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# ECONOMIC ASPECTS OF DAIRYING IN THE NORTHEAST

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## ABSTRACT

About 22 percent of the nation's milk is produced by farmers in the Northeast, the 12-State area from Maine through Virginia. Although oriented toward the fluid milk market, these markets have carried large volumes of reserve supplies which are used in manufactured dairy products. Changes in the population, in the level of milk production, and the relative production of different areas result in marked adjustments in the utilization of milk in different products. Changes in sales and utilization are compared with production in the area in 1960, with total milk production in the area, and presented as a percentage of the total Northeast and U.S. production.

Counties were described according to certain characteristics affecting milk production and utilization. The counties were then grouped according to similarities and compared. Increasing population and falling milk production near metropolitan areas combine to increase the need for shipping milk into these population centers.



Key Words: Supply management, dairy industry, dairy products, milk, marketing, market structure.

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## SUMMARY

Dairying, the leading agricultural enterprise in the Northeast, provides a third of the region's farm income and accounts for 22 percent of the total U.S. milk production. The industry today is characterized by change. Marketing firms made adjustments—particularly in procurement and surplus handling—consistent with increased milk output through 1963 and in expectation of further increase. The subsequent decline in production affected the way of handling milk, and especially the balance of products made from milk not used for fluid purposes. Milk production in the Northeast is predominantly for the fluid markets of large metropolitan centers. The total volume of milk used as fluid, cottage cheese, and ice cream is very close to the total production of the area. However, the share going into manufactured products rose from 20 percent in 1940 to 30 percent in 1967. During this period, the Northeast increased its proportion of milk equivalent used in manufactured dairy products from 7.2 to 12.9 percent of the national total.

The Northeast also increased the volume of skim milk equivalent used to manufacture cottage cheese, condensed skim milk, dry nonfat and dry buttermilk from 1940 to 1965, although in the next 2 years use in skim products decreased as production of dry nonfat milk dropped sharply. Despite the long-term increased use of skim milk, the Northeast produced a smaller proportion of the national total, dropping from 26.4 percent of the total in 1940 to 15.8 percent in 1967 as the rest of the Nation increased output more rapidly than did the Northeast. The greater relative increase by other regions, especially the West North Central, in whole milk sales to plants was partially responsible for the shift in regional proportions in production of skim milk items.

Frozen dairy products continue to utilize an increasing share of the Northeast's milk production. Only one region, the South Central, uses a higher proportion of its milk production in frozen dairy products. However, owing to more rapid increases in other areas, the Northeast produces a progressively smaller part of the national production.

The Northeast, bucking a national trend, used more milk to churn butter in 1967 than in 1960. Nationally, milk used to make butter declined 9 percent; in the Northeast it rose 31 percent. The Northeast increased its share of the national butter supply, moving up from 2.8 percent of the total in 1940 to 3.9 percent in 1950, and to 4.7 and 6.8 percent in 1960 and 1967, respectively.

# ECONOMIC ASPECTS OF DAIRYING IN THE NORTHEAST

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## INTRODUCTION

Marketing patterns for dairy products are influenced by relative as well as absolute measures. Certain levels of production are necessary to develop efficient systems for procuring, processing, and distributing milk products. Allocation of milk into the various products is heavily dependent upon the historical pattern of use and upon the relationship of the fluid and manufacturing utilization in the market.

The Northeast markets, the 12 States from Maine through Virginia, have been developed as fluid milk markets. [1] Nearly all of the milk is produced in accordance with requirements set by State and local health authorities for milk for fluid use. However, these markets have tended to carry large reserves of fluid milk which have been utilized in manufactured products. The Northeast now uses a higher portion of the national total milk equivalent used in manufactured products than it did a quarter century ago.

Ice cream and cottage cheese production has been for the immediate market while some of the hard-manufactured products (cheese, butter, and powder) were produced for storage or for shipment to more distant markets.

Northeast dairymen increased total milk production through 1963. Marketing firms made adjustments consistent with this increase and in expectation of further increases. The adjustments included the development of surplus handling systems and organizations. The subsequent decline in production affected the way of handling milk that is surplus to fluid needs and especially the balance of products made from such milk. Producers, marketing agencies, and consumers constantly adjust production and utilization of milk and milk products.

The Economic Research Service continues to analyze these adjustments by examining some of the interrelationships between various participants in the market. This study assumes that most major adjustments result from conscious decisions, rather than from unrelated or random fluctuations. If this assumption is valid, then the basic underlying factors influencing these decisions should be identifiable. Their identification could increase the probability of making correct decisions, and hence improve efficiency in the production-marketing complex and the proper allocation of resources.

The effort to identify and assess the relevant variables underlying adjustments within the Northeast dairy industry involved the collection of much secondary data. Although these basic data are available from other sources, this publication presents portions of them in a somewhat different

[1] The Northeast includes three regional components—New England, Mid-Atlantic, and Delmarva. New England includes the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. New York, New Jersey, and Pennsylvania are in the Mid-Atlantic. The States of Delaware, Maryland, Virginia, plus the District of Columbia make up the Delmarva region. Virginia is included in the Northeast because the primary markets in this area are so closely related and interdependent.

context. The data arrays and comparisons presented are useful in gaining additional understanding of the dairy industry and the adjustments being made within it. The adjustments are shown in absolute and in relative terms. Changes made by each area are compared with their own measure during the base period (1960), with total milk production in the area, and with changes made by other areas. [2] Results of the analysis are to be summarized in a later report.

Resources utilized in agriculture have been undergoing a long-term adjustment. Not only are fewer resources employed in agricultural production, but the proportions are considerably different from those of a few years ago.

Several factors influence the production and utilization of raw milk. Change in one or more of these factors brings about an adjustment which, in turn, may become the direct cause of subsequent adjustment by others in the market. Decision-makers, private and public, constantly reallocate or redirect resources in an effort to gain efficiency in the production and marketing of milk and milk products. A change in milk production necessarily brings about changes in the entire marketing process as varying volumes of milk must be processed into different quantities of products in different physical facilities.

As farmers change the volume of milk they sell to milk plants, the managers of those plants and other marketing agencies must adjust their operations accordingly. Such adjustment involves the product mix, volumes handled by the different plants, procurement, and other functions. The comparisons shown in this publication portray the absolute and relative changes in production, sales, and utilization of milk in the Northeast. A subsequent report will deal with relationships of the different segments of the Northeast dairy industry which have developed in this industry environment.

## OVERVIEW OF NORTHEAST DAIRYING

Milk production in the Northeast is predominantly for the fluid market. Specialized dairy farms produce the major portion of the supply and gear their operations to the fluid market.

The total volume of milk used as fluid and in the more perishable products, such as cottage cheese and ice cream, is very close to the total milk production in the entire area. Despite this overall balance, there are marked differences between local milk production and consumption of fluid milk plus the perishable "soft" products. A substantial quantity of milk is processed into manufactured products because production exceeds fluid requirements at a particular time. Part of the extra amount is the necessary day-to-day and seasonal reserve that fluid milk markets must carry. The major fluid markets, especially New York and Boston, historically have carried large reserves of fluid milk.

Industry orientation toward the fluid milk market influences utilization of milk in various products, location of manufacturing plants, and timing of manufacturing activity.

Federal and/or State milk orders have been in effect and have played a dominant role in the major fluid markets in the Northeast since the 1930's. Presently, almost 80 percent of the milk sold

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[2] The comparisons over time are given as a percentage of 1960, chosen as the base period because of the proximity of population and agricultural census periods. To avoid lengthy and repetitive headings that do not improve the comparisons, the 5-year agricultural census periods are designated 1940, 1945, 1950, 1955, 1960, 1965, rather than 1939, 1944, etc. This procedure does not appear to do violence to the data, and maintains the relative differences between time periods very satisfactorily.

Table 1.--Dairy establishments, employees, value added, value of shipments, and new capital expenditures by States in the Northeast, 1963 and 1967 1/

| Area | All dairy plants 2/ | | | | | | | Fluid milk plants 3/ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Establishments | | All employees | | Value added by manufacturing | Value of shipments | New capital expenditures | Establishments | | All employees | | Value added by manufacturing | Value of shipments |
| | 1963 Number | 1967 Number | 1963 Thousand | 1967 Thousand | 1967 Mil. dol. | 1967 Mil. dol. | 1967 Mil. dol. | 1963 Number | 1967 Number | 1963 Thousand | 1967 Thousand | 1967 Mil. dol. | 1967 Mil. dol. |
| Maine | 74 | 61 | 1.4 | 1.4 | 16.4 | 51.6 | 1.3 | ** | ** | ** | ** | ** | ** |
| New Hampshire | 62 | 45 | 1.0 | .9 | 11.8 | 31.2 | .8 | ** | 40 | ** | 0.9 | 14.1 | 42.0 |
| Vermont | 69 | 53 | 1.2 | 1.0 | 15.1 | 76.1 | .9 | 57 | ** | 1.0 | ** | ** | ** |
| Massachusetts | 286 | 219 | 7.3 | 6.5 | 124.6 | 338.0 | 3.9 | 225 | 170 | 5.7 | 4.9 | 82.4 | 244.3 |
| Rhode Island | 57 | 49 | 1.4 | 1.2 | 19.7 | 49.1 | .7 | 43 | 36 | 1.2 | 1.0 | 16.3 | 42.6 |
| Connecticut | 134 | 102 | 3.5 | 3.4 | 50.7 | 187.3 | 1.4 | 109 | 83 | 3.2 | 3.1 | 45.0 | 171.0 |
| New York | 673 | 522 | 19.8 | 16.4 | 251.5 | 951.7 | 16.2 | 507 | 366 | 14.5 | 11.2 | 163.1 | 641.9 |
| New Jersey | 191 | 126 | 6.5 | 4.7 | 75.1 | 254.4 | 3.4 | 147 | 88 | 5.2 | 3.5 | 54.4 | 179.7 |
| Pennsylvania | 610 | 455 | 21.4 | 18.8 | 247.0 | 753.2 | 14.9 | 473 | 342 | 17.1 | 14.9 | 186.3 | 526.2 |
| Delaware | 21 | 14 | .6 | .4 | 3.1 | 13.8 | # | * | * | * | * | * | * |
| Maryland | 62 | 53 | 4.3 | 4.1 | 63.8 | 199.7 | 2.6 | 42 | 34 | 3.3 | 3.2 | 41.6 | 131.9 |
| Washington, D.C. | 6 | 6 | 1.8 | 1.8 | 23.3 | 67.8 | # | 3 | 3 | 1.5 | 1.6 | 21.2 | 57.3 |
| Virginia | 74 | 64 | 4.4 | 4.2 | 45.7 | 159.6 | 2.4 | 53 | 46 | 3.3 | 3.4 | 38.5 | 127.8 |
| New England | 682 | 529 | 15.7 | 14.4 | 238.3 | 733.3 | 9.0 | 553 | 424 | 13.3 | 11.9 | 184.4 | 604.0 |
| Mid-Atlantic | 1,474 | 1,103 | 47.7 | 39.9 | 573.6 | 1,959.3 | 34.5 | 1,127 | 796 | 36.8 | 29.6 | 403.8 | 1,347.8 |
| Delmarva 4/ | 163 | 137 | 11.0 | 10.5 | 135.9 | 440.9 | #5.7 | *112 | 96 | *8.5 | 8.6 | 103.3 | 326.3 |
| Northeast | 2,319 | 1,769 | 74.4 | 64.8 | 947.8 | 3,133.5 | #49.2 | *1,792 | *1,316 | *58.6 | *50.1 | 691.5 | 2,278.1 |
| United States | 7,885 | | 256.8 | | | | | 4,619 | 3,488 | 185.0 | 166.1 | 2,356.8 | 7,834.1 |

1/ Source: 1967 Census of Manufactures Preliminary Report. State totals may not add to regional totals because of rounding.
2/ Dairies, (Industry Code 202 as classified by 1967 Census of Manufactures, excludes receiving stations).
3/ Fluid milk plants, (Industry Code 2026, as classified by the 1967 Census of Manufactures, includes cottage cheese).
4/ Delaware, Maryland, Virginia, District of Columbia.
* Delmarva area prorated at the same relationship between dairies and fluid plants as the subtotal for Maryland, District of Columbia, and Virginia.
** Not shown for individual States, but included in New England totals.
# Delaware and Washington, D.C. prorated at same ratio of new capital expenditure to value added by manufacturing as reported for Maryland.

to plants and dealers in the Northeast is subject to Federal milk marketing orders, with another 15 percent subject to various State market orders.

All segments of the Northeast dairy industry have adapted to a policy which embraces pooling all milk within the order system. Such a policy provides a greater flexibility within the industry, especially between the fluid processing and the manufacturing uses for milk. The physical handling of the milk supplies gains efficiency from this flexibility. However, there has been much discussion concerning the effect of the pooling policy and the pricing policy practiced in the Northeast, both of which influence production. It would not be economically efficient to encourage excess milk production in a high-cost area at the expense of production in lower-cost areas.

The Northeast region generally is considered a relatively high-cost area for producing milk. Yet, total milk production in the region exceeds fluid utilization so that approximately 30 percent of the milk is used for manufacturing purposes, up from less than 20 percent in 1940. Nationally, the equivalent of one-half the U.S. milk production is used for manufacturing.

Northeast dairy plants increased the net total milk equivalent used in manufacturing by 3,430 million pounds from 1940 to 1966, a 97 percent increase. In contrast, the national increase was only 3,322 million pounds, a 9 percent increase, indicating that nationally, except for the Northeast, there was a slight decrease in milk equivalent used for manufacturing dairy products.

The same relationship was true for the period 1960-67, when the Northeast increased the net total used in manufacturing from 7,041 million to 7,712 million pounds, a gain of 671 million pounds milk equivalent. The national net total used in manufacturing increased from 59,398 million to 59,647 million pounds, an increase of only 249 million pounds. Excluding the gain in the Northeast, dairy plants used 422 million pounds less net total milk equivalent for manufacturing in 1967 than in 1960. Tables 7, 8, and 9 show these regional and national comparisons.

The Northeast dairy industry is about a $2.5 billion a year industry with milk production by far the greatest source of farm income. Milk and milk product sales of $1.2 billion represent 35 cents of each dollar of farm product sales by farmers. Associated activities such as assembling, processing, manufacturing, and distributing these products added more than $1 billion to the farm value of the raw milk in 1967, with over $900 million added by manufacture.

Nearly 75,000 workers were employed by Northeast dairy plants in 1963 and 65,000 in 1967 (table 1). Whole milk sales were reported by 133,310 Northeast farms in 1959 and by 93,200 in 1964. Thus, in this region, workers from approximately 200,000 families were employed directly in some phase of milk production, processing, and distribution, not counting those who dealt with milk indirectly or as a minor product.

Northeast dairy plants employed approximately 9,400 fewer workers in 1967 than in 1963, and 12,860 fewer in 1963 than in 1958, according to the Census of Manufactures. This decline, combined with the fact that nearly 40,000 fewer farms reported sales of whole milk, shows that in 1963 approximately 53,000 fewer families were directly engaged in some phase of the Northeast dairy industry than in 1958. The decline in the number of farms selling whole milk and in the number of plant employees, has been equally drastic in the 4 years between the 1963 and 1967 Census of Manufactures.

The Northeast, with an average population of 261 people per square mile in 1965 and large areas with a much greater population density, has quite different adjustment problems and opportunities than those for much of the remainder of the United States, which averages a population density only one-fourth that of the Northeast. However, the population increase (percentage) in the Northeast has lagged slightly behind the U.S. average.

Cash farm income from dairying increased by more than one-third from 1955 to 1965, continuing a long-term trend for the Northeast and the United States. Farmers made an additional 12-percent gain in dollar sales of dairy products during the next 2-year period 1966-67. These dollar gains were relatively lower in the Northeast than the national average. Milk production increased more rapidly in the Northeast through 1966, but the Northeast represents a decreasing proportion of the national total milk sales to plants by farmers, and milk prices have advanced relatively more in other sections than in the Northeast.

The distribution of population and milk production centers necessitates moving volumes of milk through the marketing system. The Northeast portion of the United States, with heavy concentrations of population and of milk production, offers the opportunity to observe adjustments in producing and marketing milk products under a variety of conditions.

The Northeast, sometimes referred to as megalopolis because of the string of population centers, includes the 12 States from Maine through Virginia, plus the District of Columbia.

Within this area, approximately 29.2 percent of the U.S. population lives on about 7.1 percent of the country's land area. Sixteen percent of the Nation's people live in only 34 Northeast counties with a population density greater than 1,000 per square mile. Little milk is produced within these heavily populated areas. In fact, farmers in these 34 counties (or city-counties) sell only seven-tenths of 1 percent of the total milk supply, a mere fraction of their needs.

Conversely, farmers in 62 of the Northeast counties sell more than 200,000 pounds of milk per square mile in a year. These counties, with 1.5 percent of the Nation's land area and 3.7 percent of the population, produce 13.0 percent of the milk. Altogether, Northeast farms produce about 22.2 percent of our total national milk supply.

The inclusion of these several States in the Northeast in no way implies uniformity. Natural features are extremely varied within the area. So, too, are social and economic characteristics and the institutional arrangements for facilitating production and marketing activities. These differences serve either to enhance or to limit alternatives for the different participants.

Recognizing the marked differences between areas, we have endeavored to describe each county according to certain characteristics. We then grouped the counties according to similarities and made various comparisons between groupings. A few of these groupings and comparisons are presented to illustrate how adjustments may be affected by these differences.

Much of the land in the Northeast is well suited for milk production but is rather limited in alternative agricultural production because of natural or socially produced restrictions. The industrial and metropolitan areas influence farmers' production decisions. This combination of limited agricultural alternatives and available off-farm alternatives probably leads Northeast dairymen to react quite differently from dairymen in other regions where alternatives vary.

Historically, each major city became a central market with a milkshed surrounding it and encompassing the smaller cities and towns. The trend, especially in fringe areas, has been toward a greater degree of interdependence between these marketing areas, with considerable volumes of milk moved between them.

In recent years, the New England consuming centers have been drawing an increasing volume of milk from the western part of their milkshed. This has progressed to the extent that the eastern tier of counties in upstate New York is now associated with New England markets. The New York City milkshed has offset this by drawing more supplies from counties farther west. This is a logical move by both markets as they adjust to meet changing patterns of production and consumption.

Table 2.--Selected census data regarding population, farms, milk cows, farm product sales, and land area for Northeast States and regions and the United States, 1960 1/

| State and region | Population | Number farms selling milk | Number farms | Number milk cows | Milk sold by farmers | Product sales by farmers: Dairy sales | Product sales by farmers: Livestock product sales | Product sales by farmers: Total farm product sales | Percent of land in farms | Land area |
|---|---|---|---|---|---|---|---|---|---|---|
| | Thousand | 10 farms | 10 farms | 100 cows | Mil. lbs. | 100,000 dollars | 100,000 dollars | 100,000 dollars | Percent | 10 square miles |
| Maine..... | 969 | 459 | 1,734 | 893 | 635 | 321 | 1,008 | 1,713 | 16 | 3,101 |
| New Hampshire.. | 607 | 251 | 654 | 480 | 380 | 202 | 390 | 481 | 20 | 901 |
| Vermont..... | 390 | 869 | 1,217 | 2,479 | 1,769 | 832 | 989 | 1,086 | 50 | 928 |
| Massachusetts.. | 5,149 | 320 | 1,115 | 894 | 724 | 410 | 800 | 1,264 | 23 | 787 |
| Rhode Island... | 860 | 46 | 140 | 139 | 114 | 68 | 115 | 183 | 20 | 106 |
| Connecticut.... | 2,535 | 280 | 826 | 829 | 724 | 412 | 816 | 1,202 | 28 | 490 |
| New England.... | 10,509 | 2,225 | 5,685 | 5,714 | 4,347 | 2,244 | 4,118 | 5,930 | 23 | 6,313 |
| New York..... | 16,782 | 4,399 | 8,236 | 11,733 | 9,335 | 4,086 | 5,544 | 7,554 | 44 | 4,794 |
| New Jersey..... | 6,067 | 315 | 1,546 | 1,199 | 999 | 531 | 1,361 | 2,311 | 29 | 752 |
| Pennsylvania... | 11,319 | 3,993 | 10,005 | 8,274 | 6,169 | 2,793 | 5,254 | 7,125 | 41 | 4,501 |
| Mid-Atlantic... | 34,168 | 8,707 | 19,787 | 21,206 | 16,503 | 7,410 | 12,159 | 16,990 | 42 | 10,047 |
| Delaware..... | 446 | 118 | 520 | 235 | 179 | 83 | 592 | 860 | 60 | 198 |
| Maryland..... | 3,101 | 620 | 2,511 | 1,981 | 1,413 | 636 | 1,561 | 2,311 | 55 | 987 |
| Washington, D.C.: | 764 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Virginia..... | 3,967 | 1,661 | 9,762 | 3,076 | 1,519 | 731 | 2,443 | 4,239 | 52 | 3,941 |
| Delmarva..... | 8,278 | 2,399 | 12,792 | 5,292 | 3,111 | 1,450 | 4,595 | 7,410 | 53 | 5,132 |
| Northeast..... | 52,956 | 13,331 | 38,264 | 32,212 | 23,961 | 11,104 | 20,872 | 30,330 | 39 | 21,492 |
| United States.. | 178,464 | 77,004 | 370,389 | 165,057 | 97,484 | 40,103 | 170,247 | 303,372 | 59 | 302,239 |

1/ Source: Bureau of Census publications; 1960 is used as the base year for comparisons in this publication; 1960 is used to identify the census year 1960 and the 1959 Census of Agriculture in this table and throughout the report. Data are rounded more for table presentation than when used in computations.
Individual States may not add to totals because of rounding.

## Area and Regional Comparisons

Milk production, utilization, and consumption within any given area or locality are closely related to the same activities in other areas. Therefore, we consider the counties in relationships with other counties in the Northeast, States as a part of the Northeast and of the United States, and the regions as a part of the total United States. Totals are shown for other regions to give perspective to the Northeast data.

Selected Census data for the United States, regions, and for the individual Northeast States are summarized for 1960 in table 2. These data provide a benchmark for the other comparisons which are presented in relative terms to describe better the changes (and rates of changes) occurring in different areas.

Individual States within the Northeast have made greater relative changes in milk production and utilization than has the region as a whole. Naturally, many of these adjustments have offset each other when the region is viewed as an entity. Such offsets may or may not be causally related. Variations in weather or biological factors may cause production to rise in one area and fall in another. This type of change, especially in cases where milk and milk products regularly flow between the areas, is then reflected in different allocations of raw milk to the various uses. The resulting percentage allocation and the percentage of each product supplied by each area may be quite different from the initial situation. Greater variability in utilization and relative rank between areas is noted in products representing marginal uses. The Northeast increased its share of total U.S. milk production from 1940 to 1965, but lost ground in 1966 and 1967 when milk production declined relatively more in this area than did the national total.

Milk production increased in New England until 1963, then declined through 1968. This group of States has been producing a smaller share of the Northeast milk supply, dropping from 20 to 17 percent of the total. Vermont is the only New England State that has been increasing its share of total milk produced in the Northeast.

The Mid-Atlantic region (New York, New Jersey, and Pennsylvania) produces 70 percent of the Northeast total, moving up slightly during the past quarter century. The greatest absolute gain in production was made by New York but the relative gain was greatest in Pennsylvania.

The Delmarva portion of the Northeast (Delaware, Maryland, District of Columbia, Virginia) made very little net change in its share of total milk production. Maryland's small gains were offset by losses in Virginia and Delaware. No milk production is reported for the District of Columbia. Actual production in the subregion increased slowly, reaching a peak in 1962.

Table 3 compares adjustments by the individual States and regions within the Northeast. The comparisons show the relative changes in the period 1940-65 in population, number of farms, farms selling milk, and the number of milk cows.

Each characteristic for each area is expressed as a percentage of the base year 1960, as a percentage of the total Northeast, and as a percentage of the United States total.

Population increased in each State during this period (1940-65), but not at a uniform rate. The proportion of the U.S. population living in the Northeast has been declining. New England gained population more slowly than the rest of the Northeast so that the proportion of the Northeast and U.S. populations living in New England has declined. Connecticut has experienced a more rapid growth than the Northeast or the United States, the only New England State to do so. New Jersey was the only Mid-Atlantic State to gain more rapidly than the Northeast or the United States. The Delmarva region gained most rapidly as every State except the District of Columbia outpaced the Northeast and the United States.

Table 3.--Selected population and agricultural census data for Northeast States and regions expressed as a percentage of 1960, percentage of the Northeast, and percentage of the United States for selected years, 1940-65

| State and year | Population as a percentage of | | | Number of farms as a percentage of | | | Number of farms selling milk as a percentage of | | | Number of milk cows as a percentage of | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States |
| | Percent | | | Percent | | | Percent | | | Percent | | |
| Maine | | | | | | | | | | | | |
| 1940 | 87.40 | 2.05 | 0.64 | 224.80 | 5.50 | 0.64 | 208.06 | 4.39 | 1.00 | 138.19 | 3.56 | 0.51 |
| 1945 | | | | 243.25 | 5.85 | .72 | 170.59 | 3.81 | .67 | 130.79 | 3.22 | .51 |
| 1950 | 94.27 | 1.98 | .61 | 175.09 | 5.11 | .56 | 160.57 | 3.93 | .67 | 114.11 | 2.93 | .48 |
| 1955 | | | | 134.78 | 4.54 | .49 | 126.80 | 3.62 | .62 | 119.26 | 2.95 | .53 |
| 1960 | 100.00 | 1.83 | .54 | 100.00 | 4.53 | .47 | 100.00 | 3.44 | .60 | 100.00 | 2.77 | .54 |
| 1965 | 102.03 | 1.76 | .51 | 74.28 | 4.19 | .41 | 55.99 | 2.70 | .47 | 84.66 | 2.54 | .52 |
| New Hampshire | | | | | | | | | | | | |
| 1940 | 80.99 | 1.19 | .37 | 253.06 | 2.33 | .27 | 241.43 | 2.79 | .64 | 142.29 | 1.97 | .28 |
| 1945 | | | | 287.31 | 2.60 | .32 | 192.83 | 2.36 | .42 | 134.58 | 1.78 | .28 |
| 1950 | 87.86 | 1.15 | .35 | 204.74 | 2.25 | .25 | 166.14 | 2.22 | .38 | 118.12 | 1.63 | .27 |
| 1955 | | | | 159.17 | 2.02 | .22 | 126.29 | 1.97 | .34 | 123.33 | 1.64 | .29 |
| 1960 | 100.00 | 1.15 | .34 | 100.00 | 1.71 | .18 | 100.00 | 1.88 | .33 | 100.00 | 1.49 | .29 |
| 1965 | 105.29 | 1.14 | .33 | 71.10 | 1.51 | .15 | 62.15 | 1.64 | .29 | 91.46 | 1.48 | .30 |
| Vermont | | | | | | | | | | | | |
| 1940 | 92.13 | .87 | .27 | 193.76 | 3.32 | .39 | 156.50 | 6.26 | 1.43 | 103.91 | 7.43 | 1.07 |
| 1945 | | | | 217.67 | 3.67 | .45 | 151.67 | 6.42 | 1.13 | 109.56 | 7.50 | 1.19 |
| 1950 | 96.87 | .82 | .25 | 156.45 | 3.20 | .35 | 136.48 | 6.32 | 1.08 | 99.68 | 7.10 | 1.16 |
| 1955 | | | | 131.31 | 3.11 | .33 | 123.13 | 6.65 | 1.15 | 108.43 | 7.43 | 1.33 |
| 1960 | 100.00 | .74 | .22 | 100.00 | 3.18 | .33 | 100.00 | 6.52 | 1.13 | 100.00 | 7.70 | 1.50 |
| 1965 | 101.56 | .70 | .21 | 76.01 | 3.01 | .29 | 71.12 | 6.49 | 1.13 | 92.70 | 7.73 | 1.57 |
| Massachusetts | | | | | | | | | | | | |
| 1940 | 83.84 | 10.43 | 3.28 | 286.10 | 4.50 | .52 | 307.50 | 4.53 | 1.03 | 144.85 | 3.74 | .54 |
| 1945 | | | | 331.93 | 5.13 | .63 | 256.87 | 4.00 | .71 | 143.85 | 3.55 | .56 |
| 1950 | 91.10 | 10.14 | 3.11 | 199.28 | 3.74 | .41 | 180.31 | 3.08 | .53 | 126.73 | 3.25 | .53 |
| 1955 | | | | 155.70 | 3.38 | .36 | 137.19 | 2.73 | .47 | 120.13 | 2.97 | .53 |
| 1960 | 100.00 | 9.72 | 2.88 | 100.00 | 2.91 | .30 | 100.00 | 2.40 | .42 | 100.00 | 2.78 | .54 |
| 1965 | 104.63 | 9.59 | 2.80 | 71.93 | 2.61 | .25 | 67.81 | 2.28 | .40 | 88.70 | 2.67 | .54 |
| Rhode Island | | | | | | | | | | | | |
| 1940 | 82.99 | 1.72 | .54 | 215.00 | .42 | .05 | 278.26 | .59 | .13 | 139.57 | .56 | .08 |
| 1945 | | | | 257.14 | .50 | .06 | 252.17 | .56 | .10 | 140.29 | .54 | .09 |
| 1950 | 92.13 | 1.71 | .53 | 186.43 | .44 | .05 | 169.57 | .42 | .07 | 117.99 | .47 | .08 |
| 1955 | | | | 142.86 | .39 | .04 | 128.26 | .37 | .06 | 114.39 | .44 | .08 |
| 1960 | 100.00 | 1.62 | .48 | 100.00 | .37 | .04 | 100.00 | .35 | .06 | 100.00 | .43 | .08 |
| 1965 | 104.36 | 1.60 | .47 | 78.57 | .36 | .03 | 56.52 | .27 | .05 | 74.82 | .35 | .07 |
| Connecticut | | | | | | | | | | | | |
| 1940 | 67.42 | 4.13 | 1.30 | 256.48 | 2.98 | .35 | 246.79 | 3.18 | .72 | 126.66 | 3.03 | .44 |
| 1945 | | | | 269.58 | 3.08 | .38 | 194.29 | 2.65 | .47 | 130.28 | 2.98 | .47 |
| 1950 | 79.18 | 4.34 | 1.33 | 189.33 | 2.63 | .29 | 166.07 | 2.48 | .42 | 119.30 | 2.84 | .47 |
| 1955 | | | | 154.55 | 2.48 | .27 | 134.29 | 2.34 | .40 | 122.92 | 2.82 | .50 |
| 1960 | 100.00 | 4.79 | 1.42 | 100.00 | 2.16 | .22 | 100.00 | 2.10 | .36 | 100.00 | 2.57 | .50 |
| 1965 | 108.55 | 4.90 | 1.43 | 73.58 | 1.97 | .19 | 61.07 | 1.80 | .31 | 87.09 | 2.43 | .49 |

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Table 3.--Selected population and agricultural census data for Northeast States and regions expressed as a percentage of 1960, percentage of the Northeast, and percentage of the United States for selected years, 1940-65--continued

| State and year | Population as a percentage of | | | Number of farms as a percentage of | | | Number of farms selling milk as a percentage of | | | Number of milk cows as a percentage of | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States |
| | Percent | | | Percent | | | Percent | | | Percent | | |
| New England | | | | | | | | | | | | |
| 1940 | 80.28 | 20.39 | 6.41 | 237.78 | 19.06 | 2.22 | 212.31 | 21.73 | 4.95 | 123.07 | 20.29 | 14.39 |
| 1945 | | | | 264.40 | 20.83 | 2.57 | 182.79 | 19.80 | 3.50 | 124.10 | 19.57 | 15.89 |
| 1950 | 88.63 | 20.13 | 6.18 | 181.60 | 17.36 | 1.92 | 155.51 | 18.44 | 3.16 | 111.01 | 18.22 | 16.40 |
| 1955 | | | | 144.01 | 15.92 | 1.71 | 127.78 | 17.67 | 3.04 | 115.45 | 18.25 | 17.91 |
| 1960 | 100.00 | 19.85 | 5.89 | 100.00 | 14.86 | 1.53 | 100.00 | 16.69 | 2.89 | 100.00 | 17.74 | 19.52 |
| 1965 | 105.24 | 19.69 | 5.75 | 73.83 | 13.64 | 1.33 | 64.94 | 15.18 | 2.65 | 89.46 | 17.20 | 20.35 |
| New York | | | | | | | | | | | | |
| 1940 | 80.32 | 32.57 | 10.24 | 186.06 | 21.60 | 2.51 | 174.02 | 35.22 | 8.02 | 108.22 | 36.64 | 5.27 |
| 1945 | | | | 181.51 | 20.72 | 2.55 | 156.29 | 33.47 | 5.91 | 109.99 | 35.62 | 5.66 |
| 1950 | 88.37 | 32.06 | 9.84 | 151.75 | 21.02 | 2.32 | 142.12 | 33.32 | 5.70 | 103.78 | 34.97 | 5.73 |
| 1955 | | | | 128.35 | 20.55 | 2.21 | 124.19 | 33.95 | 5.85 | 110.54 | 35.87 | 6.43 |
| 1960 | 100.00 | 31.69 | 9.40 | 100.00 | 21.52 | 2.22 | 100.00 | 33.00 | 5.71 | 100.00 | 36.42 | 7.11 |
| 1965 | 106.27 | 31.75 | 9.28 | 80.76 | 21.61 | 2.11 | 75.54 | 34.91 | 6.10 | 96.68 | 38.17 | 7.77 |
| New Jersey | | | | | | | | | | | | |
| 1940 | 68.57 | 10.05 | 3.16 | 167.14 | 3.64 | .42 | 209.21 | 3.03 | .69 | 111.09 | 3.84 | .55 |
| 1945 | | | | 169.60 | 3.63 | .45 | 186.03 | 2.85 | .50 | 115.93 | 3.84 | .61 |
| 1950 | 79.70 | 10.45 | 3.21 | 160.67 | 4.18 | .46 | 152.70 | 2.56 | .44 | 112.18 | 3.86 | .63 |
| 1955 | | | | 146.77 | 4.41 | .47 | 126.35 | 2.47 | .43 | 116.35 | 3.86 | .69 |
| 1960 | 100.00 | 11.46 | 3.40 | 100.00 | 4.04 | .42 | 100.00 | 2.36 | .41 | 100.00 | 3.72 | .73 |
| 1965 | 108.57 | 11.73 | 3.43 | 68.82 | 3.46 | .34 | 65.08 | 2.15 | .38 | 80.82 | 3.26 | .66 |
| Pennsylvania | | | | | | | | | | | | |
| 1940 | 87.46 | 23.92 | 7.52 | 168.95 | 23.83 | 2.77 | 157.25 | 28.89 | 6.58 | 96.23 | 22.98 | 3.31 |
| 1945 | | | | 171.67 | 23.81 | 2.93 | 151.67 | 29.48 | 5.21 | 105.44 | 24.08 | 3.83 |
| 1950 | 92.74 | 22.69 | 6.97 | 146.82 | 24.71 | 2.73 | 138.74 | 29.53 | 5.05 | 101.60 | 24.14 | 3.96 |
| 1955 | | | | 128.82 | 25.06 | 2.69 | 117.63 | 29.19 | 5.03 | 105.83 | 24.22 | 4.34 |
| 1960 | 100.00 | 21.38 | 6.34 | 100.00 | 26.15 | 2.70 | 100.00 | 29.95 | 5.19 | 100.00 | 25.69 | 5.01 |
| 1965 | 101.69 | 20.49 | 5.99 | 83.05 | 27.00 | 2.64 | 74.86 | 31.40 | 5.49 | 95.59 | 26.61 | 5.41 |
| Mid-Atlantic | | | | | | | | | | | | |
| 1940 | 80.60 | 66.54 | 20.92 | 175.93 | 49.08 | 5.71 | 167.60 | 67.14 | 15.30 | 103.70 | 63.47 | 9.13 |
| 1945 | | | | 175.61 | 48.16 | 5.93 | 155.24 | 65.81 | 11.62 | 108.55 | 63.54 | 10.09 |
| 1950 | 88.28 | 65.20 | 20.02 | 149.95 | 49.91 | 5.51 | 140.96 | 65.42 | 11.19 | 103.40 | 62.97 | 10.33 |
| 1955 | | | | 130.02 | 50.02 | 5.38 | 121.26 | 65.61 | 11.30 | 109.03 | 63.95 | 11.46 |
| 1960 | 100.00 | 64.52 | 19.15 | 100.00 | 51.71 | 5.34 | 100.00 | 65.31 | 11.31 | 100.00 | 65.83 | 12.85 |
| 1965 | 105.16 | 63.96 | 18.69 | 80.98 | 52.07 | 5.08 | 74.85 | 68.46 | 11.97 | 95.36 | 68.04 | 13.84 |
| Delaware | | | | | | | | | | | | |
| 1940 | 59.71 | .64 | .20 | 172.88 | 1.27 | .15 | 177.97 | .97 | .22 | 127.66 | .87 | .12 |
| 1945 | | | | 178.85 | 1.29 | .16 | 174.58 | 1.00 | .18 | 137.87 | .89 | .14 |
| 1950 | 71.27 | .69 | .21 | 143.27 | 1.25 | .14 | 152.54 | .96 | .16 | 134.04 | .90 | .15 |
| 1955 | | | | 121.15 | 1.22 | .13 | 122.88 | .90 | .16 | 131.91 | .86 | .15 |
| 1960 | 100.00 | .84 | .25 | 100.00 | 1.36 | .14 | 100.00 | .89 | .15 | 100.00 | .73 | .14 |
| 1965 | 110.69 | .88 | .26 | 84.62 | 1.43 | .14 | 50.85 | .63 | .11 | 74.47 | .59 | .12 |

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Table 3.--Selected population and agricultural census data for Northeast States and regions expressed as a percentage of 1960, percentage of the Northeast, and percentage of the United States for selected years, 1940-65--continued

| State and year | Population as a percentage of | | | Number of farms as a percentage of | | | Number of farms selling milk as a percentage of | | | Number of milk cows as a percentage of | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States | 1960 | Total Northeast | Total United States |
| | Percent | | | Percent | | | Percent | | | Percent | | |
| Maryland | | | | | | | | | | | | |
| 1940 | 58.74 | 4.40 | 1.38 | 167.70 | 5.94 | 0.69 | 172.42 | 4.92 | 1.12 | 88.39 | 5.05 | 0.73 |
| 1945 | | | | 164.40 | 5.72 | .70 | 165.16 | 4.99 | .88 | 96.42 | 5.27 | .84 |
| 1950 | 75.56 | 5.06 | 1.55 | 143.81 | 6.07 | .67 | 142.26 | 4.70 | .80 | 103.03 | 5.86 | .96 |
| 1955 | | | | 129.43 | 6.32 | .68 | 123.39 | 4.75 | .82 | 110.65 | 6.06 | 1.09 |
| 1960 | 100.00 | 5.86 | 1.74 | 100.00 | 6.56 | .68 | 100.00 | 4.65 | .81 | 100.00 | 6.15 | 1.20 |
| 1965 | 112.23 | 6.19 | 1.81 | 82.68 | 6.75 | .66 | 70.65 | 4.60 | .80 | 88.49 | 5.90 | 1.20 |
| Wash., D.C. | | | | | | | | | | | | |
| 1940 | 86.79 | 1.60 | .50 | --- | .01 | .00 | --- | .00 | .00 | --- | .02 | .00 |
| 1945 | | | | --- | .01 | .00 | --- | .00 | .00 | --- | .01 | .00 |
| 1950 | 105.00 | 1.73 | .53 | --- | .01 | .00 | --- | .00 | .00 | --- | .00 | .00 |
| 1955 | | | | --- | .00 | .00 | --- | .00 | .00 | --- | .00 | .00 |
| 1960 | 100.00 | 1.44 | .43 | --- | .00 | .00 | --- | .00 | .00 | --- | .00 | .00 |
| 1965 | 106.02 | 1.44 | .42 | --- | .00 | .00 | --- | .00 | .00 | --- | .00 | .00 |
| Virginia | | | | | | | | | | | | |
| 1940 | 67.08 | 6.43 | 2.02 | 179.16 | 24.65 | 2.87 | 68.51 | 5.24 | 1.19 | 116.06 | 10.30 | 1.48 |
| 1945 | | | | 177.29 | 23.99 | 2.95 | 103.91 | 8.40 | 1.48 | 126.24 | 10.72 | 1.70 |
| 1950 | 83.66 | 7.17 | 2.20 | 154.70 | 25.40 | 2.81 | 118.36 | 10.48 | 1.79 | 136.28 | 12.04 | 1.97 |
| 1955 | | | | 139.76 | 26.52 | 2.85 | 107.28 | 11.07 | 1.91 | 127.99 | 10.89 | 1.95 |
| 1960 | 100.00 | 7.49 | 2.22 | 100.00 | 25.51 | 2.64 | 100.00 | 12.46 | 2.16 | 100.00 | 9.55 | 1.86 |
| 1965 | 110.92 | 7.83 | 2.29 | 82.32 | 26.11 | 2.55 | 63.82 | 11.13 | 1.95 | 79.94 | 8.27 | 1.68 |
| Delmarva | | | | | | | | | | | | |
| 1940 | 65.38 | 13.08 | 4.11 | 176.70 | 31.87 | 3.71 | 100.79 | 11.12 | 2.53 | 106.33 | 16.24 | 2.34 |
| 1945 | | | | 174.85 | 31.00 | 3.82 | 123.22 | 14.39 | 2.54 | 115.65 | 16.89 | 2.68 |
| 1950 | 81.93 | 14.66 | 4.50 | 152.12 | 32.73 | 3.62 | 126.22 | 16.14 | 2.76 | 123.75 | 18.81 | 3.08 |
| 1955 | | | | 136.98 | 34.06 | 3.66 | 112.21 | 16.73 | 2.88 | 121.67 | 17.81 | 3.19 |
| 1960 | 100.00 | 15.63 | 4.64 | 100.00 | 33.43 | 3.45 | 100.00 | 18.00 | 3.12 | 100.00 | 16.43 | 3.21 |
| 1965 | 110.95 | 16.35 | 4.78 | 82.48 | 34.29 | 3.35 | 64.94 | 16.37 | 2.86 | 82.90 | 14.76 | 3.00 |
| Northeast | | | | | | | | | | | | |
| 1940 | 78.16 | 100.00 | 31.43 | 185.38 | 100.00 | 11.63 | 163.04 | 100.00 | 22.79 | 107.57 | 100.00 | 14.39 |
| 1945 | | | | 188.55 | 100.00 | 12.31 | 154.08 | 100.00 | 17.66 | 112.47 | 100.00 | 15.89 |
| 1950 | 87.36 | 100.00 | 30.70 | 155.38 | 100.00 | 11.05 | 140.73 | 100.00 | 17.11 | 108.09 | 100.00 | 16.40 |
| 1955 | | | | 134.43 | 100.00 | 10.76 | 120.72 | 100.00 | 17.23 | 112.25 | 100.00 | 17.91 |
| 1960 | 100.00 | 100.00 | 29.67 | 100.00 | 100.00 | 10.33 | 100.00 | 100.00 | 17.31 | 100.00 | 100.00 | 19.52 |
| 1965 | 106.08 | 100.00 | 29.22 | 80.42 | 100.00 | 9.76 | 71.41 | 100.00 | 17.48 | 92.26 | 100.00 | 20.35 |
| United States | | | | | | | | | | | | |
| 1940 | 73.78 | 313.13 | 100.00 | 164.61 | 859.52 | 100.00 | 123.88 | 438.88 | 100.00 | 145.86 | 694.79 | 100.00 |
| 1945 | | | | 158.19 | 812.14 | 100.00 | 151.06 | 566.32 | 100.00 | 138.15 | 629.39 | 100.00 |
| 1950 | 84.44 | 325.76 | 100.00 | 145.31 | 905.26 | 100.00 | 142.41 | 584.54 | 100.00 | 128.64 | 609.80 | 100.00 |
| 1955 | | | | 129.12 | 929.76 | 100.00 | 121.31 | 580.46 | 100.00 | 122.28 | 558.20 | 100.00 |
| 1960 | 100.00 | 337.01 | 100.00 | 100.00 | 967.98 | 100.00 | 100.00 | 577.63 | 100.00 | 100.00 | 512.41 | 100.00 |
| 1965 | 107.72 | 342.22 | 100.00 | 85.12 | 1024.51 | 100.00 | 70.73 | 572.09 | 100.00 | 88.49 | 491.45 | 100.00 |

The number of farms declined more rapidly in the Northeast than in the United States as a whole. The New England States have shown the most severe drop since 1945, except for the drastic reduction in New Jersey in 1960-65. The Mid-Atlantic and the Delmarva regions both have gained a greater share of the total Northeast farms but have lost relative to the national total.

The number of farms selling milk also was decreasing more rapidly than the national total, but since 1950 has been decreasing less rapidly, so that the Northeast's proportion of farms selling milk has increased slightly. Only one-third as many farms in New England sell milk today, compared with 25 years earlier. Each New England State has lost ground, compared with the total for the Northeast and the Nation.

Northeast farmers have been increasing their share of milk cows in the United States, since milk cow numbers have dropped more rapidly in the Nation than in the region. Vermont increased its percentage of milk cows in the Northeast, but all other New England States lost percentagewise. Since the Delmarva region also lost in this regard, the Mid-Atlantic region, compared with the Northeast and national totals, gained.

## Federal and State Milk Orders

Federal and/or State milk orders have been in effect in the major fluid milk markets in the Northeast since the 1930's. During the mid-1960's, about 80 percent of the milk sold to plants and dealers in the Northeast was subject to Federal milk orders. An additional 15-16 percent was subject to State milk orders but not to a Federal order. A portion is subject to regulation by both Federal and State orders. The proportion subject to Federal orders has increased with the expansion of the Massachusetts-Rhode Island-New Hampshire order and creation of the Eastern Ohio-Western Pennsylvania order effective July 1, 1969.

These orders have undergone and are continuing an evolutionary process. The trend has been toward a growing role for Federal orders in this region and nationally. However, largely because of the network of large cities, the Northeast probably has experienced a greater stability of regulation than have most parts of the country.

Class I prices to producers in the Northeast Federal order markets did include an economic formula which considered the general level of economic activity as well as certain cost-of-production items. However, the economic formulas were inactivated in May 1968 and eliminated from the Northeast orders in September 1969. Following this action, the pricing formula in these orders has been (as of December 1969) a specified price with a differential equal to the amount that the Minnesota-Wisconsin price series exceeds $4.33 per hundredweight.

There were seven Federal milk marketing orders in the Northeast States during the period covered. Six of these, Massachusetts-Rhode Island-New Hampshire, Connecticut, New York-New Jersey, Delaware Valley, Upper Chesapeake Bay, and Washington, D.C., form an uneven belt extending from New Hampshire to Northern Virginia, with pooled plants located in each of the 12 States and the District of Columbia. The seventh order, Appalachian, lies in the extreme southwest part of Virginia and in parts of Tennessee, Kentucky, and West Virginia. This order is influenced more by production and marketing conditions in the Mid-South than by the Northeast markets. Grouping the Appalachian order with the other Northeast orders would require a statement of exception in most general comparisons. We have therefore chosen to omit it from this grouping of the Northeast Federal order markets.

Table 4.--Selected data regarding annual producer receipts of milk and utilization of producer receipts in six Northeast Federal milk market orders, 1964-1967 1/

| | Producer receipts | | | Producer receipts assigned to Class I | | | | Producer receipts not assigned to Class I | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Volume | Percentage of six orders | Percentage of total Northeast milk production | Volume | Percentage of producer receipts | Percentage of six orders | Percentage of Northeast milk production | Volume | Percentage of producer receipts | Percentage of six orders | Percentage of Northeast milk production |
| | Mil.lbs. | Pct. | Pct. | Mil.lbs. | Pct. | Pct. | Pct. | Mil.lbs. | Pct. | Pct. | Pct. |
| Mass.-Rhode Island | | | | | | | | | | | |
| 1967 | 3,219 | 17.00 | 12.37 | 1,957 | 60.78 | 17.61 | 7.52 | 1,262 | 39.22 | 16.14 | 4.85 |
| 1966 | 3,204 | 16.60 | 12.00 | 1,961 | 61.22 | 17.20 | 7.35 | 1,243 | 38.78 | 15.73 | 4.65 |
| 1965 | 3,321 | 16.65 | 12.06 | 1,995 | 60.07 | 17.40 | 7.24 | 1,326 | 39.93 | 15.64 | 4.82 |
| 1964 | 3,260 | 16.48 | 11.82 | 1,945 | 59.66 | 17.10 | 7.05 | 1,315 | 40.34 | 15.63 | 4.77 |
| Connecticut | | | | | | | | | | | |
| 1967 | 1,139 | 6.02 | 4.38 | 897 | 78.80 | 8.08 | 3.45 | 242 | 21.20 | 3.08 | 0.93 |
| 1966 | 1,092 | 5.66 | 4.09 | 892 | 81.71 | 7.82 | 3.34 | 200 | 18.29 | 2.53 | 0.75 |
| 1965 | 1,102 | 5.53 | 4.00 | 872 | 79.10 | 7.61 | 3.17 | 230 | 20.90 | 2.71 | 0.84 |
| 1964 | 1,110 | 5.61 | 4.03 | 887 | 79.90 | 7.80 | 3.22 | 223 | 20.10 | 2.65 | 0.81 |
| N.Y.-N.J. | | | | | | | | | | | |
| 1967 | 10,741 | 56.72 | 41.29 | 5,347 | 49.78 | 48.12 | 20.55 | 5,394 | 50.22 | 68.95 | 20.73 |
| 1966 | 11,274 | 58.40 | 42.23 | 5,654 | 50.15 | 49.58 | 21.18 | 5,620 | 49.85 | 71.14 | 21.05 |
| 1965 | 11,764 | 58.99 | 42.73 | 5,726 | 48.68 | 49.95 | 20.80 | 6,038 | 51.32 | 71.23 | 21.93 |
| 1964 | 11,635 | 58.79 | 42.20 | 5,712 | 49.09 | 50.21 | 20.72 | 5,923 | 50.91 | 70.40 | 21.48 |
| Delaware Valley | | | | | | | | | | | |
| 1967 | 1,942 | 10.25 | 7.46 | 1,522 | 78.37 | 13.69 | 5.85 | 420 | 21.63 | 5.37 | 1.61 |
| 1966 | 1,867 | 9.67 | 6.99 | 1,501 | 80.38 | 13.16 | 5.62 | 366 | 19.62 | 4.64 | 1.37 |
| 1965 | 1,918 | 9.62 | 6.97 | 1,514 | 78.93 | 13.20 | 5.50 | 404 | 21.07 | 4.77 | 1.47 |
| 1964 | 1,991 | 10.06 | 7.22 | 1,545 | 77.57 | 13.58 | 5.60 | 446 | 22.43 | 5.31 | 1.62 |
| Upper Chesapeake | | | | | | | | | | | |
| 1967 | 855 | 4.52 | 3.29 | 603 | 70.53 | 5.42 | 2.32 | 252 | 29.47 | 3.22 | 0.97 |
| 1966 | 868 | 4.50 | 3.25 | 619 | 71.32 | 5.43 | 2.32 | 249 | 28.68 | 3.15 | 0.93 |
| 1965 | 839 | 4.21 | 3.05 | 607 | 72.32 | 5.29 | 2.20 | 232 | 27.68 | 2.74 | 0.84 |
| 1964 | 786 | 3.97 | 2.85 | 566 | 72.06 | 4.98 | 2.06 | 220 | 27.94 | 2.61 | 0.80 |
| Washington, D.C. | | | | | | | | | | | |
| 1967 | 1,040 | 5.49 | 4.00 | 787 | 75.65 | 7.08 | 3.02 | 253 | 24.35 | 3.24 | 0.97 |
| 1966 | 999 | 5.17 | 3.74 | 777 | 77.74 | 6.81 | 2.91 | 222 | 22.26 | 2.81 | 0.83 |
| 1965 | 997 | 5.00 | 3.62 | 751 | 75.27 | 6.55 | 2.73 | 246 | 24.73 | 2.91 | 0.90 |
| 1964 | 1,007 | 5.09 | 3.65 | 721 | 71.60 | 6.33 | 2.61 | 286 | 28.40 | 3.40 | 1.04 |
| Total-six orders | | | | | | | | | | | |
| 1967 | 18,937 | 100.00 | 72.79 | 11,113 | 58.68 | 100.00 | 42.72 | 7,824 | 41.32 | 100.00 | 30.07 |
| 1966 | 19,306 | 100.00 | 72.31 | 11,405 | 59.08 | 100.00 | 42.72 | 7,901 | 40.92 | 100.00 | 29.59 |
| 1965 | 19,940 | 100.00 | 72.43 | 11,463 | 57.49 | 100.00 | 41.64 | 8,477 | 42.51 | 100.00 | 30.79 |
| 1964 | 19,790 | 100.00 | 71.77 | 11,376 | 57.49 | 100.00 | 41.26 | 8,414 | 42.51 | 100.00 | 30.51 |

1/ Massachusetts-Rhode Island, Connecticut, New York-New Jersey, Delaware Valley, Upper Chesapeake Bay, Washington, D.C. Individual markets may not add to total because of rounding.

Table 4 shows producer receipts of milk, producer receipts assigned to class I, and producer receipts not assigned to class I for the six Northeast Federal order markets. Each classification is then expressed as a percentage of the six orders and of total milk production in the Northeast.

Prices paid to producers for milk regulated by State orders in the Northeast have been related to producer prices under Federal order regulation. Generally, the State order prices were set at a specified relationship to either the class price or the blend price paid at some stated location under a Federal order. The price of milk not set directly by a Federal or State order is influenced greatly by the order prices since processors in the region must compete with regulated handlers for a supply of milk. Therefore, the impact of the Federal order pricing is even greater than the high proportion of milk directly subject to Federal order regulation.

## UTILIZATION OF MILK

Utilization of milk is related to the level of and the change in production and consumption in local markets, and in secondary areas associated with the primary market. These supply-demand relationships in the primary and secondary market areas must be viewed in light of the national supply-demand characteristics and the priorities placed upon the various products by processors and consumers. Change in any of these relationships forces (or permits) change in allocation of milk among competing utilizations, processors, and geographical areas. Table 5 shows the production and utilization of milk in the Northeast and the United States for 1960. Changes are then compared with 1960 as the base time period.

Utilization of milk in an area or market is not solely influenced by demand for the various products within that market. Among the other factors influencing differential utilization between and within regions over time are:

(1) Change in milk production within the region.

(2) Change in milk production in other regions.

(3) Market organization (small-volume manufacturers are inclined to produce cheese, cottage cheese, ice cream products, and condensed milk products rather than dry milk products).

(4) Governmental influence, including classification for pricing, pooling requirements, sanitation, geographical requirements, and all pricing activity.

(5) Other intermarket relationships.

Since 1940, the Northeast has gained slightly percentagewise in U.S. milk production. However, milk sales to plants by Northeast producers represent a progressively smaller portion of the Nation's total. Producers in the Northeast were selling nearly three-fourths of their milk production as whole milk to plants by 1940, while this method of sale represented less than 40 percent of total production in other regions. Since then, all regions have been selling a higher percentage of their production as whole milk. Now, all regions except the West North Central sell at least 90 percent of their production as whole milk to plants and dealers (table 6). This change in sales of whole milk to plants helped cause relative changes in production of various manufactured dairy products (tables 7, 8, 9).

Producers in the Northeast, especially New England, consistently have sold a greater share of production directly to consumers than have the other regions, except the Far West (table 8).

Allocation of milk among various products is a complex process involving outside random factors as well as conscious decisions. Many factors influence marketing firms as they move the milk from producers to consumers. Some of the most instrumental factors influencing managers in the allocation of milk to different uses are: (1) price relationships of various products, (2) historical patterns of use and performance, (3) type of firm, (4) type of plant, (5) organizational level at

Table 5.--Milk production, disposition, and utilization in the Northeast States and regions, and in the United States, 1960 1/

| State and region | Milk produced 2/ | Whole milk sales to plants | Used on farms 3/ | Sold direct to consumer | Whole milk or milk equivalent used to manufacture 4/: Butter | American cheese | Other cheese | Evaporated 5/ | Frozen products | Other | Total | Net total | Skim or skim equivalent used in manufacturing 4/: Cottage cheese | Condensed 6/ | Powdered 7/ | Total skim |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Million pounds 8/ | | | | | | | | | | | | | | | |
| Maine | 700 | 595 | 57 | 37 | 2 | 0 | 1 | 34 | 87 | 13 | 137 | 109 | 57 | 9 | 0 | 66 |
| New Hampshire | 391 | 345 | 18 | 22 | 0 | 0 | 0 | 0 | 19 | 0 | 20 | 13 | 2 | 0 | 0 | 2 |
| Vermont | 1,876 | 1,795 | 31 | 21 | 54 | 73 | 9 | 6 | 8 | 12 | 162 | 156 | 118 | 22 | 296 | 438 |
| Massachusetts | 784 | 675 | 17 | 83 | 4 | 0 | 19 | 0 | 458 | 2 | 483 | 305 | 2 | 8 | 65 | 76 |
| Rhode Island | 121 | 109 | 2 | 9 | 0 | 0 | 1 | 0 | 43 | 0 | 44 | 32 | 0 | 0 | 0 | 0 |
| Connecticut | 734 | 655 | 19 | 48 | 0 | 0 | 5 | 12 | 135 | 3 | 155 | 148 | 44 | 0 | 0 | 44 |
| New England | 4,606 | 4,174 | 144 | 220 | 60 | 73 | 35 | 53 | 752 | 30 | 1,002 | 763 | 222 | 39 | 361 | 625 |
| New York | 10,171 | 9,628 | 190 | 140 | 812 | 405 | 498 | 544 | 1,176 | 116 | 3,551 | 3,044 | 497 | 223 | 1,755 | 2,483 |
| New Jersey | 1,189 | 1,120 | 20 | 35 | 0 | 3 | 16 | 0 | 327 | 2 | 349 | 330 | 9 | 0 | 3 | 12 |
| Pennsylvania | 6,878 | 6,310 | 258 | 155 | 360 | 4 | 79 | 336 | 1,173 | 44 | 1,997 | 1,935 | 182 | 199 | 530 | 912 |
| Mid-Atlantic | 18,238 | 17,058 | 468 | 330 | 1,172 | 412 | 593 | 880 | 2,677 | 163 | 5,896 | 5,309 | 688 | 423 | 2,288 | 3,407 |
| Delaware | 191 | 177 | 8 | 3 | 0 | 0 | 0 | 0 | 57 | 0 | 57 | 35 | 0 | 0 | 0 | 0 |
| Maryland | 1,531 | 1,435 | 49 | 24 | 117 | 0 | 0 | 164 | 222 | 12 | 516 | 430 | 43 | 99 | 194 | 336 |
| Wash., D.C. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 139 | 5 | 144 | 91 | 20 | 0 | 0 | 20 |
| Virginia | 1,976 | 1,540 | 277 | 30 | 69 | 35 | 0 | 170 | 182 | 5 | 462 | 412 | 24 | 61 | 55 | 140 |
| Delmarva | 3,698 | 3,152 | 334 | 57 | 186 | 35 | 0 | 335 | 601 | 23 | 1,179 | 969 | 87 | 161 | 248 | 496 |
| Northeast | 26,542 | 24,384 | 946 | 607 | 1,418 | 520 | 628 | 1,267 | 4,029 | 214 | 8,077 | 7,041 | 997 | 623 | 2,897 | 4,527 |
| United States | 122,967 | 103,795 | 6,608 | 2,079 | 30,166 | 9,653 | 3,676 | 6,182 | 11,290 | 1,372 | 62,339 | 59,398 | 3,698 | 2,408 | 21,238 | 27,477 |

1/ Sources: Milk Production, Disposition, and Income. Revised estimates 1960-64, USDA Statistical Reporting Service Statistical Bulletin 398. Production of Manufactured Dairy Products 1960. USDA Statistical Reporting Service. Headings are consistent with those in the source publications except as noted. 1960 is used as the base year for comparisons in this publication.

2/ Includes milk fed to calves and milk separated for sale as cream.

3/ Used for milk, cream, and butter in households on farms where produced. Does not include milk fed to calves.

4/ Milk used in products manufactured in plants in the State. Does not represent utilization of milk produced in the State.

5/ Whole milk equivalent used in evaporated, condensed, and dry whole milk.

6/ Sweetened and unsweetened condensed skim milk plus condensed or evaporated buttermilk.

7/ Dry or powdered buttermilk and nonfat milk.

8/ Individual States may not add to totals because of rounding.

Table 6.--Whole milk sales to plants and dealers by farmers in the Northeast in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 1/

| State or area | Yearly sales as a percentage of 1960 sales | | | | | | Sales as a percentage of total Northeast sales | | | | | | | Sales as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent 2/ | | | | | | | Percent | | | | | | |
| Maine | 50.4 | 70.6 | 103.4 | 101.7 | 99.2 | 98.3 | 2.1 | 2.2 | 2.4 | 2.4 | 2.3 | 2.3 | 2.4 | 47.8 | 67.6 | 85.0 | 91.0 | 91.7 | 92.5 | 93.0 |
| New Hampshire | 75.4 | 76.5 | 107.2 | 105.8 | 102.9 | 104.9 | 1.8 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.5 | 72.0 | 76.7 | 88.2 | 92.5 | 92.6 | 92.9 | 93.3 |
| Vermont | 67.0 | 77.2 | 108.4 | 110.6 | 105.6 | 101.7 | 8.3 | 7.2 | 7.4 | 7.5 | 7.6 | 7.5 | 7.3 | 84.5 | 91.4 | 95.7 | 96.4 | 96.6 | 96.3 | 96.3 |
| Massachusetts | 87.6 | 90.7 | 104.4 | 103.7 | 98.5 | 96.3 | 4.1 | 3.2 | 2.8 | 2.7 | 2.7 | 2.6 | 2.8 | 73.0 | 78.5 | 86.1 | 88.1 | 88.6 | 88.0 | 88.2 |
| Rhode Island | 96.3 | 101.8 | 87.2 | 86.2 | 79.8 | 72.5 | .7 | .6 | .4 | .4 | .4 | .4 | .3 | 77.2 | 81.0 | 90.1 | 89.6 | 91.3 | 91.6 | 90.3 |
| Connecticut | 74.1 | 89.0 | 97.7 | 99.2 | 98.5 | 98.5 | 3.3 | 3.0 | 2.7 | 2.5 | 2.5 | 2.6 | 2.6 | 72.4 | 83.6 | 89.2 | 90.6 | 91.2 | 91.4 | 93.1 |
| New York | 65.9 | 82.4 | 109.1 | 110.1 | 105.6 | 104.0 | 43.8 | 41.2 | 39.5 | 40.6 | 40.8 | 40.4 | 40.6 | 82.8 | 89.6 | 94.7 | 95.9 | 96.1 | 96.1 | 96.2 |
| New Jersey | 67.2 | 85.5 | 91.1 | 87.5 | 84.8 | 73.0 | 5.2 | 5.0 | 4.6 | 3.9 | 3.8 | 3.8 | 3.3 | 77.7 | 84.0 | 94.2 | 95.0 | 94.8 | 95.1 | 93.8 |
| Pennsylvania | 51.7 | 74.3 | 108.1 | 107.1 | 105.6 | 102.1 | 22.5 | 24.4 | 25.9 | 26.3 | 26.1 | 26.4 | 26.2 | 69.5 | 83.3 | 91.7 | 93.7 | 93.8 | 94.0 | 93.9 |
| Delaware | 56.5 | 88.7 | 89.3 | 84.2 | 80.2 | 76.8 | .7 | .8 | .7 | .6 | .6 | .6 | .6 | 69.4 | 84.4 | 92.7 | 95.8 | 95.5 | 95.3 | 95.8 |
| Maryland | 45.1 | 73.9 | 104.9 | 104.5 | 103.8 | 103.8 | 4.5 | 5.5 | 5.9 | 5.8 | 5.8 | 5.9 | 6.1 | 70.2 | 84.5 | 93.7 | 96.1 | 96.2 | 96.5 | 96.8 |
| Virginia | 28.5 | 68.2 | 98.7 | 100.7 | 100.0 | 100.3 | 3.0 | 5.5 | 6.3 | 5.9 | 6.0 | 6.1 | 6.3 | 29.0 | 53.1 | 77.9 | 83.3 | 84.8 | 85.8 | 87.0 |
| New England | 70.5 | 80.9 | 104.7 | 105.4 | 101.5 | 99.3 | 20.3 | 17.6 | 17.1 | 16.9 | 17.0 | 16.8 | 17.0 | 73.1 | 82.4 | 90.6 | 92.9 | 93.3 | 93.2 | 93.6 |
| Mid-Atlantic | 60.7 | 79.6 | 107.5 | 107.5 | 104.2 | 101.2 | 71.5 | 70.6 | 70.0 | 70.8 | 70.7 | 70.6 | 70.2 | 77.8 | 86.9 | 93.5 | 95.0 | 95.2 | 95.2 | 95.2 |
| Delmarva | 37.6 | 71.9 | 101.0 | 101.5 | 100.6 | 100.6 | 8.2 | 11.8 | 12.9 | 12.3 | 12.3 | 12.6 | 12.9 | 46.0 | 66.4 | 85.2 | 89.5 | 90.3 | 90.0 | 91.7 |
| Northeast | 59.4 | 78.8 | 106.2 | 106.4 | 103.3 | 100.8 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 72.7 | 83.1 | 91.9 | 93.9 | 94.2 | 94.4 | 94.5 |
| United States | 45.4 | 71.5 | 109.9 | 108.4 | 105.9 | 105.7 | *30.7 | *25.9 | *23.5 | *22.7 | *23.0 | *22.9 | *22.4 | 43.1 | 63.6 | 84.4 | 89.9 | 90.8 | 91.5 | 92.1 |

1/ Source: Computations based upon data from Milk Production, Disposition, and Income, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions through 1966; reported data for 1967.
2/ Individual States may not add to totals because of rounding.
* Northeast as percentage of United States.

which allocation and coordination is determined, (6) size of market, (7) size of supply area, (8) relationship to other firms in the market, (9) relationship of the primary market to others, (10) balance between supply and demand, and (11) facilities available.

Price relationships---The returns-versus-costs consideration is naturally foremost. Profit is a prime motivation in all decisions regarding product mix and volume. However, the time period considered for maximizing profit varies considerably. Few plants are equipped to alter drastically product mix or total volume frequently or for short periods.

Historical patterns---Development of a subindustry involves numerous mutually dependent people and facilities. Advantages accrue to a particular location or firm simply because production and distribution are already being carried out. These advantages may be lost and additional costs incurred by changing procedures. Greater motivation is required to effect a major change than simply to continue as is.

## Manufacturing

Despite the development of the Northeast dairy industry as a fluid milk industry, much of the milk in the region is manufactured into other products. Between 1940 and 1966, the Northeast increased the net total milk equivalent utilized in manufacturing dairy products by 97 percent, compared with a 9-percent increase for the United States as a whole. Northeast plants increased actual net pounds milk equivalent used in manufacturing by 3,430 million pounds, compared with a 3,352 million pound increase in the U.S. total. The Northeast increased milk used in manufacturing more than the national total increased, indicating a slight decline by the rest of the Nation.

Fluid milk rates highest priority in most markets. Next in priority are the soft products such as ice cream and cottage cheese, with butter and powder generally at the low end of priority. However, these balance wheel products seem to have moved up the ladder of priority in some cases. Large cooperative operations providing a centralized supply-demand coordination for several fluid handlers find butter-powder a good product combination to utilize surplus milk which varies extremely in volume and timing. Both processing and sales have a greater potential flexibility for these products than for the more perishable ones.

Products not requiring such large fixed investment have been favored by individual handlers with small volumes of surplus milk. This also influences the intermediate products used as "raw materials" for making frozen desserts and cottage cheese. Butter and powder can be stored readily and used to supplement milk in manufacturing such soft products at a later time. Less reserve (that part of supply carried as a reserve for fluctuations in supply and demand for fluid) but more surplus (that part of supply above fluid needs plus reserve) milk then is used for manufacturing these products than if they were made entirely from fresh milk or if more perishable products were used as intermediate products.

Nonfat dry milk offers a ready outlet for skim milk when the cream is needed for fluid use or for ice cream.

Government price-support purchases have provided an outlet for dry milk that can be used for sporadic production. Commercial outlets generally must be serviced when they need the product, if they are to be maintained as customers.

Regional utilization of milk as a percentage of total milk produced within the region in selected years is shown in tables 7, 8, 9. Utilization is based upon figures issued by the Statistical

Reporting Service, USDA, in the annual publication, Milk Production, Disposition, and Income. Latest revisions were used through 1966, with reported figures for 1967.

The whole milk equivalent used in each product is based upon the pounds of whole milk of the butterfat test currently used to provide the milkfat content of that product. Appropriate adjustments were made by Statistical Reporting Service to avoid duplication in calculating the milk equivalent. The total equivalent of whole milk used in manufacturing is adjusted for use of intermediate products to derive the net total.

The calculations are based upon production as reported by plants in each State. Because of interstate movement of milk, individual State utilization for each product does not necessarily represent utilization of the milk produced in the State. The accompanying tables and figures showing utilization as a percentage of each State's milk production represent the ratio of utilization to production--not utilization of any specific milk.

The above comments concerning utilization in whole milk equivalent also apply to the utilization of skim milk in products manufactured from skim or buttermilk. The utilization is that published in Production of Manufactured Dairy Products.

The proportion of milk production used in manufactured products has increased in the Northeast in the last three decades. The gross milk equivalent of manufactured products utilized about 23 percent of the total milk produced in the area in 1940 and 34 percent in 1967. The net milk equivalent used in manufacturing was 20 and 30 percent of production in 1940 and 1967, respectively. A greater use of intermediate products is indicated by the relative increase in gross milk equivalent as compared with net use of milk and cream. This trend was more noticeable in the East than in other sections of the United States as each part of the Eastern Seaboard increasingly utilized intermediate products in ice cream and cottage cheese.

Traditionally, butter production has been rather limited in the Northeast. However at the very time when milk production decreased in the region and nationally, Northeast plants were using a larger percentage of the total milk production to manufacture butter. Reasons for this seemingly reverse reaction include: (1) imports of butterfat used largely in frozen products in the Northeast, (2) depressed fluid cream markets, (3) discontinued operation of several small volume surplus-handling facilities, (4) increased processing of surplus butterfat by large volume operations, and (5) changes in procurement patterns.

Despite the greater allocation of milk to butter by Northeast plants and a lesser allocation by all other regions, the Northeast churned less than 7 percent of the Nation's creamery butter in 1967 (two-thirds of this in New York). Since this is far less than is consumed in the region, inshipments from other regions are necessary.

Butter production varies within the individual States more than over larger areas. Vermont produces nearly all the relatively small volume of creamery butter churned in New England. During the early 1960's, rising milk production in the State was reflected in a quadrupling of butter production in the 4 years 1960-63. Production dropped with the decline in milk production. Butter manufacture in New York also varied with milk production, but in Pennsylvania it has been unusually stable in recent years. Virginia and Maryland, both with relatively low volumes of butter, decreased their butter production in recent years until 1967, when both States experienced a marked increase. The South Atlantic, with the lowest regional allocation of milk production to butter manufacture, continues to reduce this use of milk. The high and increasing utilization of butterfat in ice cream leaves little for churning in this region.

Table 7.--Regional milk production and utilization for selected years as a percentage of the specified 1960 utilization 1/

| Region | Years | Milk production | Whole milk sales to plants | Used on farms | Direct sales to consumers | Milk equivalent used to manufacture: Butter | Cheese: American | Cheese: Other | Evaporated, condensed, dry whole milk | Frozen dairy products | Other dairy products | Total used in manufactured products | Net total used in manufactured products | Skim equivalent used to manufacture: Cottage cheese curd | Condensed skim | Dry nonfat and buttermilk | Total skim equivalent used in manufactured skim products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent | | | | | | | | | | | | | | | |
| New England | 1940 | 87 | 70 | 220 | 214 | 97 | 16 | 60 | 17 | 40 | 0 | 46 | 42 | 32 | 208 | 45 | 65 |
| | 1950 | 89 | 81 | 159 | 164 | 82 | 38 | 140 | 60 | 72 | 70 | 72 | 72 | 57 | 177 | 70 | 80 |
| | 1960 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964 | 102 | 105 | 62 | 86 | 290 | 107 | 197 | 70 | 104 | 127 | 117 | 121 | 90 | 146 | 128 | 115 |
| | 1965 | 102 | 105 | 57 | 82 | 268 | 129 | 211 | 130 | 114 | 120 | 129 | 134 | 89 | 162 | 122 | 113 |
| | 1966 | 99 | 102 | 53 | 82 | 193 | 126 | 217 | 153 | 118 | 113 | 129 | 132 | 88 | 215 | 102 | 103 |
| | 1967 | 96 | 99 | 49 | 75 | 253 | 122 | 191 | 157 | 115 | 117 | 129 | 135 | 87 | 295 | 98 | 106 |
| Mid-Atlantic | 1940 | 73 | 61 | 207 | 347 | 69 | 68 | 74 | 69 | 50 | 24 | 60 | 60 | 42 | 82 | 56 | 66 |
| | 1950 | 86 | 80 | 162 | 176 | 72 | 96 | 103 | 76 | 78 | 99 | 81 | 79 | 57 | 112 | 57 | 70 |
| | 1960 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964 | 106 | 108 | 69 | 102 | 136 | 90 | 123 | 117 | 103 | 117 | 113 | 114 | 103 | 121 | 117 | 115 |
| | 1965 | 106 | 108 | 64 | 104 | 141 | 108 | 117 | 101 | 101 | 119 | 112 | 113 | 110 | 139 | 117 | 118 |
| | 1966 | 102 | 104 | 59 | 102 | 97 | 115 | 119 | 104 | 100 | 119 | 104 | 104 | 106 | 130 | 83 | 93 |
| | 1967 | 99 | 101 | 55 | 98 | 129 | 101 | 122 | 89 | 100 | 112 | 107 | 107 | 107 | 130 | 79 | 91 |
| Delmarva 2/ | 1940 | 70 | 38 | 240 | 381 | 102 | 3 | * | 31 | 39 | 0 | 45 | 42 | 25 | 29 | 24 | 26 |
| | 1950 | 92 | 72 | 119 | 256 | 120 | 9 | * | 68 | 63 | 39 | 72 | 73 | 51 | 95 | 67 | 74 |
| | 1960 | 100 | 100 | 100 | 100 | 100 | 100 | * | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964 | 96 | 101 | 68 | 77 | 89 | 126 | * | 99 | 106 | 100 | 102 | 102 | 98 | 74 | 100 | 92 |
| | 1965 | 96 | 102 | 62 | 77 | 60 | 126 | * | 92 | 106 | 87 | 95 | 94 | 87 | 76 | 78 | 79 |
| | 1966 | 94 | 101 | 57 | 72 | 45 | 111 | * | 80 | 102 | 87 | 87 | 85 | 86 | 74 | 112 | 95 |
| | 1967 | 94 | 101 | 51 | 70 | 105 | 129 | * | 88 | 101 | 196 | 101 | 102 | 118 | 64 | 84 | 84 |
| Northeast 3/ | 1940 | 75 | 60 | 220 | 302 | 74 | 56 | 73 | 56 | 48 | 19 | 56 | 56 | 38 | 76 | 52 | 61 |
| | 1950 | 87 | 79 | 171 | 179 | 79 | 82 | 105 | 73 | 75 | 90 | 78 | 78 | 56 | 112 | 60 | 72 |
| | 1960 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964 | 104 | 106 | 68 | 94 | 136 | 94 | 128 | 110 | 104 | 117 | 112 | 113 | 100 | 110 | 117 | 112 |
| | 1965 | 104 | 106 | 62 | 94 | 136 | 112 | 122 | 100 | 104 | 117 | 111 | 112 | 103 | 124 | 114 | 113 |
| | 1966 | 101 | 103 | 57 | 92 | 94 | 116 | 125 | 100 | 104 | 116 | 104 | 104 | 99 | 121 | 88 | 95 |
| | 1967 | 98 | 101 | 52 | 87 | 131 | 106 | 126 | 92 | 103 | 123 | 109 | 110 | 104 | 124 | 82 | 92 |
| South Atlantic | 1940 | 75 | 26 | 259 | 298 | 148 | 11 | * | 24 | 29 | * | 38 | 37 | 19 | 30 | 24 | 25 |
| | 1950 | 93 | 59 | 210 | 270 | 147 | 29 | * | 73 | 62 | 36 | 71 | 72 | 50 | 101 | 69 | 73 |
| | 1960 | 100 | 100 | 100 | 100 | 100 | 100 | * | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964 | 96 | 104 | 60 | 75 | 86 | 101 | * | 95 | 112 | 109 | 105 | 107 | 110 | 67 | 99 | 93 |
| | 1965 | 96 | 106 | 53 | 71 | 61 | 100 | * | 88 | 120 | 107 | 106 | 105 | 106 | 70 | 78 | 84 |
| | 1966 | 96 | 107 | 46 | 64 | 48 | 83 | * | 76 | 118 | 109 | 100 | 98 | 108 | 67 | 111 | 97 |
| | 1967 | 97 | 109 | 42 | 97 | 98 | 96 | * | 84 | 119 | 169 | 109 | 109 | 127 | 58 | 84 | 89 |
| East North Central | 1940 | 86 | 58 | 274 | 826 | 117 | 79 | 49 | 150 | 47 | 40 | 94 | 95 | 29 | 73 | 33 | 43 |
| | 1950 | 97 | 84 | 200 | 361 | 93 | 107 | 83 | 171 | 70 | 50 | 100 | 100 | 54 | 123 | 67 | 72 |
| | 1960 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964 | 106 | 109 | 67 | 94 | 117 | 116 | 119 | 78 | 105 | 101 | 111 | 111 | 105 | 118 | 112 | 112 |
| | 1965 | 102 | 106 | 62 | 90 | 101 | 113 | 122 | 73 | 107 | 98 | 104 | 104 | 104 | 127 | 96 | 100 |
| | 1966 | 98 | 101 | 56 | 84 | 79 | 120 | 128 | 121 | 105 | 99 | 96 | 95 | 105 | 148 | 65 | 79 |
| | 1967 | 95 | 98 | 52 | 78 | 91 | 122 | 122 | 51 | 102 | 82 | 99 | 98 | 102 | 121 | 66 | 76 |

--Continued

Table 7.--Regional milk production and utilization for selected years as a percentage of the specified 1960 utilization 1/--continued

| Region | Years | Milk production | Whole milk sales to plants | Used on farms | Direct sales to consumers | Milk equivalent used to manufacture: Butter | Cheese: American | Cheese: Other | Evaporated, condensed, dry whole milk | Frozen dairy products | Other dairy products | Total used in manufactured products | Net total used in manufactured products | Skim equivalent used to manufacture: Cottage cheese curd | Condensed skim | Dry nonfat and buttermilk | Total skim equivalent used in manufactured skim products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent | | | | | | | | | | | | | | | |
| West North Central | 1940. | 102 | 20 | 303 | 534 | 115 | 26 | 3 | 89 | 43 | * | 100 | 100 | 26 | 116 | 10 | 16 |
| | 1950. | 97 | 47 | 217 | 311 | 92 | 66 | 25 | 155 | 73 | 46 | 89 | 89 | 52 | 234 | 31 | 38 |
| | 1960. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964. | 104 | 122 | 76 | 84 | 104 | 148 | 49 | 80 | 101 | 287 | 108 | 108 | 109 | 141 | 129 | 129 |
| | 1965. | 98 | 118 | 70 | 81 | 96 | 148 | 55 | 79 | 101 | 225 | 101 | 101 | 100 | 172 | 121 | 122 |
| | 1966. | 93 | 114 | 64 | 77 | 84 | 165 | 76 | 117 | 102 | 254 | 94 | 94 | 98 | 197 | 107 | 109 |
| | 1967. | 94 | 118 | 57 | 70 | 85 | 185 | 107 | 89 | 104 | 137 | 96 | 96 | 100 | 183 | 113 | 114 |
| South Central | 1940. | 112 | 29 | 329 | 402 | 250 | 43 | 21 | 39 | 32 | 4 | 85 | 87 | 16 | 26 | 38 | 29 |
| | 1950. | 115 | 67 | 256 | 304 | 116 | 80 | 30 | 96 | 75 | 39 | 100 | 101 | 44 | 79 | 39 | 54 |
| | 1960. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964. | 96 | 106 | 61 | 76 | 99 | 100 | 108 | 107 | 118 | 121 | 106 | 106 | 112 | 96 | 113 | 107 |
| | 1965. | 98 | 109 | 54 | 71 | 101 | 106 | 124 | 101 | 123 | 120 | 109 | 108 | 110 | 100 | 135 | 117 |
| | 1966. | 98 | 110 | 48 | 65 | 107 | 103 | 144 | 106 | 123 | 117 | 111 | 110 | 103 | 99 | 119 | 108 |
| | 1967. | 97 | 111 | 43 | 62 | 142 | 110 | 142 | 94 | 128 | 110 | 119 | 119 | 99 | 116 | 202 | 144 |
| West | 1940. | 80 | 46 | 240 | 122 | 174 | 93 | 34 | 97 | 34 | 6 | 103 | 105 | 28 | 30 | 61 | 66 |
| | 1950. | 83 | 71 | 175 | 90 | 98 | 95 | 59 | 129 | 62 | 42 | 89 | 89 | 58 | 64 | 58 | 64 |
| | 1960. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964. | 102 | 106 | 66 | 93 | 94 | 101 | 103 | 92 | 114 | 101 | 100 | 100 | 106 | 97 | 94 | 97 |
| | 1965. | 101 | 105 | 60 | 94 | 88 | 107 | 115 | 84 | 120 | 110 | 100 | 99 | 110 | 88 | 84 | 91 |
| | 1966. | 101 | 106 | 55 | 89 | 78 | 110 | 122 | 89 | 122 | 105 | 97 | 96 | 111 | 93 | 70 | 83 |
| | 1967. | 102 | 108 | 50 | 89 | 91 | 107 | 119 | 73 | 122 | 92 | 99 | 99 | 112 | 97 | 78 | 89 |
| United States 4/ | 1940. | 89 | 45 | 284 | 284 | 124 | 63 | 48 | 95 | 42 | 20 | 90 | 92 | 29 | 66 | 28 | 38 |
| | 1950. | 95 | 72 | 216 | 189 | 95 | 93 | 79 | 128 | 71 | 53 | 92 | 92 | 54 | 117 | 49 | 58 |
| | 1960. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | 1964. | 103 | 110 | 66 | 89 | 108 | 119 | 114 | 92 | 108 | 123 | 109 | 109 | 105 | 161 | 119 | 116 |
| | 1965. | 101 | 108 | 59 | 88 | 99 | 119 | 116 | 85 | 111 | 119 | 104 | 104 | 106 | 163 | 109 | 110 |
| | 1966. | 98 | 106 | 53 | 84 | 83 | 126 | 123 | 86 | 111 | 120 | 98 | 97 | 105 | 161 | 88 | 94 |
| | 1967. | 97 | 106 | 48 | 85 | 91 | 132 | 122 | 74 | 110 | 99 | 101 | 100 | 105 | 123 | 92 | 96 |

1/ Calculations based upon data as reported in most recent revisions of U.S. Department of Agriculture publications: Milk Production, Disposition, and Income and Production of Manufactured Dairy Products. Column headings refer to those of the two publications, including apparent combinations of selected products.

2/ Subregion of Delaware, Maryland, District of Columbia, and Virginia (part of South Atlantic).

3/ New England, Mid-Atlantic, and Delmarva (12 States plus District of Columbia).

4/ Excludes Alaska and Hawaii. Totals of regions may not equal United States because of rounding.

* Less than 0.1 percent, not reported, or inadequate basis for computation.

Table 8.--Regional utilization of milk, milk equivalent, and skim milk in various products and uses as a percentage of that region's total milk production for selected years, 1940-67 1/

| Region | Years | Whole milk sales to plants | Used on farms | Direct sales to consumers | Milk equivalent used to manufacture: Butter | Cheese: American | Cheese: Other | Evaporated condensed, dry whole milk | Frozen dairy products | Other dairy products | Total used in manufactured products | Net total used in manufactured products | Skim equivalent used to manufacture: Cottage cheese curd | Condensed skim | Dry nonfat and buttermilk | Total skim equivalent used in manufactured skim products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent | | | | | | | | | | | | | | |
| New England | 1940 | 73.1 | 7.9 | 11.7 | 1.4 | 0.3 | 0.5 | 0.2 | 9.0 | 0.0 | 11.5 | 8.0 | 1.8 | 2.0 | 4.0 | 10.2 |
| | 1950 | 82.4 | 5.6 | 8.8 | 1.2 | .7 | 1.2 | .8 | 13.2 | .5 | 17.6 | 13.5 | 3.1 | 1.7 | 6.1 | 12.3 |
| | 1960 | 90.6 | 3.1 | 4.8 | 1.3 | 1.6 | .8 | 1.2 | 16.3 | .6 | 21.8 | 16.6 | 4.8 | .8 | 7.8 | 13.6 |
| | 1964 | 92.9 | 1.9 | 4.0 | 3.7 | 1.7 | 1.5 | .8 | 16.6 | .8 | 25.0 | 19.6 | 4.3 | 1.2 | 9.8 | 15.3 |
| | 1965 | 93.3 | 1.7 | 3.8 | 3.4 | 2.0 | 1.6 | 1.5 | 18.2 | .8 | 27.3 | 21.7 | 4.2 | 1.3 | 9.4 | 15.0 |
| | 1966 | 93.2 | 1.7 | 4.0 | 2.6 | 2.0 | 1.7 | 1.8 | 19.6 | .8 | 28.4 | 22.2 | 4.1 | 1.8 | 8.1 | 14.2 |
| | 1967 | 93.6 | 1.6 | 3.7 | 3.4 | 2.0 | 1.5 | 1.9 | 19.6 | .8 | 29.3 | 23.2 | 4.4 | 2.6 | 8.0 | 15.0 |
| Mid-Atlantic | 1940 | 77.8 | 7.3 | 8.6 | 6.0 | 2.1 | 3.3 | 4.5 | 10.1 | .3 | 26.4 | 23.9 | 2.2 | 2.6 | 9.6 | 16.8 |
| | 1950 | 86.9 | 4.8 | 3.7 | 5.4 | 2.5 | 3.9 | 4.3 | 13.4 | 1.0 | 30.6 | 27.0 | 2.5 | 3.0 | 8.4 | 15.3 |
| | 1960 | 93.5 | 2.6 | 1.8 | 6.4 | 2.3 | 3.2 | 4.8 | 14.7 | .9 | 32.3 | 29.1 | 3.8 | 2.3 | 12.6 | 18.7 |
| | 1964 | 95.0 | 1.7 | 1.7 | 8.2 | 1.9 | 3.8 | 5.3 | 14.3 | 1.0 | 34.5 | 31.4 | 3.7 | 2.6 | 13.9 | 20.2 |
| | 1965 | 95.2 | 1.6 | 1.8 | 8.6 | 2.3 | 3.6 | 4.6 | 14.1 | 1.0 | 34.2 | 31.0 | 3.9 | 3.1 | 13.9 | 20.9 |
| | 1966 | 95.2 | 1.5 | 1.8 | 6.1 | 2.5 | 3.8 | 4.9 | 14.4 | 1.0 | 32.7 | 29.5 | 3.9 | 3.0 | 10.1 | 17.0 |
| | 1967 | 95.2 | 1.4 | 1.8 | 8.3 | 2.3 | 4.0 | 4.3 | 14.8 | 1.0 | 34.7 | 31.4 | 4.1 | 3.0 | 10.0 | 17.1 |
| Delmarva 2/ | 1940 | 46.0 | 31.1 | 8.4 | 7.3 | * | .0 | 4.0 | 9.0 | .0 | 20.4 | 15.8 | .8 | 1.8 | 2.3 | 5.0 |
| | 1950 | 66.4 | 18.4 | 4.3 | 6.6 | .1 | .0 | 6.7 | 11.1 | .3 | 24.8 | 20.8 | 1.3 | 4.5 | 4.9 | 10.7 |
| | 1960 | 85.2 | 9.0 | 1.5 | 5.0 | 1.0 | .0 | 9.1 | 16.2 | .6 | 31.9 | 26.2 | 2.4 | 4.4 | 6.7 | 13.4 |
| | 1964 | 89.5 | 6.4 | 1.2 | 4.7 | 1.2 | .0 | 9.3 | 17.9 | .6 | 33.7 | 27.8 | 2.4 | 3.4 | 7.0 | 12.8 |
| | 1965 | 90.3 | 5.9 | 1.2 | 3.2 | 1.2 | .0 | 8.7 | 17.9 | .6 | 31.6 | 25.6 | 2.1 | 3.5 | 5.5 | 11.1 |
| | 1966 | 90.9 | 5.4 | 1.2 | 2.4 | 1.1 | .0 | 7.7 | 17.6 | .6 | 29.4 | 23.6 | 2.2 | 3.4 | 8.0 | 13.5 |
| | 1967 | 91.7 | 4.9 | 1.2 | 5.6 | 1.3 | .0 | 8.6 | 17.5 | 1.3 | 34.3 | 28.6 | 3.0 | 3.0 | 6.0 | 12.0 |
| Northeast 3/ | 1940 | 72.7 | 10.5 | 9.2 | 5.3 | 1.5 | 2.3 | 3.6 | 9.7 | .2 | 22.6 | 19.6 | 1.9 | 2.4 | 7.5 | 13.9 |
| | 1950 | 83.1 | 7.0 | 4.7 | 4.8 | 1.8 | 2.9 | 4.0 | 13.0 | .8 | 27.4 | 23.7 | 2.4 | 3.0 | 7.5 | 14.1 |
| | 1960 | 91.9 | 3.6 | 2.3 | 5.3 | 2.0 | 2.4 | 4.8 | 15.2 | .8 | 30.4 | 26.5 | 3.8 | 2.4 | 10.9 | 17.1 |
| | 1964 | 93.9 | 2.3 | 2.1 | 7.0 | 1.8 | 2.9 | 5.1 | 15.1 | .9 | 32.8 | 28.9 | 3.6 | 2.5 | 12.3 | 18.4 |
| | 1965 | 94.2 | 2.1 | 2.1 | 7.0 | 2.1 | 2.8 | 4.6 | 15.3 | .9 | 32.7 | 28.8 | 3.7 | 2.8 | 12.0 | 18.6 |
| | 1966 | 94.4 | 2.0 | 2.1 | 5.0 | 2.3 | 2.9 | 4.7 | 15.7 | .9 | 31.6 | 27.5 | 3.7 | 2.8 | 9.5 | 16.1 |
| | 1967 | 94.5 | 1.9 | 2.0 | 7.1 | 2.1 | 3.0 | 4.5 | 16.0 | 1.0 | 33.7 | 29.6 | 4.0 | 3.0 | 9.1 | 16.0 |
| South Atlantic | 1940 | 28.0 | 47.6 | 10.2 | 4.8 | .1 | .0 | 1.9 | 6.1 | .0 | 13.0 | 10.1 | .5 | .8 | .9 | 2.2 |
| | 1950 | 51.2 | 31.2 | 7.5 | 3.9 | .3 | .0 | 4.7 | 10.8 | .2 | 19.8 | 16.0 | 1.0 | 2.2 | 2.2 | 5.4 |
| | 1960 | 80.5 | 13.8 | 2.6 | 2.4 | .8 | .0 | 6.0 | 16.1 | .5 | 25.9 | 20.7 | 1.9 | 2.0 | 2.9 | 6.8 |
| | 1964 | 87.1 | 8.7 | 2.0 | 2.2 | .9 | * | 5.9 | 18.8 | .6 | 28.4 | 22.9 | 2.2 | 1.4 | 3.0 | 6.6 |
| | 1965 | 88.6 | 7.6 | 1.9 | 1.5 | .8 | * | 5.4 | 20.1 | .6 | 28.5 | 22.7 | 2.1 | 1.5 | 2.3 | 5.9 |
| | 1966 | 89.8 | 6.7 | 1.7 | 1.2 | .7 | .0 | 4.7 | 19.7 | .6 | 27.0 | 21.2 | 2.2 | 1.4 | 3.4 | 6.9 |
| | 1967 | 89.9 | 5.9 | 2.6 | 2.5 | .8 | .0 | 5.1 | 19.7 | .9 | 28.9 | 23.2 | 2.5 | 1.2 | 2.5 | 6.2 |
| East North Central | 1940 | 62.3 | 9.0 | 3.7 | 33.1 | 13.7 | 3.8 | 10.8 | 3.9 | .7 | 65.9 | 64.2 | 1.0 | 2.0 | 7.2 | 12.2 |
| | 1950 | 80.4 | 5.9 | 1.4 | 23.2 | 16.5 | 5.7 | 10.9 | 5.2 | .8 | 62.2 | 60.1 | 1.8 | 3.0 | 13.0 | 18.2 |
| | 1960 | 92.7 | 2.8 | .4 | 24.3 | 14.9 | 6.6 | 6.2 | 7.1 | 1.5 | 60.6 | 58.1 | 3.1 | 2.4 | 18.7 | 24.4 |
| | 1964 | 95.4 | 1.8 | .3 | 26.8 | 16.4 | 7.5 | 4.5 | 7.0 | 1.4 | 63.6 | 60.9 | 3.1 | 2.7 | 19.8 | 25.7 |
| | 1965 | 95.6 | 1.7 | .3 | 24.0 | 16.4 | 7.9 | 4.4 | 7.4 | 1.4 | 61.6 | 58.8 | 3.2 | 3.0 | 17.4 | 23.7 |
| | 1966 | 95.7 | 1.6 | .3 | 19.7 | 18.3 | 8.7 | 4.0 | 7.6 | 1.5 | 59.8 | 56.7 | 3.4 | 3.6 | 12.4 | 19.6 |
| | 1967 | 95.7 | 1.6 | .3 | 23.1 | 19.1 | 8.5 | 3.3 | 7.6 | 1.3 | 62.9 | 59.7 | 3.4 | 3.0 | 12.9 | 19.4 |

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Table 8.--Regional utilization of milk, milk equivalent, and skim milk in various products and uses as a percentage of that region's total milk production for selected years, 1940-67 1/--continued

| Region | Years | Whole milk sales to plants | Used on farms | Direct sales to consumers | Milk equivalent used to manufacture: Butter | Cheese: American | Cheese: Other | Evaporated condensed, dry whole milk | Frozen dairy products | Other dairy products | Total used in manufactured products | Net total used in manufactured products | Skim equivalent used to manufacture: Cottage cheese curd | Condensed skim | Dry nonfat and buttermilk | Total skim equivalent used in manufactured skim products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent | | | | | | | | | | | | | | |
| West North Central | 1940. | 13.2 | 13.3 | 2.8 | 68.3 | 1.9 | * | 1.5 | 1.8 | 0.0 | 73.5 | 73.1 | 0.4 | 1.0 | 3.5 | 5.6 |
| | 1950. | 33.5 | 10.0 | 1.7 | 57.7 | 4.9 | 0.3 | 2.8 | 3.2 | .2 | 69.2 | 68.5 | .8 | 2.2 | 11.0 | 14.6 |
| | 1960. | 69.0 | 4.5 | .5 | 60.8 | 7.3 | 1.0 | 1.8 | 4.3 | .5 | 75.7 | 74.6 | 1.4 | .9 | 34.5 | 37.0 |
| | 1964. | 81.0 | 3.3 | .4 | 60.7 | 10.4 | .5 | 1.4 | 4.1 | 1.4 | 78.5 | 77.3 | 1.4 | 1.2 | 42.9 | 45.9 |
| | 1965. | 82.8 | 3.2 | .4 | 59.5 | 11.0 | .6 | 1.4 | 4.4 | 1.1 | 78.1 | 76.8 | 1.4 | 1.6 | 42.7 | 46.1 |
| | 1966. | 84.7 | 3.1 | .4 | 54.9 | 13.0 | .9 | 2.2 | 4.7 | 1.4 | 77.0 | 75.6 | 1.5 | 1.9 | 39.9 | 43.6 |
| | 1967. | 87.0 | 2.7 | .4 | 54.9 | 14.4 | 1.2 | 1.7 | 4.7 | .7 | 77.7 | 76.1 | 1.5 | 1.8 | 41.6 | 45.1 |
| South Central | 1940. | 20.7 | 45.0 | 6.7 | 17.3 | 3.6 | .2 | 2.6 | 2.4 | * | 26.0 | 25.4 | .3 | .5 | .9 | 1.8 |
| | 1950. | 46.3 | 34.1 | 4.9 | 11.2 | 6.5 | .2 | 6.4 | 5.4 | .2 | 29.8 | 28.7 | .8 | 1.5 | .9 | 3.3 |
| | 1960. | 79.3 | 15.2 | 1.9 | 7.7 | 9.2 | .9 | 7.6 | 8.2 | .6 | 34.3 | 32.6 | 2.1 | 2.2 | 2.6 | 7.0 |
| | 1964. | 86.8 | 9.7 | 1.5 | 7.9 | 9.6 | 1.0 | 8.4 | 10.0 | .7 | 37.7 | 35.9 | 2.5 | 2.1 | 3.1 | 7.7 |
| | 1965. | 88.3 | 8.5 | 1.3 | 8.0 | 10.0 | 1.2 | 7.8 | 10.4 | .7 | 38.1 | 36.2 | 2.4 | 2.2 | 3.7 | 8.3 |
| | 1966. | 89.6 | 7.4 | 1.2 | 8.4 | 9.8 | 1.4 | 8.2 | 10.4 | .7 | 38.8 | 36.9 | 2.3 | 2.2 | 3.2 | 7.7 |
| | 1967. | 90.3 | 6.7 | 1.2 | 11.2 | 10.5 | 1.3 | 7.3 | 10.8 | .7 | 41.8 | 39.8 | 2.2 | 2.6 | 5.5 | 10.3 |
| West | 1940. | 49.5 | 10.7 | 7.5 | 36.7 | 4.6 | .8 | 8.2 | 4.6 | .2 | 55.0 | 53.7 | 1.9 | .9 | 9.8 | 17.1 |
| | 1950. | 73.6 | 7.6 | 5.4 | 19.9 | 4.6 | 1.3 | 10.4 | 8.0 | 1.3 | 45.5 | 44.1 | 3.8 | 1.9 | 9.0 | 15.9 |
| | 1960. | 86.1 | 3.6 | 4.9 | 16.8 | 4.0 | 1.8 | 6.7 | 10.7 | 2.5 | 42.6 | 40.9 | 5.4 | 2.5 | 12.8 | 20.7 |
| | 1964. | 89.6 | 2.3 | 4.5 | 15.6 | 4.0 | 1.8 | 6.1 | 12.1 | 2.5 | 42.1 | 40.2 | 5.6 | 2.4 | 11.8 | 19.8 |
| | 1965. | 90.1 | 2.1 | 4.6 | 14.7 | 4.3 | 2.1 | 5.6 | 12.8 | 2.8 | 42.2 | 40.2 | 5.9 | 2.2 | 10.7 | 18.7 |
| | 1966. | 90.8 | 1.9 | 4.3 | 13.0 | 4.4 | 2.2 | 5.9 | 13.0 | 2.6 | 41.0 | 39.0 | 5.9 | 2.3 | 8.9 | 17.0 |
| | 1967. | 91.2 | 1.8 | 4.3 | 15.1 | 4.2 | 2.1 | 4.8 | 12.9 | 2.3 | 41.6 | 39.6 | 5.9 | 2.3 | 9.8 | 18.1 |
| United States 4/ | 1940. | 43.1 | 17.1 | 5.6 | 34.1 | 5.6 | 1.6 | 5.4 | 4.3 | .2 | 51.3 | 49.9 | 1.0 | 1.4 | 5.5 | 9.6 |
| | 1950. | 63.6 | 12.2 | 3.4 | 24.6 | 7.7 | 2.5 | 6.8 | 6.9 | .6 | 49.0 | 47.0 | 1.7 | 2.4 | 8.9 | 13.7 |
| | 1960. | 84.4 | 53.7 | 1.7 | 24.5 | 7.8 | 3.0 | 5.0 | 9.2 | 1.1 | 50.7 | 48.3 | 3.0 | 2.0 | 17.3 | 22.4 |
| | 1964. | 89.9 | 34.2 | 1.5 | 25.7 | 9.0 | 3.3 | 4.5 | 9.6 | 1.3 | 53.4 | 50.9 | 3.1 | 2.1 | 19.9 | 25.2 |
| | 1965. | 90.8 | 31.6 | 1.5 | 24.0 | 9.2 | 3.4 | 4.3 | 10.1 | 1.3 | 52.4 | 49.8 | 3.2 | 2.3 | 18.7 | 24.3 |
| | 1966. | 91.5 | 29.3 | 1.4 | 20.9 | 10.1 | 3.8 | 4.4 | 10.4 | 1.4 | 51.0 | 48.2 | 3.2 | 2.6 | 15.6 | 21.5 |
| | 1967. | 92.1 | 26.7 | 1.5 | 23.1 | 10.7 | 3.8 | 3.8 | 10.4 | 1.1 | 52.9 | 50.1 | 3.3 | 2.5 | 16.4 | 22.2 |

1/ Calculations based upon data as reported in most recent revisions of U.S. Department of Agriculture publications: Milk Production, Disposition, and Income and Production of Manufactured Dairy Products. Column headings refer to those of the two publications, including apparent combinations of selected products.

2/ Subregion of Delaware, Maryland, District of Columbia, and Virginia (part of South Atlantic).

3/ New England, Mid-Atlantic, and Delmarva (12 States plus District of Columbia).

4/ Excluding Alaska and Hawaii. Totals may not equal sum of regions because of rounding.

* Less than 0.1 percent.

Table 9.--Regional production and disposition of milk as a percentage of total U.S. 1/ production and allocation of milk and milk equivalent or skim equivalent to specific uses, 2/ selected years, 1940-67

| Region | Years | Milk production | Whole milk sales to plants | Used on farms | Direct sales to consumers | Milk equivalent used to manufacture: Butter | Cheese: American | Cheese: Other | Evaporated, condensed, dry whole milk | Frozen dairy products | Other dairy products | Total used in manufactured products | Net total used in manufactured products | Skim equivalent used to manufacture: Cottage cheese curd | Condensed skim | Dry nonfat and buttermilk | Total skim equivalent used in manufactured skim products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent | | | | | | | | | | | | | | | |
| New England | 1940 | 3.7 | 6.2 | 1.7 | 7.7 | 0.2 | 0.2 | 1.2 | 0.2 | 7.7 | 0 | 0.8 | 0.6 | 6.6 | 5.1 | 2.7 | 3.9 |
| | 1950 | 3.5 | 4.6 | 1.6 | 9.2 | .2 | .3 | 1.7 | .4 | 6.8 | 2.9 | 1.3 | 1.0 | 6.2 | 2.4 | 2.4 | 3.2 |
| | 1960 | 3.8 | 4.0 | 2.2 | 10.6 | .2 | .8 | 1.0 | .9 | 6.7 | 2.2 | 1.6 | 1.3 | 6.0 | 1.6 | 1.7 | 2.3 |
| | 1964 | 3.7 | 3.8 | 2.0 | 10.2 | .5 | .7 | 1.6 | .6 | 6.4 | 2.2 | 1.7 | 1.4 | 5.2 | 2.1 | 1.8 | 2.3 |
| | 1965 | 3.8 | 3.9 | 2.1 | 9.9 | .5 | .8 | 1.7 | 1.3 | 6.8 | 2.2 | 2.0 | 1.7 | 5.0 | 2.2 | 1.9 | 2.3 |
| | 1966 | 3.8 | 3.9 | 2.2 | 10.4 | .5 | .8 | 1.7 | 1.5 | 7.1 | 2.1 | 2.1 | 1.7 | 4.8 | 2.7 | 2.0 | 2.5 |
| | 1967 | 3.7 | 3.8 | 2.2 | 9.4 | .6 | .7 | 1.5 | 1.8 | 7.0 | 2.6 | 2.1 | 1.7 | 5.0 | 3.9 | 1.8 | 2.5 |
| Mid-Atlantic | 1940 | 12.2 | 22.0 | 5.2 | 18.8 | 2.2 | 4.6 | 25.2 | 10.3 | 28.6 | 14.4 | 6.3 | 5.8 | 26.4 | 22.0 | 21.2 | 21.3 |
| | 1950 | 13.4 | 18.3 | 5.3 | 14.8 | 3.0 | 4.4 | 21.2 | 8.4 | 26.2 | 22.4 | 8.4 | 7.7 | 19.4 | 16.9 | 12.6 | 15.0 |
| | 1960 | 14.8 | 16.4 | 7.1 | 15.9 | 3.9 | 4.3 | 16.1 | 14.2 | 23.7 | 11.9 | 9.5 | 8.9 | 18.6 | 17.6 | 10.8 | 12.4 |
| | 1964 | 15.2 | 16.1 | 7.4 | 18.0 | 4.9 | 3.2 | 17.5 | 18.1 | 22.7 | 11.3 | 9.8 | 9.4 | 18.3 | 19.0 | 10.7 | 12.2 |
| | 1965 | 15.5 | 16.3 | 7.6 | 18.8 | 5.6 | 3.9 | 16.2 | 16.8 | 21.6 | 11.9 | 10.1 | 9.7 | 19.2 | 20.3 | 11.6 | 13.4 |
| | 1966 | 15.6 | 16.2 | 7.8 | 19.4 | 4.5 | 3.9 | 15.6 | 17.1 | 21.5 | 11.8 | 10.0 | 9.5 | 18.9 | 17.5 | 10.1 | 12.3 |
| | 1967 | 15.2 | 15.7 | 8.1 | 18.4 | 5.5 | 3.3 | 16.1 | 17.2 | 21.6 | 13.5 | 10.0 | 9.6 | 19.0 | 18.7 | 9.2 | 11.7 |
| Del Marva 3/ | 1940 | 2.4 | 2.5 | 4.3 | 3.6 | .5 | 0 | 0 | 1.8 | 4.9 | 0 | .9 | .8 | 2.0 | 3.0 | 1.0 | 1.2 |
| | 1950 | 2.9 | 3.1 | 4.4 | 3.7 | .8 | 0 | 0 | 2.9 | 4.8 | 1.2 | 1.5 | 1.3 | 2.2 | 5.4 | 1.6 | 2.3 |
| | 1960 | 3.0 | 3.0 | 5.0 | 2.7 | .6 | .4 | 0 | 5.4 | 5.3 | 1.7 | 1.9 | 1.6 | 2.4 | 6.7 | 1.2 | 1.8 |
| | 1964 | 2.8 | 2.8 | 5.3 | 2.4 | .5 | .4 | 0 | 5.8 | 5.2 | 1.4 | 1.8 | 1.5 | 2.2 | 4.5 | 1.0 | 1.4 |
| | 1965 | 2.9 | 2.8 | 5.3 | 2.4 | .4 | .4 | 0 | 5.8 | 5.1 | 1.2 | 1.7 | 1.5 | 1.9 | 4.2 | .8 | 1.3 |
| | 1966 | 2.9 | 2.9 | 5.4 | 2.4 | .3 | .3 | 0 | 5.0 | 4.9 | 1.2 | 1.7 | 1.4 | 1.9 | 3.8 | 1.5 | 1.8 |
| | 1967 | 2.9 | 2.9 | 5.3 | 2.3 | .7 | .4 | 0 | 6.5 | 4.9 | 3.3 | 1.9 | 1.7 | 2.6 | 3.5 | 1.1 | 1.6 |
| Northeast 4/ | 1940 | 18.2 | 30.7 | 11.1 | 30.0 | 2.8 | 4.8 | 26.4 | 12.2 | 41.2 | 14.4 | 8.0 | 7.2 | 35.1 | 30.1 | 24.8 | 26.4 |
| | 1950 | 19.8 | 25.9 | 11.3 | 27.6 | 3.9 | 4.7 | 22.9 | 11.7 | 37.7 | 26.6 | 11.1 | 10.0 | 27.8 | 24.7 | 16.6 | 20.4 |
| | 1960 | 21.6 | 23.5 | 14.3 | 29.2 | 4.7 | 5.4 | 17.1 | 20.5 | 35.7 | 15.6 | 13.0 | 11.8 | 27.0 | 25.9 | 13.6 | 16.5 |
| | 1964 | 21.7 | 22.7 | 14.7 | 30.6 | 5.9 | 4.3 | 19.2 | 24.6 | 34.4 | 14.8 | 13.4 | 12.4 | 25.6 | 25.6 | 13.5 | 15.9 |
| | 1965 | 22.2 | 23.0 | 15.0 | 31.1 | 6.5 | 5.1 | 17.9 | 24.0 | 33.5 | 15.3 | 13.8 | 12.8 | 26.2 | 26.7 | 14.3 | 17.0 |
| | 1966 | 22.2 | 22.9 | 15.4 | 32.1 | 5.3 | 5.0 | 17.3 | 23.6 | 33.6 | 15.0 | 13.8 | 12.7 | 25.5 | 24.0 | 13.6 | 16.6 |
| | 1967 | 21.8 | 22.4 | 15.6 | 30.0 | 6.8 | 4.4 | 17.6 | 25.5 | 33.4 | 19.4 | 13.9 | 12.9 | 26.6 | 26.0 | 12.1 | 15.8 |
| South Atlantic | 1940 | 6.0 | 3.9 | 16.7 | 11.0 | .8 | .1 | 0 | 2.1 | 8.6 | 0 | 1.5 | 1.2 | 2.9 | 3.4 | 1.0 | 1.4 |
| | 1950 | 7.0 | 5.6 | 17.8 | 15.6 | 1.1 | .2 | 0 | 4.8 | 11.0 | 2.2 | 2.8 | 2.4 | 4.2 | 6.4 | 1.7 | 2.8 |
| | 1960 | 7.1 | 6.8 | 18.3 | 10.9 | .7 | .8 | 0 | 8.4 | 12.5 | 3.3 | 3.6 | 3.1 | 4.6 | 7.4 | 1.2 | 2.2 |
| | 1964 | 6.6 | 6.4 | 16.9 | 9.1 | .6 | .6 | 0 | 8.7 | 13.0 | 2.9 | 3.5 | 3.0 | 4.8 | 4.5 | 1.0 | 1.8 |
| | 1965 | 6.8 | 6.6 | 16.4 | 8.8 | .4 | .6 | 0 | 8.7 | 13.5 | 2.9 | 3.7 | 3.1 | 4.6 | 4.3 | .9 | 1.7 |
| | 1966 | 7.0 | 6.9 | 16.0 | 8.3 | .4 | .5 | 0 | 7.4 | 13.3 | 3.0 | 3.7 | 3.1 | 4.7 | 3.8 | 1.5 | 2.3 |
| | 1967 | 7.2 | 7.0 | 15.9 | 12.5 | .8 | .5 | 0 | 9.5 | 13.5 | 5.6 | 3.9 | 3.3 | 5.5 | 3.5 | 1.1 | 2.0 |

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Table 9.--Regional production and disposition of milk as a percentage of total U.S. 1/ production and allocation of milk and milk equivalent or skim equivalent to specific uses, 2/ selected years, 1940-67--continued

| Region | Years | Milk production | Whole milk sales to plants | Used on farms | Direct sales to consumers | Milk equivalent used to manufacture: Butter | Cheese: American | Cheese: Other | Evaporated, condensed, dry whole milk | Frozen dairy products | Other dairy products | Total used in manufactured products | Net total used in manufactured products | Skim equivalent used to manufacture: Cottage cheese curd | Condensed skim | Dry non-fat and butter-milk | Total skim equivalent used in manufactured skim products |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Percent | | | | | | | | | | | | | | | |
| East North Central | 1940 | 28.0 | 40.5 | 14.8 | 18.5 | 27.1 | 68.7 | 66.3 | 56.0 | 25.1 | 75.5 | 36.0 | 36.0 | 29.5 | 39.4 | 36.6 | 35.5 |
| | 1950 | 29.5 | 37.3 | 14.2 | 12.5 | 27.9 | 63.2 | 67.6 | 47.5 | 22.3 | 36.4 | 37.5 | 37.7 | 30.0 | 37.3 | 42.9 | 39.1 |
| | 1960 | 28.9 | 31.7 | 15.3 | 6.5 | 28.6 | 54.8 | 64.2 | 35.4 | 22.4 | 38.2 | 34.5 | 34.7 | 30.2 | 35.4 | 31.2 | 31.5 |
| | 1964 | 29.7 | 31.5 | 15.7 | 6.9 | 31.0 | 53.8 | 67.3 | 30.0 | 21.9 | 31.4 | 35.4 | 35.5 | 30.0 | 37.4 | 29.6 | 30.3 |
| | 1965 | 29.3 | 30.9 | 15.9 | 6.7 | 29.3 | 52.2 | 67.2 | 30.2 | 21.6 | 31.7 | 34.4 | 34.6 | 29.7 | 37.3 | 27.4 | 28.6 |
| | 1966 | 28.9 | 30.2 | 16.2 | 6.6 | 27.3 | 52.1 | 66.4 | 26.0 | 21.2 | 31.4 | 33.8 | 34.0 | 30.1 | 40.2 | 23.1 | 26.4 |
| | 1967 | 28.4 | 29.5 | 16.5 | 6.0 | 28.4 | 50.9 | 64.2 | 24.4 | 20.6 | 31.5 | 33.8 | 33.9 | 29.2 | 35.0 | 22.3 | 24.8 |
| West North Central | 1940 | 25.3 | 7.7 | 19.6 | 12.6 | 50.6 | 8.4 | .5 | 7.3 | 10.6 | 0 | 36.3 | 37.1 | 8.8 | 18.0 | 16.0 | 14.8 |
| | 1950 | 22.5 | 11.9 | 18.4 | 11.4 | 52.9 | 14.4 | 2.5 | 9.4 | 10.5 | 8.6 | 31.8 | 32.8 | 9.7 | 20.3 | 27.7 | 23.9 |
| | 1960 | 22.0 | 18.0 | 18.3 | 6.9 | 54.5 | 20.4 | 7.7 | 7.8 | 10.2 | 9.8 | 32.8 | 33.9 | 10.1 | 10.2 | 43.9 | 36.4 |
| | 1964 | 22.2 | 20.0 | 21.3 | 6.5 | 52.3 | 25.6 | 3.3 | 6.8 | 9.6 | 22.8 | 32.6 | 33.7 | 10.5 | 12.9 | 47.8 | 40.4 |
| | 1965 | 21.4 | 19.5 | 21.7 | 6.4 | 53.0 | 25.4 | 3.6 | 7.2 | 9.3 | 18.5 | 31.9 | 33.0 | 9.5 | 14.5 | 48.9 | 40.6 |
| | 1966 | 20.9 | 19.3 | 22.1 | 6.4 | 54.8 | 26.8 | 4.8 | 10.6 | 9.4 | 20.7 | 31.5 | 32.7 | 9.5 | 15.4 | 53.5 | 42.2 |
| | 1967 | 21.3 | 20.1 | 21.8 | 5.8 | 50.6 | 28.7 | 6.8 | 9.4 | 9.6 | 13.5 | 31.2 | 32.3 | 9.6 | 15.2 | 53.9 | 43.1 |
| South Central | 1940 | 13.3 | 6.4 | 34.8 | 15.9 | 6.7 | 8.5 | 1.4 | 6.5 | 7.3 | 1.1 | 6.7 | 6.8 | 4.1 | 4.6 | 2.2 | 2.5 |
| | 1950 | 12.8 | 9.3 | 35.7 | 18.7 | 5.8 | 10.7 | 1.2 | 12.0 | 10.1 | 4.2 | 7.8 | 7.8 | 6.1 | 7.9 | 1.3 | 3.1 |
| | 1960 | 10.6 | 9.9 | 30.0 | 11.6 | 3.3 | 12.5 | 3.3 | 16.0 | 9.5 | 5.6 | 7.2 | 7.2 | 7.5 | 11.6 | 1.6 | 3.3 |
| | 1964 | 9.9 | 9.6 | 28.0 | 9.8 | 3.0 | 10.5 | 3.1 | 18.6 | 10.4 | 5.5 | 7.0 | 7.0 | 8.0 | 10.0 | 1.6 | 3.0 |
| | 1965 | 10.3 | 10.0 | 27.5 | 9.4 | 3.4 | 11.2 | 3.5 | 18.9 | 10.5 | 5.6 | 7.5 | 7.5 | 7.8 | 9.7 | 2.0 | 3.5 |
| | 1966 | 10.6 | 10.4 | 26.8 | 9.1 | 4.2 | 10.2 | 3.8 | 19.6 | 10.5 | 5.4 | 8.0 | 8.1 | 7.4 | 8.8 | 2.2 | 3.8 |
| | 1967 | 10.6 | 10.4 | 26.6 | 8.5 | 5.2 | 10.5 | 3.8 | 20.4 | 11.0 | 6.3 | 8.4 | 8.5 | 7.1 | 11.0 | 3.6 | 4.9 |
| West | 1940 | 11.6 | 13.3 | 7.2 | 15.6 | 12.4 | 9.6 | 5.5 | 17.6 | 12.2 | 8.6 | 12.4 | 12.4 | 21.6 | 7.5 | 20.4 | 20.6 |
| | 1950 | 11.3 | 13.0 | 7.0 | 18.0 | 9.1 | 6.7 | 5.8 | 17.4 | 13.2 | 23.4 | 10.5 | 10.6 | 24.4 | 8.9 | 11.4 | 13.1 |
| | 1960 | 12.9 | 13.2 | 8.6 | 37.6 | 8.8 | 6.6 | 7.8 | 17.2 | 15.1 | 29.2 | 10.8 | 10.9 | 23.0 | 16.2 | 9.6 | 11.9 |
| | 1964 | 12.7 | 12.6 | 8.6 | 39.2 | 7.7 | 5.6 | 7.1 | 17.2 | 16.1 | 24.0 | 10.0 | 10.0 | 23.3 | 14.1 | 7.6 | 10.0 |
| | 1965 | 12.9 | 12.8 | 8.7 | 40.0 | 7.8 | 5.9 | 7.7 | 16.9 | 16.3 | 27.0 | 10.3 | 10.4 | 23.9 | 11.8 | 7.4 | 9.9 |
| | 1966 | 13.3 | 13.2 | 8.8 | 39.9 | 8.3 | 5.7 | 7.7 | 17.8 | 16.6 | 25.6 | 10.7 | 10.8 | 24.4 | 11.6 | 7.6 | 10.6 |
| | 1967 | 13.6 | 13.4 | 8.9 | 39.5 | 8.9 | 5.3 | 7.6 | 17.2 | 16.8 | 27.0 | 10.7 | 10.7 | 24.5 | 12.8 | 8.1 | 11.0 |

1/ Excluding Alaska and Hawaii. Totals may not equal sum of regions because of rounding.
2/ Calculations based upon data as reported in most recent revisions of U.S. Department of Agriculture publications: Milk Production, Disposition, and Income and Production of Manufactured Dairy Products. Column headings refer to those of the two publications, including apparent combinations of selected products.
3/ Subregion of Delaware, Maryland, District of Columbia, and Virginia (part of South Atlantic).
4/ New England, Mid-Atlantic, and Delmarva (12 States plus District of Columbia).

From an industry viewpoint, butter appears to be the balance wheel product. Butterfat not utilized in higher priority products is churned into butter. When needed for other products, butterfat is withdrawn from butter production.

Cheese production--Only 2 percent of the milk in the Northeast is used to produce American cheese and about 3 percent to make other cheeses (not considering cottage and similar types). Only the South Atlantic region uses a smaller portion of its milk to produce cheese. These annual percentages have been more stable over time than is true for most other products.

The New England area has a very seasonal pattern, producing more than twice as much cheese in the flush season as in the winter. The Northern plants, especially, use the surplus milk from fluid operations, with a number of them discontinuing processing during the winter when milk supplies are short. However, much of this cheese is produced on a prearranged, scheduled basis rather than simply serving as a passive outlet for surplus.

Frozen dairy products--Frozen dairy products are the major manufacturing use of milk in the Northeast. Approximately 54 percent of the net total whole milk equivalent used in manufacturing dairy products in this area is used in frozen dairy products. This is equivalent to nearly 16 percent of the total milk produced in the Northeast area. Only the South Atlantic region, with 20 percent, uses a greater portion of its milk production in frozen products.

The Northeast produces slightly more than one-third of the Nation's total frozen products, this ratio has dropped steadily from 41 percent in 1940. With less than 30 percent of the U.S. population and just over one-fifth of the milk production, the Northeast enjoys a high per capita production of frozen dairy products.

Skim utilization--Handlers generally consider skim milk a byproduct. Northeast markets, especially New York and Boston, have developed a very active fluid cream trade. A major part of the milk for this cream, like that for butter production, is separated in the more distant producing areas. Thus, the greatest portion of the skim milk is available in the country rather than in the metropolitan consuming areas.

Skim milk utilized in manufacturing dairy products by Northeast States is equal to about one-sixth of their total milk production, a somewhat lower ratio than in the other major milk-producing areas. The United States uses one-fifth to one-fourth of the total milk produced to manufacture skim products.

Nonfat dry milk is truly the byproduct "safety valve." Varying in line with milk production and utilization, much of the powder is produced jointly with butter. Only in the East does nonfat dry milk account for a greater share of the total milk production than does butter. This is largely because of the high proportion of whole milk sold to plants, milk with a slightly lower butterfat content, the previously mentioned fluid cream market, and the high production of ice cream. The proportion of total fluid sales represented by skim and low-fat fluid items in 1967 was less than one-half as high in Northeast Federal order markets as in all other Federal order markets combined. Until July 1968, New York State forbade by law the standardization of fluid whole milk. This regulation resulted in less butterfat being skimmed from fluid items. These practices result in an unusually large ratio of surplus skim milk as compared with butterfat.

The two highest priority manufacturing uses for skim milk, cottage cheese curd and condensed skim milk, take only 4 and 3 percent, respectively, of the total milk production in the

Table 10.--Net total milk equivalent used in manufacturing dairy products in the Northeast States in selected years as compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 1/

| State or area | Yearly net total as a percentage of 1960 net total | | | | | | Net total as a percentage of Northeast net total | | | | | | | Net total of whole milk used in manufacturing dairy products as a percentage of milk production | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | 16.5 | 42.2 | 82.6 | 59.6 | 52.3 | 53.2 | 0.5 | 0.8 | 1.6 | 1.3 | 0.8 | 0.8 | 0.8 | 2.9 | 7.4 | 15.6 | 13.3 | 9.8 | 8.9 | 9.2 |
| New Hampshire | 53.8 | 107.7 | 115.4 | 138.5 | 138.5 | 146.2 | .2 | .3 | .2 | .2 | .2 | .2 | .2 | 1.9 | 4.1 | 3.3 | 3.8 | 4.6 | 4.7 | 4.9 |
| Vermont | 56.4 | 85.3 | 209.0 | 234.6 | 219.2 | 238.5 | 2.2 | 2.4 | 2.2 | 4.1 | 4.6 | 4.7 | 4.8 | 6.2 | 8.8 | 8.3 | 16.2 | 17.8 | 17.4 | 19.6 |
| Massachusetts | 38.0 | 68.5 | 105.6 | 115.4 | 126.6 | 119.7 | 3.0 | 3.8 | 4.3 | 4.0 | 4.4 | 5.3 | 4.7 | 14.3 | 26.8 | 38.9 | 40.2 | 44.6 | 51.1 | 49.5 |
| Rhode Island | 78.1 | 137.5 | 115.6 | 100.0 | 68.8 | 62.5 | .6 | .8 | .5 | .5 | .4 | .3 | .3 | 18.4 | 32.1 | 26.4 | 34.9 | 31.1 | 23.2 | 23.0 |
| Connecticut | 45.9 | 70.9 | 89.2 | 129.7 | 123.6 | 131.1 | 1.7 | 1.9 | 2.1 | 1.7 | 2.4 | 2.5 | 2.5 | 10.2 | 15.1 | 20.2 | 18.7 | 26.9 | 25.9 | 28.0 |
| New York | 62.6 | 80.8 | 115.5 | 117.8 | 105.5 | 112.8 | 48.8 | 45.0 | 43.2 | 44.1 | 45.3 | 43.8 | 44.5 | 24.9 | 27.8 | 29.9 | 32.1 | 32.5 | 30.4 | 33.0 |
| New Jersey | 40.6 | 59.7 | 107.9 | 108.5 | 105.2 | 109.4 | 3.4 | 3.6 | 4.7 | 4.5 | 4.5 | 4.7 | 4.7 | 13.8 | 17.3 | 27.8 | 33.2 | 34.6 | 34.7 | 41.4 |
| Pennsylvania | 59.0 | 80.4 | 113.3 | 105.4 | 100.9 | 98.2 | 29.2 | 28.4 | 27.5 | 27.5 | 25.8 | 26.6 | 24.6 | 24.3 | 27.6 | 28.1 | 30.1 | 28.3 | 27.5 | 27.7 |
| Delaware | 34.3 | 48.6 | 157.1 | 157.1 | 154.3 | 157.1 | .3 | .3 | .5 | .7 | .7 | .7 | .7 | 8.3 | 9.1 | 18.3 | 33.3 | 35.3 | 36.2 | 38.7 |
| Maryland | 34.2 | 60.0 | 107.0 | 90.9 | 81.9 | 110.5 | 3.8 | 4.7 | 6.1 | 5.8 | 4.9 | 4.8 | 6.2 | 15.9 | 20.6 | 28.1 | 29.4 | 25.1 | 22.8 | 30.8 |
| Wash., D.C. | 34.1 | 63.7 | 81.3 | 82.4 | 75.8 | 79.1 | .8 | 1.1 | 1.3 | .9 | 1.0 | .9 | .9 | ** | | | | | | |
| Virginia | 52.9 | 91.3 | 97.1 | 93.9 | 84.5 | 93.7 | 5.6 | 6.9 | 5.8 | 5.0 | 4.9 | 4.7 | 5.0 | 14.4 | 19.0 | 20.8 | 21.9 | 21.2 | 19.4 | 21.7 |
| New England | 42.2 | 72.2 | 120.8 | 134.3 | 132.0 | 134.7 | 8.2 | 10.1 | 10.8 | 11.6 | 13.0 | 13.7 | 13.3 | 7.9 | 13.5 | 16.6 | 19.6 | 21.7 | 22.2 | 23.2 |
| Mid-Atlantic | 59.9 | 79.4 | 114.2 | 112.7 | 103.8 | 107.3 | 81.3 | 76.9 | 75.4 | 76.0 | 75.6 | 75.1 | 73.9 | 23.9 | 27.0 | 29.1 | 31.4 | 31.0 | 29.5 | 31.4 |
| Delmarva | 42.1 | 73.2 | 102.0 | 93.6 | 84.9 | 102.0 | 10.4 | 13.0 | 13.8 | 12.4 | 11.5 | 11.2 | 12.8 | 15.8 | 20.8 | 26.2 | 27.8 | 25.6 | 23.6 | 28.6 |
| Northeast | 55.6 | 77.7 | 113.3 | 112.4 | 104.3 | 109.5 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 19.6 | 23.7 | 26.5 | 28.9 | 28.8 | 27.5 | 29.6 |
| United States | 91.8 | 92.3 | 108.6 | 63.5 | 97.4 | 100.4 | *7.2 | *10.0 | *11.9 | *12.4 | *12.8 | *12.7 | *12.9 | 49.9 | 47.0 | 48.3 | 50.9 | 49.8 | 48.2 | 50.1 |

1/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966; reported data for 1967.

* Northeast as percentage of U.S. total.

** Less than 0.1 percent, not reported, or inadequate basis for computation.

Individual States may not add to totals because of rounding.

Table 11.--Milk equivalent used in butter manufacturing in the Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 1/

| State or area | Yearly butter manufacture as a percentage of 1960 butter manufacture | | | | | | Butter manufacture as a percentage of Northeast butter manufacture | | | | | | | Milk allocated to butter as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | 85.0 | 141.0 | 85.8 | 77.4 | 69.2 | 74.1 | 0.2 | 0.3 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 | 0.5 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 |
| New Hampshire | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Vermont | 92.6 | 74.1 | 316.7 | 292.6 | 209.3 | 275.9 | 4.8 | 3.6 | 3.8 | 8.9 | 8.2 | 8.5 | 8.0 | 3.5 | 2.6 | 2.9 | 8.5 | 7.7 | 5.7 | 7.9 |
| Massachusetts | 112.3 | 113.2 | 15.9 | 24.8 | 36.9 | 40.4 | .4 | .4 | .3 | .1 | .1 | .1 | .1 | .5 | .7 | .5 | .1 | .1 | .2 | .3 |
| Rhode Island | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Connecticut | ** | | | | | | .2 | .0 | .0 | .0 | .0 | .0 | .0 | .3 | .0 | .0 | .0 | .0 | .0 | .0 |
| New York | 59.2 | 72.2 | 145.4 | 157.4 | 103.1 | 143.2 | 45.7 | 52.2 | 57.3 | 61.2 | 66.3 | 62.8 | 62.6 | 6.3 | 6.6 | 8.0 | 10.8 | 11.6 | 7.9 | 11.2 |
| New Jersey | ** | | | | | | .1 | .3 | .0 | .0 | .0 | .0 | .0 | .1 | .3 | .0 | .0 | .0 | .0 | .0 |
| Pennsylvania | 89.7 | 72.5 | 113.6 | 104.7 | 81.9 | 96.1 | 30.7 | 23.2 | 25.5 | 21.2 | 19.6 | 22.1 | 18.6 | 6.9 | 4.6 | 5.2 | 5.6 | 5.2 | 4.2 | 5.0 |
| Delaware | ** | | | | | | .1 | .0 | .0 | .0 | .0 | .0 | .0 | .7 | .0 | .0 | .0 | .0 | .0 | .0 |
| Maryland | 39.3 | 61.5 | 116.2 | 73.5 | 53.0 | 122.2 | 4.4 | 6.4 | 8.2 | 7.0 | 4.5 | 4.6 | 7.7 | 5.0 | 5.7 | 7.6 | 8.7 | 5.5 | 4.0 | 9.3 |
| Wash., D.C. | ** | | | | | | ** | | | | | | | ** | | | | | | |
| Virginia | 205.8 | 220.3 | 43.5 | 37.7 | 31.9 | 75.4 | 13.5 | 13.5 | 4.9 | 1.6 | 1.4 | 1.6 | 2.8 | 9.4 | 7.7 | 3.5 | 1.6 | 1.4 | 1.2 | 2.9 |
| New England | 96.7 | 81.7 | 290.0 | 268.3 | 193.3 | 253.3 | 5.5 | 4.4 | 4.2 | 9.0 | 8.4 | 8.7 | 8.2 | 1.4 | 1.2 | 1.3 | 3.7 | 3.4 | 2.6 | 3.4 |
| Mid-Atlantic | 68.7 | 72.5 | 135.7 | 141.2 | 96.6 | 128.8 | 76.5 | 75.7 | 82.6 | 82.4 | 85.9 | 84.9 | 81.3 | 6.0 | 5.4 | 6.4 | 8.2 | 8.6 | 6.1 | 8.3 |
| Delmarva | 101.6 | 120.4 | 89.3 | 60.2 | 45.2 | 104.8 | 18.0 | 20.0 | 13.1 | 8.6 | 5.8 | 6.3 | 10.5 | 7.3 | 6.6 | 5.0 | 4.7 | 3.2 | 2.4 | 5.6 |
| Northeast | 74.2 | 79.2 | 136.1 | 135.9 | 94.0 | 131.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 5.3 | 4.8 | 5.3 | 7.0 | 7.0 | 5.0 | 7.1 |
| United States | 123.8 | 94.9 | 108.1 | 98.9 | 83.2 | 91.2 | *2.8 | *3.9 | *4.7 | *5.9 | *6.5 | *5.3 | *6.8 | 34.1 | 24.6 | 24.5 | 25.7 | 24.0 | 20.9 | 23.1 |

1/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966; reported data for 1967.

* Northeast as percentage of U.S. total.

** Less than 0.1 percent, not reported, or inadequate basis for computations.

Individual States may not add to total because of rounding.

Table 12.--Milk equivalent used in manufacturing American cheese in the Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 1/

| State or area | Yearly American cheese manufacture as a percentage of 1960 American cheese manufacture | | | | | | American cheese manufacture as a percentage of Northeast American cheese manufacture | | | | | | | Milk allocated to American cheese as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | ** | ** | ** | ** | ** | ** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| New Hampshire | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Vermont | 16.44 | 38.36 | 106.85 | 128.77 | 126.03 | 121.92 | 4.11 | 6.59 | 14.04 | 15.89 | 16.10 | 15.18 | 16.20 | .84 | 1.85 | 3.89 | 3.87 | 4.57 | 4.68 | 4.69 |
| Massachusetts | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Rhode Island | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Connecticut | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| New York | 64.94 | 94.07 | 86.17 | 98.02 | 112.10 | 102.47 | 90.07 | 89.65 | 77.88 | 71.08 | 67.98 | 74.92 | 75.21 | 3.43 | 4.30 | 3.98 | 3.19 | 3.60 | 4.29 | 3.99 |
| New Jersey | ** | ** | ** | ** | ** | ** | .00 | .00 | .64 | .30 | .38 | .01 | .01 | .00 | .00 | .28 | .14 | .22 | .01 | .01 |
| Pennsylvania | 400.00 | 325.00 | 475.00 | 1150.00 | 525.00 | 50.00 | 5.48 | 3.06 | .77 | 3.87 | 7.88 | 3.47 | .40 | .34 | .23 | .06 | .26 | .64 | .30 | .03 |
| Delaware | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Maryland | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Wash., D.C. | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Virginia | 2.86 | 8.57 | 125.71 | 125.71 | 111.43 | 128.57 | .34 | .71 | 6.73 | 8.96 | 7.53 | 6.44 | 8.18 | .07 | .15 | 1.77 | 2.41 | 2.41 | 2.17 | 2.53 |
| New England | 16.44 | 38.36 | 106.85 | 128.77 | 126.03 | 121.92 | 4.11 | 6.59 | 14.04 | 15.89 | 16.10 | 15.18 | 16.20 | .30 | .68 | 1.58 | 1.66 | 1.99 | 2.02 | 2.01 |
| Mid-Atlantic | 67.72 | 95.63 | 89.56 | 108.25 | 115.29 | 101.21 | 95.55 | 92.70 | 79.23 | 75.15 | 76.37 | 78.39 | 75.62 | 2.09 | 2.52 | 2.26 | 1.91 | 2.31 | 2.54 | 2.30 |
| Delmarva | 2.86 | 8.57 | 125.71 | 125.71 | 111.43 | 128.57 | .34 | .71 | 6.73 | 8.96 | 7.53 | 6.44 | 8.18 | .04 | .09 | .95 | 1.24 | 1.24 | 1.12 | 1.30 |
| Northeast | 56.15 | 81.73 | 94.42 | 112.31 | 116.54 | 106.15 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 1.47 | 1.84 | 1.96 | 1.78 | 2.12 | 2.27 | 2.12 |
| United States | 63.34 | 92.98 | 118.66 | 118.71 | 126.02 | 131.58 | *4.78 | *4.74 | *5.39 | *4.29 | *5.10 | *4.98 | *4.35 | 5.59 | 7.70 | 7.85 | 9.03 | 9.24 | 10.13 | 10.66 |

1/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966; reported data for 1967.

* Northeast as percentage of U.S. total.

** Less than 0.1 percent, not reported, or inadequate basis for computation.

Individual States may not add to totals because of rounding.

Table 13.--Milk equivalent used in manufacturing other cheese in Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 1/

| State or area | Yearly other cheese manufacture as percentage of 1960 other cheese manufacture | | | | | | Other cheese manufacture as a percentage of Northeast other cheese manufacture | | | | | | | Milk allocated to other cheese as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | ** | ** | ** | ** | ** | ** | 0.00 | 0.30 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| New Hampshire | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Vermont | 66.67 | 222.22 | 466.67 | 522.22 | 555.56 | 455.56 | 1.30 | 3.03 | 1.43 | 5.24 | 6.14 | 6.39 | 5.25 | .42 | 1.32 | .48 | 2.08 | 2.29 | 2.54 | 2.16 |
| Massachusetts | 68.42 | 126.32 | 121.05 | 115.79 | 105.26 | 105.26 | 2.82 | 3.63 | 3.03 | 2.87 | 2.87 | 2.55 | 2.55 | 1.60 | 3.08 | 2.42 | 2.87 | 2.78 | 2.65 | 2.71 |
| Rhode Island | 18.22 | 124.76 | 161.57 | 172.30 | 185.10 | 203.13 | .04 | .20 | .17 | .21 | .24 | .25 | .27 | .14 | .96 | .87 | 1.61 | 1.76 | 2.05 | 2.46 |
| Connecticut | 33.02 | 53.28 | 68.39 | 70.68 | 70.10 | 71.43 | .33 | .37 | .74 | .41 | .43 | .41 | .42 | .23 | .35 | .63 | .45 | .46 | .46 | .48 |
| New York | 66.67 | 98.19 | 117.67 | 114.66 | 112.05 | 112.05 | 72.02 | 73.98 | 79.30 | 73.16 | 74.54 | 71.26 | 70.77 | 4.34 | 5.52 | 4.90 | 5.35 | 5.18 | 5.27 | 5.36 |
| New Jersey | 106.25 | 106.25 | 100.00 | 106.25 | 106.25 | 137.50 | 3.69 | 2.57 | 2.55 | 2.00 | 2.22 | 2.17 | 2.85 | 1.75 | 1.49 | 1.35 | 1.49 | 1.64 | 1.70 | 2.53 |
| Pennsylvania | 115.19 | 134.18 | 163.28 | 130.38 | 167.09 | 178.48 | 19.74 | 16.04 | 12.58 | 16.10 | 13.45 | 16.86 | 17.89 | 1.94 | 1.88 | 1.15 | 1.77 | 1.43 | 1.86 | 2.06 |
| Delaware | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Maryland | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Wash., D.C. | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Virginia | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| New England | 60.00 | 140.00 | 197.14 | 211.43 | 217.14 | 191.43 | 4.56 | 7.41 | 5.57 | 8.61 | 9.66 | 9.71 | 8.49 | .52 | 1.20 | .76 | 1.47 | 1.57 | 1.67 | 1.51 |
| Mid-Atlantic | 74.20 | 103.20 | 123.44 | 116.69 | 119.22 | 121.75 | 95.44 | 92.59 | 94.43 | 91.38 | 90.34 | 90.29 | 91.51 | 3.30 | 3.92 | 3.25 | 3.79 | 3.59 | 3.79 | 3.98 |
| Delmarva | ** | ** | ** | ** | ** | ** | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| Northeast | 73.41 | 105.25 | 127.55 | 121.97 | 124.68 | 125.48 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 2.31 | 2.86 | 2.37 | 2.91 | 2.78 | 2.93 | 3.03 |
| United States | 47.52 | 78.64 | 113.74 | 116.35 | 123.15 | 121.98 | *26.39 | *22.86 | *17.08 | *19.16 | *17.91 | *17.30 | *17.57 | 1.60 | 2.48 | 2.99 | 3.30 | 3.45 | 3.77 | 3.76 |

1/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966 reported data for 1967.

* Northeast as percentage of U. S. total.

** Less than 0.1 percent, not reported, or inadequate basis for computation.

Individual States may not add to totals because of rounding.

Table 14.--Milk used to manufacture frozen dairy products in the Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 1/

| State or area | Yearly manufacture as a percentage of 1960 manufacture | | | | | | Manufacture as a percentage of Northeast manufacture | | | | | | | Milk allocated to frozen product manufacture as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | 33.3 | 46.0 | 97.7 | 64.4 | 64.4 | 67.8 | 1.5 | 1.3 | 2.2 | 2.0 | 1.3 | 1.3 | 1.4 | 4.6 | 6.4 | 12.4 | 12.6 | 8.5 | 8.8 | 9.4 |
| New Hampshire | 73.7 | 110.5 | 115.8 | 136.8 | 136.8 | 147.4 | .7 | .7 | .5 | .5 | .6 | .6 | .7 | 3.9 | 6.1 | 4.9 | 5.5 | 6.6 | 6.8 | 7.2 |
| Vermont | 150.0 | 262.5 | 75.0 | 87.5 | 87.5 | 87.5 | .6 | .7 | .2 | .1 | .2 | .2 | .2 | .8 | 1.4 | .4 | .3 | .3 | .4 | .4 |
| Massachusetts | 44.1 | 65.1 | 105.7 | 115.9 | 128.4 | 120.7 | 10.4 | 9.9 | 11.4 | 11.6 | 12.6 | 14.0 | 13.3 | 24.9 | 38.2 | 58.4 | 60.5 | 67.2 | 77.8 | 75.0 |
| Rhode Island | 90.7 | 141.9 | 114.0 | 100.0 | 65.1 | 58.1 | 2.0 | 2.0 | 1.1 | 1.2 | 1.0 | .7 | .6 | 28.7 | 44.5 | 35.5 | 46.2 | 41.8 | 29.5 | 28.7 |
| Connecticut | 48.2 | 73.3 | 98.5 | 144.4 | 137.0 | 145.7 | 3.4 | 3.3 | 3.4 | 3.2 | 4.6 | 4.4 | 4.7 | 9.7 | 14.2 | 18.4 | 18.8 | 27.4 | 26.2 | 28.4 |
| New York | 54.4 | 75.8 | 102.6 | 102.2 | 100.1 | 101.5 | 33.0 | 29.6 | 29.2 | 28.9 | 28.6 | 28.1 | 28.7 | 8.4 | 10.1 | 11.6 | 11.0 | 11.9 | 11.1 | 11.5 |
| New Jersey | 35.5 | 56.3 | 109.2 | 109.2 | 106.7 | 109.8 | 6.0 | 6.1 | 8.1 | 8.6 | 8.5 | 8.3 | 8.6 | 12.0 | 16.1 | 27.5 | 33.2 | 34.5 | 34.9 | 41.2 |
| Pennsylvania | 50.4 | 86.8 | 101.8 | 98.2 | 99.2 | 96.2 | 30.4 | 33.8 | 29.1 | 28.6 | 27.1 | 27.7 | 27.2 | 12.6 | 18.1 | 17.1 | 16.4 | 16.0 | 16.4 | 16.4 |
| Delaware | 38.6 | 47.4 | 152.6 | 150.9 | 145.6 | 149.1 | 1.1 | .9 | 1.4 | 2.1 | 2.0 | 2.0 | 2.0 | 15.2 | 14.5 | 29.8 | 52.7 | 54.5 | 55.7 | 59.9 |
| Maryland | 41.9 | 56.3 | 98.7 | 102.3 | 105.0 | 104.1 | 4.8 | 4.2 | 5.5 | 5.2 | 5.4 | 5.6 | 5.6 | 10.1 | 10.0 | 14.5 | 14.0 | 14.6 | 15.1 | 15.0 |
| Wash., D.C. | 41.7 | 66.9 | 83.5 | 84.9 | 77.7 | 81.3 | 3.0 | 3.1 | 3.4 | 2.8 | 2.8 | 2.6 | 2.7 | ** | | | | | | |
| Virginia | 33.0 | 74.2 | 117.0 | 112.6 | 103.9 | 97.3 | 3.1 | 4.5 | 4.5 | 5.1 | 4.9 | 4.5 | 4.3 | 4.0 | 6.8 | 9.2 | 11.7 | 11.2 | 10.5 | 10.0 |
| New England | 48.0 | 71.8 | 103.7 | 114.0 | 118.5 | 115.6 | 18.6 | 17.9 | 18.7 | 18.7 | 20.4 | 21.2 | 20.9 | 9.0 | 13.2 | 16.3 | 16.6 | 18.1 | 19.6 | 19.6 |
| Mid-Atlantic | 50.3 | 78.2 | 103.0 | 101.3 | 100.5 | 100.1 | 69.4 | 69.5 | 66.4 | 66.1 | 64.5 | 64.1 | 64.5 | 10.1 | 13.4 | 14.7 | 14.3 | 14.1 | 14.4 | 14.8 |
| Delmarva | 38.8 | 63.2 | 105.7 | 105.7 | 102.0 | 100.8 | 12.0 | 12.6 | 14.9 | 15.2 | 15.1 | 14.7 | 14.6 | 9.0 | 11.1 | 16.2 | 17.9 | 17.9 | 17.6 | 17.5 |
| Northeast | 48.2 | 74.8 | 103.6 | 104.3 | 104.1 | 103.1 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 9.7 | 13.0 | 15.2 | 15.1 | 15.3 | 15.7 | 16.0 |
| United States | 41.7 | 70.8 | 107.5 | 111.2 | 110.6 | 110.2 | *41.2 | *37.7 | *35.7 | *34.4 | *33.5 | *33.6 | *33.4 | 4.3 | 6.9 | 9.2 | 9.6 | 10.1 | 10.4 | 10.4 |

1/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966; reported data for 1967.

* Northeast as percentage of U.S. total.

** Less than 0.1 percent, not reported, or inadequate basis for computation.

Individual States may not add to totals because of rounding.

Table 15.--Skim milk equivalent used to manufacture cottage cheese curd in the Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production

| State or area | Yearly cottage cheese manufactured as a percentage of 1960 manufacture | | | | | | Cottage cheese manufacture as a percentage of total Northeast manufacture of cottage cheese | | | | | | | Skim milk used to manufacture cottage cheese as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent 1/ | | | | | | | Percent | | | | | | |
| Maine | 0.0 | 29.8 | 98.2 | 103.5 | 107.0 | 103.5 | 0.0 | 3.0 | 5.7 | 5.6 | 5.8 | 6.2 | 5.7 | 0.0 | 2.7 | 8.1 | 8.3 | 8.9 | 9.6 | 9.4 |
| New Hampshire | 12.6 | 63.3 | 37.0 | 35.2 | 49.2 | 36.7 | 0.0 | .2 | .2 | .1 | .1 | .1 | .1 | .1 | .3 | .4 | .2 | .2 | .2 | .2 |
| Vermont | 50.0 | 74.6 | 92.4 | 86.4 | 70.3 | 80.5 | 15.4 | 15.7 | 11.8 | 10.9 | 9.9 | 8.4 | 9.2 | 4.2 | 5.8 | 6.3 | 5.4 | 5.0 | 4.2 | 5.0 |
| Massachusetts | 378.4 | 131.3 | 282.5 | 276.1 | 321.3 | 306.0 | 2.1 | .5 | .2 | .6 | .6 | .7 | .7 | 1.0 | .4 | .3 | .8 | .8 | .9 | .9 |
| Rhode Island | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Connecticut | 11.4 | 36.4 | 65.9 | 65.9 | 75.0 | 72.7 | 1.3 | 2.8 | 4.4 | 2.9 | 2.8 | 3.3 | 3.1 | .8 | 2.3 | 6.0 | 4.1 | 4.1 | 4.7 | 4.6 |
| New York | 38.8 | 56.7 | 97.8 | 100.0 | 105.6 | 105.6 | 50.5 | 50.3 | 49.8 | 48.8 | 48.4 | 53.0 | 50.8 | 2.5 | 3.2 | 4.9 | 4.4 | 4.5 | 5.0 | 5.0 |
| New Jersey | 98.8 | 31.3 | 44.4 | 40.8 | 52.4 | 24.1 | 2.4 | .5 | .9 | .4 | .4 | .5 | .2 | .9 | .2 | .8 | .4 | .4 | .5 | .2 |
| Pennsylvania | 47.3 | 58.8 | 120.9 | 139.6 | 110.4 | 114.8 | 22.5 | 19.1 | 18.2 | 22.1 | 24.8 | 20.3 | 20.2 | 1.8 | 1.9 | 2.6 | 3.0 | 3.5 | 2.8 | 3.0 |
| Delaware | ** | | | | | | 0.0 | .2 | .0 | .0 | .0 | .0 | .0 | .0 | .5 | .0 | .0 | .0 | .0 | .0 |
| Maryland | 39.5 | 55.8 | 120.9 | 97.7 | 102.3 | 165.1 | 4.4 | 4.3 | 4.3 | 5.2 | 4.1 | 4.4 | 6.9 | 1.8 | 1.9 | 2.8 | 3.3 | 2.7 | 2.8 | 4.6 |
| Wash., D.C. | 10.0 | 30.0 | 30.0 | 30.0 | 20.0 | 25.0 | .5 | 1.1 | 2.0 | .6 | .6 | .4 | .5 | ** | | | | | | |
| Virginia | 16.7 | 54.2 | 112.5 | 116.7 | 112.5 | 112.5 | 1.0 | 2.3 | 2.4 | 2.7 | 2.7 | 2.7 | 2.6 | .3 | .7 | 1.2 | 1.5 | 1.5 | 1.5 | 1.5 |
| New England | 32.4 | 56.8 | 90.5 | 88.7 | 88.3 | 86.9 | 18.9 | 22.5 | 22.3 | 20.2 | 19.2 | 18.7 | 18.7 | 1.8 | 3.1 | 4.8 | 4.3 | 4.2 | 4.1 | 4.4 |
| Mid-Atlantic | 41.7 | 56.8 | 103.3 | 109.6 | 106.3 | 107.1 | 75.1 | 69.7 | 69.0 | 71.3 | 73.5 | 73.8 | 71.3 | 2.2 | 2.5 | 3.8 | 3.7 | 3.9 | 3.9 | 4.1 |
| Delmarva | 25.3 | 50.6 | 97.8 | 87.4 | 86.2 | 118.4 | 5.8 | 7.8 | 8.8 | 8.5 | 7.4 | 7.6 | 10.0 | .8 | 1.3 | 2.4 | 2.4 | 2.1 | 2.2 | 3.0 |
| Northeast | 38.3 | 56.3 | 100.0 | 102.9 | 99.3 | 103.6 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 1.9 | 2.4 | 3.8 | 3.6 | 3.7 | 3.7 | 4.0 |
| United States | 29.4 | 54.5 | 105.1 | 106.0 | 104.8 | 105.1 | *35.1 | *27.9 | *26.8 | *25.6 | *26.2 | *25.5 | *26.6 | 1.0 | 1.7 | 3.0 | 3.1 | 3.2 | 3.2 | 3.3 |

1/ Individual States may not add to totals because of rounding.
* Northeast as percentage of U.S. total.
** Less than 0.1 percent, in report, or inadequate basis for comparison.

Table 16.--Skim milk equivalent used to manufacture condensed 1/ skim milk in the Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 2/

| State or area | Yearly condensed skim milk manufacture as a percentage of 1960 manufacture 2/ | | | | | | Condensed skim milk manufacture as a percentage of total Northeast manufacture | | | | | | | Condensed skim milk manufacture as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | 33.3 | 388.9 | 200.0 | 255.6 | 322.2 | 300.0 | 0.6 | 5.0 | 1.4 | 2.6 | 3.0 | 3.9 | 3.5 | 0.5 | 5.6 | 1.3 | 2.7 | 3.5 | 4.6 | 4.3 |
| New Hampshire | ** | | | | | | 1.7 | .0 | .0 | .0 | .0 | .0 | .0 | 2.2 | .0 | .0 | .0 | .0 | .0 | .0 |
| Vermont | 304.5 | 131.8 | 95.5 | 54.5 | 113.6 | 240.9 | 14.1 | 4.2 | 3.5 | 3.1 | 1.6 | 3.3 | 6.9 | 4.7 | 1.9 | 1.2 | 1.0 | .6 | 1.3 | 2.8 |
| Massachusetts | 0 | 50.0 | 225.0 | 350.0 | 387.5 | 437.5 | .0 | .6 | 1.3 | 2.6 | 3.6 | 4.1 | 4.6 | .0 | .5 | 1.0 | 2.2 | 3.5 | 4.1 | 4.8 |
| Rhode Island | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Connecticut | ** | | | | | | .1 | .1 | .0 | .0 | .0 | .0 | .0 | .4 | .1 | .0 | .0 | .0 | .0 | .0 |
| New York | 95.5 | 130.5 | 79.8 | 100.9 | 102.7 | 126.0 | 44.8 | 41.7 | 35.8 | 25.9 | 29.0 | 30.4 | 36.5 | 2.8 | 3.3 | 2.2 | 1.6 | 2.0 | 2.2 | 2.7 |
| New Jersey | ** | | | | | | .2 | .1 | .0 | .0 | .0 | .0 | .0 | .1 | .1 | .0 | .0 | .0 | .0 | .0 |
| Pennsylvania | 67.8 | 92.5 | 166.8 | 182.9 | 161.8 | 136.2 | 28.4 | 26.3 | 31.9 | 48.3 | 47.0 | 42.7 | 35.2 | 2.9 | 3.3 | 2.9 | 4.6 | 5.0 | 4.5 | 4.0 |
| Delaware | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Maryland | 25.3 | 63.6 | 50.5 | 49.5 | 49.5 | 48.5 | 5.2 | 9.0 | 15.9 | 7.3 | 6.3 | 6.5 | 6.2 | 2.7 | 5.0 | 6.5 | 3.2 | 3.1 | 3.2 | 3.1 |
| Wash., D.C. | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | ** | | | | | | |
| Virginia | 36.1 | 147.5 | 114.8 | 121.3 | 114.8 | 90.2 | 4.6 | 12.9 | 9.8 | 10.2 | 9.6 | 9.3 | 7.1 | 1.5 | 4.5 | 3.1 | 3.8 | 4.0 | 3.9 | 3.1 |
| New England | 207.7 | 176.9 | 146.2 | 161.5 | 215.4 | 294.9 | 17.0 | 9.9 | 6.3 | 8.3 | 8.1 | 11.1 | 14.9 | 2.0 | 1.7 | .8 | 1.2 | 1.3 | 1.8 | 2.6 |
| Mid-Atlantic | 82.3 | 112.5 | 120.6 | 139.2 | 130.3 | 130.5 | 73.1 | 68.2 | 67.9 | 74.2 | 76.0 | 73.1 | 71.7 | 2.6 | 3.0 | 2.3 | 2.6 | 3.1 | 3.0 | 3.0 |
| Delmarva | 29.2 | 95.0 | 74.5 | 76.4 | 73.9 | 64.0 | 9.9 | 21.9 | 25.8 | 17.5 | 15.9 | 15.8 | 13.4 | 1.8 | 4.5 | 4.4 | 3.4 | 3.5 | 3.4 | 3.0 |
| Northeast | 76.4 | 112.0 | 110.3 | 124.4 | 121.0 | 123.6 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 2.4 | 3.0 | 2.4 | 2.5 | 2.8 | 2.8 | 3.0 |
| United States | 65.6 | 117.2 | 161.4 | 162.7 | 161.0 | 122.8 | *30.1 | *24.7 | *25.9 | *25.6 | *26.7 | *24.0 | *26.0 | 1.4 | 2.4 | 2.0 | 2.1 | 2.3 | 2.6 | 2.5 |

1/ Includes sweetened and unsweetened condensed skim milk and condensed or evaporated buttermilk.
2/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966; reported data for 1967.
* Northeast as percentage of U.S. total.
** Less than 0.1 percent, not reported, or inadequate basis for computation.
Individual States may not add to totals because of rounding.

Table 17.--Skim milk equivalent used to manufacture dry skim milk 1/ in the Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 2/

| State or area | Yearly dry skim milk manufacture as a percentage of 1960 manufacture | | | | | | Dry skim milk manufacture as a percentage of total Northeast dry skim milk manufacture | | | | | | | Dry skim milk manufacture as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | ** | | | | | | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Hampshire | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Vermont | 53.4 | 79.4 | 98.6 | 98.3 | 80.7 | 75.7 | 10.5 | 13.6 | 10.2 | 8.6 | 8.8 | 9.4 | 9.4 | 11.1 | 15.5 | 15.8 | 14.5 | 14.2 | 12.2 | 11.8 |
| Massachusetts | 0 | 16.9 | 212.3 | 172.3 | 147.7 | 123.1 | .0 | .6 | 2.2 | 4.1 | 3.4 | 3.8 | 3.4 | .0 | 1.4 | 8.3 | 17.2 | 14.2 | 12.7 | 10.8 |
| Rhode Island | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Connecticut | ** | | | | | | .1 | .0 | .0 | 1.0 | 1.1 | 1.3 | 2.0 | .2 | .0 | .0 | 4.7 | 5.2 | 4.5 | 6.9 |
| New York | 62.3 | 63.4 | 122.3 | 123.8 | 84.3 | 81.4 | 72.7 | 64.2 | 60.6 | 63.2 | 65.5 | 58.3 | 60.3 | 14.3 | 12.6 | 17.2 | 19.6 | 19.7 | 14.0 | 13.7 |
| New Jersey | 0 | 150.4 | 27.4 | 13.7 | 12.0 | 5.6 | .0 | .2 | .1 | ** | ** | ** | ** | .0 | .3 | .2 | .1 | ** | ** | ** |
| Pennsylvania | 35.1 | 37.2 | 101.5 | 96.0 | 77.4 | 71.5 | 12.4 | 11.4 | 18.3 | 15.8 | 15.4 | 16.2 | 16.0 | 4.0 | 3.5 | 7.7 | 7.4 | 7.1 | 5.8 | 5.5 |
| Delaware | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Maryland | 21.1 | 53.1 | 102.6 | 75.3 | 119.1 | 76.3 | 2.7 | 6.0 | 6.7 | 5.9 | 4.4 | 9.1 | 6.2 | 4.4 | 8.2 | 12.7 | 12.7 | 9.4 | 15.0 | 9.6 |
| Wash., D.C. | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | ** | | | | | | |
| Virginia | 21.8 | 116.4 | 90.9 | 89.1 | 87.3 | 110.9 | 1.3 | 3.7 | 1.9 | 1.5 | 1.5 | 1.9 | 2.6 | 1.3 | 3.2 | 2.8 | 2.7 | 2.7 | 2.7 | 3.4 |
| New England | 45.2 | 69.5 | 128.3 | 122.2 | 101.7 | 97.8 | 10.8 | 14.5 | 12.4 | 13.6 | 13.3 | 14.5 | 14.9 | 4.0 | 6.1 | 7.8 | 9.8 | 9.4 | 8.1 | 8.0 |
| Mid-Atlantic | 55.9 | 57.4 | 117.4 | 117.2 | 82.6 | 79.0 | 85.1 | 75.8 | 79.0 | 79.0 | 80.9 | 74.6 | 76.3 | 9.6 | 8.4 | 12.6 | 13.9 | 13.9 | 10.1 | 10.0 |
| Delmarva | 24.2 | 67.3 | 100.4 | 78.2 | 112.5 | 84.3 | 4.0 | 9.6 | 8.6 | 7.3 | 5.8 | 11.0 | 8.8 | 2.3 | 4.9 | 6.7 | 7.0 | 5.5 | 8.0 | 6.0 |
| Northeast | 51.9 | 59.8 | 117.3 | 114.5 | 87.5 | 81.8 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 7.5 | 7.5 | 10.9 | 12.3 | 12.0 | 9.5 | 9.1 |
| United States | 28.5 | 49.1 | 118.7 | 109.0 | 87.9 | 92.1 | *24.9 | *16.6 | *13.6 | *13.5 | *14.3 | *13.6 | *12.1 | 5.5 | 8.9 | 17.3 | 19.9 | 18.7 | 15.6 | 16.4 |

1/ Includes dry or powdered buttermilk and nonfat dry milk.

2/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966; reported data for 1967.

* Northeast as percentage of U.S. total.

** Less than 0.1 percent, not reported, or inadequate basis for computation.

Individual States may not add to totals because of rounding.

Table 18.--Total skim milk equivalent used to manufacture skim milk and buttermilk products in the Northeast States in selected years, compared with 1960; as a percentage of the total Northeast; and as a percentage of milk production 1/

| State or area | Yearly total skim as a percentage of 1960 total skim | | | | | | Total skim as a percentage of Northeast total skim | | | | | | | Total skim as a percentage of milk production in State | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1940 | 1950 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 | 1940 | 1950 | 1960 | 1964 | 1965 | 1966 | 1967 |
| | Percent | | | | | | Percent | | | | | | | Percent | | | | | | |
| Maine | 24.2 | 89.4 | 112.1 | 124.2 | 134.8 | 130.3 | 0.6 | 1.8 | 1.5 | 1.5 | 1.6 | 2.1 | 2.1 | 2.6 | 9.5 | 9.4 | 11.0 | 12.4 | 14.0 | 13.7 |
| New Hampshire | 478.0 | 67.0 | 37.0 | 35.0 | 49.0 | 37.0 | .3 | ** | ** | ** | ** | ** | ** | 2.2 | .3 | .4 | .2 | .2 | .2 | .2 |
| Vermont | 84.2 | 93.2 | 96.6 | 92.5 | 79.7 | 85.2 | 13.3 | 12.5 | 9.7 | 8.3 | 7.9 | 8.1 | 8.9 | 25.9 | 26.9 | 23.4 | 21.0 | 19.7 | 17.7 | 19.7 |
| Massachusetts | 10.5 | 23.7 | 211.8 | 192.1 | 176.3 | 160.5 | .3 | .6 | 1.7 | 3.2 | 2.8 | 3.1 | 2.9 | 1.0 | 2.3 | 9.7 | 20.1 | 18.5 | 17.7 | 16.6 |
| Rhode Island | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| Connecticut | 20.5 | 38.6 | 140.9 | 163.6 | 163.6 | 184.1 | .3 | .5 | 1.0 | 1.2 | 1.4 | 1.7 | 1.9 | 1.3 | 2.4 | 6.0 | 8.8 | 10.1 | 10.2 | 11.7 |
| New York | 72.3 | 75.6 | 113.2 | 116.6 | 89.9 | 90.1 | 64.8 | 57.6 | 54.9 | 55.3 | 56.5 | 52.1 | 53.6 | 23.4 | 21.2 | 24.4 | 25.7 | 26.2 | 21.1 | 21.5 |
| New Jersey | 83.3 | 66.7 | 41.7 | 33.3 | 41.7 | 16.7 | .4 | .2 | .3 | .1 | .1 | .1 | .1 | 1.0 | .7 | 1.0 | .5 | .4 | .5 | .2 |
| Pennsylvania | 46.9 | 55.2 | 119.5 | 123.5 | 102.3 | 94.1 | 15.4 | 15.4 | 20.2 | 21.4 | 22.0 | 21.8 | 20.6 | 9.1 | 8.9 | 13.3 | 15.0 | 15.6 | 13.2 | 12.5 |
| Delaware | ** | | | | | | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .5 | .0 | .0 | .0 | .0 | .0 |
| Maryland | 24.4 | 56.8 | 89.6 | 70.5 | 96.4 | 79.5 | 3.0 | 5.9 | 7.4 | 5.9 | 4.6 | 7.6 | 6.4 | 8.9 | 15.2 | 22.0 | 19.2 | 15.2 | 21.0 | 17.3 |
| Wash., D.C. | 10.0 | 30.0 | 30.0 | 30.0 | 20.0 | 25.0 | .1 | .2 | .4 | .1 | .1 | .1 | .1 | ** | | | | | | |
| Virginia | 32.1 | 119.3 | 105.0 | 107.9 | 102.9 | 102.1 | 1.6 | 5.1 | 3.1 | 2.9 | 3.0 | 3.4 | 3.4 | 3.0 | 8.4 | 7.1 | 8.0 | 8.3 | 8.0 | 8.0 |
| New England | 65.6 | 80.5 | 115.4 | 113.0 | 103.2 | 106.1 | 14.6 | 15.4 | 13.8 | 14.2 | 13.8 | 15.0 | 15.9 | 10.2 | 12.3 | 13.6 | 15.3 | 15.0 | 14.2 | 15.0 |
| Mid-Atlantic | 65.6 | 70.1 | 114.7 | 118.1 | 93.1 | 90.9 | 80.6 | 73.4 | 75.3 | 76.9 | 78.5 | 73.9 | 74.2 | 16.8 | 15.3 | 18.7 | 20.2 | 20.9 | 17.0 | 17.1 |
| Delmarva | 26.0 | 73.6 | 91.5 | 79.2 | 95.2 | 83.7 | 4.6 | 11.2 | 11.0 | 8.9 | 7.7 | 11.0 | 9.9 | 5.0 | 10.7 | 13.4 | 12.8 | 11.1 | 13.5 | 12.0 |
| Northeast | 61.3 | 71.9 | 112.2 | 113.2 | 94.7 | 92.2 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 13.9 | 14.1 | 17.1 | 18.4 | 18.6 | 16.1 | 16.0 |
| United States | 38.2 | 58.2 | 116.1 | 109.7 | 94.1 | 96.5 | *26.4 | *20.4 | *16.5 | *15.9 | *17.0 | *16.6 | *15.7 | 9.6 | 13.7 | 22.4 | 25.2 | 24.3 | 21.5 | 22.2 |

1/ Source: Computations based upon data from Milk Production, Disposition, and Income and Production of Manufactured Dairy Products, U.S. Department of Agriculture, Statistical Reporting Service. Latest revisions were used through 1966; reported data for 1967.

* Northeast as percentage of U.S. total.

** Less than 0.1 percent, not reported, or inadequate basis for computations.

Individual States may not add to totals because of rounding.

Northeast. This amount, about 40 percent of the total skim used in manufacturing in the Northeast, is less than the volume of skim resulting from the butterfat used in ice cream. Production of these two perishable products is rather stable from year to year, but varies seasonally.

Although some time-flexibility can be achieved through its use, condensing does not provide a way of storing milk solids. Condensed skim milk generally is produced for specific outlets, and is intended for use as an ingredient either in a dairy or other product (baking, etc.). The greatest end-use for condensed skim is ice cream and other frozen dairy products. It is also used to reinforce and in some instances to reconstitute fluid products.

The condensing operation primarily is done in the heavy milk-producing areas and the condensed milk then is shipped to the city for use in other products. The saving in transfer cost is significant and processors benefit from quality control aspects by using the condensed ingredient. Frequently, the condensed skim is produced to the specifications of the purchaser.

Occasional shipments of condensed skim are brought into the Northeast area from the Midwest. Such shipments are not made regularly, but do provide a means for supplementing local supplies during the short season.

Although much of the manufacturing, especially of intermediate products, is done in specialized manufacturing plants, cottage cheese and ice cream usually are considered part of the fluid distribution business. This attitude encourages efforts toward product differentiation and brand or label identification. These characteristics, combined with significant economies of scale, frequently call for the custom packaging of these items for fluid handlers by specialized manufacturing plants.

## INDIVIDUAL STATE ALLOCATIONS OF MILK TO PRODUCTS

Tables 10 through 18 compare the changes made by the individual States in the allocation of milk to different manufactured products. These tables show the milk used to produce each product as a percentage of the 1960 level of use, as a percentage of the total Northeast, and the percentage of total milk in each State used to produce that item. The tables serve to emphasize the necessity of considering changes in associated markets when considering an adjustment in any given market, whether geographical or product.

## DENSITY OF WHOLE MILK SALES BY FARMERS

Specialization seems to be the order of the day in the Northeast dairy industry. Overall, the important milk-producing areas have been increasing their share of total production while those with less production have lost ground.

One would expect groups of counties to be similar in milk production and milk sales by farmers. This indeed occurs in the Northeast as shown by figure 1. The U.S. average sales by farmers in 1965, approximately 36,000 pounds of milk per square mile, is the lowest category shown in figure 1, and encompasses a large cluster of counties in northern Maine and much of Virginia. Northeast farmers sold an average of 117,000 pounds per square mile. Figure 1 shows the distribution of (1) those counties whose milk sales per square mile are below the national average, (2) those whose sales are between the national and Northeast average, (3) those whose sales are between the Northeast average and double the average; and (4) the top category, those counties selling more than twice the Northeast average.

Table 19.--Selected characteristics of all 342 Northeast counties 1/ arrayed and grouped according to producer's milk sales per square mile 2/

| Number of counties | | 24 | 120 | 68 | 32 | 36 | 24 | 27 | 11 |
|---|---|---|---|---|---|---|---|---|---|
| | | (1965 sales per square mile, 1,000 lbs.) | | | | | | | |
| As % of 1960 base: | Unit: | Less than 1: Mean 3/ | 1-49 Mean | 50-99 Mean | 100-149 Mean | 150-199 Mean | 200-299 Mean | 300-399 Mean | 400 + Mean |
| 1965 milk sales | pct. | * | 106 | 98 | 101 | 103 | 100 | 104 | 105 |
| 1950 milk sales | pct. | * | 96 | 73 | 70 | 72 | 71 | 71 | 71 |
| 1965 population | pct. | 102 | 101 | 101 | 99 | 102 | 101 | 101 | 99 |
| 1950 population | pct. | 91 | 88 | 86 | 85 | 84 | 81 | 84 | 87 |
| 1965 number of farms | pct. | 81 | 74 | 73 | 75 | 76 | 78 | 77 | 74 |
| 1950 number of farms | pct. | 197 | 176 | 169 | 154 | 148 | 147 | 141 | 138 |
| 1965 number of farms selling milk | pct. | * | 57 | 61 | 64 | 67 | 68 | 71 | 75 |
| 1950 number of farms selling milk | pct. | * | 166 | 151 | 146 | 141 | 142 | 132 | 121 |
| 1965 number of milk cows | pct. | 38 | 71 | 81 | 84 | 89 | 87 | 91 | 93 |
| 1950 number of milk cows | pct. | 136 | 166 | 117 | 106 | 101 | 99 | 92 | 86 |
| 1950 land in farms | pct. | 120 | 134 | 129 | 119 | 116 | 114 | 109 | 105 |
| 1950 dairy sales dollars | pct. | 113 | 99 | 77 | 76 | 72 | 72 | 67 | 65 |
| --- | | | | | | | | | |
| 1960 number of people per square mile | no. | 10,157 | 300 | 380 | 223 | 211 | 210 | 132 | 285 |
| 1965 pounds milk sold per capita | lbs. | * | 428 | 1,134 | 1,203 | 2,111 | 2,830 | 4,138 | 4,972 |
| 1965 farms selling milk as percent of all farms | pct. | 1 | 8 | 20 | 30 | 33 | 44 | 51 | 57 |
| 1965 percentage of land in farms | pct. | 13 | 26 | 29 | 35 | 44 | 43 | 51 | 59 |

1/ Includes total area in the Northeast. Washington, D.C. was counted as a county; data for independent cities are included in the county data.

2/ Milk sales refer to whole milk sold by farmers as shown in the Census of Agriculture.

3/ For computation, the percentage figures were rounded for individual counties by dropping the last digit (8 = 80-89.9; 12= 120-129.9, etc.). Means throughout are expressed as simple means computed from the sum of the individual counties in each grouping.

* Inadequate basis for computation.

To measure the characteristics associated with density of milk production, we arrayed all 342 individual counties in the Northeast according to producers' 1965 milk sales per square mile (table 19). Twenty-four counties sold less than 500 pounds of milk per square mile during the year. Nine counties sold more than a half-million pounds of milk per square mile, accounting for more than 9 percent of the total Northeast sales (slightly more than 2 percent of the national total) from less than 2 percent of the Northeast land area. Forty-seven counties sold more than a quarter-million pounds of milk per square mile. These counties, selling nearly 45 percent of the Northeast total, had 7.9 percent of the Northeast population and 14.4 percent of the land area.

Counties with greater producers' milk sales per square mile averaged a lower population density, giving them a very high per capita sales. Population was much more uniform in the heavy milk-producing areas. Only five counties with fewer than 30 people per square mile and only three counties with more than 1,000 sold more than 100,000 pounds of milk per square mile. The areas of lower density milk production varied much more extremely in this measure. The greatest variability in population density occurred in areas with low-density production.

One very small county in Rhode Island, with both high milk sales and population density, disturbed the pattern in the top category. Population increased in most counties from 1960 to 1965, but there was little difference in the rate of increase as shown by this array based upon production density. Population increased less from 1950 to 1960 in the extremely low and high-density production areas than in the intermediate ranges.

Just as in the preceding 10-year period, only a slight positive relationship existed between concentration of producers' milk sales and percentage change in milk sales from 1960 to 1965. These differences also are reflected in the farm adjustments which brought about change in sales. The number of farms, the number of farms selling milk, and the percentage of land in farms decreased in all county groups. However, the high-density production areas did not decline as much in these respects as did the low-density areas where these changes were rather drastic. Naturally, a higher percentage of the farmers were selling milk in the high-density areas. Counties selling more than 200,000 pounds of milk per square mile actually increased the number of milk cows between 1950 and 1960. All county groups milked fewer cows in 1965 than in 1960 or 1950. The relationship between production density and a slower rate of decline in cow numbers was very marked during both time periods. This relationship was one of the most significant in the simple correlations comparisons.

## DISTANCE FROM METROPOLITAN AREA

The counties were classified according to distance from a metropolitan area. Groupings were made by 20-mile zones, numbered from 1 to 9; counties located beyond 180 miles were included in zone 9. Some subjectivity entered into the classification, since the intent was to describe each county in such a way as to be able to measure the effect of the metropolitan area on the dairy industry. Therefore, counties adjacent to small metropolitan areas were zoned 1 or 2, while a county 60 miles from a small metropolitan area probably would realize a greatly reduced impact and should be classed according to its distance from a major metropolitan area. Classification error in such marginal cases would be quite significant because several zones might be involved in a discontinuous description.

Table 20 summarizes the array of counties according to zone (1-9) and reveals significant differences between characteristics of counties near metropolitan areas and those farther away. Nearby counties obviously have a greater population density. Population also has been increasing (absolutely and relatively) more rapidly in the nearby zones. The differences in these measures were even greater for low-volume counties (which were arrayed separately). Population and milk

Table 20.--Group means 1/ of selected characteristics of 275 counties 2/ in the Northeast, arrayed according to distance to metropolitan area 3/.

| | Zone 1 | Zone 2 | Zone 3 | Zone 4 | Zone 5 | Zone 6 | Zone 7 | Zone 8 | Zone 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1960 milk sales, pounds per capita | 283 | 980 | 1,515 | 1,835 | 1,581 | 2,045 | 1,918 | 3,228 | 2,528 |
| 1965 milk sales, 1,000 pounds per square mile | 122 | 167 | 136 | 135 | 106 | 93 | 128 | 194 | 136 |
| 1960 population per square mile | 888 | 311 | 173 | 103 | 90 | 65 | 80 | 72 | 65 |
| 1965 farms selling milk as percent of all farms | 15 | 22 | 26 | 26 | 29 | 25 | 31 | 42 | 33 |
| 1965 percentage of land in farms | 24 | 35 | 34 | 40 | 34 | 34 | 34 | 42 | 42 |
| People-pressure index 4/ | 7.2 | 5.1 | 3.7 | 3.2 | 2.8 | 2.5 | 2.8 | 3.0 | 2.5 |
| As % of 1960 base: | | | | | | | | | |
| 1965 milk sales | 95 | 99 | 106 | 104 | 102 | 115 | 99 | 102 | 108 |
| 1950 milk sales | 105 | 80 | 73 | 63 | 60 | 60 | 66 | 72 | 67 |
| 1965 population | 106 | 103 | 100 | 100 | 99 | 97 | 98 | 99 | 98 |
| 1950 population | 70 | 80 | 84 | 86 | 92 | 96 | 93 | 89 | 93 |
| 1965 farms selling milk | 59 | 65 | 65 | 64 | 64 | 63 | 67 | 65 | 64 |
| 1950 farms selling milk | 196 | 155 | 146 | 134 | 128 | 140 | 155 | 138 | 134 |
| 1965 number of milk cows | 76 | 81 | 84 | 85 | 89 | 82 | 81 | 85 | 84 |
| 1950 number of milk cows | 133 | 116 | 110 | 111 | 102 | 112 | 109 | 107 | 115 |
| 1965 land in farms | 81 | 83 | 83 | 84 | 84 | 83 | 83 | 85 | 87 |
| 1950 land in farms | 137 | 126 | 124 | 116 | 114 | 122 | 124 | 116 | 117 |

1/ Means are expressed as a simple average of the sum of the individual counties in each zone. For computation the percentage figures were rounded for individual counties by dropping the last digit (8=80-89.9, etc.).

2/ Counties with less than 5,000,000 pounds of whole milk sold by farmers in 1965 were not included.

3/ Distance to metropolitan area expressed in 20-mile zones with zone 9 including all counties beyond 180 miles. (See discussion in the first paragraph under this heading.)

4/ See page 39 for discussion of this measure.

production characteristics deviated as population density jumped in the 7th zone and milk production density dropped in zones 5 and 6. Per capita milk production reflected these deviations.

Adjustments related to dairying also varied according to distance from a metropolitan area. A higher proportion of farms sell milk, and the rate of decline in the number of farms selling milk has been slower in the more distant counties. Milk cow numbers have declined more rapidly in nearby counties.

The combined effect of these differences has been such that the nearby counties have actually decreased milk sales while counties in other zones have increased sales. Not only are per capita sales of milk to plants much greater in the distant zones (except for the deviations mentioned), but the difference has been increasing.

To note the effect of production density within given distances from metropolitan areas, the counties within the zone groups were further subdivided according to density of milk production. Within these groupings, there was a positive relationship between production density and change in production up to about 120 miles, where the relationship became slightly negative. This relationship was also true for those characteristics describing intent to adjust production: farms selling milk, number of milk cows, and percentage of land in farms. These adjustments were more distinct in the 1950-60 period than in 1960-65.

## PEOPLE PRESSURE AFFECTS THE NORTHEAST DAIRY INDUSTRY

The people-versus-cows competition for space occupancy and land use appears to be one of the relevant issues influencing production trends in the Northeast. Traditionally, fluid milk production developed near the consuming areas because of shipping costs and the perishable nature of milk. However, improved production and shipping methods have given milk longer life and greater transportability at the same time that farms near cities have felt the brunt of higher production costs, especially through competition for land and labor. Producers have complained that they are unable to compete with these metropolitan pressures. Proximity to market, the factor which once gave market milk producers such an advantage, may prove to be just as potent a disadvantage.

We developed a people-pressure index to describe the competitive pressure of people upon an area's milk-producing capability. The index represents an effort to combine several factors into one measure. They are: population per square mile, change in population, nearness to metropolitan area, availability of off-farm employment, and the availability of farmland in the county capable of absorbing the increasing pressure from people without displacing farms. This measure is somewhat subjective and proper weighting is difficult. There is also considerable fluctuation within a given county. Nevertheless, an index ranging from 1 to 9 was developed for each county in the Northeast. The lowest people-pressure value was assigned a rating of 1 and the greatest a rating of 9. The 275 counties where producers sold at least 5 million pounds of milk in 1965 were then arrayed from the lowest to the highest people-pressure index.

Table 21 shows this array and the mean values for selected characteristics of the counties with each assigned people-pressure value. Some of the characteristics representing a component of the index are of necessity related to the index. These characteristics add to the validity of describing and classifying production areas in an effort to identify and weight relevant variables.

Population density varied from a mean of 29 people per square mile for the counties in the low people-pressure group to 1,333 per square mile in the group of counties with the greatest

Table 21.--County means 1/ of selected characteristics of 275 Northeast 2/ counties, arrayed and grouped according to their relative people-pressure index 3/

| | People-pressure index | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Number of counties | 20 | 75 | 49 | 47 | 25 | 17 | 17 | 14 | 11 |
| Distance to metropolitan area (20 mile units) | 7.7 | 6.1 | 5.8 | 4.7 | 4.0 | 3.2 | 1.6 | 1.3 | 1.3 |
| Deficit or surplus index | 4.5 | 6.1 | 6.8 | 6.1 | 5.7 | 4.8 | 3.1 | 2.1 | 1.4 |
| Milk production area index | 2.4 | 3.4 | 5.4 | 5.5 | 6.0 | 4.5 | 4.1 | 2.9 | 2.4 |
| Milk manufacturing area index | 2.9 | 4.0 | 5.7 | 5.6 | 4.4 | 3.6 | 2.8 | 1.9 | 1.8 |
| 1960 population per square mile | 29 | 46 | 80 | 128 | 280 | 272 | 630 | 1,046 | 1,333 |
| 1960 per capita milk sales, pounds | 1,459 | 2,225 | 2,452 | 2,052 | 1,252 | 975 | 255 | 160 | 93 |
| 1965 density of milk sales, 1000 pounds per square mile | 38 | 90 | 166 | 194 | 234 | 154 | 123 | 93 | 126 |
| 1965 percentage of land in farms | 21 | 43 | 42 | 39 | 40 | 27 | 24 | 20 | 11 |
| 1965 farms selling milk as percentage of all farms | 22 | 23 | 35 | 33 | 32 | 28 | 21 | 12 | 14 |
| 1960 farms selling milk as percentage of all farms | 28 | 29 | 39 | 36 | 35 | 30 | 22 | 16 | 16 |
| 1950 farms selling milk as percentage of all farms | 23 | 24 | 36 | 34 | 33 | 28 | 19 | 16 | 14 |
| 1965 farms selling milk as percentage of 1960 | 63 | 65 | 66 | 66 | 66 | 62 | 56 | 56 | 63 |
| 1950 farms selling milk as percentage of 1960 | 159 | 135 | 138 | 142 | 142 | 150 | 171 | 197 | 237 |
| 1965 dairy sales (dollars) as percentage of livestock sales | 48 | 43 | 54 | 55 | 58 | 54 | 46 | 47 | 42 |
| 1965 dairy sales (dollars) as percentage of farm sales | 32 | 30 | 42 | 41 | 40 | 34 | 26 | 25 | 21 |
| 1965 livestock sales (dollars) as percentage of farm sales | 62 | 65 | 73 | 71 | 64 | 61 | 53 | 50 | 48 |
| 1950 farm product dollar sales as percentage of 1960 | 75 | 72 | 72 | 75 | 78 | 83 | 81 | 101 | 105 |
| As % of 1960 base: | | | | | | | | | |
| 1965 population | 96 | 98 | 100 | 101 | 100 | 105 | 106 | 110 | 103 |
| 1950 population | 98 | 93 | 87 | 86 | 80 | 78 | 71 | 68 | 73 |
| 1965 land in farms | 86 | 86 | 85 | 84 | 84 | 78 | 79 | 81 | 78 |
| 1950 land in farms | 136 | 115 | 116 | 119 | 114 | 122 | 134 | 148 | 168 |
| 1965 milk sales | 124 | 105 | 102 | 105 | 101 | 95 | 93 | 87 | 105 |
| 1950 milk sales | 67 | 63 | 67 | 71 | 76 | 77 | 82 | 105 | 145 |
| 1965 per capita milk sales | 124 | 112 | 97 | 100 | 96 | 86 | 84 | 76 | 97 |
| 1950 per capita milk sales | 66 | 64 | 73 | 108 | 93 | 97 | 148 | 160 | 205 |
| 1965 number of farms | 74 | 78 | 74 | 75 | 74 | 71 | 69 | 72 | 76 |
| 1950 number of farms | 176 | 148 | 147 | 154 | 150 | 165 | 172 | 199 | 233 |

1/ Means are expressed as a simple average, derived from the sum of the individual counties in each grouping. For computation the percentage figures for the individual counties were rounded by dropping the last digit (8=80-89.9, 12=120-129.9, etc.).

2/ Omitted 67 counties selling less than 5 million pounds of milk in 1965. The low-volume group was extremely variable. These 67 excluded counties sold a total of only 91 million pounds of milk in 1965.

3/ An index combining population density and change, distance to metropolitan area, job alternatives, and ability of the county to absorb increasing pressure from people without displacing farms. The index scale ranges from 1 to 9 (1 is the lowest and 9 the greatest people-pressure rating).

pressure index. Many of the cities were omitted from this comparison because they were in the low-volume sales group. Counties classified with higher people-pressure indices had greater percentage population gains, both from 1950 to 1960 and from 1960 to 1965.

Counties with high people-pressure indices are located nearer metropolitan areas. The nearness factor is important because together with a greater population density which has been increasing at a greater- than-average rate, alternative employment is more readily available. Land prices and taxes have risen more for these nearby areas. Land is also subject to more alternative nonfarm uses. In addition to these positive checks, areas with a high people-pressure index located near cities experience negative checks such as traffic, public nuisance factors, trespassing, complaints, zoning restrictions, etc.

Considering the combined influence of these positive and negative restraints, we compared the production characteristics of the counties as grouped from low to high according to their people-pressure index.

Every group of counties classified according to the people-pressure index showed an increase from 1950 to 1960 in the percentage of farms selling milk. Every group also had a decrease from 1960 to 1965; only one group (index of 7) showed an increase from 1950 to 1965. Counties with a higher people-pressure index had less of their total land area in farms and had a greater decrease in the total number of farms and percentage of land in farms between 1950 to 1960 than did the counties with a lower index. The same trends continued through 1965. Despite the historical consideration of distance to market being important for market milk production, the high index counties received a smaller proportion of total farm sales dollars from dairy and livestock than did the counties with intermediate and lower indexes.

The counties with intermediate people-pressure ratings had the higher indexes for milk production area, milk manufacturing area, density of producers' milk sales per square mile, deficit-surplus area, and per capita milk sales by farmers. Each of these measures increased with the index in the lower people-pressure areas, reached an early peak, and then declined as the pressure index rose.

As the people-pressure index rose, the producers' milk sales increased at a slower rate over time, with sales even falling in the higher ranges. This relationship held in both periods, 1950-60 and 1960-65.

The combined effects of rising population and declining--or smaller gains in--producers' milk sales are evident in the marked decline in per capita sales of milk as the people-pressure index rose. Per capita sales of milk were not only lower in counties with high indexes, but the difference also became progressively greater from 1950 to 1960, continuing through 1965. This was one of the more marked and consistent differences noted, and implies that with these changes more milk must be transported farther and that less is available for manufacturing in the immediate areas with higher indexes. The effect upon plant location and industry structure could be dramatic.

Thirty-three Northeast counties and the District of Columbia had a population density greater than 1,000 people per square mile in 1960. Farmers in seven of these counties (five of which were partial recoveries from severe decreases during the preceding 10-year period) increased annual milk sales between 1960 and 1965 by a total of 27 million pounds. Producers in the other 27 decreased sales by 91 million pounds for a net loss of 65 million pounds of milk sales by these heavily populated areas. Since 1950, farmers in these counties have decreased milk sales by 118 million pounds, a drop of more than 12 percent. In the course of a year, these counties produced only enough milk to meet their fluid needs for a single week.

These 34 city-counties have experienced a marked population growth, although the percentage gain has been lower than for the total Northeast. Their total population increased from 22.8 million in 1940 to 25.6 million in 1950, 28.6 in 1960, and an estimated 30.0 in 1965, an increase of 7.2 million in 25 years. About 4.4 million of this gain occurred between 1950-65, and 1.4 million during the last 5 years of the period.

Twenty-two city-counties had a population density greater than 1,500 per square mile. The 22 counties, with 1.9 percent of the Northeast land area, accounted for 38.8 percent of the population but only one-half of 1 percent of the milk sold by farmers (50 percent of this was from one county).

The growing population of the city-counties increases the need to ship fluid milk into these large consuming centers. Table 22 summarizes the rise in population, decrease in milk sales from farms, and the need for greater inshipments of milk because of the first two changes. This increase from the 1940 need for inshipments amounts to nearly 1,000 additional tank-truck loads per week.

Expansion of milk production areas adjacent to or nearby the metropolitan areas generally is limited by terrain, population, regulations, or competition. A farm in the nearby area that discontinues milk production often cannot be replaced by another located a few miles farther from the city. Rather, the replacement will need to be added in the outer portion of the milkshed or even by extending the outer limits of the milkshed. In the Northeast, where milksheds are relatively close, such extension may lead to or increase the overlap of procurement areas.

Table 22.--Milk sales by farmers; population; per capita milk sales; and volume of milk needed to provide 310 pounds of milk per capita 1/ for 34 "city-counties" 2/ in the Northeast, selected years

| Year | Sales of milk by farmers | Population | Per capita sales of milk by farmers | Milk inshipments needed to supply inhabitants with 310 pounds per year per person |
|---|---|---|---|---|
| | Million pounds | Thousand persons | Pounds | Million pounds |
| 1965.. | 776 | 29,979 | 26 | 8,517 |
| 1960.. | 841 | 28,570 | 29 | 8,016 |
| 1950.. | 894 | 25,614 | 35 | 7,046 |
| 1940.. | 910 | 22,774 | 40 | 6,150 |

1/ Approximate U.S. average annual per capita consumption of fluid milk during the time period.

2/ Counties with population greater than 1,000 per square mile in 1960. Independent cities in Virginia were included in the county as listed in the Census of Agriculture or in the county with which they had been associated. Baltimore, Md. was combined with Baltimore County. Washington, D.C. is included as one county.

Plants located in the city-counties have extended their distribution areas, thus adding to the volume of milk that must be shipped into these areas from the surrounding milkshed. The size of this increase was not measured, although it is important.

## CHANGES IN MILK SALES—1960 TO 1965

Counties in the Northeast are shown in figure 2 according to the change in sales of milk by farmers between 1960-65. Counties that increased milk sales and counties that decreased sales tended to be grouped together. Virginia counties with gains and losses of milk sales tended to be more interspersed than in the other States.

On the supply side, there were rather extreme differences in the way the various counties responded to the changing conditions of supply and demand. In an effort to differentiate between types and degrees of response and to associate these responses with various factors, we arrayed the counties according to 1965 milk sales as a percentage of 1960 sales. Group means of selected characteristics for this array are summarized in table 23.

Counties where producers sold less than 5 million pounds of milk in 1965 were considered a separate low-volume group (group I). Changes were rather erratic and volatile in these low-volume counties because one or two farms could cause considerable percentage differences. Total milk sales by this group of 67 counties were only 91 million pounds in 1965. Dairying has declined rather drastically in these counties. Only 40 percent as many farms were selling milk in these counties in 1965 as in 1960. Only nine of this group had more farms selling milk in 1960 than in 1950. Fourteen of the low-volume counties sold more milk in 1965 than in 1960. This group also showed extreme variation in population and related measures.

The counties selling more than 5 million pounds of milk in 1965 were divided into groups:

Group II-Below 90: indicating 1965 sales less than 90 percent of 1960. These 59 counties (referred to hereafter as decreasers) sold a total of 2,559 million pounds of milk in 1965.

Group III-90-99: indicating a decrease in sales, but still within 10 percentage points of 1960. Total milk sales by these counties (hereafter referred to as stable) in 1965 was 3,744 million pounds.

Group IV-100-109: indicating up to a 10 percent increase in sales. Farmers in these counties (hereafter referred to as stable) sold 8,732 million pounds of milk in 1965.

Group V-110+: indicating more than a 10 percent increase in sales over 1960. Milk sales by these counties (referred to hereafter as increasers) totaled 10,058 million pounds.

We discussed this grouping under the heading of decreasers (group II), stable (groups III and IV), and increasers (group V). How did these groups differ in characteristics which might cause a change in milk sales, or be associated with such a change?

The extent of adjustment in milk production and sales is quickly apparent by noting that the mean percentage index for the 59 decreasers was 74, while that for the 108 increasers was 128. The average drop by the decreasers was about one-fourth their 1960 sales. Mean sales by the individual counties classed as increasers had gone up by more than one-fourth--a substantial increase for 5 years, considering the volume of milk involved.

Each of the groups had, on the average, increased sales during the preceding 10-year period (1950-1960). However, the mean change in sales between 1960-65 was inversely related to the

Table 23.--County means 1/ for selected characteristics of the 342 counties in the Northeast grouped 2/ by rates of change in milk sales by producers, expressed in terms of 1965 milk sales as a percentage of 1960 milk sales

| | Low-volume | 1965 milk sales as a percentage of 1960 milk sales | | | |
|---|---|---|---|---|---|
| | | Below 90 | 90-99 | 100-109 | 110 + |
| Number of counties | 67 | 59 | 46 | 62 | 108 |
| **As % of 1960 base:** | | | | | |
| 1965 milk sales 3/ | 66 | 74 | 90 | 100 | 128 |
| 1950 milk sales 3/ | 121 | 68 | 72 | 72 | 80 |
| 1965 number of farms selling milk 3/ | 37 | 52 | 62 | 65 | 71 |
| 1950 number of farms selling milk 3/ | 126 | 156 | 143 | 139 | 154 |
| 1965 number of milk cows | 55 | 74 | 81 | 88 | 86 |
| 1965 land in farms 3/ | 71 | 81 | 83 | 84 | 86 |
| 1965 number of farms 3/ | 76 | 71 | 75 | 75 | 77 |
| 1965 farm product sales 3/ | 92 | 94 | 97 | 104 | 114 |
| 1965 dairy sales 3/ | 67 | 78 | 93 | 104 | 136 |
| ...UNITS... | | | | | |
| 1965 producers' milk sales, million pounds | 1 | 43 | 81 | 141 | 93 |
| 1960 pounds of milk sold per capita | 168 | 917 | 1,756 | 2,329 | 1,764 |
| 1965 milk sold per square mile, 1,000 pounds | 5 | 73 | 126 | 210 | 139 |
| 1960 population per square mile | 3,972 | 337 | 282 | 218 | 180 |
| 1965 farms selling milk as percentage of all farms 3/ | 1 | 21 | 34 | 40 | 30 |
| 1965 percentage of land in farms 3/ | 21 | 28 | 35 | 39 | 38 |
| 1965 dairy sales (dollars) as percentage of livestock sales 3/ | 15 | 40 | 53 | 59 | 49 |
| 1965 dairy sales (dollars) as percentage of total farm sales 3/ | 5 | 24 | 38 | 45 | 33 |
| 1965 livestock sales as percentage of total farm sales 3/ | 33 | 58 | 65 | 71 | 65 |
| Distance to metropolitan area 4/ (20 mile units) index | 3.9 | 4.3 | 4.5 | 5.1 | 5.2 |
| Milk-producing area index 5/ | 1.1 | 2.8 | 4.6 | 5.6 | 4.4 |
| Deficit or surplus area index 6/ | 2.0 | 3.9 | 5.4 | 6.2 | 5.8 |
| Manufacturing area index 7/ | 1.5 | 2.4 | 4.6 | 5.0 | 4.7 |
| People-pressure index 8/ | 4.2 | 4.4 | 4.0 | 4.0 | 3.4 |

1/ Means for each grouping are expressed as simple averages of the values for individual counties. The means do not indicate weighted values for the groups.

2/ The five groupings were made as follows:
(1) Low-volume counties: Each sold less than 5 million pounds of milk in 1965.
(2) Below 90 percent: Sales by each of these counties in 1965 were less than 90 percent of their 1960 milk sales.
(3) 90-99: In 1965, each of these counties sold 90 to 99.9 percent of their 1960 milk sales.
(4) 100-109: In 1965, each of these counties sold 100 to 109.9 percent of their 1960 milk sales.
(5) 110 + : In 1965, each of these counties sold more than 110 percent of their 1960 milk sales.

3/ For computation, the percentage comparisons for the individual counties were rounded by dropping the last digit of the percentage value (e.g., 94 percent = 9; 128 percent = 12; etc.).

4/ Distance to metropolitan area ranges from 1 to 9 in 20 mile units. An index of 9 indicates the county lies 180 or more miles from a metropolitan area.

5/ Milk-producing area index ranges from 1 to 9. The larger index signifies that the county is in a heavy milk production area.

6/ Surplus or deficit index varies from 1 to 9, with 5 indicating a per capita milk sales equal to the national average. Below 5 indicates a deficit, with the greatest deficit shown as 1. Above 5 indicates a progressively larger surplus with the greatest surplus shown as 9.

7/ The manufacturing area index varies from 1 to 9. Counties in heavy milk-manufacturing areas were assigned a higher index.

8/ People-pressure index varies from 1 to 9. Counties with a low population pressure were assigned a low index. Heavily pressured counties were assigned a high index. See page (39) for this index.

percentage increase during 1950-60. The 1960-65 decreasers (group II) had increased about 4 percentage points more than the stable groups (groups III, IV) during 1950-60, while the 1960-65 increasers (group V) had increased (1950-60) about 8 points less than the stable group. This changing pattern suggests that counties adjust production by spurts, overadjusting, then consolidating or even reversing the adjustment before moving into another major adjustment period. This same pattern of adjustment was evident in the individual county data.

The decreasers sold less milk, in total, per square mile, and on a per capita basis, than either the stable groups or the increasers. The stable counties with a slight increase were the highest in all of these categories on an average basis.

Population density and the people-pressure index were significantly lower as the 1965:60 ratio of milk sales increased. The distance-to-metropolitan-area index was related positively to the change in sales. These relationships indicate that metropolitan areas and suburbs tend to usurp much of the nearby land formerly used for dairying.

Several of the characteristics compare the relative importance of dairying in the different groups of counties. As counties increased farmers' milk sales in 1965 in comparison with 1960 sales, the number of farms selling milk declined more slowly. So, too, did the number of farms, the percentage of land in farms, and the number of milk cows. Since these are the adjustments that effect a change in milk production, these relationships could be expected. However, they do emphasize that the expected results were brought about by conscious adjustments on the part of farmers.

The stable sales groups, and especially those that gained slightly in sales, tended to have higher mean values for dairy sales as a percentage of total livestock sales and as a percentage of total farm sales. Livestock sales as a percentage of total farm sales also were higher in these groups.

## SIMPLE CORRELATIONS OF SELECTED CHARACTERISTICS

The degree to which any single variable can explain fluctuation in another variable which measures change of production, inputs, population, and similar characteristics is limited. Interaction of many variables brings about these changes. The ability to respond to change varies extremely, as does the advisability of attempting to adjust.

Despite the relatively low simple correlations, certain relationships do offer some explanation of these changes. Table 24 presents a listing of simple correlations between several characteristics used to describe the counties. Some of the variables are mutually related or contrasted by definition, therefore the correlation measure will be very high or low. However, we have shown the measure in each case so that the reader may better interpret the meaningful measures.

The correlation measure in table 24 shows a low but positive relationship between variables 2 and 3, indicating a negative relationship between changes in sales of milk during the two time periods. However, only 12 counties, all with relatively small sales volumes, decreased sales during both time periods. The great majority increased production and sales from 1950 to 1960. The negative relationship between changes is more a matter of degree of adjustment than of reversing directions. Examination of the individual county data strongly suggests over-adjustment during one period, followed by a period of reconciling to the change--adjustment came in spurts.

Although the correlation between change in milk sales from 1960 to 1965 is low when measured against the other characteristics, some are useful for this measure. The correlation with the change in percentage of land in farms over the same time period was 0.30. This is strengthened

Table 24.--Simple correlation coefficients */ between selected characteristics influencing milk production in 261 Northeast counties **/

| Variable: ***/ | 1 | 2 | 3 | 7 | 8 | 9 | 10 | 15 | 17 | 18 | 19 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | --- | -0.17 | 0.49 | 0.14 | 0.79 | 0.43 | -0.59 | -0.21 | -0.08 | 0.37 | -0.12 | -0.26 | -0.27 | 0.34 |
| 2..... | -.17 | --- | .24 | .11 | -.20 | -.22 | .24 | .24 | .50 | .07 | .09 | .12 | .30 | -.11 |
| 3..... | .49 | .24 | --- | -.03 | .46 | .16 | -.31 | -.13 | .03 | .66 | .00 | -.04 | -.17 | .42 |
| 4..... | -.31 | .15 | -.10 | .60 | -.35 | -.23 | .27 | .17 | .39 | -.24 | .74 | .40 | .20 | -.33 |
| 5..... | -.27 | .96 | .19 | .08 | -.24 | -.47 | .42 | .25 | .50 | .01 | .14 | .11 | .31 | -.14 |
| 6..... | .62 | .05 | .88 | -.04 | .53 | .50 | -.66 | -.18 | -.07 | .63 | -.12 | -.33 | -.22 | .43 |
| 7..... | .14 | .11 | -.03 | --- | -.06 | .00 | -.09 | .09 | .43 | -.20 | .69 | .53 | .23 | -.36 |
| 8..... | .79 | -.20 | .46 | -.06 | --- | .23 | -.42 | -.11 | -.17 | .38 | -.26 | -.31 | -.21 | .44 |
| 9..... | .43 | -.22 | .16 | .00 | .23 | --- | -.78 | -.13 | -.22 | .18 | -.26 | -.04 | -.18 | .15 |
| 10..... | -.59 | .24 | -.31 | -.09 | -.42 | -.78 | --- | .18 | .18 | -.30 | .18 | .14 | .17 | -.23 |
| 11..... | .04 | .08 | .03 | .56 | -.09 | -.11 | .02 | .03 | .44 | -.10 | .76 | .07 | .03 | -.07 |
| 12..... | -.09 | .09 | .02 | .59 | -.24 | -.18 | .13 | .02 | .46 | -.19 | .89 | .07 | .02 | -.13 |
| 13..... | -.22 | .08 | -.06 | .32 | -.34 | -.19 | .23 | .01 | .26 | -.23 | .60 | -.01 | -.01 | -.10 |
| 14..... | -.41 | .18 | -.03 | .54 | -.53 | -.27 | .31 | .21 | .42 | -.43 | .65 | .52 | .28 | -.51 |
| 15..... | -.21 | .24 | -.13 | .09 | -.11 | -.13 | .18 | --- | .30 | -.18 | .08 | .35 | .66 | -.08 |
| 16..... | .34 | -.15 | .45 | -.33 | .46 | .24 | -.29 | -.08 | -.24 | -.53 | -.20 | -.60 | -.33 | .86 |
| 17..... | -.08 | .50 | .03 | .43 | -.17 | -.22 | .18 | .30 | --- | .07 | .46 | .26 | .35 | -.22 |
| 18..... | .37 | .07 | .66 | -.20 | .38 | .18 | -.30 | -.18 | .07 | --- | -.22 | -.40 | -.19 | .53 |
| 19..... | -.12 | .09 | .00 | .69 | -.26 | -.26 | .18 | .08 | .46 | -.22 | --- | .18 | .09 | -.23 |
| 20..... | -.14 | .02 | -.02 | .65 | -.25 | -.26 | .18 | .13 | .34 | -.25 | .98 | .17 | .09 | -.19 |
| 21..... | -.10 | .06 | .06 | .69 | -.24 | -.24 | .14 | .11 | .40 | -.12 | .95 | .23 | .13 | -.25 |
| 22..... | -.26 | .12 | -.04 | .53 | -.31 | -.04 | .14 | .35 | .26 | -.40 | .18 | --- | .54 | -.67 |
| 23..... | -.27 | .30 | -.17 | .23 | -.21 | -.18 | .17 | .66 | .35 | -.19 | .09 | .54 | --- | -.29 |
| 24..... | .34 | -.11 | .42 | -.36 | .44 | .15 | -.23 | -.08 | -.22 | .53 | -.23 | -.67 | -.29 | --- |
| 25..... | -.61 | .09 | -.30 | .02 | -.54 | -.36 | .50 | .17 | .08 | -.26 | .32 | .20 | .20 | -.21 |
| 26..... | -.15 | .35 | -.24 | .45 | -.22 | -.20 | .17 | .25 | .46 | -.25 | .52 | .15 | .24 | -.15 |
| 27..... | .13 | -.17 | .37 | -.57 | .29 | .17 | -.11 | .00 | -.42 | .41 | -.57 | -.23 | -.13 | .43 |

*/ Coefficients equal to or greater than 0.13 are significant at the 5-percent level; equal to or greater than 0.16 are significant at the 1-percent level.

**/ The 67 counties in which farmers sold less than 5 million pounds of milk and 14 counties with an inadequate basis for computing these relationships were omitted.

***/ The variables included in this matrix are identified by number:

1=people-pressure index (1-9)
2=1965 milk sales as a percentage of 1960 milk sales (increase = 100+)
3=1950 milk sales as a percentage of 1960 sales (increase = below 100)
4=pounds of milk sold per capita, 1960
5=1965 per capita sales of milk as percentage of 1960 per capita sales
6=1950 per capita sales of milk as percentage of 1960 per capita sales (increase = below 100)
7=sales density 1,000 pounds milk sales per square mile, 1965
8=population per square mile, 1960
9=1965 population as a percentage of 1960 population (increase = 100+)
10=1950 population as a percentage of 1960 population (increase = below 100)
11=dairy sales dollars as percentage of total livestock sales dollars, 1965
12=dairy sales dollars as percentage of total farm product sales dollars, 1965
13=livestock sales dollars as percentage of total farm product sales dollars, 1965
14=deficit or surplus milk sales to population (1-9 index; degree of surplus indicated by 6-9; below 5 = degree of deficit)
15=number farms, 1965 as percentage of 1960
16=number farms, 1950 as percentage of 1960
17=number farms selling milk, 1965 as percentage of 1960
18=farms selling milk, 1950 as percentage of 1960
19=farms selling milk as percentage of all farms, 1965
20=farms selling milk as percentage of all farms, 1960
21=farms selling milk as percentage of all farms, 1950
22=percentage of land in farms, 1965
23=percentage of land in farms, 1965 as percentage of 1960
24=percentage of land in farms, 1950 as percentage of 1960
25=distance to influencing metropolitan area (20-mile zones)
26=number of milk cows, 1965 as percentage of 1960
27=number of milk cows, 1950 as percentage of 1960

farmers adjust in response to a changing situation. In view of such adjustments, it is surprising that the correlation coefficient was so low. The measure for New England is nearer to that expected. The unanswered question is, "What, besides the change of inputs shown, caused milk sales to change?"

Certain resource adjustments had a much lower correlation with change in milk sales than expected. Other measures suggested that the percentage of farm income resulting from sales of milk products and the percentage of land in farms would be related to change in sales. This was not the case. The simple correlations for these variables were very close to zero in all State, subregional, and regional comparisons. Significant simple correlations, but lower than expected, were the changes in number of cows, number of farms, and number of farms selling milk, as related to changes in milk sales.

Supply response to economic, social, and physical stimuli is a set of complex and differentiated reactions. Farmers in each area tend to respond in such a manner as to maximize their expected benefits. These comparisons are an effort to suggest various stimuli and to measure the degree of influence of these stimuli upon milk sales.

Simple correlation coefficients show several inconsistencies. Reducing the comparison from the 12-State area to more homogeneous areas tended to increase the correlations and to reduce the inconsistencies. Responses made by counties in smaller geographical comparisons to a specified change were more consistent than those made by larger areas.

## MULTIPLE CORRELATION OF SELECTED CHARACTERISTICS

The Northeast is an heterogeneous area, varying from densely populated large metropolitan areas to sparsely populated timberland. Fertile, highly productive farms generally are found in clusters located at varying distances from the metropolitan areas and the more rugged terrain.

Dairy farmers vary their response to a stimulus depending upon the situation. We cannot hope to explain changes in milk production fully by means of a single variable or even a group of variables. However, we can improve our understanding of such changes by comparing the measures of correlation between various factors and the change in milk production or sales.

Obviously, as shown by the simple correlations, milk production varies as farmers change inputs. However, these relationships do not explain what conditions might be expected to bring about the change in inputs. Therefore, we first consider the relationship of change in milk sales to selected factors observable without directly measuring the current change in level of specific farm inputs for milk production. These relationships can be used to estimate the expected effect on milk production with given changes in the basic input factors.

The multiple correlation of six such factors with the change in milk sales in 261 Northeast counties was 0.49. (The 67 counties in which producers sold less than 5 million pounds of milk as well as 14 counties having an inadequate basis for computing multiple correlation for all the independent variables were omitted). For 183 counties in which farmers had changed milk sales less than 20 percent, the correlation was only 0.40, while it was 0.68 for the 78 counties that changed 20 percent or more (excepting, in all cases, the counties just mentioned). Each of these correlation coefficients is highly significant. The independent variables and their identifying numbers are: people-pressure index (1), 1950 milk sales as percentage of 1960 sales (3), 1,000 pounds of milk sold per square mile in 1965 (7), population per square mile 1960 (8), 1965 population as percentage of 1960 (9), distance to metropolitan area in 20-mile zones (25).

Omitting the people-pressure index (1), the multiple correlation of the five independent variables with change in producers' milk sales was 0.56 for the 10-year period 1950-60, but only 0.34 for the 5-year period 1960-65 (variables no. 10 and 21 were used for the 1950-60 period in place of no. 9 and 20). Both measures were highly significant.

The multiple correlation was computed between changes in selected agricultural factors and the change in milk sales 1960-65. Percentage changes in nine agricultural factors were used as independent variables. These factors expressed as a percentage of their 1960 value, were:

1950 milk sales (3)
1965 number farms (15)
1950 number farms (16)
1965 farms selling milk (17)
1950 farms selling milk (18)
1965 percentage of land in farms (23)
1950 percentage of land in farms (24)
1965 number milk cows (26)
1950 number milk cows (27)

Y = 1965 milk sales by farmers as percentage of 1960 (2)

The multiple correlation of 0.64 was highly significant, although lower than might be expected. The standard error of estimate of 16.42 was relatively large.

There was considerable regional difference in the relationship between the independent variables and the change in milk sales.

| Region | Multiple correlation | Standard error of estimate |
|---|---|---|
| New England | 0.859 | 11.59 |
| Northern New England | .805 | 11.89 |
| Southern New England | .987 | 5.57 |
| Mid-Atlantic | .673 | 11.60 |
| South Atlantic | .672 | 21.65 |
| Total Northeast | .640 | 16.42 |

The correlation was highly significant in each region. New England, and especially Southern New England, showed consistently higher simple correlations between the individual independent variables and the dependent than did the other parts of the Northeast. We recognize the existence of intercorrelation between the various "independent" variables in each of these comparisons.

The following tabulation shows the mean deviation of the percentage change in milk sales by farmers for counties within each of the States, compared with the regression line for the total Northeast:

$$D = \frac{\Sigma(L - C)}{N}$$

Where D is the State mean deviation from the line of regression for counties in each State, L is the line of regression for the entire Northeast, (L-C) is the actual deviation by each county from the Northeast regression line, and N is the number of counties considered in the State.

| State | Simple mean deviation of counties in State from line of regression |
|---|---|
| Maine | 4.07 |
| New Hampshire | 4.02 |
| Vermont | -4.16 |
| Massachusetts | .12 |
| Rhode Island | -12.79 |
| Connecticut | -6.91 |
| New York | -4.39 |
| New Jersey | -12.97 |
| Pennsylvania | .17 |
| Delaware | -14.73 |
| Maryland | 1.75 |
| Virginia | 8.07 |
| Northeast | 0.0 |

This is simply a comparison of the change in milk sales by farmers in 1960-65 in response to observed change in certain agricultural variables. Comparatively, sales were more positively responsive to these changes in Virginia and most negatively responsive in Delaware, New Jersey, and Rhode Island.

## MILK SALES 1950-60

To further describe conditions leading to change, the counties were arrayed according to the change in milk sales from 1950 to 1960. The highest percentages were listed first. A high percentage figure here (over 100) means that farmers in the county sold more milk in 1950 than in 1960, hence were decreasing sales over this time period.

Table 25 shows that county groups having increased milk sales from 1950 to 1960 tended to reduce sales during the 5-year period 1960-65. On the other hand, the groups with decreased sales between 1950 to 1960 increased their sales in the 1960-65 period. Generally, the extremes in changes were made by rather small-volume counties.

As the 1950:60 ratio of milk sales declined, the pounds sold per person tended to increase for the county groupings, reaching a peak of 2,180 pounds per person as the mean for that group of counties whose 1950 sales were 70-79 percent of 1960 sales. Below this ratio the per capita sales declined. The density of milk sales per square mile followed a pattern similar to the per capita sales. Sales per square mile by the county groups built up to a peak of 190,000 pounds as the mean for counties selling 90-99 percent as much milk in 1950 as in 1960. Below this, the milk density tended steadily downward as the ratios became lower.

Population density was high in counties with large percentage declines in milk sales from 1950 to 1960. The declining ratio of 1950 to 1960 milk sales was accompanied by a significant decline in population density. However, the 1950 county population as a percentage of 1960 increased as the sales ratio decreased, indicating a greater percentage population increase in counties where milk sales were declining. The people-pressure index was progressively lower in counties with a lower ratio of 1950 to 1960 sales. These measures suggest that milk cows indeed were being crowded out by people, especially in areas of greater population density.

Table 25.--Group means of selected characteristics of Northeast counties grouped according to the change in milk sales by farmers, 1950-60*

| | Low-volume | 1950 milk sales as a percentage of 1960 sales 1/ | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 150 + | 120-149 | 110-119 | 100-109 | 90-99 | 80-89 | 70-79 | 60-69 | 50-59 | Below 50 |
| | Simple means for counties in group: Not weighted averages 2/ | | | | | | | | | | |
| Number of counties | 67 | 10 | 8 | 8 | 14 | 22 | 41 | 66 | 44 | 34 | 28 |
| 1950 milk sales as percentage of 1960 | 125 | 193 | 131 | 110 | 100 | 90 | 80 | 70 | 60 | 50 | 32 |
| 1965 million pounds of milk sold | 1 | 14 | 35 | 22 | 48 | 110 | 135 | 117 | 96 | 79 | 38 |
| 1965 milk sales as percentage of 1960 | 66 | 145 | 149 | 105 | 130 | 100 | 100 | 98 | 99 | 97 | 94 |
| 1960 pounds milk sold per capita | 168 | 150 | 142 | 256 | 844 | 2,080 | 2,066 | 2,180 | 1,794 | 1,650 | 1,473 |
| 1965 pounds milk sold per square mile (1,000 pounds) | 5 | 28 | 76 | 55 | 86 | 190 | 171 | 174 | 141 | 133 | 70 |
| 1960 people per square mile | 3,972 | 739 | 929 | 728 | 271 | 386 | 206 | 180 | 164 | 83 | 88 |
| 1950 population as percentage of 1960 | 89 | 75 | 76 | 79 | 84 | 82 | 82 | 87 | 89 | 88 | 92 |
| 1950 farms selling milk as percentage of 1960 | 129 | 289 | 214 | 189 | 173 | 160 | 150 | 143 | 142 | 122 | 109 |
| 1965 farms selling milk as percentage of all farms | 1 | 9 | 12 | 8 | 21 | 36 | 34 | 34 | 27 | 26 | 14 |
| 1960 farms selling milk as percentage of all farms | 5 | 11 | 12 | 15 | 21 | 37 | 39 | 39 | 32 | 31 | 16 |
| 1950 farms selling milk as percentage of all farms | 2 | 13 | 12 | 12 | 19 | 36 | 38 | 34 | 29 | 25 | 10 |
| 1965 percentage of land in farms | 21 | 12 | 18 | 29 | 26 | 29 | 35 | 37 | 41 | 39 | 46 |
| 1950 land in farms as percentage of 1960 | 132 | 166 | 146 | 139 | 130 | 125 | 123 | 121 | 118 | 112 | 115 |
| 1965 dairy sales as percentage of total livestock sales | 15 | 31 | 38 | 26 | 50 | 60 | 59 | 56 | 47 | 47 | 39 |
| 1965 dairy sales as percentage of total farm sales | 5 | 16 | 20 | 11 | 34 | 45 | 44 | 41 | 31 | 33 | 21 |
| 1965 livestock sales as percentage of total farm sales | 33 | 49 | 52 | 54 | 60 | 70 | 69 | 69 | 64 | 67 | 57 |
| Distance to metropolitan area index | 3.9 | 2.2 | 2.0 | 3.2 | 3.9 | 3.9 | 4.8 | 5.1 | 5.6 | 5.4 | 5.8 |
| Milk-producing area index | 1.1 | 1.7 | 2.5 | 2.2 | 3.4 | 4.7 | 5.6 | 5.2 | 4.6 | 4.0 | 2.6 |
| Deficit or surplus area index | 2.0 | 2.6 | 2.9 | 2.4 | 4.2 | 4.6 | 6.0 | 5.9 | 5.8 | 6.1 | 5.7 |
| Manufacturing area index | 1.5 | 1.9 | 2.2 | 1.6 | 3.5 | 4.3 | 5.1 | 4.7 | 4.7 | 4.6 | 3.3 |
| People-pressure index | 4.2 | 6.3 | 6.6 | 5.6 | 4.6 | 5.0 | 4.0 | 3.7 | 3.6 | 2.8 | 2.3 |

* The 67 counties in which farmers sold less than 5 million pounds each in 1965 were considered as the separate low-volume group.
1/ A percentage figure greater than 100 indicates decreasing sales during the period; below 100 indicates increasing sales.
2/ For computation the percentage figures for each county were rounded by dropping the last digit (e.g., 8 = 80-89, 11 = 110-119, etc.).

All characteristics describing the relative importance of dairying compared with other farm enterprises followed a very similar pattern. The measures included farms selling milk as a percentage of all farms, dollar receipts from dairy sales as a percentage of livestock sales and as a percentage of all farm product sales, and livestock sales as a percentage of all farm product sales. Plotting these measures against the ratio of 1950 to 1960 milk sales indicates that the more stable sales comparisons were in areas where dairying is an important part of the total agriculture. The measures were lower for groups with extreme changes than for counties with more stable sales.

The mean percentage of land in farms was inversely related to the 1950:60 milk sales ratio. A greater percentage of land was in farms in counties where milk sales had increased during the 1950's.

The average distance from a metropolitan area increased as the ratio of 1950 to 1960 sales decreased. The distance index for counties with the greatest increase in sales averaged more than 2½ times that of groups in which sales had decreased most in the 10-year period. This is further emphasized by the related indexes; deficit or surplus index and the people-pressure index.

A summary description of the relationships describing the group of counties arrayed in descending order according to milk sales in 1950 as a percentage of 1960 compares the means of counties in each group. As the ratio declined (1950 sales were a smaller percentage of 1960 sales--increasing sales), the ratio of 1965 to 1960 sales declined. There were fewer people per square mile, and population had increased less rapidly. There also was a greater proportion of land in farms; the farms were farther from metropolitan areas and experienced less pressure from people competing with cows for space occupancy.

The counties with a more stable sales pattern during this 10-year period sold greater volumes of milk, were in areas where dairy sales were a more important part of farming, and sold a greater volume of milk per person.

We next subdivided the array of counties selling more than 5 million pounds of milk in 1965 so as to group those that changed in 1960-65 with those that changed in 1950-60. Table 26 shows this combination into groups that: (1) increased sales during both time periods, (2) increased in 1950-60 but decreased in 1960-65, (3) decreased in 1950-60 but increased in 1960-65, and (4) decreased during both periods.

Moving from group 1 to group 4 reveals progressively lower per capita sales that have been declining more rapidly through both periods. Milk sales per square mile were progressively lower. Population density was progressively higher, and gaining faster through both time periods. The people-pressure index in the decreaser group was double that of the increaser group.

The increasers are more than twice as far from metropolitan areas as are the decreasers. The increasers are located in milk-producing areas which are higher on the surplus scale (all groups of decreasers were in shortage areas).

A higher percentage of farms sell milk in these higher producing, nonmetropolitan areas. The decreasers have a smaller proportion of their land in farms and the reduction is proceeding more rapidly than in the other groups.

Table 26.--Group means of selected characteristics of 275 counties 1/ in the Northeast, arrayed by 1965 milk sales as a percentage of 1960 sales and grouped according to change in sales, 1950-60 2/

| County groupings | Increasers | Stable | Stable | Decreasers |
|---|---|---|---|---|
| | Group I | Group II | Group III | Group IV |
| 1965 milk sales as percentage of 1960 sales | 100+ | 0-99 | 100+ | 0-99 |
| 1950 milk sales as percentage of 1960 sales | 0-99 | 0-99 | 100+ | 100+ |
| Number of counties | 142 | 93 | 28 | 12 |
| | Simple means for groups 3/ not weighted average | | | |
| 1965 milk sales as percentage of 1960 sales | 110 | 81 | 154 | 82 |
| 1950 milk sales as percentage of 1960 sales 2/ | 66 | 62 | 133 | 127 |
| 1960 pounds milk sold per capita | 2,252 | 1,435 | 540 | 114 |
| 1965 per capita milk sales as percentage of 1960 | 106 | 84 | 147 | 73 |
| 1950 per capita milk sales as percentage of 1960 2/ | 81 | 76 | 184 | 177 |
| 1965 pounds milk sold per square mile (1,000 pounds) | 184 | 102 | 67 | 55 |
| 1960 people per square mile | 137 | 237 | 485 | 905 |
| 1965 population as percentage of 1960 | 99 | 102 | 102 | 106 |
| 1950 population as percentage of 1960 2/ | 88 | 84 | 75 | 73 |
| 1965 farms selling milk as percentage of all farms | 34 | 23 | 15 | 10 |
| 1960 farms selling milk as percentage of all farms | 37 | 29 | 16 | 16 |
| 1950 farms selling milk as percentage of all farms | 33 | 24 | 15 | 15 |
| 1965 percentage of land in farms | 41 | 33 | 24 | 15 |
| 1965 land in farms as percentage of 1960 | 85 | 83 | 84 | 76 |
| 1950 land in farms as percentage of 1960 2/ | 116 | 124 | 136 | 163 |
| Distance to metropolitan area index | 5.5 | 4.6 | 3.4 | 2.0 |
| Milk-producing area index | 5.2 | 3.8 | 2.8 | 2.0 |
| Deficit or surplus area index | 6.4 | 5.0 | 3.9 | 1.5 |
| People-pressure index | 3.4 | 3.9 | 4.8 | 7.5 |

1/ Only counties selling more than 5,000,000 pounds of milk in 1965 were included.
2/ Ratio of change 1950-60 is expressed so that an increase is below 100 and a decrease is shown as above 100.
3/ For computation the percentages for individual counties were rounded to index by dropping last digit (8 = 80-89.9, etc.). The means are not weighted, but are simple means for the county groupings.

## CONCLUDING REMARKS

State and local changes in milk production and sales may offer more relevant indications for appropriate adjustments than do the more aggregate measures. Milk sales by farmers have been much more volatile when measured on a local level. Changes in the volume of milk sold by farmers measured at the county level appear to be associated with certain characteristics found in those counties. Although these relationships are not adequate to predict a specific change in milk sales, they can be used to improve the chances for a decision-maker to identify and execute the proper adjustments.

Changes in milk sales by farmers are directly and strongly correlated to changes in the resources devoted to milk production. The number of milk cows, number of farms selling milk, percentage of land in farms, and similar measures naturally affect the level of production and changes in production. These factors can be observed and measured, but not much before some change in sales is visible.

Increasing pressure from people was associated with a decrease in sales of milk by farmers. This negative relationship appears to involve especially the density of population, changes in density, the distance from a metropolitan area, and alternatives for land and labor. Nearness to market, at one time a marked advantage for fluid milk production, now tends to have some disadvantages. Up to approximately 150 miles, the distance from a metropolitan area was related positively to the change in milk sales by farmers in both the 1950-60 and the 1960-65 period. Rising population and falling milk production near metropolitan areas combine to reduce per capita milk production and to increase the need for shipping milk into these population centers. Each week, because of these two factors, approximately 1,000 additional tank-truck loads are needed to supply their fluid milk.

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