

AN ECONOMIC ANALYSIS OF CHANGES IN MILK PRODUCTION IN THE NEW YORK MILKSHED

CHANGES IN NUMBER OF PRODUCERS, SIZE OF HERD,
AND METHOD OF DELIVERING MILK IN THE
NEW YORK-NEW JERSEY MARKET, 1960-1964

Progress Report 4



G. J. Conneman

Department of Agricultural Economics
Cornell University Agricultural Experiment Station
New York State College of Agriculture
A Contract College of the State University
Cornell University, Ithaca, New York

This is the fourth in a series of progress reports on Cornell University Agricultural Experiment Station State Project 58, An Economic Analysis of Long-Run Changes in Milk Production in the New York Milkshed. This project is being conducted by the Department of Agricultural Economics at Cornell in cooperation with the Departments of Agricultural Economics at the Universities of Connecticut, Delaware, Maryland, Pennsylvania State, Rutgers and Vermont, and the Market Administrator, New York-New Jersey Milk Marketing Area.

The first report (A.E. Res. 135) dealt with the purpose and sampling design of the study. The second report (A.E. Res. 144) examined regional differences in the milkshed. The third report (A.E. Res. 145) described changes between June 1960 and June 1963 in the number of producers, cow and heifer numbers, size of herd, and method of delivering milk. This fourth report examines similar types of changes between 1960 and 1964.

Subsequent reports will discuss other types of changes as well as provide a basic analysis of the causes of change.

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CHANGE IN NUMBER OF PRODUCERS, SIZE OF HERD, AND METHOD
OF DELIVERING MILK IN THE NEW YORK-NEW JERSEY MILK MARKET,
1960-1964

INTRODUCTION

Although dairying is a relatively stable industry, many changes are occurring particularly with respect to size of operation, number of producers in the industry, and the method of delivering milk to plants. As part of a study of changes and reasons for changes in milk production in the New York Milkshed area, a representative sample of milk producers is being studied over a five-year period.^{1/} The sample provides a means of tracing and analyzing change during this period.

The geographic area of the New York Milkshed covers parts of six states: New York, New Jersey, Pennsylvania, Maryland, Delaware, and Vermont (see figure 1).

The changes reported here consider only producing units that deliver milk to plants regulated by the New York-New Jersey Milk Marketing Order.^{2/} A subsequent report will cover changes of producers who deliver to other markets (including local fluid markets in New York and Pennsylvania, the Rochester and Niagara Frontier markets in upstate New York, and the New England markets).

The changes reported deal with the four-year period June 1960 to June 1964, and cover information obtained from a sample of producers. The sample included 1,172 New York-New Jersey Order producing units in June 1960.

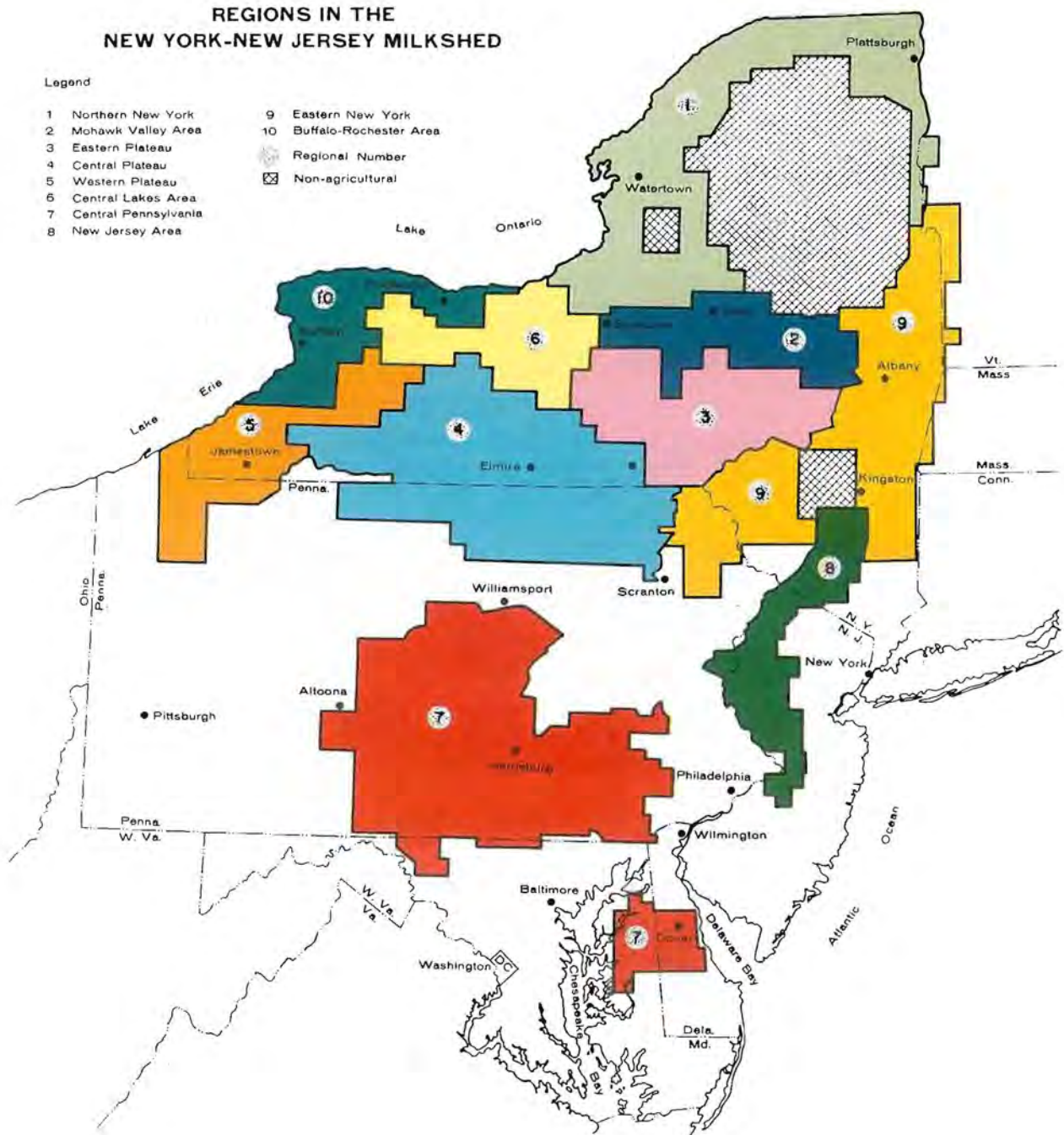
^{1/} A detailed description of the overall purpose of the study and the sample design is contained in A. E. Res. 135.

^{2/} The New York-New Jersey Milk Order is in fact a regulatory system consisting of a federal milk marketing order (No. 2) and concurrent orders issued by the State Milk Control Agencies of New York and New Jersey. These orders are administered by a joint agency, the Market Administrator, New York-New Jersey Milk Marketing Area.

The primary purpose of these orders is to fix minimum prices to be paid by handlers for milk produced for the specified marketing area. That marketing area includes New York City and immediately adjacent counties of New York State, as well as 13 counties of Northern New Jersey and all or parts of 35 counties of Upstate New York.

The production area for this market (New York-New Jersey Milkshed) embraces most of New York State as well as substantial parts of New Jersey and Pennsylvania, and relatively small areas in other neighboring states.

Figure 1



Definitions

A producing unit is defined as consisting of that bundle of farm resources--land, buildings, cattle and machinery--under the single management and control of one or more operators. A producing unit may therefore include more than one farm (as that term is often defined), and will include all the milk cows under one management, even though the cows are milked in more than one barn.

An operator or a producer is defined as an individual who manages and controls a producing unit, and who delivers milk to market, however small the amount, including intermittent shippers. In some cases, a producing unit may have more than one operator. References in this report to farms or producers, unless otherwise noted, refer to producing units and operator(s) as defined above.

CHANGE IN NUMBER OF PRODUCING UNITS

The number of producing units delivering milk to plants regulated by the New York-New Jersey Order has been declining.^{3/} Between June 1960 and June 1964, there was a net decrease of nearly 19 per cent in the number of units in the sample. (See Table 1.) The net rate of decline increased during the three-year period, averaging 3.5 per cent in the 1960-61 period, and 7.4 per cent in the 1963-64 period.

^{3/} Between June 1960 and June 1964, the Market Administrator's Bulletin for The New York-New Jersey Milk Marketing Area reported a change in the number of "producers" from 49,460 to 42,210, or a decrease of 14.7 per cent. The number of producers, as reported by the Market Administrator actually refers to number of milk checks. For example, a father and son, who operate a dairy farm but receive separate checks, would be counted as two "producers". Figures on sample producers indicated 6.2 per cent more checks than producing units in June 1960, and 5.4 per cent more checks than producing units in June 1961. Therefore, the number of producers reported by the Market Administrator must be reduced somewhat to obtain the number of producing units as defined in this study.

TABLE 1. CHANGE IN NUMBER OF PRODUCING UNITS
Sample of New York-New Jersey Order Producers, June 1960-64

Date	Number of producing units	Net change from previous year in:	
		Number of units	Per cent of units
June 1960	1,172		
June 1961	1,131	-41	-3.5%
June 1962	1,083	-48	-4.2
June 1963	1,028	-55	-5.1
June 1964	952	-76	-7.4

This net decrease of 19 per cent, or 220 producers, actually represents 644 changes (See Table 2).

TABLE 2. DESCRIPTION OF CHANGES IN NUMBER OF PRODUCING UNITS
Sample of New York-New Jersey Order Producers, June 1960-64

Type of change	Number of changes
<u>Minus</u>	
Unit no longer in milk production	270
Shifted to another market	59
Original operator replaced by new operator	81
Farm unit no longer in milk production - operator farming elsewhere	22
TOTAL MINUS	-432
<u>Plus</u>	
Unit came into production (no milk produced in previous year)	91
Shifted into New York-New Jersey market	40
New operator replaced original operator	81
TOTAL PLUS	+212
NET CHANGE	-220

Description of Changes

During this four-year period, 270 New York-New Jersey Order producing units that were in the sample and producing milk at the beginning of the period, discontinued production. However, ninety-one units that were not producing milk on June 1, 1960, began delivering milk to New York-New Jersey Order plants. Forty producers shifted into the New York-New Jersey market from other markets, whereas 59 producers shifted from this milk market to other markets. On 81 of the units, a new operator replaced the old one, and milk production was continuous.

Regional Changes in Number of Producing Units

The net rate of decline in the number of New York-New Jersey Order producing units in the sample was not the same in all regions.^{4/} Although the net decrease for all regions between 1960 and 1964 was nearly 19 per cent, the decrease varied from about 12 per cent to 29 per cent. (See Table 3 and Figure 2.)

TABLE 3. CHANGE IN NUMBER OF PRODUCING UNITS BY REGION
Sample of New York-New Jersey Order Producers, June 1960-64

Number	Region Name	Number of producing units		Percentage change
		June 1960	June 1964	
1	Northern New York	231	202	-12.6%
2	Mohawk Valley Area	123	97	-21.1
3	Eastern Plateau	168	135	-19.6
4	Central Plateau	194	157	-19.1
5	Western Plateau	53	43	-18.9
6	Central Lakes Area	52	41	-21.2
7	Central Pennsylvania	150	121	-19.3
8	New Jersey Area	77	68	-11.7
9	Eastern New York	124	88	-29.0
ALL REGIONS		1,172	952	-18.8%

The greatest decrease in number of producing units occurred in Eastern New York (Region 9), with a decline of 29 per cent. The smallest net changes occurred in Region 1 (Northern New York), and Region 8 (New Jersey Area).

^{4/} A detailed description of the regions and some of the differences between them are reported in A. E. Res. 144.

Figure 2

PERCENTAGE CHANGE IN NUMBER OF PRODUCING UNITS BY REGION
 Sample of New York-New Jersey Order Producers,
 June 1960 to June 1964

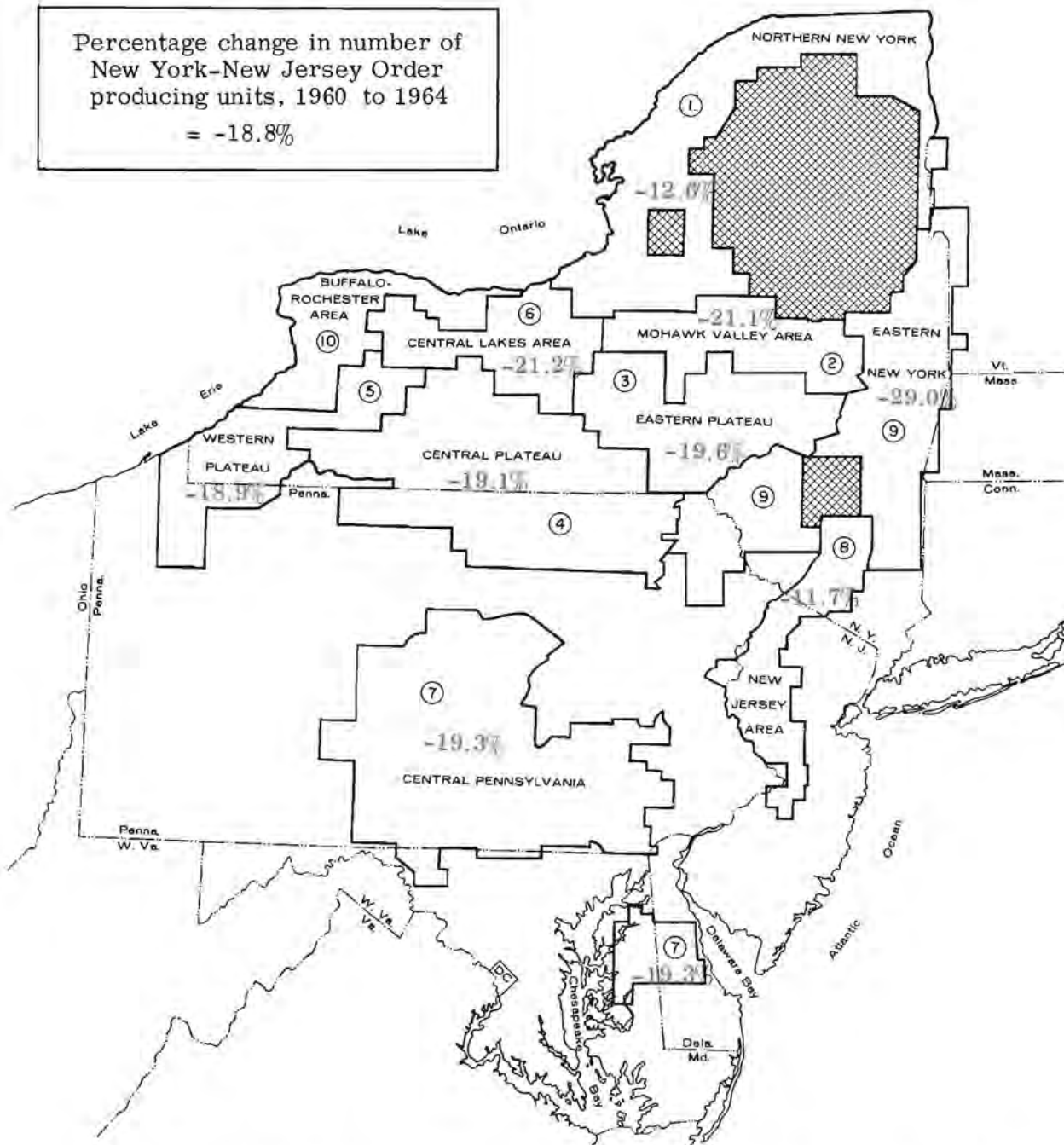


Figure 2 shows the percentage change by region in the number of New York-New Jersey Order producing units between June 1960 and June 1964. The sample included 1,172 producers in 1960.

CHANGE IN NUMBERS OF COWS AND SIZE OF HERD

Although the number of New York-New Jersey producing units in the sample decreased by 19 per cent during the four-year period, the total number of cows kept on the remaining units decreased only about four per cent. The change in the number of producing units, number of cows, and average number of cows per producing unit are shown in Table 4.

The changes in the aggregate number of cows reflect the decisions of many individual farmers. The total number of cows is the result of the number of herds multiplied by the number of cows per herd. The increase in the number of cows per producing unit was nearly enough to compensate for the decrease in number of units.

TABLE 4. CHANGE IN THE NUMBER OF COWS, AND COWS PER PRODUCING UNIT
Sample of New York-New Jersey Order Producers, June 1960-64

Year	Number of producing units	Number of cows	Cows per unit	
			Mean	Median
1960	1,172	33,242	28.4	25
1961	1,131	33,877	30.0	26
1962	1,083	33,701	31.1	27
1963	1,028	32,979	32.1	28
1964	952	31,790	33.4	29

Total number of heifers on the sample units decreased 11 per cent between 1960 and 1964 (See Table 5).

TABLE 5. CHANGE IN NUMBER OF HEIFERS
Sample of New York-New Jersey Order Producers, June 1960-64

Year	Number of producing units	Number of heifers	
		Under one year of age	Over one year of age
1960	1,172	8,208	9,307
1961	1,131	8,058	10,174
1962	1,083	7,885	10,581
1963	1,028	7,239	9,496
1964	952	6,811	8,794

Regional Changes in Number of Cows

Although the total number of cows kept on the sample New York-New Jersey Order producing units decreased about four per cent between June 1960 and June 1964, the direction and degree of the change varied from region to region. Regional changes in total number of cows ranged from a decrease of 9.2 per cent to an increase of 0.4 per cent. The percentage change by region in the number of cows for New York-New Jersey Order producers is summarized in Table 6 and illustrated in Figure 3.

TABLE 6. CHANGE IN THE NUMBER OF COWS BY REGION
Sample of New York-New Jersey Order Producers, June 1960-64

Number	Region Name	Total number of cows		Percentage change
		June 1960	June 1964	
1	Northern New York	6,822	6,848	+0.4%
2	Mohawk Valley Area	4,132	3,922	-5.1
3	Eastern Plateau	4,559	4,301	-5.7
4	Central Plateau	5,365	4,869	-9.2
5	Western Plateau	1,353	1,344	-0.7
6	Central Lakes Area	1,415	1,298	-8.3
7	Central Pennsylvania	2,940	2,875	-2.2
8	New Jersey Area	3,524	3,458	-1.9
9	Eastern New York	3,132	2,875	-8.2
ALL REGIONS		33,242	31,790	-4.4%

Change in Average Size of Herd

The average size of herd of New York-New Jersey Order producers increased from 28 to 33 cows between June 1960 and June 1964. All regions showed increases in average herd size during this period. (See Table 7 and Figure 4.)

Figure 3

PERCENTAGE CHANGE IN NUMBER OF COWS BY REGION
 Sample of New York-New Jersey Order Producers,
 June 1960 to June 1964

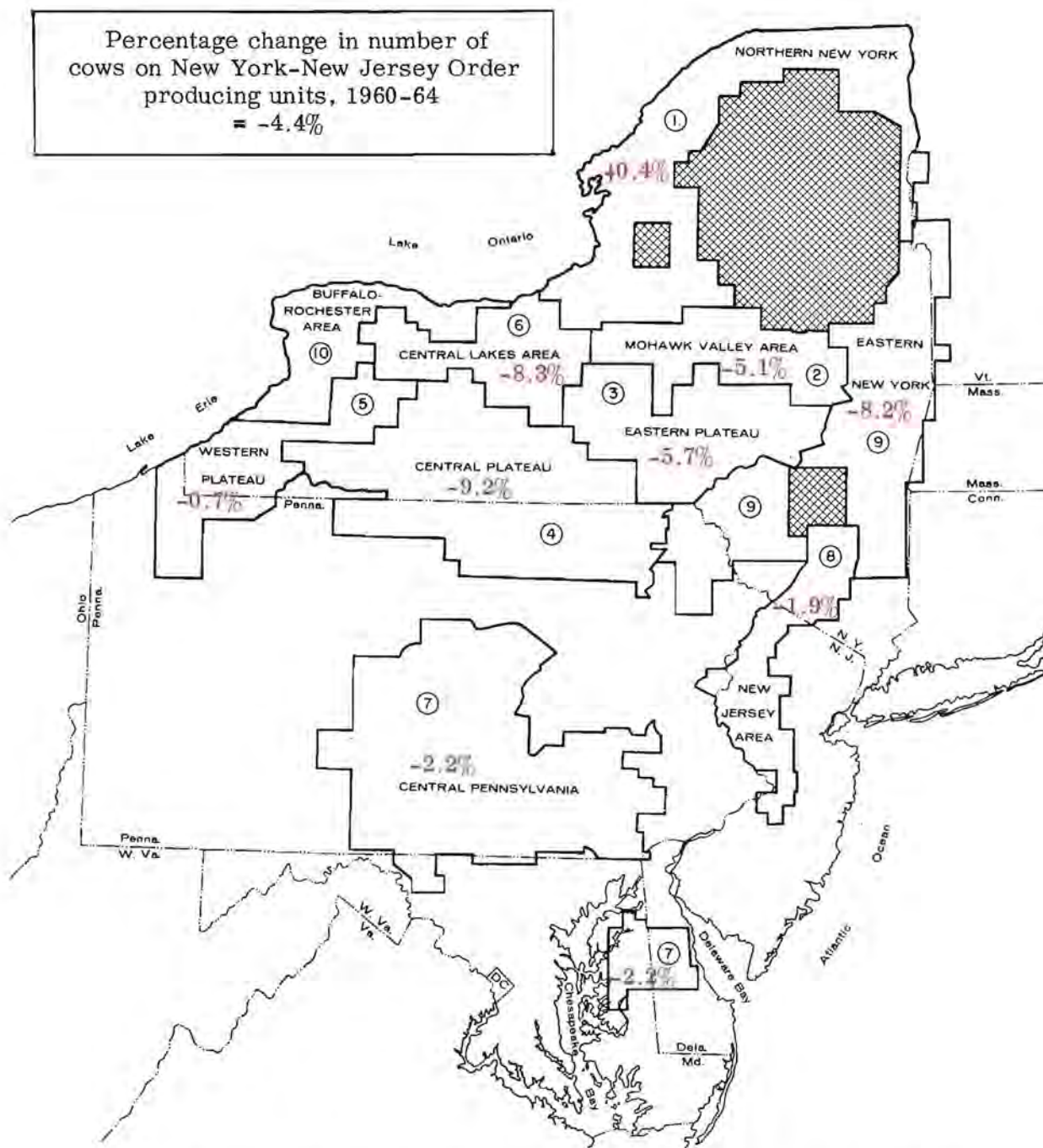


Figure 3 shows the percentage change by region in the number of cows on producing units which deliver milk to New York-New Jersey Order plants. The sample included 1,172 units in June 1960.

TABLE 7. CHANGE IN AVERAGE SIZE OF HERD BY REGION
Sample of New York-New Jersey Order Producers, June 1960-64

Number	Region Name	Average size of herd (cows)	
		June 1960	June 1964
1	Northern New York	30	34
2	Mohawk Valley Area	34	40
3	Eastern Plateau	27	32
4	Central Plateau	28	31
5	Western Plateau	26	31
6	Central Lakes Area	27	32
7	Central Pennsylvania	20	24
8	New Jersey Area	46	51
9	Eastern New York	25	33
ALL REGIONS		28	33

Distribution of Size of Herd

Although the average number of cows per producing unit increased from 28 to 33 between June 1960 and June 1964, the majority of herds still continued to be relatively small. In making size comparisons, all the cows under one management, even though the cows were milked in more than one barn, were counted as one herd.

Sixty-two per cent of all producing units had less than 30 cows in June 1960. Small herds of less than 20 cows were found on over one-third of all units in 1960. On the other hand, only 5 per cent of the producing units kept over 60 cows.

Between June 1960 and June 1964, there was a decrease of 12 per cent in the number of producing units with less than 20 cows, but an increase of 9 per cent in producing units that kept 20 to 59 cows. A distribution by number and per cent of producing units in each size-group is shown in Table 8 and illustrated in Figure 5.

In 1964, the highest proportion of units, 29 per cent, was in the 20 to 29 cow size-group.

Figure 4

CHANGE IN AVERAGE SIZE OF HERD BY REGION
 Sample of New York-New Jersey Order Producers,
 June 1960 to June 1964

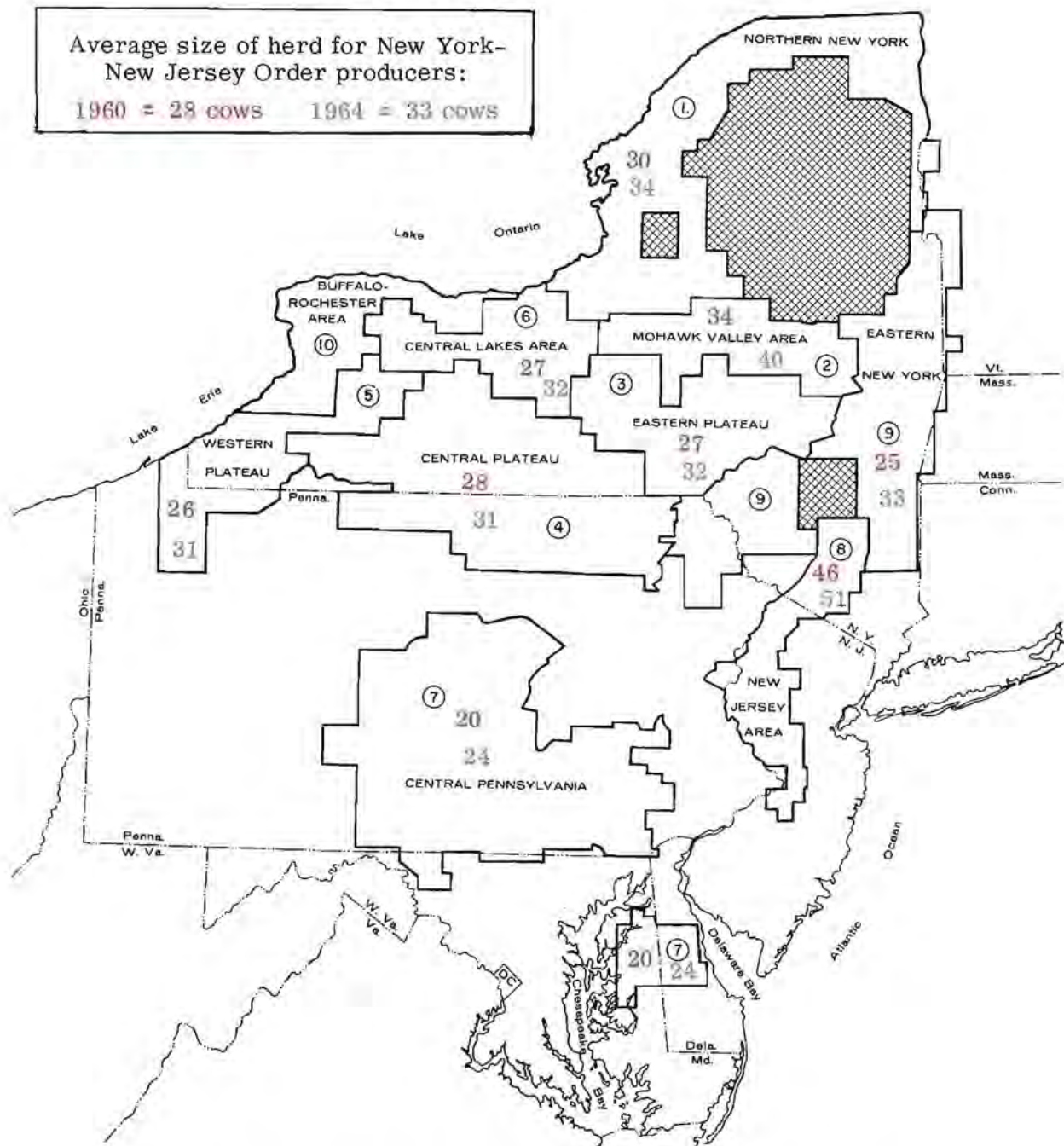


Figure 4 shows the changes by region in the average size of herd kept by sample of producers who deliver milk to plants regulated by the New York-New Jersey Order. The sample included 1,172 producers in June 1960.

Figure 5

CHANGE IN THE DISTRIBUTION OF SIZE OF HERD
 Sample of New York-New Jersey Order Producers,
 June 1960 to June 1964

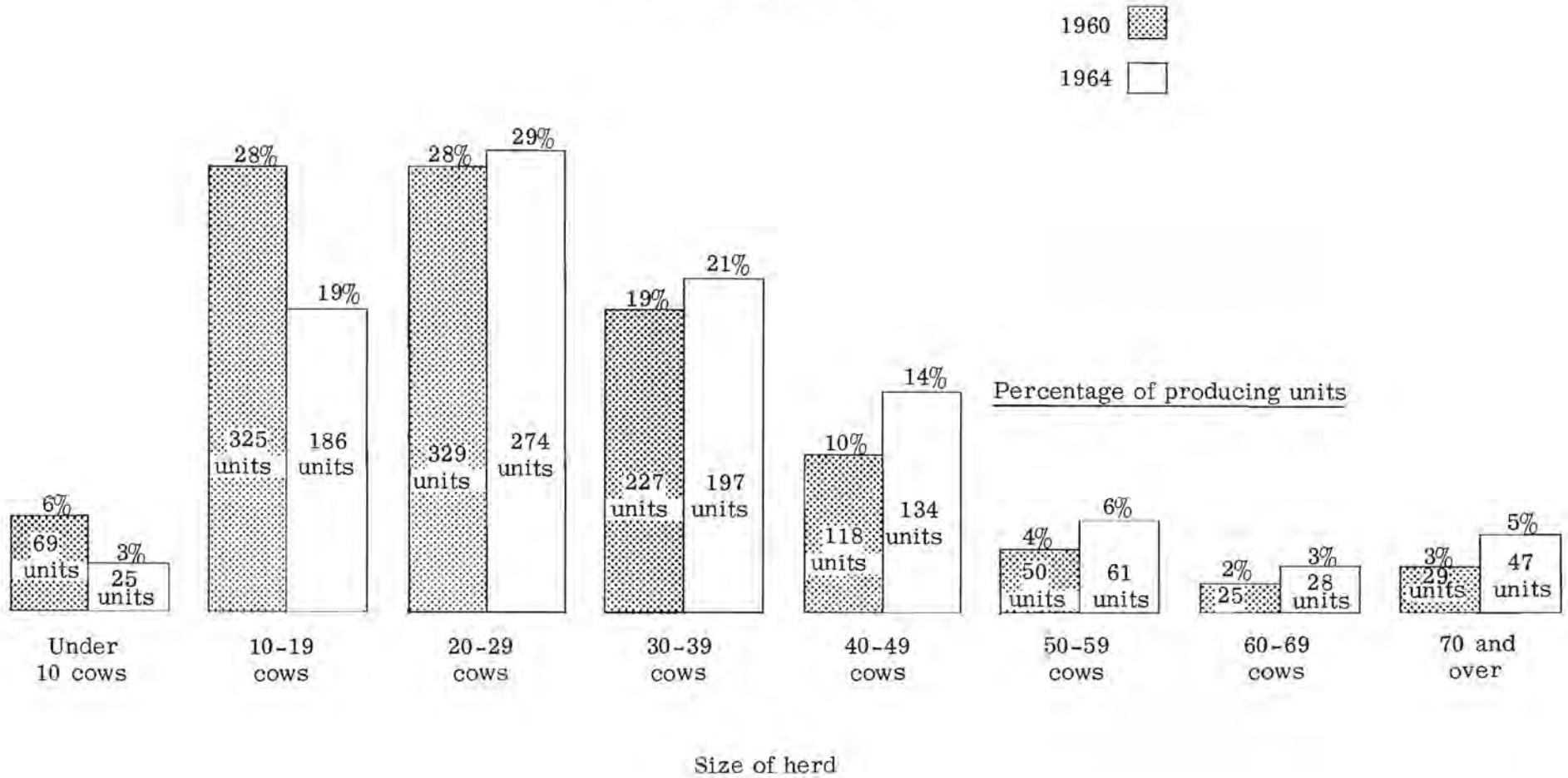


TABLE 8. CHANGE IN THE DISTRIBUTION OF SIZE OF HERD
Sample of New York-New Jersey Order Producers, June 1960-64

Number of cows	Number of units		Per cent of total:	
	June 1960	June 1964	June 1960	June 1964
Under 20	394	211	34%	22%
20 - 39	556	471	47	50
40 - 59	168	195	14	20
60 and over	<u>54</u>	<u>75</u>	<u>5</u>	<u>8</u>
TOTAL	1,172	952	100%	100%

Percentage of Cows By Size-Groups

Although producing units with large herds accounted for only a small proportion of all units, these large herds kept a greater than proportionate number of all cows. Comparing 1960 to 1964, large herds account for an increasing proportion of total cows.

Producing units with 60 or more cows accounted for only 5 per cent of all herds, but these herds kept 13 per cent of the total number of cows in June 1960. (See Table 9.) Herds of less than 20 cows accounted for 34 per cent of the total herds, but kept only 16 per cent of the cows.

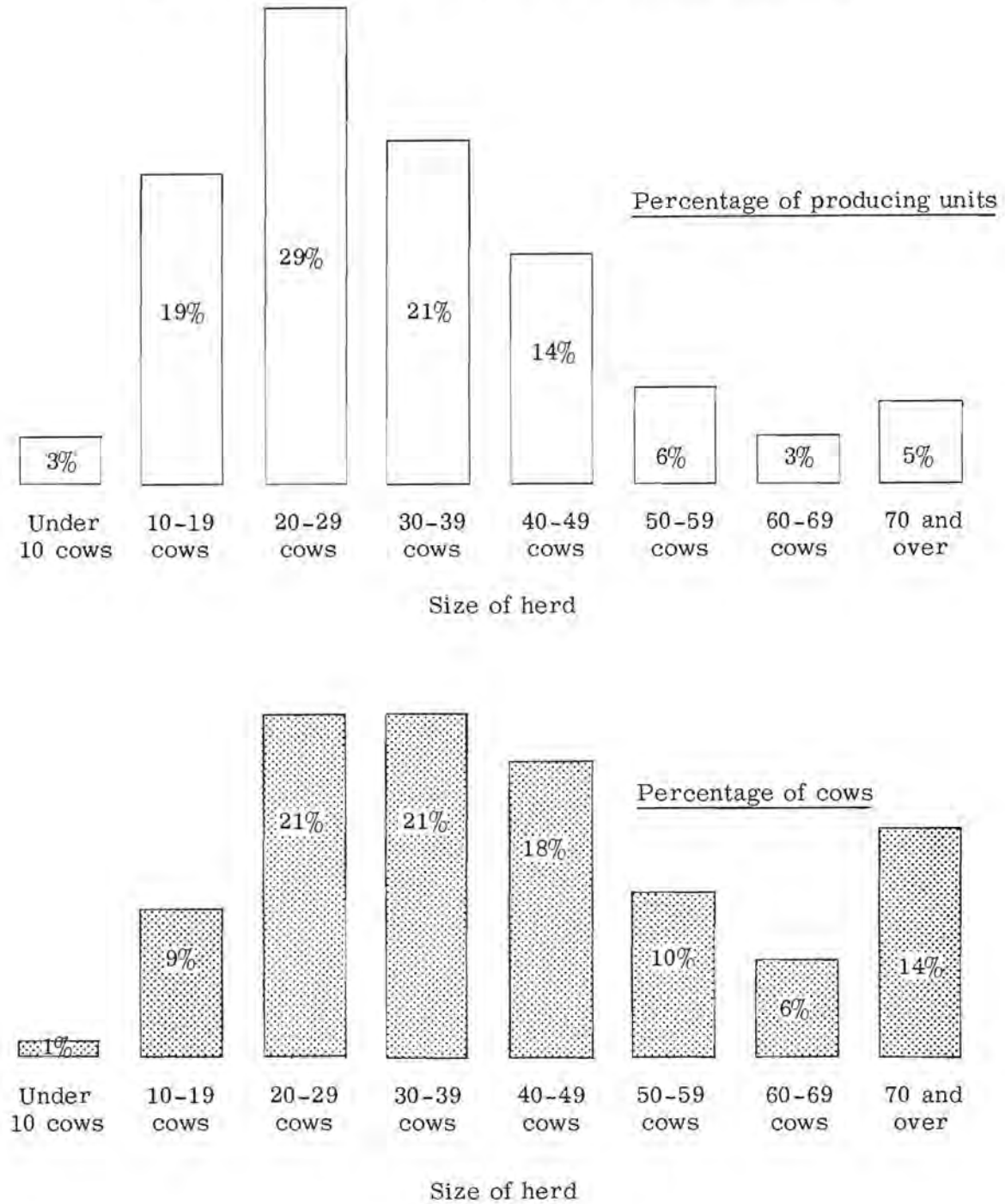
Between 1960 and 1964, the percentage of total cows kept in producing units with herds of less than 20 cows decreased from 16 per cent to 10 per cent, whereas the units with herds of more than 40 cows increased their percentage of total cows from 37 to 48 per cent. Units with herds of less than 30 cows accounted for 51 per cent of all units in 1964, but kept only 31 per cent of all cows. (See Figure 6.)

TABLE 9. PERCENTAGE OF PRODUCING UNITS AND COWS
BY SIZE-GROUPS
Sample of New York-New Jersey Order Producers, June 1960-64

Number of cows	Per cent of units		Per cent of cows	
	1960	1964	1960	1964
Under 20	34%	22%	16%	10%
20 - 39	47	50	47	42
40 - 59	14	20	24	28
60 and over	<u>5</u>	<u>8</u>	<u>13</u>	<u>20</u>
TOTAL	100%	100%	100%	100%

Figure 6

PERCENTAGE OF PRODUCING UNITS AND COWS BY SIZE-GROUPS
 Sample of New York-New Jersey Order Producers, June 1964



CHANGE IN METHOD OF DELIVERING MILK

Compared to many milk markets in the northeastern part of the United States, a relatively small percentage of New York-New Jersey Order producers deliver milk in bulk. On June 1, 1960, only 12 per cent of the sample of producers delivering milk to New York-New Jersey Order plants had bulk tanks. By June 1964, the proportion with a tank had increased to 23 per cent.

TABLE 10 CHANGE IN NUMBER OF PRODUCING UNITS
 WITH BULK TANKS
 Sample of New York-New Jersey Order Producers, June 1960-64

Item	June 1960	June 1964
Number of producing units	1,172	952
Number of producing units with tanks	137	223
Per cent with tanks	12%	23%

Although 12 per cent of producers delivering to New York-New Jersey Order plants had bulk tanks in June 1960, the percentage in each region varied widely. The proportion of producers with tanks in 1960 ranged from 1 per cent in Region 7 (Central Pennsylvania) to 27 per cent in Region 8 (New Jersey Area). See Figure 7 and Table 11.

TABLE 11. CHANGE IN PERCENTAGE OF PRODUCERS WITH
 BULK TANKS BY REGION
 Sample of New York-New Jersey Order Producers, June 1960-64

Number	Region	Percentage of producers with tanks in:	
	Name	June 1960	June 1964
1	Northern New York	10%	16%
2	Mohawk Valley Area	20	36
3	Eastern Plateau	4	11
4	Central Plateau	16	29
5	Western Plateau	15	30
6	Central Lakes Area	13	34
7	Central Pennsylvania	1	6
8	New Jersey Area	27	56
9	Eastern New York	10	25
ALL REGIONS		12%	23%

Figure 7

CHANGE IN PERCENTAGE OF PRODUCERS WITH BULK TANKS BY REGION
 Sample of New York-New Jersey Order Producers,
 June 1960 to June 1964

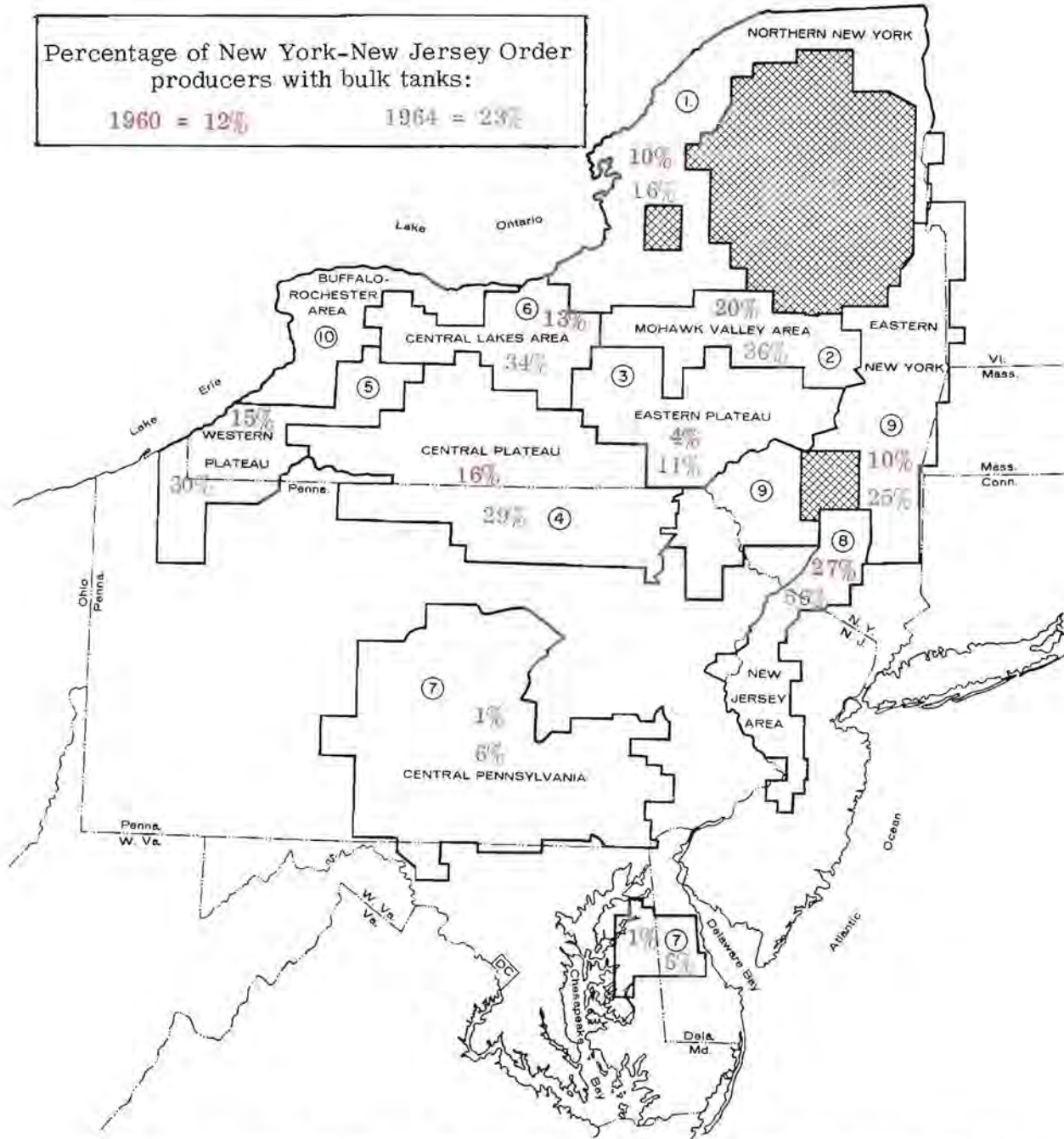


Figure 7 indicates by region the percentage of sample New York-New Jersey Order producers who delivered milk in bulk in June 1960 and June 1964. The sample included 1,172 producers in June 1960. In regions 5, 6, 7, 9, and 10, a higher percentage of producers who shipped milk to markets other than Order 2 delivered in bulk. (See Table 12.)

Regional Changes in Method of Delivering Milk

Although the percentage of producers with bulk tanks increased from 12 to 23 per cent between June 1960 and June 1964, the change was not the same in all regions. The percentage of units with tanks in Region 8 (New Jersey Area) increased from 27 to 56 per cent during the four-year period. The percentage of units with tanks, in Region 7 (Central Pennsylvania) increased from 1 to 6 per cent between 1960 and 1964.

Producers Delivering to Other Markets

In several regions, producers who deliver milk to markets other than the New York-New Jersey market have made the switch to bulk faster than their neighbors who ship to New York-New Jersey Order plants. This is true in Regions 5, 6, and 10, which contains large numbers of producers who deliver to the Rochester and Niagara Frontier Markets. In Central Pennsylvania (Region 7), more farmers who deliver to local markets have made the switch to bulk than their neighbors who deliver to New York-New Jersey plants. (See Table 12.) In Region 9, three-quarters of producers who deliver to New England milk markets have tanks. Many individual handlers in the New England markets require milk to be delivered in bulk.

TABLE 12. PERCENTAGE OF PRODUCERS WITH BULK TANKS
BY REGION AND MILK MARKET
Sample of Producing Units, June 1964

Number	Region Name	Producers delivering to:		All producers
		N. Y.-N. J. market	Other markets***	
<u>Per cent of producers with tanks</u>				
1	Northern New York	16%	**	23%
2	Mohawk Valley Area	36	**	35
3	Eastern Plateau	11	**	14
4	Central Plateau	29	**	28
5	Western Plateau	30	57%	39
6	Central Lakes Area	34	68	47
7	Central Pennsylvania	6	49	24
8	New Jersey Area	56	**	56
9	Eastern New York	25	75	38
10	Rochester-Buffalo Area	*	49	49

* No producers in this region deliver to the New York-New Jersey Market.

** Only a few producers in this region deliver to markets other than the New York-New Jersey market.

***Markets include:

Regions 5, 6, and 10 -- Niagara Frontier and Rochester

Regions 7 -- Other Federal Order markets, and local markets regulated by the Pennsylvania Milk Control Commission

Region 9 -- Various New England milk markets, and local fluid markets

SUMMARY

This report describes the changes in the number of producers, the number of cows, size of herd, and method of delivering milk for a sample of producing units in the New York milkshed, that deliver to plants regulated by the New York-New Jersey Order. The changes deal with the period June 1960 to June 1964 and cover information obtained from a representative sample of producers.

The number of producers delivering milk to plants regulated by the New York-New Jersey Order has been declining. During the four-year period, the number of producing units decreased nearly 19 per cent. The rate of decline in the number of producing units was not the same in all regions. The greatest decrease occurred in Eastern New York (Region 9). The smallest changes occurred in Northern New York (Region 1), and the New Jersey Area (Region 8).

During the same period, the total number of cows kept on these units decreased about four per cent. The increase in cows per unit was nearly great enough to offset the decrease in the number of producing units.

The majority of herds still continue to be relatively small, although the average number of cows per producing unit increased from 28 to 33 between June 1960 and June 1964. Fifty-one per cent of all producing units had herds of less than 30 cows in June 1964. All regions showed increases in average size of herd.

Although producing units with 60 or more cows accounted for only a small proportion of all units, they kept a larger than proportionate number of all cows. Units with 40 or more cows accounted for an increasing proportion of total cows. Producing units with 60 or more cows accounted for only 8 per cent of all herds, but kept 20 per cent of the cows in June 1964.

Compared to many northeastern markets, a relatively small percentage of New York-New Jersey Order producers deliver milk in bulk. In June 1960, only 12 per cent of sample producers delivering to New York-New Jersey Order plants had bulk tanks. By June 1964, this had increased to 23 per cent. Regional differences and the rate of change varied widely. Whereas only six per cent of Order producers had tanks in Central Pennsylvania in June 1964, nearly 56 per cent had tanks in the New Jersey Area.