	22,550
Southeastern	11	163,100	135,500	111,700	110,600	110,470	69,400	84,800	78,150	77,200	78,330
Ohio	88	4,423,000	4,160,000	4,064,000	4,021,000	4,102,000	578,000	767,000	746,000	727,000	724,000

\* See Chart 11 for the grouping of counties in each area and the preceding pages for method of estimating marketings by counties and areas.

CHART 5  
 NUMBER OF CATTLE MARKETED BY COUNTIES  
 1955 and 1961  
 (Thousands)



The darker shaded counties are those that marketed the largest volume per county and which together totaled 25 percent of total marketings within Ohio. The lighter shaded counties made up the next largest volume totaling 25 percent of the state marketings. Thus, all the shaded counties accounted for 50 percent of the total marketings within Ohio. The remaining (unshaded) counties had the smallest volume per county and accounted for the remaining 50 percent of the marketings.

For cattle, western and east central Ohio were the heaviest marketing areas along with a few counties in southwestern and northwestern Ohio. The same situation existed for calves except for two counties, Greene and Williams.

Western Ohio, Chart 7, was the area that marketed a large percentage of the hogs for 1961, especially Clinton, Greene, Darke, Marion, Hancock, and Fulton counties as compared to Fayette, Montgomery, Butler, Champaign, Franklin, and Licking counties. Shifts such as these were important to marketing agencies because of the increased or decreased volume available for marketing. There were relatively

CHART 6  
 NUMBER OF CALVES MARKETED BY COUNTIES  
 1955 and 1961  
 (Thousands)

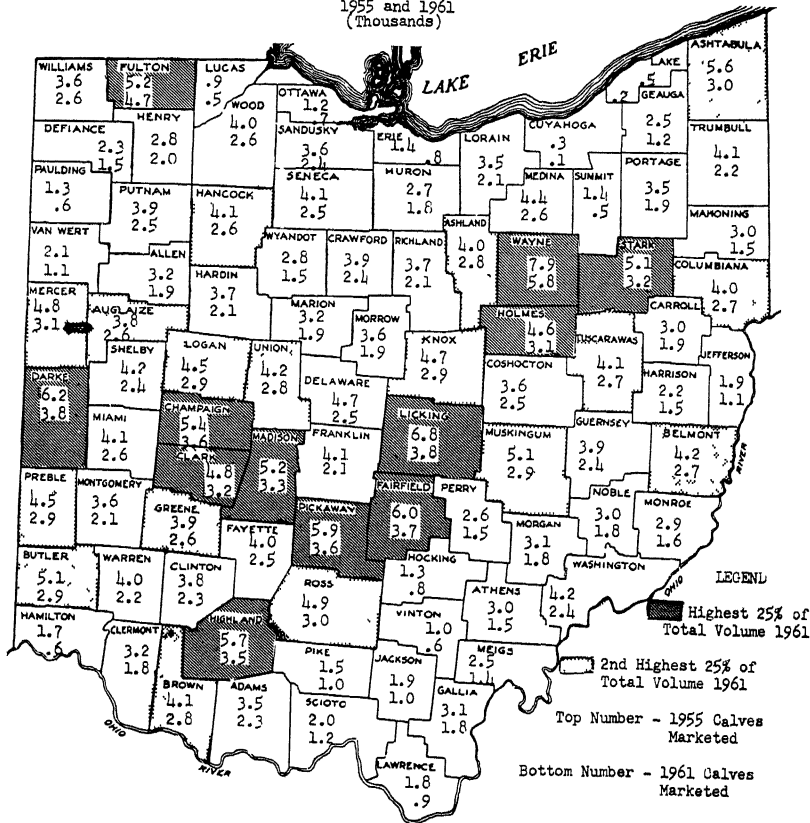
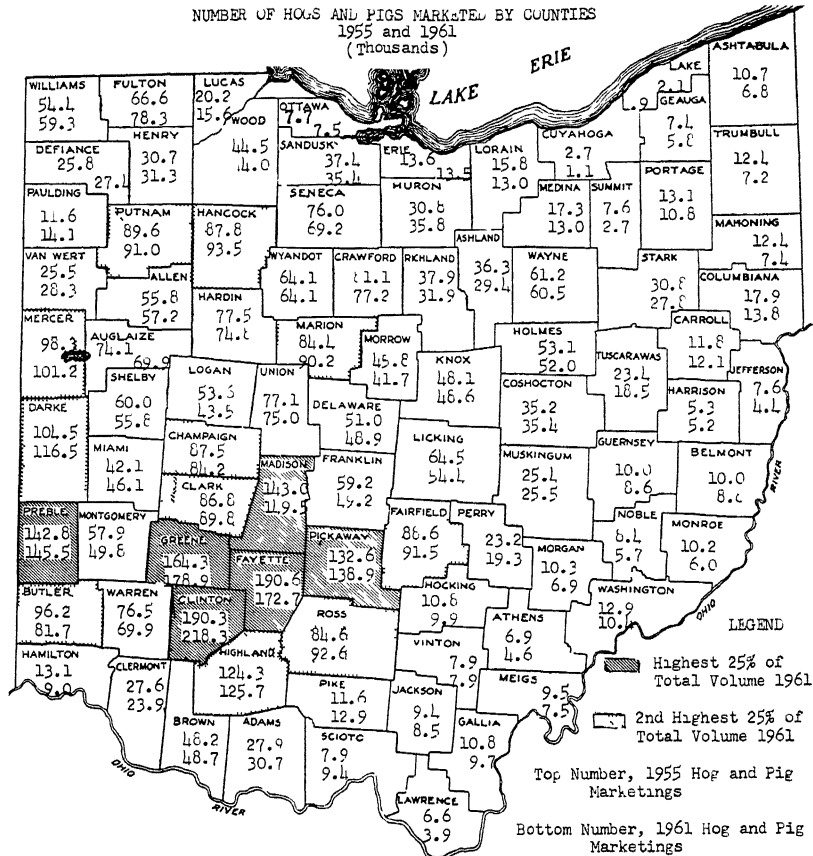


CHART 7  
 NUMBER OF HOGS AND PIGS MARKETED BY COUNTIES  
 1955 and 1961  
 (Thousands)



few counties that marketed less than 10,000 hogs for the year 1961 and most of these were located in northeastern and southeastern Ohio.

Sheep and lamb marketings, Chart 8, were heaviest in central and north central Ohio. Heaviest marketings were in Licking, Knox, Morrow, Marion, Hardin, Crawford, Wyandotte, Hancock and Seneca counties. Sheep and lamb marketings were small commercially as compared to cattle and hogs but marketing agencies must be concerned with their volume for approximately 50 percent of the counties in the state.





Table 11

Number of Animals Equal to 100 Marketing Units\*

	Ohio Interior Market Area	Cleveland Area	Cincinnati Area
Cattle	100	100	100
Calves	200	200	192
Hogs	500	312	357
Sheep and Lambs	500	555	357

\* The reader should also keep in mind that calves accounted for only about 5 percent of the marketing units, sheep and lambs 7 percent, or a total of 12 percent, hogs 46 percent and cattle 42 percent.

\$2.50 for each steer, heifer or cow marketed. This income was considered equivalent to one marketing unit. It was found in Ohio that 5 hogs, 2 calves, 5 sheep, or 5 lambs would bring to most markets approximately the same dollar income (commission) as one steer, heifer, or cow. Some markets vary these "charges" but for most interior markets in the state this seemed to be reasonably accurate for this study. For the Cleveland and Cincinnati areas a slightly different basis was used (Table 11). This was because of a different commission charge on hogs, sheep and lambs as compared to auction and interior markets.

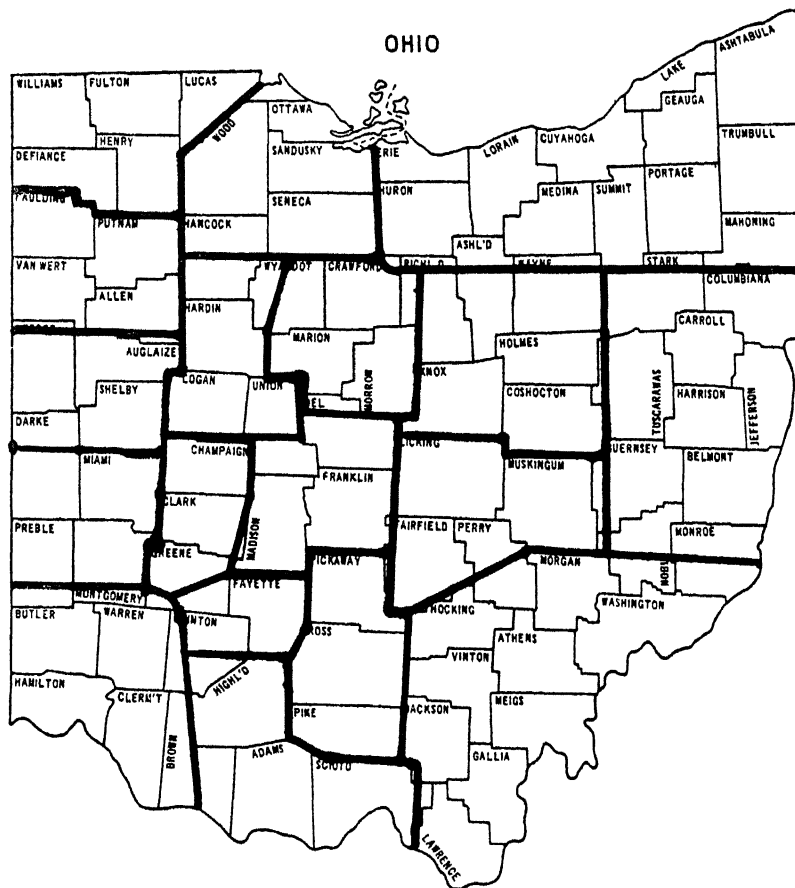
The number of marketing units by counties has been worked out from the data given in Table 11 and is shown in Table 14 by the nine geographical areas in the state. This information may be used to estimate volume density by counties, size of markets, or for other purposes where volume is important.

Since the number of marketing units has been determined by counties it becomes relatively easy to work out marketing areas in the state and then show the number of markets operating within those areas. The next questions then are: how many markets should be located in a given marketing area and how large should a marketing area be?

It was decided that areas should be kept along county lines as much as possible since marketing units were determined on a county basis, even though markets, once located, may draw livestock from a number of counties. Additional research<sup>12</sup> has shown that an efficient

<sup>12</sup>Miller, Edgar A., "A Mathematical Method of Locating Livestock Markets in Ohio to Minimize Average Total Cost of Transportation and Market Operation", unpublished Ph. D. Dissertation, The Ohio State University, December 1962.

**CHART 9**  
**Ohio Livestock Marketing Areas of Approximately 100,000**  
**Marketing Units, 1961**



market in Ohio should have an annual volume of at least 25,000 marketing units and in more dense areas, of 50,000 marketing units. Therefore an area of 100,000 marketing units was selected since four markets could compete with annual volume of 25,000 units each or three markets with 33,000 units or two with 50,000 units. An area of 100,000 units was, therefore, more flexible than smaller areas, and seemed more realistic in working with the large number of present markets. Markets of this size would enjoy reasonably low cost operations.

In the Cleveland and Cincinnati areas the terminal markets have been very important, therefore, these areas were enlarged to approximately 108,000 units for Cleveland and 115,000 for Cincinnati. The Cincinnati market receives a large volume from Indiana and Kentucky and the Cleveland market receives livestock beyond the area near Cleveland.

Chart 9 presents the marketing areas as the writers worked them out. This chart shows the area needed to furnish 100,000 marketing units for different locations in Ohio.

An area of 100,000 marketing units in western and southwestern Ohio was smaller than in the northwestern and eastern parts of the state. The Paulding area which has many cash-grain farms was the smallest with about 71,000 marketing units, and the Hardin-Union area was the largest with about 105,000 marketing units.

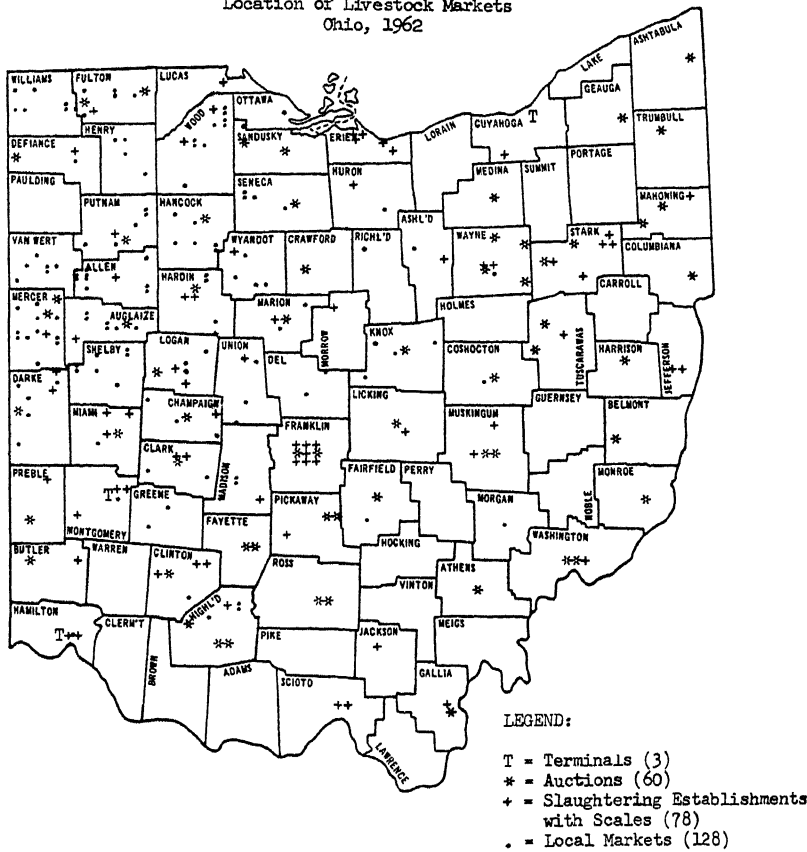
#### **LOCATION OF LIVESTOCK MARKETS OPERATING DURING 1962 IN OHIO**

The locations of 60 auctions, 78 slaughterers, 128 concentration yards (or local markets), and the Cincinnati, Dayton, and Cleveland terminal markets, operating as of September, 1962, are presented in Chart 10. A total of 269 markets of the above classification were operating and purchasing livestock from farmers during 1962. Based on the 1961 volume of 1,859,000 marketing units (Table 15), there were on the average just under 7,000 marketing units for each market. The 1962 volume was slightly more than the 1961 volume.

Chart 10 and Table 12 show where most of the market concentration was located for purchasing of Ohio livestock. Mercer, Wood, Allen, and Williams counties had the heaviest concentration of local markets or concentration of local markets or concentration yards while Franklin, Stark, Erie, Darke, and Muskingum counties had the greatest concentration of slaughterers buying livestock from farmers. Some of these plants were small and volume handled was small. Wayne and Highland counties had 4 and 3 auctions respectively and four other counties each had 2 auctions. The remaining auctions were located one to a county. For most areas the auctions were rather well distributed over the state (Chart 10).

CHART 10

Location of Livestock Markets  
Ohio, 1962



**DENSITY OF LIVESTOCK MARKETS BY AREAS OF 100,000  
MARKETING UNITS OF SLAUGHTER LIVESTOCK**

For 1962, Ohio had 11 marketing areas of about 100,000 marketing units containing more than 10 livestock markets per area buying and selling livestock, Table 13 and Chart 10. Five areas in northwestern Ohio had 20 markets or more per area. Markets in four areas had fewer than 5,000 marketing units per market available annually. All of the five areas in northwestern Ohio were dominated by local markets. These are also known as concentration yards, many being branches of other operations.

Seven areas, with a smaller number of markets, averaged from 6,300 to 9,400 marketing units per market (Table 13). The remaining

areas in the state (Chart 10) averaged more than 10,000 marketing units per market.

Table 13 and Chart 10 point up the large number of markets in Ohio, and the distribution of types of markets by marketing areas. Changes in transportation from rail to truck were largely responsible for development of the great number of markets. Ohio's present market structure is a result of the normal development of our competi-

TABLE 12  
Number of Slaughterers with Scales, Auctions, and Local  
Markets numbering 5 or more Per County for the  
Year 1962

Counties	Slaughterers with Scales	Auctions 1/	Concentration Yards or Local Markets	Total
Mercer	1	2	11	14
Wood	2	-	9	11
Darke	4	1	5	10
Franklin	7	2	-	9
Allen	1	-	7	8
Fulton	1	2	5	8
Putnam	2	1	5	8
Auglaize	1	1	5	7
Hancock	-	1	6	7
Highland	1	3	3	7
Stark	6	1	-	7
Wayne	2	4	1	7
Williams	-	-	7	7
Muskingum	4	2	-	6
Van Wert	-	-	6	6
Champaign	1	1	3	5
Clark	2	1	2	5
Clinton	3	1	1	5
Erie	5	-	-	5
Miami	3	1	1	5
Subtotal	46	24	77	147
Others in Ohio	32	36	51	119
Total	78	60	128	266 <sup>2/</sup>

1/ Many auctions also have a daily market which is similar to local market operations.

2/ Three Terminal markets at Cleveland, Cincinnati and Dayton have been omitted which equals 269 markets mentioned in previous pages.

CHART 11: Counties of Ohio by Geographical Areas  
(See Table 14)



tive system in the field of livestock marketing during the past 50 years. Many farmers today have livestock markets within 10 miles of their farms. In Ohio they have the choice of marketing their livestock at terminal markets, direct to slaughtering plants or their buying yards, auctions, local markets, or dealers who buy at the farm. Most have all these outlets available, though some have only three or four. Communication has improved and long distance buying and selling for livestock have been accepted by slaughters and sellers. Convenience

TABLE 13

Ohio Livestock Marketing Areas of Approximately 100,000 Marketing  
Units That Have Ten Markets or More Per Area, 1962

Area	Number of Markets				
	Slaughterers with Scales	Auctions	Local Markets	Total	Marketing Units Per Market
Mercer - Shelby	2	3	26	31	3,200
Williams - Henry	3	3	17	23	3,100
Paulding - Allen	2	1	19	22	3,200
Wood - Seneca	2	4	17	21	4,400
Hardin - Union	5	2	13	20	5,200
Cleveland Area	8 (1 term)*	7	1	17	6,300
Franklin - Madison	8	2	5	15	6,400
Miami - Preble	6 (1 term)**	3	3	13	7,600
Guernsey - Columbiana	7	6	-	13	6,800
Richland - Coshocton	3	3	6	12	8,700
Champaign - Clark	3	2	6	11	8,600
Fayette - Greene	3	3	1	10	9,400

\* Cleveland Stock Yards

\*\* Dayton Stock Yards

has been an important factor in this development.<sup>13</sup> The farmer might prefer to sell at an auction one steer or cow at a time rather than in larger and graded lots. But the slaughterer may have to have a buyer present who will spend all afternoon buying a few head of livestock. Greater concentration of livestock, uniform grading, selling in larger lots, and handling a larger volume per market should give the livestock industry a more efficient, lower cost system. The Department of Agricultural Economics and Rural Sociology has research<sup>14</sup> showing that auctions and combination markets should handle an annual volume of 25,000 or more marketing units per market for reasonably low cost and efficient operations.

<sup>13</sup>North Central Regional Publication 104, Ohio Agricultural Experiment Station, Wooster, Ohio, Research Bulletin 846.

<sup>14</sup>Miller, Edgar A., "A Mathematical Method of Locating Livestock Markets in Ohio to Minimize Average Total Cost of Transportation and Market Operation", unpublished Ph. D. The Ohio State University, December 1962

The question before the livestock marketing industry is distribution of markets so that each marketing unit area may handle 25,000 or more marketing units annually.

Buying out the weak, consolidation, elimination of high cost markets, or setting up limitations in establishment of new markets are among possibilities. Whether our competitive system will develop this desired structure in the years head and result in a low cost, efficient industry and yet maintain convenience to the satisfaction of the livestock farmer is the question. This becomes the responsibility of leaders of livestock marketing, dominant firms of the industry, and governmental regulatory agencies which are The Packer Stockyards Administration and the livestock industry section of the Ohio Department of Agriculture.

### CONCLUSIONS

Past trends show that the rate of growth of Ohio's population has increased during the past 15 years slightly more than that of the United States. By 1962 there were more than 10 million Ohio consumers. Based on average per capita consumption for the United States, Ohio farmers in 1962 marketed livestock equal to 50 percent of the beef, 36 percent of the veal, 84 percent of the pork and 65 percent of the lamb consumed in Ohio. Ohio livestock producers thus have a location advantage, being near to a large meat consuming area.

Ohio by 1962 had increased the marketing of cattle nearly 50 percent as compared to 1945-54 marketings. Lambs decreased less than one percent. However, hog marketings for the same period decreased nearly 5 percent and calves 50 percent.

Consumption of meat in Ohio for the years 1961 and 1962 was much greater than the amount slaughtered by Ohio meat processors. Ohio slaughter of beef was about 75 percent of consumption, pork 85 percent, veal 26 percent and lamb 14 percent. Meat retailers, therefore, had to purchase meat from slaughterers in surplus producing states largely to the west of Ohio in order to meet Ohio consumption.

Central, western, and southwestern Ohio counties were the areas of heavy marketings, although livestock was marketed from all areas of the state.

For 1962 there were 18 areas in Ohio each of which handled approximately 100,000 marketing units. A marketing unit is considered to equal the charge to market one steer, heifer, or cow, or the equivalent dollar income for other livestock. The Cleveland and Cin-



cinnati terminal areas were of about 110,000 marketing units. Within the 18 areas were 128 local markets, 60 auctions, 3 terminals and 78 slaughtering establishments with scales. This situation has resulted in too many markets per area of 100,000 marketing units and has resulted in a very low average volume for many markets.

Conclusion of the writers is that Ohio has too many markets to develop an efficient, low cost livestock marketing system. Recent research<sup>15</sup> has shown that a livestock market should handle more than 25,000 marketing units annually to operate efficiently. It is the writers' conclusion that 50 or less well-located markets in Ohio, equipped to handle and weigh livestock accurately and efficiently, would give packer buyers, livestock farmers, and others a much improved marketing structure compared to that now available.

Mergers and consolidations may and can be an important factor in bringing about an improved market structure. The small and inefficient can be eliminated. Since markets must annually be licensed by The Packers Stockyards Administration, some may fail to meet requirements for succeeding annual licenses. Wise and careful administration by The Packers Stockyards Administration may be helpful. Rates charged by markets should be kept reasonably low. The inefficient will be unable to continue over a long period. Wise administration so that overcharges can be eliminated will be very helpful. Gradually over a period of 10 or more years provided this is done Ohio and other states should see a more desirable and efficient system of livestock marketing evolve.

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<sup>15</sup>ibid.

Table 14

Total Marketing Units by Counties and Sub-area for the  
Years 1950, 1955, 1960, 1961, and 1962, Ohio

County and Sub-area	Total Marketing Units				
	1950	1955	1960	1961	1962
Allen	25,200	24,600	23,600	21,700	21,500
Defiance	12,400	13,300	13,100	12,900	13,000
Fulton	25,900	31,100	36,900	37,200	38,000
Hancock	34,500	37,000	37,700	35,100	35,000
Henry	13,500	15,900	15,900	15,800	15,700
Lucas	6,200	7,600	6,000	5,400	5,300
Paulding	7,300	6,900	6,600	6,300	6,300
Putnam	31,900	34,000	33,500	31,200	31,000
Van Wert	13,300	12,900	12,100	11,600	11,500
Williams	23,600	24,400	25,900	25,200	25,200
Wood	19,300	22,600	21,600	21,500	21,400
Northwestern or Sub-area 1	213,100	230,300	232,900	223,900	223,200
Ashland	17,000	22,200	20,000	20,700	20,800
Crawford	29,800	34,800	32,600	30,600	30,900
Erie	7,100	7,700	6,900	6,700	6,700
Huron	16,300	17,900	18,500	17,900	18,100
Lorain	13,900	15,800	13,600	14,500	14,700
Ottawa	4,700	5,300	5,000	4,800	4,900
Richland	19,900	22,000	18,200	18,000	18,000
Sandusky	16,500	19,800	19,000	19,100	19,600
Seneca	28,600	33,600	30,500	29,000	29,200
Wyandot	26,300	28,900	27,200	24,900	25,100
Northern or Sub-area 2	180,100	208,000	191,500	186,200	188,200

(Table 14 continued)

County and Sub-area	Total Marketing Units				
	1950	1955	1960	1961	1962
Ashtabula	14,500	18,700	14,000	15,700	16,100
Columbiana	13,100	15,800	14,100	15,500	15,900
Cuyahoga	2,500	1,800	1,100	800	800
Geauga	8,700	9,600	7,200	7,600	7,600
Lake	2,100	2,200	1,400	1,300	1,300
Mahoning	10,600	12,500	8,700	9,200	9,200
Medina	15,700	18,400	15,600	16,300	16,800
Portage	12,900	14,200	11,600	12,200	12,500
Stark	18,700	21,800	19,800	20,600	21,000
Summit	6,000	6,300	3,200	3,200	3,100
Trumbull	12,300	15,600	11,200	12,200	12,400
Wayne	29,800	37,900	38,700	39,700	40,500
Northeastern or Sub-area 3	146,900	174,800	146,000	154,300	157,200
Auglaize	29,000	30,800	29,400	28,400	29,000
Champaign	35,500	38,200	36,300	35,100	35,700
Clark	33,200	37,200	36,700	34,800	35,400
Darke	41,500	44,500	45,700	42,500	43,500
Hardin	33,600	34,100	30,900	28,700	29,000
Logan	26,900	29,200	25,600	25,100	25,600
Mercer	36,000	38,700	38,000	35,500	36,200
Miami	21,900	23,000	22,500	22,400	22,800
Shelby	24,100	27,600	24,900	23,800	24,300
Western or Sub-area 4	249,300	303,300	290,000	276,300	281,500

(Table 14 continued)

County and Sub-area	Total Marketing Units				
	1950	1955	1960	1961	1962
Delaware	25,700	28,400	24,500	23,800	24,100
Fairfield	35,100	40,400	39,100	37,100	38,000
Fayette	51,400	61,900	56,400	48,800	49,700
Franklin	26,000	27,300	22,300	20,800	20,500
Knox	28,800	31,000	30,000	29,200	29,700
Licking	35,300	40,000	34,100	33,300	33,300
Madison	44,900	52,400	53,000	47,300	48,400
Marion	31,200	33,300	34,100	30,900	31,000
Morrow	23,300	26,200	22,700	21,600	21,500
Pickaway	48,900	51,200	50,700	46,200	47,000
Ross	34,200	35,500	36,800	33,700	34,400
Union	32,600	33,900	32,700	31,200	31,300
Central or Sub-area 5	417,400	461,500	436,400	403,900	408,900
Belmont	13,600	14,300	13,300	14,500	14,300
Carroll	10,000	11,600	11,200	11,700	11,900
Coshocton	20,400	21,400	21,800	21,700	21,700
Harrison	9,800	9,800	9,800	10,500	10,600
Holmes	22,000	26,800	26,100	25,700	25,600
Jefferson	6,600	7,600	5,900	6,200	6,200
Tuscarawas	15,200	17,700	16,200	16,900	16,900
Eastern or Sub-area 6	97,600	109,200	104,300	107,200	107,200

(Table 14 continued)

County and Sub-area	Total Marketing Units				
	1950	1955	1960	1961	1962
Butler	43,800	47,600	40,600	38,200	38,700
Clermont	19,200	18,200	15,200	15,300	15,400
Clinton	57,000	59,900	63,600	55,900	56,300
Greene	48,500	54,600	57,000	50,300	51,100
Hamilton	11,100	9,300	6,100	5,800	8,500
Montgomery	25,500	25,300	21,100	20,600	20,500
Preble	44,200	48,500	48,600	43,500	44,100
Warren	38,300	37,600	32,500	30,900	25,400
Southwestern or Sub-area 7	287,600	301,000	284,700	260,500	260,000
Adams	15,100	16,800	16,800	16,900	17,000
Brown	26,300	28,000	28,000	27,500	25,500
Gallia	10,400	11,500	9,800	10,500	10,400
Highland	44,600	48,300	47,200	43,300	43,200
Jackson	6,500	7,700	6,300	6,600	6,500
Lawrence	6,100	6,700	4,500	4,800	4,800
Pike	8,500	7,200	7,500	7,300	7,400
Scioto	7,700	7,400	7,300	7,400	7,500
Southern or Sub-area 8	125,200	133,600	127,400	124,300	122,300

(Table 14 continued)

County and Sub-area	Total Marketing Units				
	1950	1955	1960	1961	1962
Athens	9,300	11,200	8,300	9,000	9,000
Guernsey	13,200	14,800	13,200	14,400	14,900
Hocking	6,900	6,700	6,100	6,300	6,300
Meigs	8,600	9,600	7,900	8,500	8,600
Monroe	10,000	10,600	8,000	8,900	8,900
Morgan	11,900	13,800	11,400	12,400	12,500
Muskingum	20,000	23,600	20,600	21,500	21,800
Noble	11,700	12,100	10,000	11,000	13,200
Perry	12,700	14,200	12,100	12,300	12,400
Vinton	4,800	5,100	4,600	4,500	4,500
Washington	13,500	15,400	12,600	13,600	13,800
Southeastern or Sub-area 9	122,600	137,100	114,800	122,400	125,900
Ohio	1,872,200	2,058,800	1,928,600	1,859,000	1,874,400

Table 15

Number of Animals Slaughtered in Commercial  
Meat Packing Plants in United States and Ohio  
1945-1962

Year	Cattle		Calves		Hogs		Sheep & Lambs	
	U.S. (1,000 head)	Ohio (1,000 head)	U.S. (1,000 head)	Ohio (1,000 head)	U.S. (1,000 head)	Ohio (1,000 head)	U.S. (1,000 head)	Ohio (1,000 head)
1945	20,775	976	12,904	361	58,260	2,738	24,068	385
1946	18,821	1,046	11,410	336	62,300	3,607	22,234	375
1947	21,533	1,116	13,013	425	61,929	3,338	18,207	328
1948	18,386	1,005	11,767	394	59,669	3,398	14,897	358
1949	18,013	891	10,828	381	64,761	3,383	13,376	247
1950	17,901	900	9,973	365	69,543	3,833	12,852	222
1951	16,376	860	8,418	259	76,061	4,110	11,075	172
1952	17,856	874	8,894	246	77,690	4,270	13,962	206
1953	23,605	1,115	11,668	294	66,913	3,733	15,967	240
1954	25,017	1,194	12,746	336	64,827	3,741	15,920	282
1955	25,722	1,173	12,377	319	74,216	4,274	16,215	299
1956	26,862	1,250	12,512	287	78,513	4,581	15,993	249
1957	26,232	1,303	11,904	305	72,595	4,273	14,957	238
1958	23,555	1,188	9,315	241	70,965	4,067	14,164	225
1959	22,930	1,087	7,683	169	81,582	4,395	15,180	186
1960	25,224	1,186	8,225	153	79,036	4,558	15,900	181
1961	25,637	1,153	7,701	146	77,335	3,994	17,190	183
1962	26,083	1,164	7,494	136	79,334	4,163	16,837	171

Source: Livestock and Meat Statistics, Statistical Bulletin No. 230, July, 1958, U.S.D.A. Agricultural Marketing Service, and supplements for 1959 and 1961. Livestock Slaughter 1962, Mt. An. 1-2-1 (63), U.S.D.A. Statistical Reporting Service, Crop Reporting Board.