UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics

CHANGES IN THE DAIRY INDUSTRY UNITED STATES, 1920–50

A Statement Submitted July 21, 1950, by the Bureau of Agricultural Economics, United States Department of Agriculture, in a Public Hearing before a Subcommittee of the Senate Committee on Agriculture and Forestry, Eighty-first Congress, Second Session, Pursuant to Senate Resolutions 36 and 198.

Reprinted from
UTILIZATION OF FARM CROPS
Milk and Dairy Products
Part 4, Appendix A

United States
Government Printing Office
Washington : 1950

915089

Appendix A

Changes in the Dairy Industry, United States, 1920–50

(A statement prepared by the staff of the Bureau of Agricultural Economics, with the assistance of other agencies of the United States Department of Agriculture, at the request of the Subcommittee on Utilization of Farm Crops of the Senate Committee on Agriculture and Forestry. Submitted July 21, 1950)[1]

INTRODUCTION

One of the marks of an advancing economy, with steadily rising real income per person, is a growing livestock enterprise. The dairy industry of the United States has grown with the population, and in recent decades it has contributed very significantly to the nutritional well-being of our people. This growth, of course, stemmed from the desire of the millions of individual consumers to better feed themselves. Growing incomes have enabled them to do it. At the same time, an expanding market was being provided for the farmers of the Nation. It is important to consider where the dairy industry is now in its forward march and to review the experiences of recent decades, as a basis for formulating judgments as to prospects for the near and distant future.

I. CURRENT SIZE AND ECONOMIC IMPORTANCE OF THE DAIRY INDUSTRY IN THE UNITED STATES

Importance on farms

The significance of dairying in the economy of the United States may be considered on several bases (table 1). At the farm level, one alternative is the number of farms producing milk. In 1944, the most recent year for which this information is available, 77 percent of all farms—4,495,000 farms—produced some milk. Out of this number, 2,473,000, 55 percent, sold some milk or dairy products. Of those farms that sell milk or dairy products, 559,000, 23 percent, were classified as specialized dairy farms, as they received more than half their farm income from milk and dairy products sold. Farms with three or more milk cows represented 48 percent of the total farms and produced 90 percent of the total milk. At the present time, about 23,000,000 people live on farms where milk is produced.

Table 1.—*Farm dairying: Number of farms, investment, production, marketings, and income*

Number of farms and people engaged in milk production:	
Farms producing milk (1944)	4,495,000
Percent of all farms	77
People on farms producing milk (1949)	23,000,000
Farms selling milk, cream, or butter (1944)	2,473,000
Farms getting more than half their income from milk, cream, or butter (1944)	559,000

[1] Assistance was provided by the following agencies: Bureau of Dairy Industry, Bureau of Human Nutrition and Home Economics, Farm Credit Administration, Office of Foreign Agricultural Relations, and Production and Marketing Administration (Dairy Branch).

TABLE 1.—*Farm dairying: Number of farms, investment, production, marketings, and income*—Continued

Value of farm physical assets associated with milking herds, January 1, 1950:	
Value of land, buildings, machinery, and equipment	$13,845,000,000
Value of breeding and replacement milk stock	$5,488,000,000
Combined value of real-estate equipment and livestock	$19,333,000,000
Percent of all farm total	21
Farmers' cash receipts for products marketed from dairy herds, 1949:	
Milk, cream, and farm butter	$3,782,000,000
Animals from milking herds	1,588,000,000
Total	$5,370,000,000
Percent of receipts from all farm products marketed	19
Volume of farm milk production and sales, 1949:	
Number of cows milked	22,741,000
Milk production per cow, pounds	5,239
Total milk produced, pounds	119,136,000,000
Products and unit in which sold:	*Milk equivalent million pounds*
Whole milk to plants (73,114 million pounds)	73,114
Cream to plants (758 million pounds fat)	20,095
Farm churned butter (42 million pounds butter)	827
Retail milk and cream (2,151 million quarts)	4,623
All milk products sold	98,659

The land, buildings, machinery, and equipment used in connection with the production of milk were worth $13,845,000,000 at the beginning of 1950. The milk cattle kept for breeding and replacement stock totaled 38,636,000 head and were worth $5,488,000,000. The total value of physical assets associated with milk production, including real estate, equipment, and livestock totaled $19,333,000,000, or 21 percent of the value of all physical assets for farm production.

In 1949, the number of cows producing milk totaled 22,741,000. At an average yield of 5,239 pounds per cow, total production of milk on farms amounted to 119,136,000,000 pounds. Of this total, 20,477,000,000 pounds, or 17 percent, were used on farms where produced and 98,659,000,000 pounds, or 83 percent, were marketed in the form of whole milk, cream, or farm-churned butter. Principal items of farm use were consumption in farm households of 12,480,000,000 pounds as milk or cream and 4,778,000,000 pounds in the form of farm butter, and some 3,219,000,000 pounds fed as whole milk to calves. Milk represented in farmers' marketings of dairy products included 73,114,000,000 pounds as whole milk sold to plants and dealers, 20,095,000,000 pounds skimmed on farms for sale as cream to dairy plants, 4,623,000,000 pounds retailed by farmers as milk or cream, and 827,000,000 pounds for the home-made butter sold by farmers.

Cash receipts from farmers' marketings of milk, cream, and farm butter totaled $3,781,617,000 in 1949. Of this, whole milk sold to plants and dealers accounted for $2,892,237,000, or 76 percent; cream sold to plants, $466,349,000, or 12 percent; milk and cream retailed by farmers, $398,882,000, or 11 percent; and farm-churned butter, $24,149,000, or 1 percent. Farmers received $1,588,000,000 from sales of animals from milk herds including cull cows, veal calves, other young stock not used for replacements, and bulls no longer needed for breeding purposes. Receipts from marketings of dairy products in 1949, $3,782,000,000, were 13.4 percent of cash receipts from marketings of all farm products. Including receipts from sale of cattle from milking herds, returns to the dairy enterprise constituted 19 percent of total cash receipts.

Nature of commercial dairy farms differs considerably among regions

On farms producing milk the size and importance of the dairy enterprise differ widely relative to other forms of agricultural production. About 2,000,-

000 farms with milk cows produce milk only for use by the farm family. Among the 2,500,000 farms producing dairy products for sale, the importance of the milking operation varies from an unimportant side line to a principal source of income for the farmer. There are some interesting and economically significant differences in types of operation among this latter group of more specialized commercial dairy farmers.

Commercial dairy farming is carried on in the United States under widely varying conditions among regions, and even among sections within individual States. Some farms are set up to produce only milk, others produce milk as one of several products. The diversified type of farm makes shifts between dairy and other products as price relationships change. To illustrate some of the differences in conditions under which dairy products are produced in the United States, the Bureau of Agricultural Economics has constructed three sets of data which describe, respectively, a specialized dairy farm in the Northeast, a less specialized dairy farm in Wisconsin, and a so-called hog dairy farm in the Corn Belt (table 37).

A typical dairy farm in the Northeast is rather specialized in dairying, with little income from any other source and with its cropping program designed to produce roughage for the dairy herd. Some grain is produced but more than half of the requirements are purchased. The average number of cows kept for milk is greater than in either of the other two areas.

In southern Wisconsin, on the other hand, a typical dairy farm has a sizable hog enterprise along with milk cows and produces most of the grain as well as the roughage used. The dairy herd is slightly smaller than in the Northeast, total number of acres in the farm is smallest of the three types, but the total farm business and net income to operator usually are somewhat larger than on either of the other two types of farms.

In the Corn Belt a large share of the milk is produced on hog-dairy farms. On such a farm the milking herd is about half the size of that on a typical Northeast specialized dairy farm, but other enterprises, particularly hogs and cash crops, are at least as important as cows as a source of income. The number of acres is about as large as in the Northeast, but the proportion of acres in crops is much greater and that in pasture, less.

Importance of the milk manufacturing industry

The manufactured dairy products industry of the United States comprises nearly 10,000 plants spread throughout all the 48 States. There are, in addition, more than 10,000 small retail ice-cream concerns making ice cream from purchased ice-cream mix. Data such as total employment, value added by manufacturing, and much related information cannot be determined from census reports because many plants having combined fluid milk and manufacturing operations do not report separate data on all phases of these different operations. Moreover, the Census of Manufactures did not include nearly 2,000 plants which did not meet the census requirement of having one or more employees in addition to the proprietor or which had a more important enterprise that caused them to be classed in another industry. The plants not included in the census were small.

On the basis of products manufactured in 1949 it was estimated by the Bureau of Agricultural Economics that more than 55,000,000,000 pounds of milk or milk equivalent of cream were used in manufactured dairy products. This is nearly 60 percent of the total milk equivalent sold by farmers to plants and dealers. In 1949 the value of manufactured dairy products consumed in the United States, calculated at retail prices, was approximately $3,100,000,000. This includes military purchases and excludes butter made by farmers and consumed on farms where produced.

The geographical distribution of the dairy manufacturing industry is marked by a concentration in the North Central States, New York, Pennsylvania, the Pacific Coast States, and Idaho. This concentration is more clearly illustrated by the accompanying maps which show locations of creameries, condenseries, ice-cream plants, and cheese factories. Although some of these maps have not been revised in the last several years, the general geographical distribution has not changed materially (figs. 17–21).

Importance of fluid-milk industry

The exact size of the fluid-milk industry in terms of number of operating units, capital invested, number of employees, pay roll, etc., is not known. It is difficult to classify many business units which are engaged in the bottling and distribution of fluid milk and cream. These may range from small farmer-dealers or producer-distributors, who distribute only milk of their own production, usually on a very small scale, through the local creameries which have as their major enterprises the manufacture of butter but which distribute some fluid milk and cream locally, to the very large scale distributors who operate in great urban markets. It has been estimated by the Milk Industry Foundation[2] that there are 50,000 distributors of fluid milk of all types in the United States. The total retail value of sales of fluid milk and cream in 1949 was approximately $3,400,000,000.

Approximately 57,000,000,000 pounds of milk (26,500,000,000 quarts) were consumed in 1949 as fluid milk or fluid cream in households, restaurants, institutions, and on farms in the United States. Of this quantity, approximately 45,000,000,000 pounds (21,000,000,000 quarts) were consumed in all places other than on farms where produced. This would constitute a daily volume of about 58,000,000 quarts of milk and the milk equivalent of fluid cream. The fluid-milk industry is one of the most widely dispersed industries in the United States, both as to location of production and location of processing and distributing plants.

Importance of dairy products at the retail level

Domestic purchases of all dairy products in 1949 totaled slightly less than $6,500,000,000. In addition, farm families consumed dairy products, produced on farms, worth $730,000,000, based on prices farmers could have obtained for their dairy products. The total value of all dairy products consumed domestically in 1949, was $7,200,000,000.

Dairy products account for almost one-fifth of the total amount spent for food by all domestic purchasers other than farm families and the military. As a group, expenditures on dairy products rank second to meat products and ahead of grain products. Within the dairy products group, fresh whole milk accounts for about half of the amount spent, with butter, cheese, ice cream, and evaporated milk together accounting for an additional 43 percent.[3] Buttermilk, skim milk, chocolate milk, cream, condensed milk, and dry milk together account for 8 percent. These relationships were found in a survey of consumers in the spring of 1948. Similar conclusions may be reached from the retail cost of the dairy products in the family annual market basket of food products, from which the Bureau of Agricultural Economics estimates marketing charges and the farmer's share of the consumer's food dollar.

Nature of market for dairy products

Of the 73 billion pounds of milk sold by farmers at wholesale in 1949, a little over six-tenths was used for direct consumption as fluid milk and cream; the balance was used in producing a long list of commodities. Many of these are shown in figure 1, which illustrates the complexity of the milk marketing and processing system. Practically all the butterfat sold as cream was used in making butter.

Because of the multiple uses of milk sold at wholesale by farmers and the differences in the finished products which result, it is somewhat difficult to present a single set of data which will enable one to generalize for all products concerned. The various products made from milk can be combined only by choosing a common denominator. Because of differences in nature, uses and trends between the two major components of whole milk—fat solids and solids-not-fat—

[2] Milk Facts, 1948–49 edition, Milk Industry Foundation, New York, N. Y.

[3] From Food Consumption of Urban Families in the United States, Spring 1948, U. S. Department of Agriculture, Agricultural Research Administration, Bureau of Human Nutrition and Home Economics, 1948 Food Consumption Surveys, Preliminary Report No. 5, May 30, 1949, as summarized in The Dairy Situation, U. S. Department of Agriculture, Bureau of Agricultural Economics, No. DS–202, July, August, 1949, pp. 14–16. The source cited does not include butter among the dairy products but shows butter as one of the table fats. The figures for dairy products shown above, however, include butter.

a dual set of data has been developed. Supply and distribution tables have been constructed for total milk fat and for total milk solids-not-fat (tables 40 and 41).

At going market prices, the value of the fat portion of milk always has exceeded the value of the solids-not-fat portion. Practically all the milk fat has been used for human food, except a small quantity fed to calves. For solids-not-fat, however, a substantial, though decreasing, proportion has been used for animal feed.

The American dairy industry, whether judged on the basis of production of milk fat or solids-not-fat, is primarily a domestic industry. Over all, both imports and exports are very small as compared with domestic production. There are, however, important differences among individual products as to the relative importance in foreign trade. In 1949, exports as percentages of domestic production were: Butter 0.2 percent; cheese, 8 percent; evaporated and condensed whole milk, 10 percent; dry whole milk, 63 percent; and nonfat dry milk solids, 23 percent. Imports as percentages of domestic production in 1949 were: Cheese, 3 percent; nonfat dry milk solids, 0.6 percent; and casein, 163 percent. On an over-all basis, using both fat solids and solids-not-fat methods of measurement, imports were equivalent to 0.2 percent of all domestic supply in 1949. Exports, on the other hand, were equivalent to 2.1 percent on a milk-fat basis and 4.4 percent on a solids-not-fat basis. Domestic human consumption accounts for the major portion of the disappearance for both milk fat and solids-not-fat, equaling 90 percent in the former case and 63 percent in the case of solids-not-fat (fig. 2).

II. MAJOR DEVELOPMENTS, 1920–50

Changes in farm production, disposition, and income from milk, 1920–50

In the last three decades, the number of farms producing milk has varied within a range of about 15 percent. The most recent figure—4,495,000 farms producing milk in 1944—is about 11 percent less than for 1919 and 3 percent less than in 1929. In the 15-year period between 1929 and 1944, herds producing milk primarily for use on the farm increased slightly in numbers and held about the same in total quantity of milk produced. Commercial-sized herds, however, decreased in numbers and shifted toward larger producing units. As shown by the accompanying appendix table 38, farms with one or two milk cows increased from 49 percent of all farms producing milk to 52 percent in 1944, and their proportion of the total milk produced changed from 12 to 11 percent. Herds numbering from 3 to 9 milk cows—which primarily represent farms where milking is a side-line enterprise—decreased from 39 to 32 percent of the total number of farms producing milk, and their production of milk decreased from 39 to 28 percent of the total. On the other hand, herds with 10 or more milk cows increased from 12 percent of the total in 1929 to 16 percent in 1944, and their production of milk increased from 48 percent of the total to 61 percent.

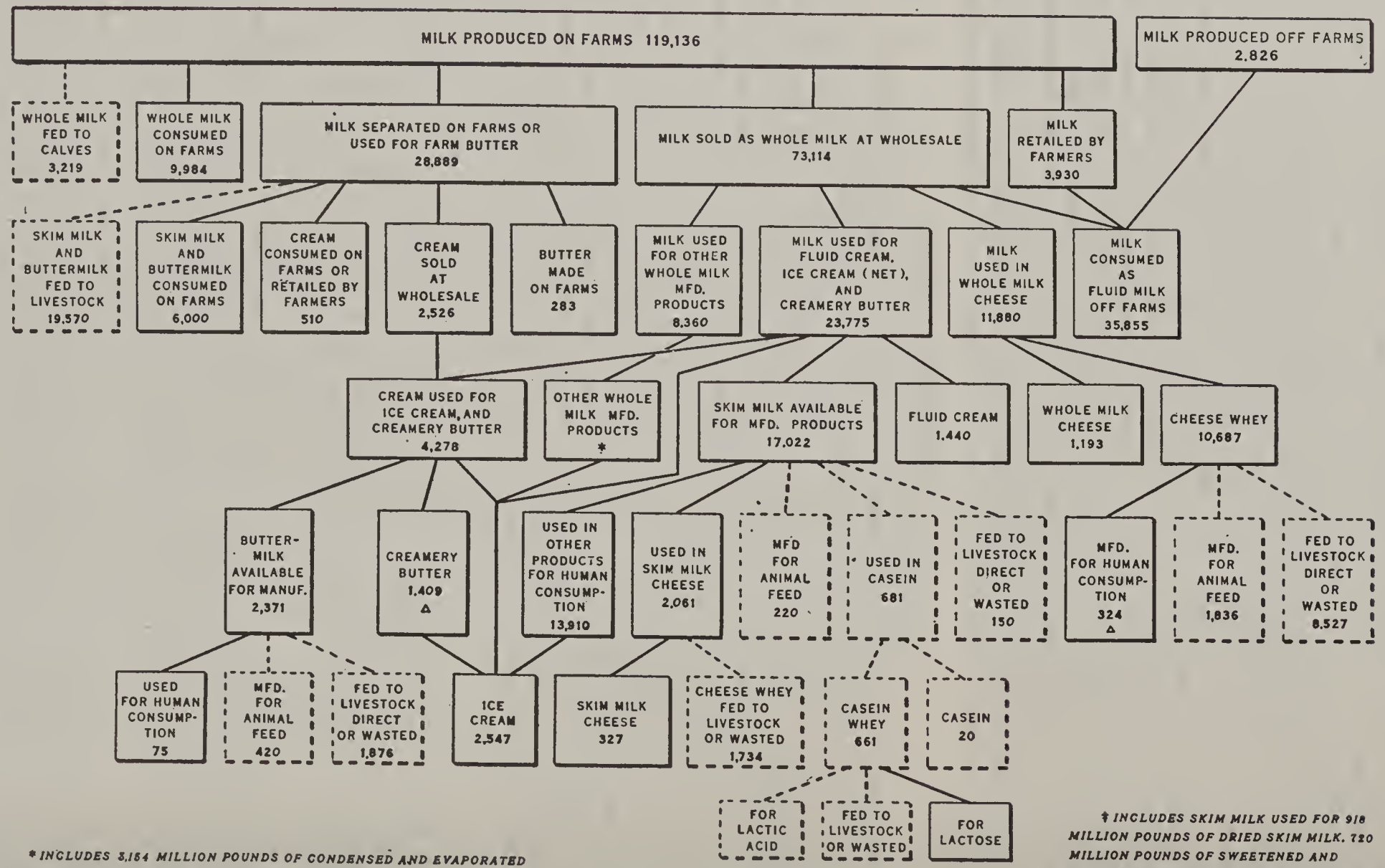
Over the 30-year period from 1920 to 1950, the number of breeding and replacement cattle for milking herds on January 1 increased from 31.6 million head to 38.6 million head. The total inventory value of cattle kept for milk purposes has fluctuated widely, depending on variations in value per head. On January 1, 1920, it was about 2.1 billion dollars and on January 1, 1950, it was 5.5 billion dollars. In the intervening period it had fluctuated from a low of 0.9 billion dollars at the beginning of 1934 to a high of 5.9 billion dollars on January 1, 1949. The value of land, buildings, machinery, and equipment used for the milking herd likewise fluctuated greatly over the period, ranging from 9.8 billion dollars in 1920 down to a low of 7.0 billion dollars in 1933, and up to a peak of 13.8 billion dollars in 1950. The combined value of livestock, real estate, and equipment used in the production of milk totaled 19.3 billion dollars on January 1, 1950, compared with 11.9 billion dollars in 1920 (table 2).

Over the period from 1920 to 1949, the total number of cows producing milk on farms during the year increased about 12 percent. Numbers gradually rose from 20.3 million in 1920 to a peak of 25.2 million in 1934, then decreased to 23.3 million in 1939, increased again in the early 1940's to a peak of 25.8 million in 1944, then decreased steadily to the 22.7 million in 1949. Recently, numbers have again turned upward.

FIGURE 1

STATISTICAL FLOW CHART FOR MILK AND DAIRY PRODUCTS, 1949

(FIGURES IN MILLIONS OF POUNDS)



* INCLUDES 3,184 MILLION POUNDS OF CONDENSED AND EVAPORATED WHOLE MILK, 130 MILLION POUNDS OF DRIED WHOLE MILK, AND APPROXIMATELY 25 MILLION POUNDS OF MALTED MILK. SOME OF THESE PRODUCTS ARE USED IN ICE CREAM.

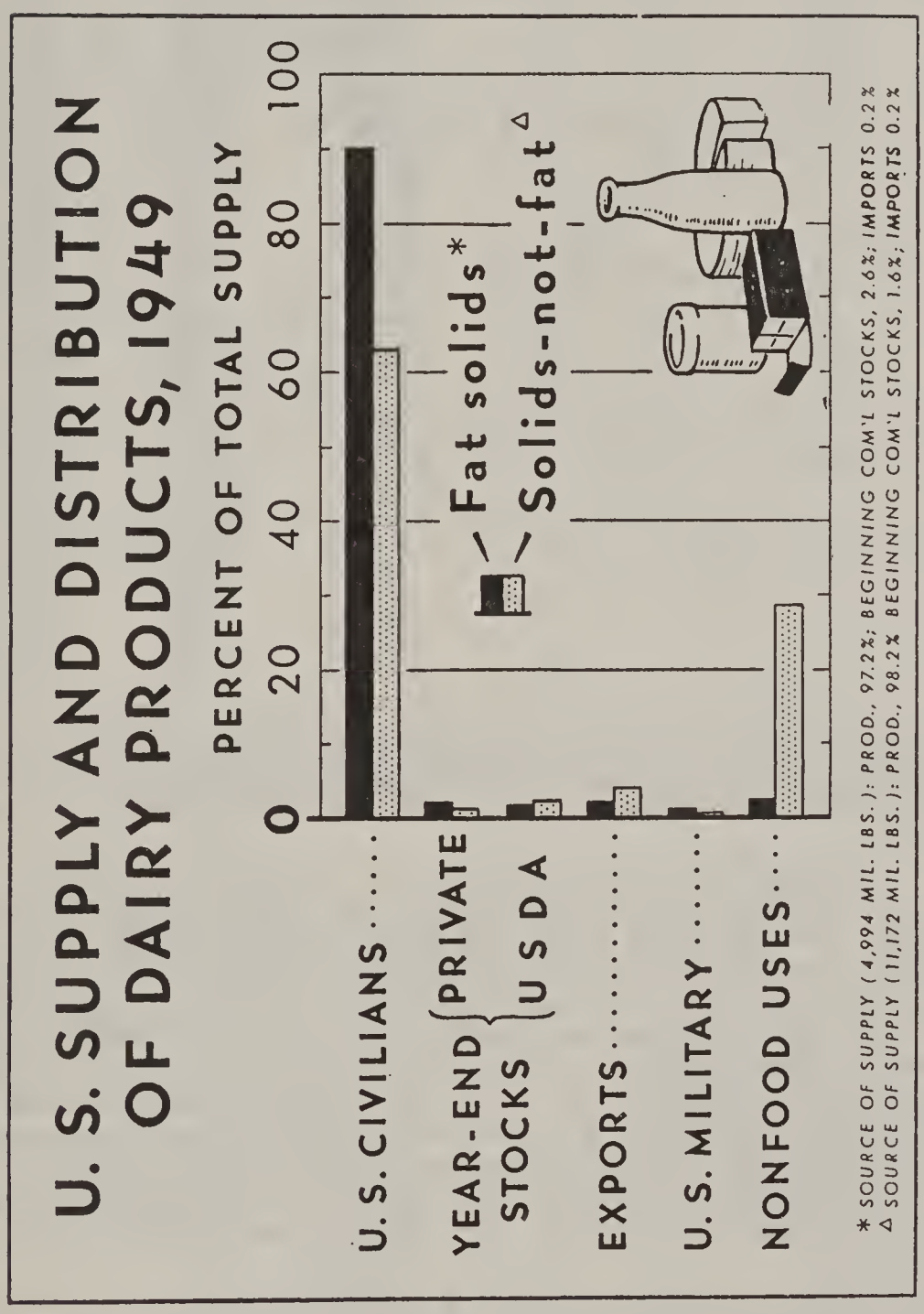
Δ ABOUT 42 MILLION POUNDS OF BUTTER WAS MADE FROM WHEY CREAM.

† INCLUDES SKIM MILK USED FOR 918 MILLION POUNDS OF DRIED SKIM MILK, 720 MILLION POUNDS OF SWEETENED AND UNSWEETENED CONDENSED SKIM MILK, AND AN ALLOWANCE FOR SKIM MILK USED IN CHOCOLATE DRINK AND CULTURED BUTTERMILK. SOME OF THESE PRODUCTS ARE USED IN ICE CREAM.

U. S. DEPARTMENT OF AGRICULTURE

NEG: 47759 BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 2



915089—50——2

TABLE 2.—*Value of real estate, equipment, and cattle for milking herds, United States, Jan. 1, 1920–50*

Year	Value of land, buildings, and equipment used for milking herds [1] (millions of dollars)	Value of milk cattle for breeding and replacement purposes [2] (millions of dollars)	Combined value of real estate, equipment, and breeding cattle for milking herds	
			Millions of dollars	Percent of all farm total
1920	9,829	2,098	11,927	15.2
1921	10,498	1,566	12,064	16.8
1922	8,613	1,263	9,876	15.8
1923	8,891	1,285	10,176	16.7
1924	8,553	1,322	9,875	16.9
1925	8,908	1,297	10,205	17.8
1926	9,374	1,450	10,824	18.8
1927	9,648	1,563	11,211	19.9
1928	10,124	1,951	12,075	21.3
1929	10,225	2,278	12,503	21.7
1930	10,775	2,315	13,090	22.6
1931	10,867	1,640	12,507	24.0
1932	9,645	1,176	10,821	24.7
1933	6,969	909	7,878	21.8
1934	7,162	871	8,033	21.6
1935	7,715	941	8,656	22.5
1936	7,617	1,501	9,118	22.0
1937	7,848	1,501	9,349	22.0
1938	8,307	1,608	9,915	23.2
1939	8,165	1,683	9,848	23.3
1940	8,087	1,777	9,864	23.5
1941	7,742	1,941	9,683	23.0
1942	7,471	2,570	10,041	21.6
1943	7,654	3,389	11,043	21.2
1944	8,054	3,519	11,573	20.3
1945	9,451	3,407	12,858	20.9
1946	11,056	3,694	14,750	21.7
1947	11,756	4,676	16,432	21.3
1948	13,658	5,156	18,814	22.1
1949	13,731	5,919	19,650	21.6
1950	13,845	5,488	19,333	21.5

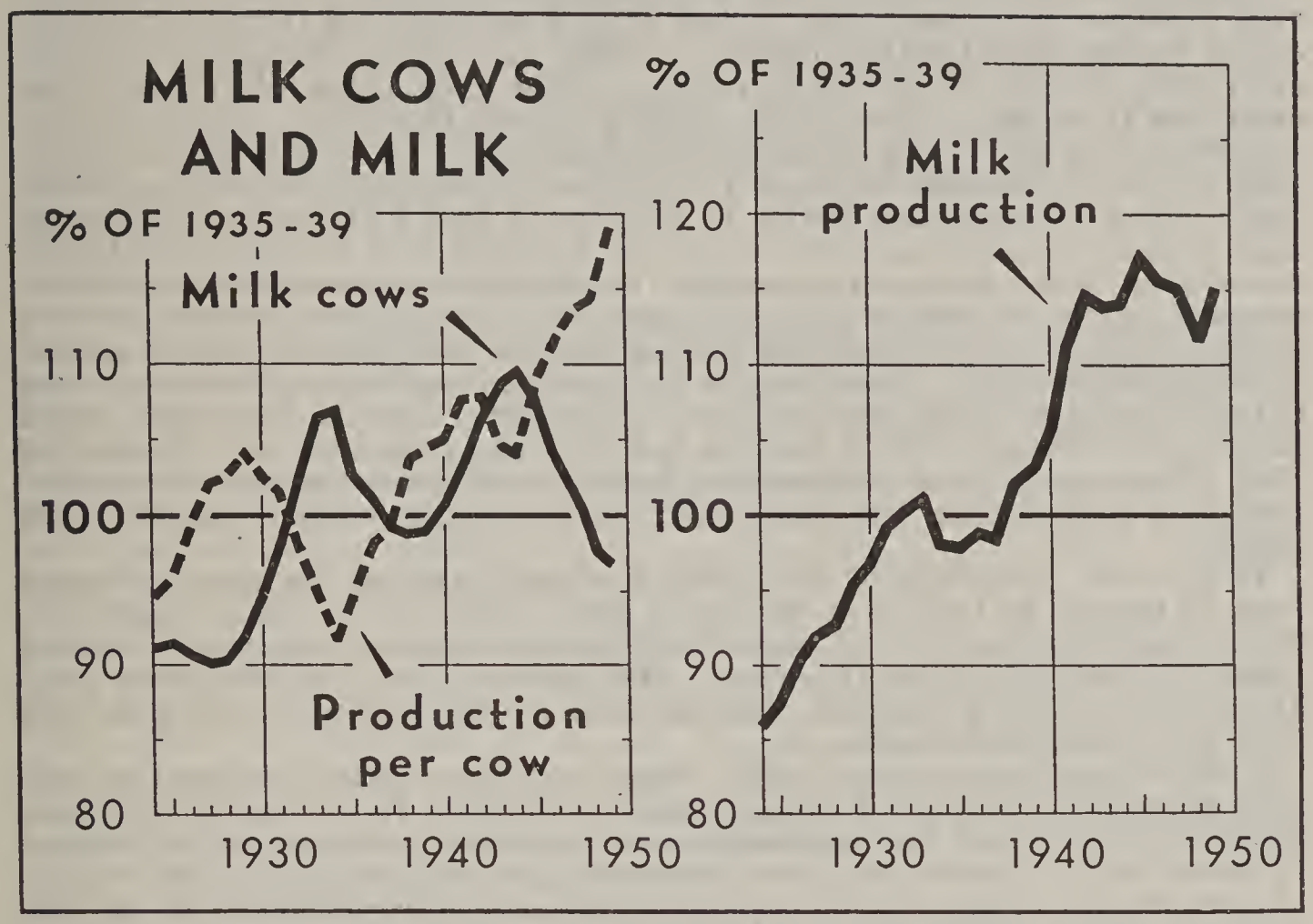
[1] The value of land, buildings, machinery and equipment assigned to milking herds was based on annual estimates of total for all farms. Census figures for specialized dairy farms and other farms, and the proportion of farm income derived from milk products and animals sold from milking herds.

[2] Includes cows, heifers, and heifer calves kept mainly for milk, bulls heading milking herds, and replacement bull calves.

Production of milk per cow in 1949 was at an all-time high of 5,239 pounds, 38 percent higher than in 1920. Production per cow has shown some cyclic variations over the 30-year period, but the general trend has been steadily upward as the result of improved breeding stock, feeding methods, and better management practices. Total production of milk on farms in 1949 totaled 119,100,000,000 pounds, some 42,000,000,000 pounds, or 54 percent higher than in 1920. Expansion in total milk production on farms was rather steady in the period from 1920, to 1933, dropped off a little in the next few years, then resumed the upward trend to 1945 when it reached a peak of 121,500,000,000 pounds. In the early postwar years, production dropped to a low of 115,500,000,000 pounds in 1948, and since then has been increasing. In 1950 production will probably come close to the 1945 record.

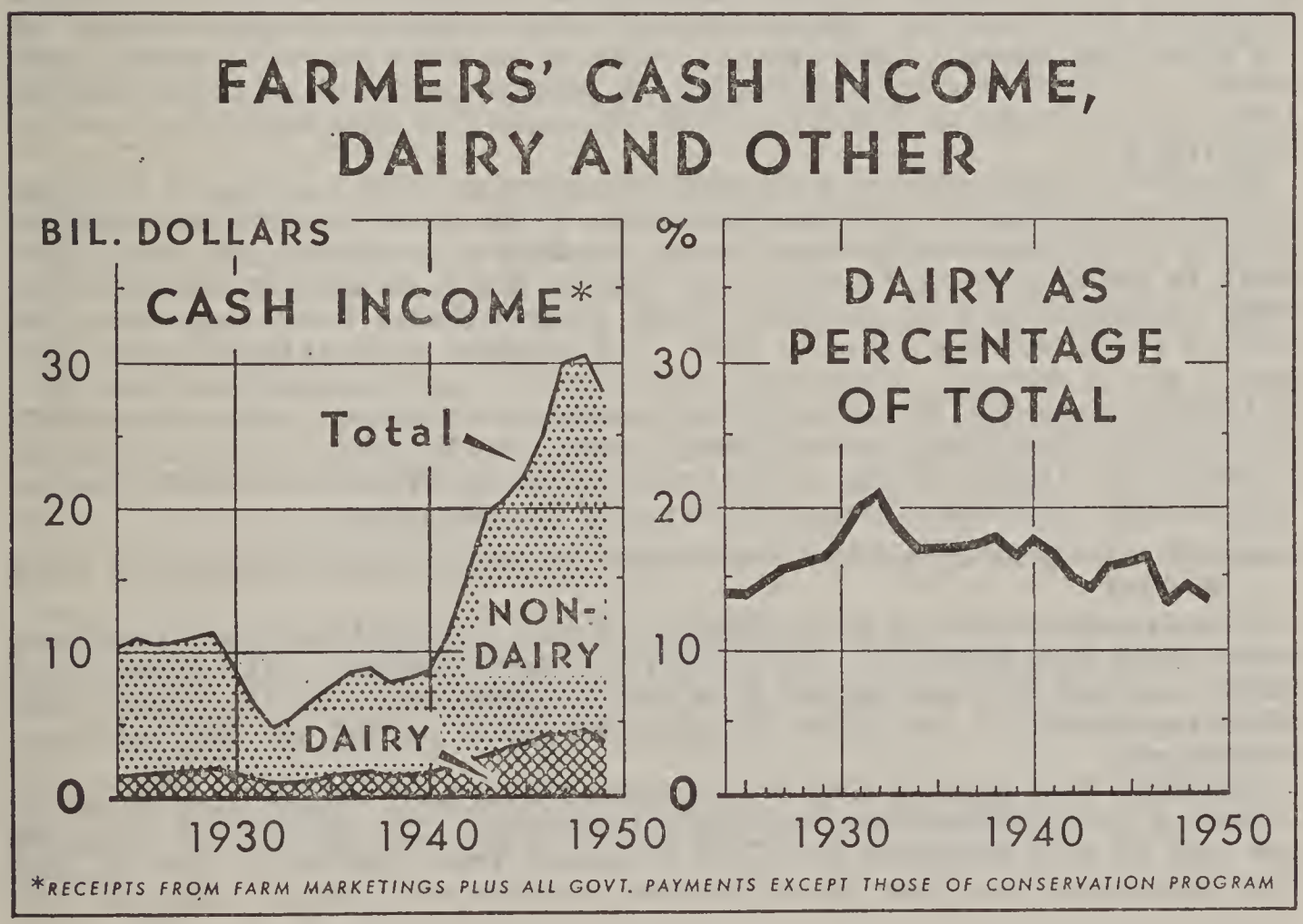
There has been a moderate decline in quantity of milk used on farms and a marked expansion in volume of milk products sold by farmers into commercial channels in the 25-year period from 1924 through 1949. Milk used on farms gradually decreased from 24,100,000,000 pounds in 1924 to 20,500,000,000 in 1949, a reduction of 15 percent. On the other hand, the volume of milk represented in products sold by farmers increased from 65,100,000,000 pounds in 1924 to 98,700,000,000 pounds in 1949, an increase of 52 percent. The peak volume of sales was reached in the high production year 1945, when the milk equivalent of products sold amounted to 100,800,000,000 pounds. The type of milk product sold by farmers has also shifted markedly over the period. (Appendix tables 33 through 36). In the middle 1920's the volume of milk skimmed on farms for sale as cream materially exceeded the volume of whole milk sold by farmers to plants and dealers. The whole milk sold, however, increased steadily through the 1930's and jumped even more sharply during the recent war years. In

FIGURE 3



U. S. DEPARTMENT OF AGRICULTURE NEG. 39573-XX BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 4



U. S. DEPARTMENT OF AGRICULTURE NEG. 47737-XX BUREAU OF AGRICULTURAL ECONOMICS

1949, the total volume of whole milk sold by farmers to plants and dealers totaled 73,100,000,000 pounds, almost treble the 25,900,000,000 pounds sold in this form in 1924. On the other hand, the volume of milk skimmed on farms for sale as cream totaled 20,100,000,000 pounds in 1949, only about two-thirds as much as in 1924, and only 55 percent as much as in the early 1930's when farm skimming was at its peak. The volume of milk retailed by farmers directly to consumers as milk and cream has dropped steadily since the middle 1930's, and in 1949 it totaled 4,600,000,000 pounds as compared with 6,100,000,000 pounds in 1924. Sales of home-made butter by farmers in 1949 had dropped even more sharply to a level about one-fourth of that of 1924 and were of commercial importance in only a few parts of the country. On the farms, consumption of milk and cream in family households has been maintained at about the same level over the last quarter century, with the 1949 volume totaling 12,500,000,000 pounds against 11,800,000,000 in 1924. Likewise, milk fed to calves has been maintained at close to the 3,000,000,000 pound level over most of the period. On the other hand, use of farm-churned butter by farm families has declined to less than half the level of 1924. Home-made butter consumed on farms in 1949 accounted for 4,800,000,000 pounds of milk. Home consumption was still very important in the Southern States.

In terms of percentage of total milk produced, sales off the farm increased from 73 percent in 1924 to 83 percent in 1949. Whole milk sold to plants and dealers increased from 29 to 61 percent, while milk skimmed on farms for sale as cream dropped from 33 to 17 percent. Milk used on farms declined from 27 to 17 percent of total production, with the bulk of the reduction coming in milk used for farm-churned butter.

Farmers' cash returns from milk, cream, and farm butter marketed in 1949 were about two and one-half times as great as in 1920. In the intervening years the substantial up and down variations were associated with the gradual increase in volume and the sharp fluctuations in prices of dairy products. Cash returns to farmers from dairy products dropped gradually from $1,500,000,000 in 1920 to $1,200,000,000 in 1922, then rose fairly steadily to $1,800,000,000 in 1929. They then dropped back sharply to less than $1,000,000,000 in 1932, but again increased to $1,500,000,000 in 1937. Returns from dairy products declined slightly in the next couple of years and then began a war-induced rise to the peak to date of $4,400,000,000 in 1948. In 1949, cash receipts dropped 15 percent to $3,800,000,000.

Milk and milk products accounted for 13 percent of the cash returns from all products marketed in 1949 compared with a peak of 21 percent in 1932, 14 percent in 1924, and 12 percent in 1920. During the 1935–39 period, dairy products accounted for about 17 percent of the cash returns from all farm products. Of the gross farm income, including also value of products consumed in the farm household, dairy products represented 15 percent of the all-products total in 1949 compared with 22 percent in 1930, 16 percent in 1924, and 13 percent in 1920 (fig. 4).

Substantial differences are noticeable among regions of the country in numbers of cows and production of milk. Regionally, in the 25-year period from 1924 to 1949 milk cow numbers increased about one-fifth in the South and about one-tenth in the East North Central area. In the North Atlantic States, numbers were unchanged and in the West North Central States there were about 10 percent fewer milk cows than in 1924. The national average increase over the period was 6 percent. Regionally, the increase in milk production from 1924 to 1949 was more than 50 percent in the South Atlantic region; between 40 and 45 percent in the East North Central, South Central, and Western regions; 23 percent in the North Atlantic States, and 18 percent in the West North Central area. The national average increase over the period was 34 percent.

Small changes in labor and feed requirements in producing milk during last three decades

Labor requirements per hundredweight of milk produced have been relatively more stable than is the case for many other farm products. The handling of dairy cows has been mechanized to a limited degree only, and there have been offsetting forces in the form of increased labor needed to meet sanitary regulations.

Available data indicate that the amount of total feed required per hundredweight of milk produced also has been rather stable. The quantity of grain fed per unit of milk produced increased somewhat from 1920–24 to 1945–49, but this apparently was offset by a decrease in silage and pasture consumed per

unit of production. The results of research in animal nutrition, however, have suggested several avenues by which milk may be produced more efficiently in terms of feed required. The requirements of certain of the organic and inorganic constituents, as well as the vitamins, have been fairly well worked out. As a result, there is no longer need for cattle on farms to suffer from deficiencies in vitamin D and vitamin A, and indeed the incidence of these deficiencies has materially decreased. The needs for calcium and phosphorus are well understood and deficiencies can be avoided by proper fertilization of the soil or by feeding supplements in the ration.

Trends in utilization of milk supply

Total production of milk in the United States has increased over the years at a rate which allowed about a constant total of per capita supplies of milk products. Even with the phenomenal rise in exports during the 1940's, per capita supplies of milk products in total dropped only slightly below the previous averages.

As domestic consumption accounts for most of the over-all dairy output, it is appropriate to consider separately the effects of changes in civilian consumption on the pattern of production for major manufactured dairy products. Exports are discussed in a separate portion of this report.

Except for butter, consumption per person of all major manufactured dairy products has tended to increase since 1920 (figures 5 and 6 and tables 70–79). Rates of consumption per person (product weight) in 1949 as percentages of 1920–24 for several items were as follows: Evaporated whole milk, 214 percent; cheese, 170 percent; and ice cream 219 percent. Consumption of condensed milk was about the same in 1949 as in the early 1920's. These increases did not accur without some interruptions; particularly significant was the drop of several items in World War II growing out of wartime shortages and the supply allocations and rationing programs stemming therefrom.

After fluctuating between 16 and 18 pounds per person per year for about 20 years, consumption of butter dropped sharply during World War II, reached 10 pounds in the early postwar years, and still has not recovered to prewar levels. The experience since World War II is in contrast to developments following World War I when consumption of butter recovered rapidly. The peak in consumption for the interwar period was 18.4 pounds which was reached in 1926. Except for a slight increase during the depression years 1931–34, consumption per person of butter in the Unted States has been lower than in the 1920's, and in the last decade a substantial downward movement has occurred. Per capita consumption of numerous products made from skim milk expanded fivefold from the mid-1920's until 1949. This, however, was partly offset by a net decline in consumption of liquid skim milk products.

Per capita consumption of fluid milk and cream was unusually stable until the outbreak of World War II. During 1945–49, consumption of this item averaged 405 pounds per person, compared with a 340-pound average in 1935–39. With this increase in consumption, fluid milk and cream have gained relative to the total of other dairy products. In the last 7 years, between 52 and 55 percent of the total consumption of milk fat has been in the form of fluid milk and cream, compared with 43 to 46 percent in each year from 1924 through 1942 (tables 3 and 4).

Several considerations are involved in explaining changes in the domestic use-pattern of dairy products. In prewar years, prices for fluid milk fluctuated rather closely with consumer incomes, resulting in fairly stable consumption of fluid milk and cream. During the early 1940's, the increase in income per person, together with price ceilings on fluid milk and relative abundance of this commodity as compared with several other foods, resulted in large expansion in use of that product. Use of cheese has increased over the years, apparently as a result of improved techniques in processing and merchandising and a noticeable increase in consumer preference for this product. Evaporated milk has been improved also as compared with 30 years ago, and for many years there has been a swing toward the use of this product for infant feeding. Consumption of ice cream responds readily to changes in consumer incomes. Thus the rise in real incomes of consumers over the years has led to a gradual increase in consumption of ice cream. A factor also of importance is the offering of ice cream to consumers over longer periods of the year and through more distributive outlets.

FIGURE 5

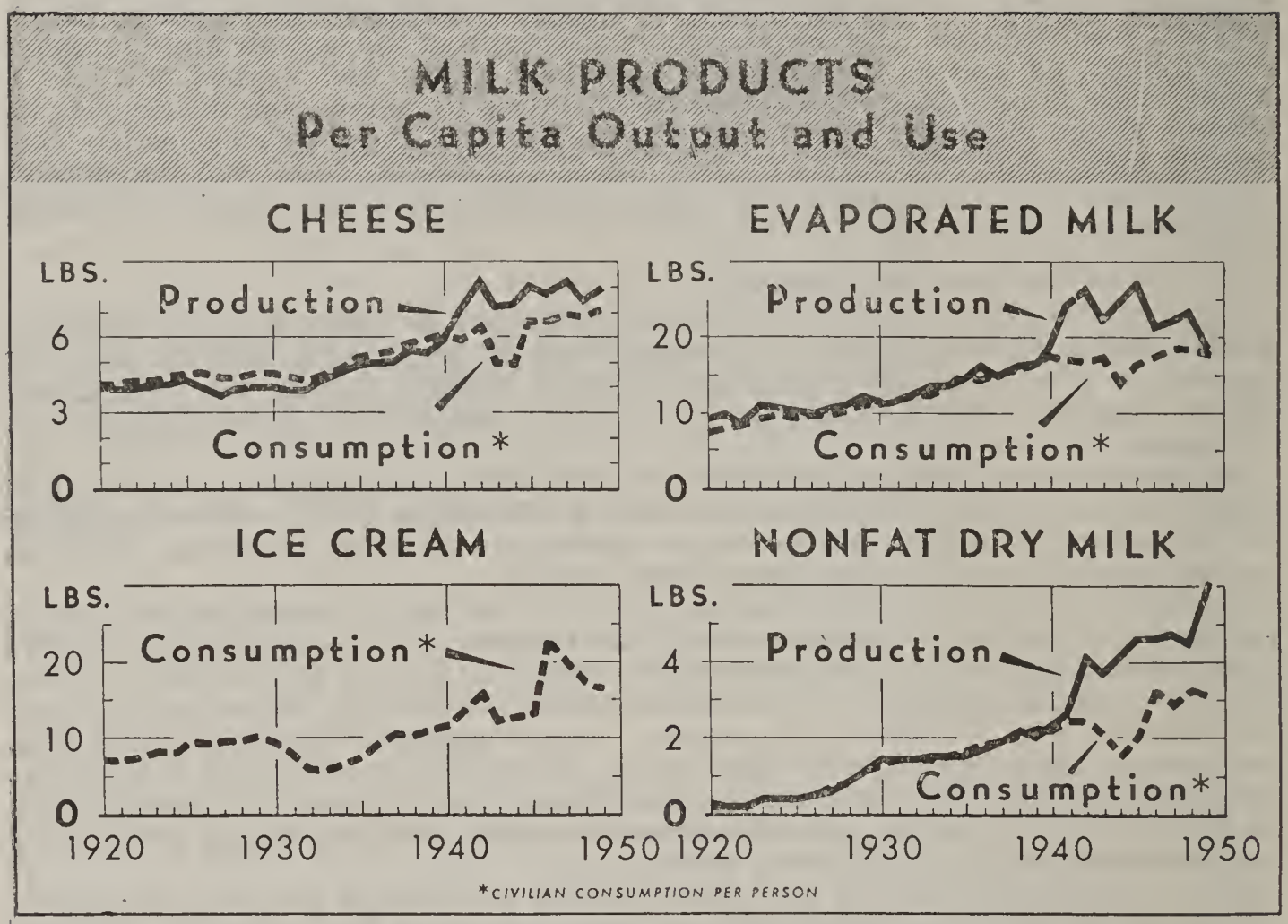


FIGURE 6

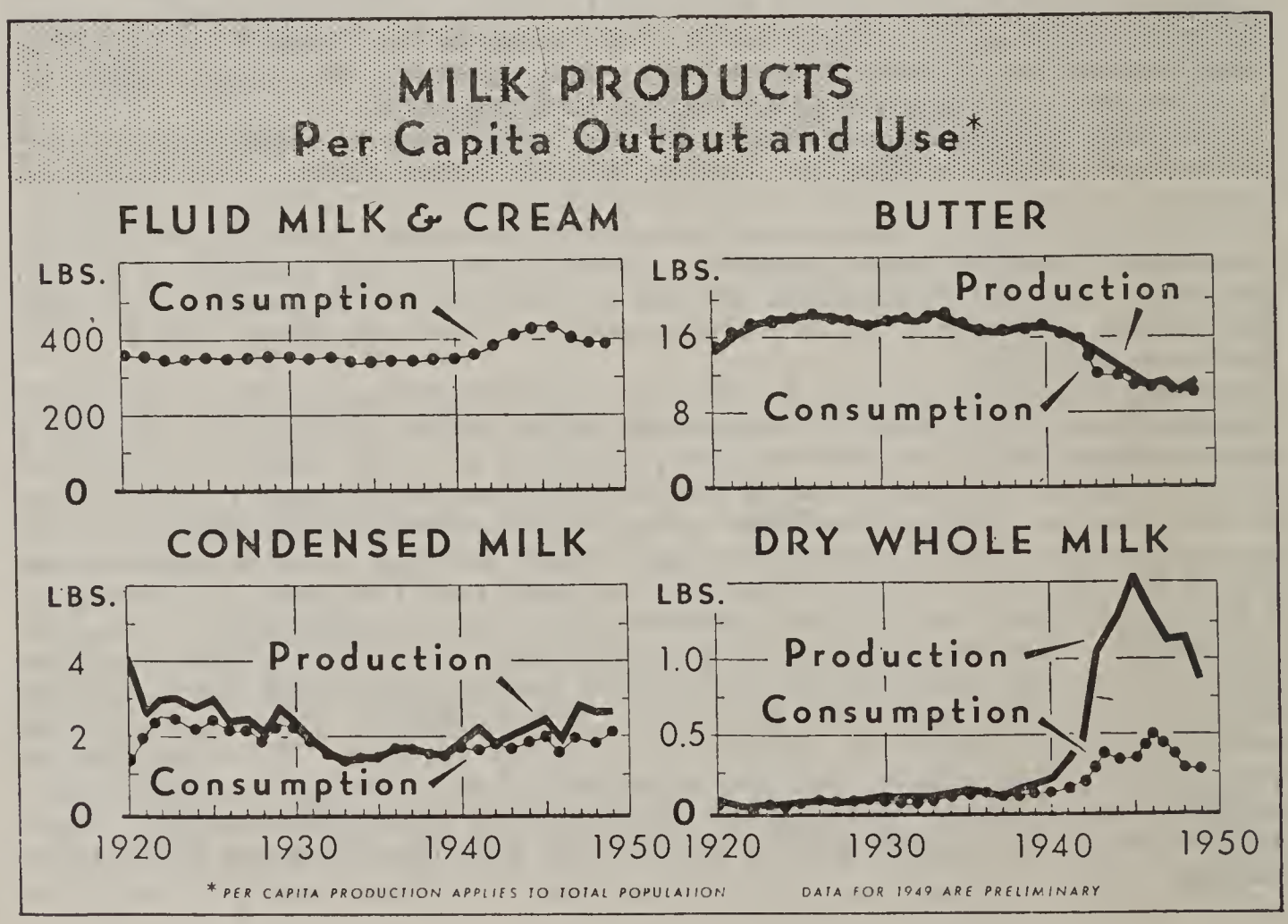


TABLE 3.—*Milk-fat (butterfat): Consumption per person by type of dairy product, United States, 1924–49*

[Pounds]

Year	Total milk	Fluid milk and cream	Butter [1]	Manufactured products, excluding butter	Distribution among manufactured products					
					Total cheese	Evaporated milk	Ice cream	Condensed milk [1]	Dry whole milk	Malted milk
1924	30.8	13.3	14.2	3.3	1.44	0.75	0.92	0.13	0.02	0.01
1925	31.1	13.5	14.2	3.4	1.46	.72	1.07	.15	.02	.01
1926	31.6	13.5	14.6	3.5	1.48	.75	1.07	.12	.03	.01
1927	31.5	13.8	14.3	3.4	1.41	.74	1.11	.12	.03	.01
1928	31.3	14.1	13.8	3.4	1.39	.81	1.12	.10	.02	.01
1929	31.5	14.1	13.7	3.7	1.46	.88	1.22	.13	.02	.01
1930	31.9	14.6	13.7	3.6	1.46	.88	1.13	.13	.02	.01
1931	32.8	15.1	14.3	3.4	1.42	.91	.98	.10	.02	.01
1932	32.6	14.9	14.5	3.2	1.39	.97	.72	.09	.02	.01
1933	31.9	14.5	14.2	3.2	1.43	.97	69	.08	.02	.01
1934	32.0	14.0	14.5	3.5	1.54	1.06	.83	.07	.03	.01
1935	31.6	14.1	13.7	3.8	1.66	1.15	.91	.07	.04	.01
1936	31.3	14.3	13.0	4.0	1.70	1.11	1.10	.08	.04	.01
1937	31.4	14.1	13.0	4.3	1.75	1.17	1.26	.07	.03	.01
1938	31.4	14.0	13.0	4.4	1.85	1.22	1.25	.06	.03	.01
1939	32.5	14.2	13.7	4.6	1.88	1.28	1.34	.04	.04	.01
1940	32.6	14.4	13.4	4.8	1.90	1.38	1.39	.06	.04	.01
1941	32.1	14.5	12.6	5.0	1.88	1.32	1.66	.03	.05	.01
1942	33.3	15.5	12.4	5.4	2.04	1.30	1.95	.03	.05	.02
1943	30.3	16.5	9.3	4.5	1.57	1.35	[2] 1.38	.07	.10	.03
1944	30.8	17.2	9.4	4.2	1.54	1.08	[2] 1.42	.08	.09	.02
1945	32.0	18.2	8.6	5.2	2.11	1.28	[2] 1.57	.08	.10	.03
1946	32.3	17.9	8.1	6.3	2.12	1.34	[2] 2.67	.03	.14	.02
1947	31.3	16.4	8.7	6.2	2.22	1.43	[2] 2.38	.07	.12	.01
1948	29.9	16.2	7.8	5.9	2.18	1.44	[2] 2.11	.06	.08	.01
1949	30.2	16.1	8.2	5.9	2.29	1.40	[2] 2.03	.09	.07	.01

[1] Excludes estimated quantities of fat from these products used in making ice cream. The series on fat content of butter in this table, therefore, is not the same as shown in table 8.

[2] Includes milk sherbet, ice milk and dry ice cream mix.

TABLE 4.—*Milk fat (butterfat): Consumption per person by type of dairy product as a percentage of total milk-fat consumed, 1924–49.*

[Percent]

Year	Total milk	Fluid milk and cream	Butter	Manufactured products, excluding butter	Distribution among manufactured products			
					Total cheese	Evaporated milk	Ice cream	Condensed, dry whole and malted milk
1924	100.0	43.2	46.1	10.7	4.7	2.4	3.0	0.6
1925	100.0	43.4	45.7	10.9	4.7	2.3	3.4	.5
1926	100.0	42.7	46.2	11.1	4.7	2.4	3.4	.6
1927	100.0	43.8	45.4	10.8	4.5	2.3	3.5	.5
1928	100.0	45.0	44.1	10.9	4.4	2.6	3.6	.3
1929	100.0	44.8	43.5	11.7	4.6	2.8	3.9	.4
1930	100.0	45.8	42.9	11.3	4.6	2.8	3.5	.4
1931	100.0	46.0	43.6	10.4	4.3	2.8	3.0	.3
1932	100.0	45.7	44.5	9.8	4.3	3.0	2.2	.3
1933	100.0	45.5	44.5	10.0	4.5	3.0	2.2	.3
1934	100.0	43.8	45.3	10.9	4.8	3.3	2.6	.2
1935	100.0	44.6	43.4	12.0	5.3	3.6	2.9	.2
1936	100.0	45.7	41.5	12.8	5.4	3.5	3.5	.4
1937	100.0	44.9	41.4	13.7	5.6	3.7	4.0	.4
1938	100.0	44.6	41.4	14.0	5.9	3.9	4.0	.2
1939	100.0	43.7	42.2	14.1	5.9	3.9	4.1	.2
1940	100.0	44.2	41.1	14.7	5.8	4.2	4.3	.4
1941	100.0	45.2	39.3	15.5	5.9	4.1	5.2	.3
1942	100.0	46.5	37.2	16.3	6.1	3.9	5.9	.3
1943	100.0	54.5	30.6	14.9	5.2	4.5	4.6	.6
1944	100.0	55.8	30.5	13.7	5.0	3.5	4.6	.6
1945	100.0	56.9	26.9	16.2	6.6	4.0	4.9	.7
1946	100.0	55.4	25.1	19.5	6.6	4.1	8.3	.5
1947	100.0	52.4	27.8	19.8	7.1	4.6	7.6	.5
1948	100.0	54.2	26.1	19.7	7.3	4.8	7.1	.5
1949	100.0	53.3	27.2	19.5	7.6	4.6	6.7	.6

NOTE.—Computed from data in table 3.

Because of rising per capita consumption for several products mentioned above, use of milk in manufacturing increased faster than the population from the early 1920's through the 1930's. In 1935–39, an average of 49 billion pounds of milk was used annually in major factory products, an increase of 22 percent over the approximately 40 billion pounds in the middle 1920's (table 80). Production of major items in 1935–39 as percentages of 1920–24 are as follows: Creamery butter, 140 percent; total cheese, 151 percent; and evaporated whole milk, 186 percent. Production of dry whole milk expanded threefold, and production of nonfat dry-milk solids increased about sevenfold.

During World War II, consumption and prdoduction of some dairy products were restricted by supply controls of various kinds. The peak in total milk used in manufactured dairy products, 60 billion pounds, was reached in 1942. In the following years of World War II, the pattern of output shifted and total milk used in factory production, especially of butter, declined gradually. About 55 billion pounds were used each year in 1944 and 1945, and in 1946 the total usage declined to 52 billion pounds. In the postwar era, there has been again a tendency to expand, although 1948 declined sharply from the preceding year, reflecting the drought of 1947. The 1943–45 average of milk used in factory production was 55.5 billion pounds. an increase of 14 percent over the 1935–39 period. Wartime demands were relatively greater for those items containing both the fat and solids-not-fat components of whole milk, such as evaporated milk and whole milk cheese. Consequently, as shown in table 5, production of these items expanded substantially, whereas production of butter was reduced moderately. The pattern of production in 1949, although free of all supply controls, more nearly resembled the pattern in output of 1943–45 than of 1935–39.

TABLE 5.—*Total production (product weight) of manufactured dairy products in the United States, 1920–49*

[Millions of pounds]

Year	Creamery butter [2]	Cheese (made from whole milk)									Full skim American cheese	Cottage pot, and bakers' cheese	Cottage [1]		Condensed milk		Evaporated milk	
		American [3]	Swiss, including block	Brick and munster	Limburger	Cream and Neufchatel [4]	All Italian varieties	Blue mold [5]	All other varieties [6]	Total [7]			Curd [6]	Creamed [6]	Skimmed	Unskimmed	Unsweetened skimmed case goods	Unskimmed case goods
1920	929.3	308.8	24.3	52.6	8.9	9.1	5.7	----	14.7	424.1	7.7	29.9	----	----	156.2	436.4	5.5	979.9
1921	1,131.6	313.8	27.0	50.2	8.4	11.1	4.5	----	7.3	422.1	2.1	27.3	----	----	139.1	295.5	1.4	1,028.2
1922	1,226.8	334.3	23.4	43.6	8.7	11.7	3.1	----	6.3	431.1	2.9	32.4	----	----	147.0	330.8	3.6	949.9
1923	1,319.7	358.0	28.3	38.4	8.2	11.9	2.5	----	5.8	453.1	2.3	35.5	----	----	182.4	332.9	7.0	1,252.5
1924	1,439.2	371.2	24.8	36.4	11.0	17.0	2.2	----	5.3	467.9	1.8	54.3	----	----	181.8	317.5	11.6	1,189.8
1925	1,455.6	390.5	26.2	38.0	10.2	19.6	1.7	----	4.9	491.1	3.7	59.5	----	----	204.3	345.1	6.0	1,202.5
1926	1,536.1	376.2	23.2	34.5	10.7	20.2	2.7	----	5.6	473.1	1.5	68.0	----	----	265.5	297.5	12.0	1,158.5
1927	1,564.2	343.9	20.0	34.9	9.8	28.7	3.7	----	6.4	447.4	2.1	75.7	----	----	271.4	302.4	8.1	1,273.8
1928	1,536.8	371.9	18.4	31.9	8.2	33.6	3.9	----	10.0	477.9	3.4	87.5	----	----	303.7	267.1	10.6	1,337.0
1929	1,618.1	377.8	19.5	32.0	8.6	34.6	6.0	----	7.6	486.1	1.1	94.9	----	----	357.7	349.3	----	1,499.6
1930	1,597.7	382.2	26.4	33.5	8.5	33.5	8.6	----	7.0	499.7	.7	97.6	----	----	317.3	312.2	1.6	1,449.1
1931	1,667.5	377.8	28.2	35.5	8.5	33.6	3.5	----	4.9	492.0	.4	101.6	----	----	287.5	253.4	(8)	1,429.0
1932	1,694.1	374.1	25.5	37.0	7.9	31.6	3.8	----	4.0	483.9	.2	103.5	----	----	260.7	209.0	----	1,570.6
1933	1,762.8	415.0	40.3	36.1	9.4	33.4	4.8	----	4.1	543.1	.7	100.9	----	----	243.4	181.8	----	1,716.7
1934	1,694.7	441.0	39.4	38.4	9.5	40.5	5.5	----	4.7	579.0	.1	103.2	----	----	263.0	196.4	----	1,711.6
1935	1,632.4	475.6	42.6	37.5	9.5	39.0	10.6	----	5.9	620.7	.2	109.6	----	----	299.6	192.7	----	1,838.9
1936	1,629.4	493.1	40.1	38.1	12.0	40.4	11.4	----	7.2	642.3	.3	120.0	----	----	347.7	226.6	1.6	2,043.8
1937	1,624.0	496.8	41.5	35.6	8.2	44.0	13.5	----	9.2	648.8	.2	132.4	----	----	376.3	228.9	----	1,902.5
1938	1,786.2	566.4	43.1	35.0	9.1	44.1	16.5	----	11.1	725.3	.2	143.3	----	----	397.3	218.2	----	2,104.2
1939	1,781.7	541.5	42.6	35.0	9.0	48.0	20.5	----	11.9	708.5	.2	166.7	----	----	377.3	196.7	----	2,170.6
1940	1,836.8	606.7	48.7	34.3	8.2	51.2	25.0	----	11.4	785.5	.2	174.3	----	----	414.8	266.1	----	2,464.7
1941	1,872.2	757.3	56.0	32.1	8.0	50.0	34.4	----	18.4	956.2	.4	187.6	----	----	502.5	308.0	3.9	3,246.5
1942	1,764.1	920.6	52.6	28.8	8.4	47.6	34.9	----	19.4	1,121.3	1.0	196.8	----	----	549.1	263.7	1.2	3,518.5
1943	1,673.8	769.8	45.6	28.0	6.6	70.5	43.0	8.0	21.8	993.3	2.3	213.9	----	----	633.1	286.3	(8)	3,057.3
1944	1,488.5	807.0	45.6	27.4	7.5	60.4	41.8	6.8	20.7	1,017.2	2.6	224.4	----	----	738.7	322.1	(8)	3,428.1
1945	1,363.7	876.2	50.1	14.8	8.8	66.9	64.6	9.8	25.6	1,116.8	2.2	284.8	----	----	973.8	349.2	(8)	3,776.4
1946	1,171.3	804.0	55.7	17.7	9.4	78.8	75.4	12.5	52.8	1,106.3	2.4	----	216.3	209.9	1,305.6	282.1	18.0	3,050.6
1947	1,329.1	937.6	71.6	26.5	7.8	66.5	38.1	10.6	24.2	1,182.9	2.2	----	215.3	230.6	945.2	422.2	16.8	3,208.0
1948	1,210.0	854.7	70.7	26.5	7.3	56.8	43.4	9.3	25.7	1,094.4	2.0	----	255.6	248.0	735.7	395.1	18.5	3,382.9
1949 [9]	1,408.6	[10] 928.1	80.6	31.2	8.9	----	50.4	10.2	27.9	----	----	----	----	----	719.8	397.7	----	2,755.6

TABLE 5.—*Total production (product weight) of manufactured dairy products in the United States, 1920–49*—Continued

Year	Dry whole milk	Nonfat dry milk solids [11]		Dry ice cream mix [6]	Dry cream [13]	Malted milk powder	Frozen products [12]					Dry butter milk	Dry whey [6]	Condensed or evaporated buttermilk	Concentrated skim milk for animal feed [6]	Dry skim milk for animal feed [11]	Dry casein	Milk sugar (crude)
		Spray process	Roller process				Total ice cream	Sherbet (milk) [6]	Ice milk [6]	Frozen custards [6]	Frosted or frozen malted milk [6]							
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*1,000 lb.*	*Mil. lb.*	*Mil. gal.*	*Mil. gal.*	*Mil. gal.*	*1,000 gal.*	*Mil. gal.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*
1920	10.3	27.0		-------	309	19.7	148.3	-------	-------	-------	-------	5.7	-------	32.5	-------	15.0	11.5	5.6
1921	4.2	25.0		-------	130	15.7	147.9	-------	-------	-------	-------	7.7	-------	29.3	-------	14.0	8.1	2.9
1922	5.6	26.0		-------	118	13.7	161.5	-------	-------	-------	-------	9.0	-------	44.3	-------	15.0	6.9	2.2
1923	6.6	40.0		-------	328	15.3	183.4	-------	-------	-------	-------	13.0	-------	54.8	-------	22.0	14.5	2.9
1924	7.9	45.0		-------	1,018	15.9	181.6	-------	-------	-------	-------	18.1	-------	66.8	-------	24.0	20.8	3.3
1925	8.9	47.0		-------	339	18.0	214.4	-------	-------	-------	-------	20.2	-------	77.1	-------	25.0	16.7	5.7
1926	10.8	60.0		-------	331	20.7	215.2	-------	-------	-------	-------	31.4	-------	86.7	-------	32.0	17.0	4.5
1927	11.5	77.0		-------	338	22.1	226.8	-------	-------	-------	-------	38.4	-------	99.2	15.2	41.0	18.0	4.1
1928	9.6	96.0		-------	673	21.1	232.2	-------	-------	-------	-------	45.5	-------	102.5	21.0	52.0	22.2	5.3
1929	13.2	135.0		-------	294	22.8	254.6	-------	-------	-------	-------	54.2	-------	107.3	14.9	73.0	30.5	9.0
1930	15.4	169.0		-------	400	22.7	240.8	-------	-------	-------	-------	64.6	-------	96.4	23.2	92.0	42.0	12.8
1931	12.6	170.0		-------	161	19.2	208.2	-------	-------	-------	-------	50.5	-------	64.6	27.6	92.0	35.3	9.6
1932	12.0	176.0		-------	80	13.2	154.6	2.2	-------	-------	-------	48.7	-------	52.2	11.4	94.0	24.4	-------
1933	13.0	187.0		-------	154	12.3	148.9	2.0	-------	-------	-------	53.3	-------	50.2	17.2	101.0	24.1	-------
1934	15.9	192.0		-------	65	13.6	179.6	3.2	-------	-------	-------	53.6	-------	65.7	12.5	103.0	37.3	-------
1935	19.4	187.5		-------	44	15.5	199.4	3.6	-------	-------	-------	49.8	-------	70.5	18.1	110.0	37.7	-------
1936	18.2	223.8		-------	178	18.5	243.6	5.3	-------	-------	-------	50.8	-------	89.6	12.6	125.7	46.1	-------
1937	13.7	244.5		-------	79	19.8	280.9	6.0	-------	-------	-------	53.1	66.6	87.9	10.1	127.7	67.5	-------
1938	21.5	289.1		-------	40	15.4	281.9	6.0	-------	-------	-------	63.9	47.4	89.5	13.3	160.2	48.5	-------
1939	24.5	267.9		-------	49	19.7	304.5	13.8	-------	-------	-------	62.2	56.3	104.3	11.7	140.5	40.9	-------
1940	29.4	321.8		-------	54	20.0	318.1	8.1	11.9	420	2.5	67.9	91.0	111.8	14.9	160.0	46.6	-------
1941	45.6	366.5		-------	43	23.2	390.2	8.1	14.0	750	3.4	75.6	111.3	128.2	19.4	110.0	47.3	-------
1942	62.2	565.4		-------	54	34.7	464.1	8.8	14.0	988	3.6	69.6	124.5	170.0	13.2	61.1	42.3	-------
1943	137.8	245.6	264.0	-------	216	49.4	411.6	47.2	10.0	1,543	3.8	61.0	110.2	167.3	15.0	24.3	18.4	-------
1944	177.8	266.4	316.5	51.7	193	40.5	444.2	49.5	9.0	1,400	3.3	56.7	141.6	157.5	20.5	16.4	15.3	10.7
1945	217.3	297.6	344.9	93.1	203	42.8	476.4	65.2	12.5	2,410	4.0	49.6	135.9	160.4	12.2	17.5	12.3	15.6
1946	188.4	365.1	288.4	17.4	567	45.0	713.6	12.0	15.5	1,923	3.7	38.6	148.0	226.7	23.4	13.7	18.3	23.0
1947	164.9	418.7	259.2	14.7	320	37.4	628.9	10.4	15.8	2,514	3.0	45.4	157.6	189.1	18.6	22.1	35.8	21.8
1948	170.1	436.1	245.5	19.1	312	31.4	570.1	12.2	19.6	2,317	3.2	41.5	125.2	171.0	22.6	13.1	14.4	24.4
1949	129.9	607.6	310.4	-------	-------	-------	553.7	14.2	-------	-------	-------	45.0	-------	-------	-------	20.0	20.3	19.2

[1] Comparable data for years prior to 1946 not available. Cottage cheese curd includes cottage, pot, and bakers' cheese with a butterfat content of less than 4 percent. Creamed cottage cheese includes cheese with a butterfat content of 4 to 19 percent. Cottage cheese curd and creamed cottage cheese should not be added together to get a total cottage cheese figure, for while some of the cottage cheese curd is sold direct for consumption without further processing, a considerable part is creamed within the plant or shipped to another plant for creaming prior to sale.

[2] Includes whey butter.

[3] Includes cheddar, Colby, washed curd, high and low moisture Jack, Monterey Granular, and part skim American cheese.

[4] Cream cheese not less than 33 percent butterfat; Neufchatel cheese, butterfat content ranging from 20 to 32 percent inclusive. Prior to 1943, cream cheese only.

[5] Included in "All other varieties" prior to 1943.

[6] Data on production not available for years with no entries.

[7] Excludes full skim American and cottage cheese. Computed from unrounded numbers.

[8] Less than 0.5 million pounds.

[9] Preliminary.

[10] Does not include part skim.

[11] Production for food use prior to 1936, based on proportion produced for food in 1936–40 applied to data on total output as reported by BAE for 1920-35. Prior to 1943, no breakdown of total nonfat dry milk solids is available for spray and roller process powder.

[12] Production shown for frozen products includes that made by all types of plants for both wholesale and retail.

[13] Includes concentrated ice cream mix converted to dry ice cream mix equivalent.

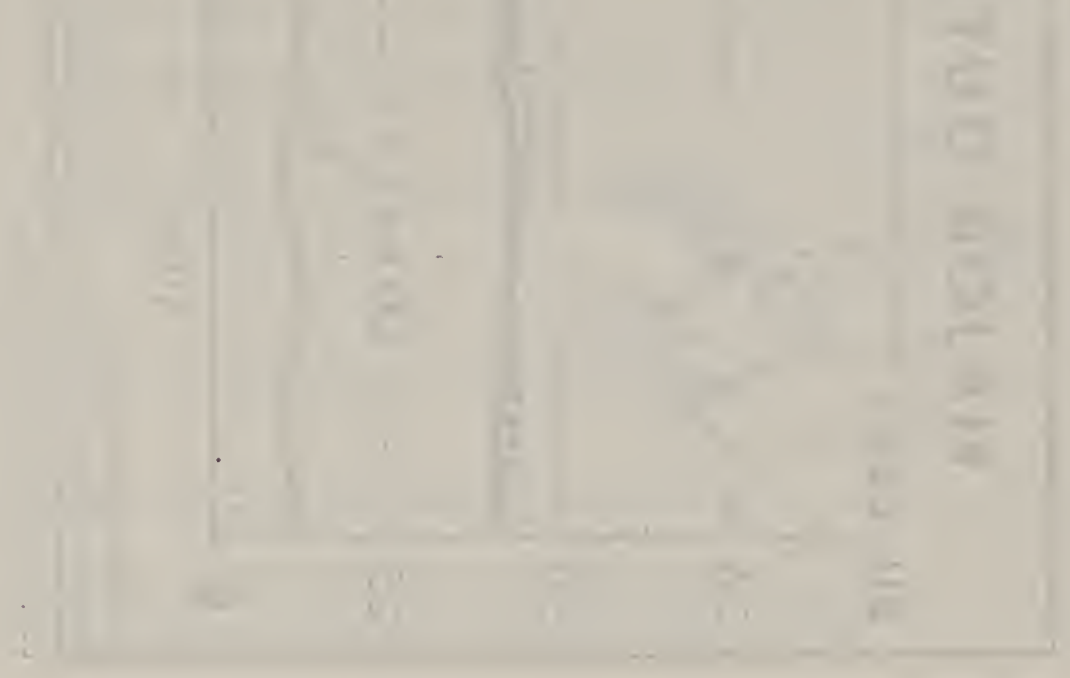


FIGURE 7

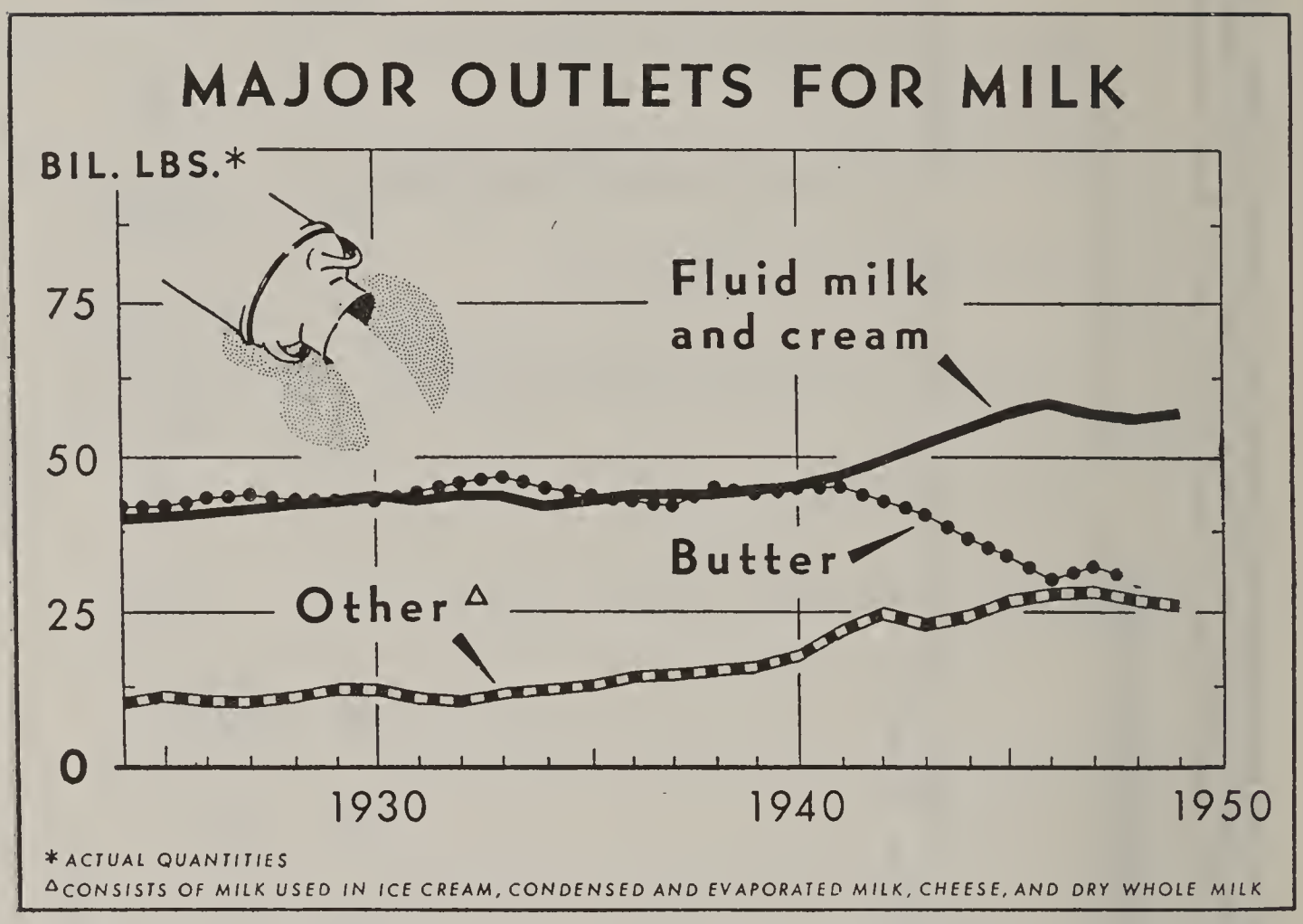


FIGURE 8

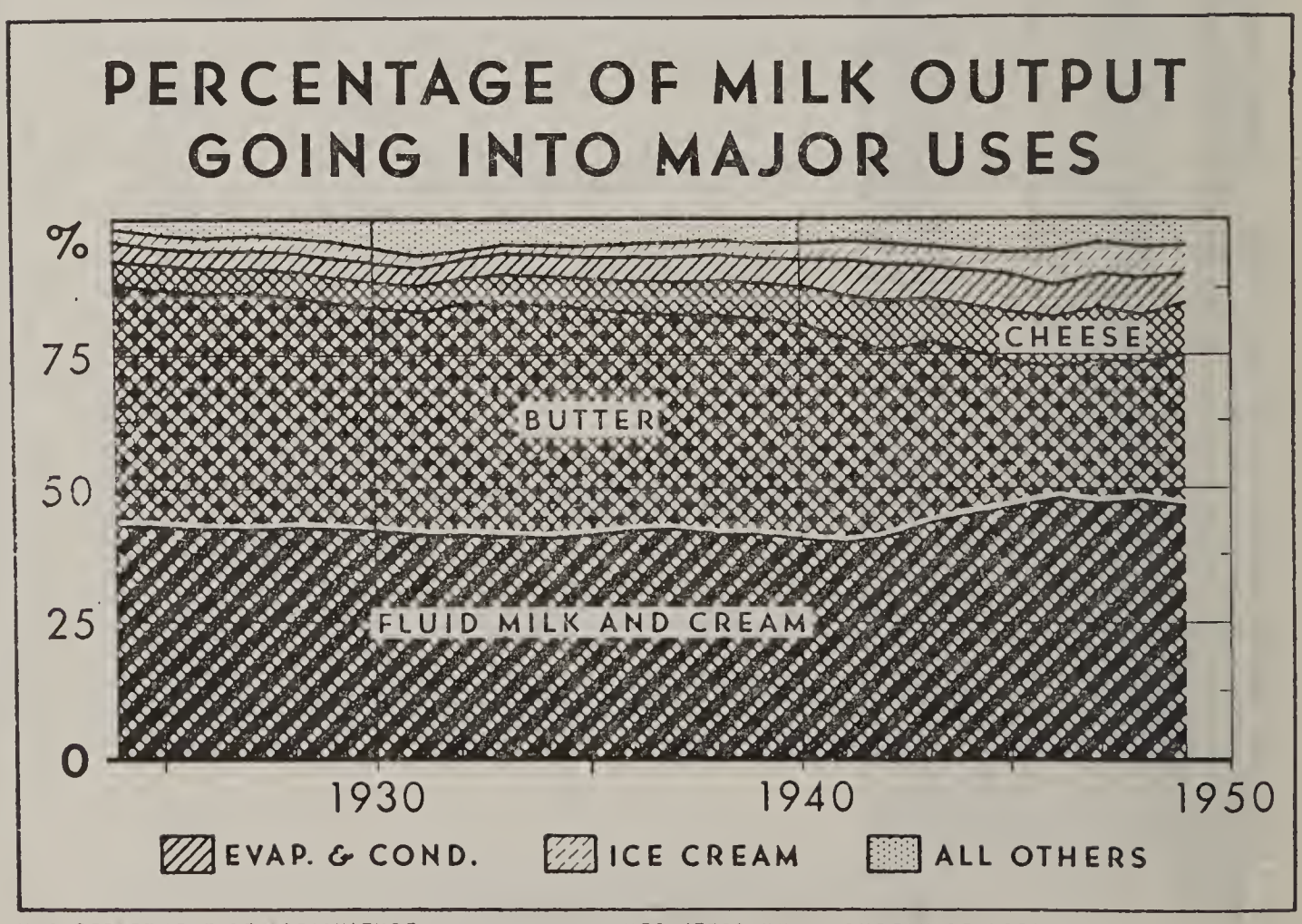


TABLE 6.—*Utilization of milk for fluid purposes and for specified manufactured products as a percentage of total milk production, United States, 1924–49*

[Percent]

Year	Fluid milk and cream [1]	Butter			Total less butter, fluid milk and cream	Cheese			Milk			Ice cream	Other [3]	Total
		Creamery	Farm	Total		American [2]	Other [2]	Total	Evaporated	Condensed	Dry whole			
1924	42.5	30.9	14.1	45.0	12.5	5.1	------	5.1	2.7	0.8	0.1	2.3	1.5	100
1925	42.6	30.8	13.4	44.2	13.2	5.3	------	5.3	2.7	.8	.1	2.7	1.6	100
1926	42.1	31.7	13.1	44.8	13.1	4.9	------	4.9	2.6	.7	.1	2.6	2.2	100
1927	42.0	31.8	12.5	44.3	13.7	4.6	------	4.6	2.8	.7	.1	2.7	2.8	100
1928	42.5	31.1	11.9	43.0	14.5	4.9	------	4.9	2.9	.6	.1	2.8	3.2	100
1929	42.2	31.5	10.8	42.3	15.5	3.7	1.0	4.7	3.2	.8	.1	3.0	3.7	100
1930	42.0	31.2	10.4	41.6	16.4	3.8	1.1	4.9	3.0	.7	.1	2.8	4.9	100
1931	40.9	31.7	10.4	42.1	17.0	3.6	1.1	4.7	2.9	.6	.1	2.3	6.4	100
1932	41.3	31.9	11.1	43.0	15.7	3.6	1.0	4.6	3.2	.4	.1	1.7	5.7	100
1933	41.0	32.9	11.0	43.9	15.1	3.9	1.2	5.1	3.4	.4	.1	1.6	4.5	100
1934	40.5	32.6	10.9	43.5	16.0	4.3	1.3	5.6	3.5	.4	.1	2.0	4.4	100
1935	41.3	31.4	10.5	41.9	16.8	4.6	1.4	6.0	3.8	.4	.2	2.2	4.2	100
1936	41.8	31.0	9.7	40.7	17.5	4.7	1.4	6.1	4.2	.5	.1	2.7	3.9	100
1937	42.2	31.0	9.1	40.1	17.7	4.8	1.4	6.2	3.9	.5	.1	3.2	3.8	100
1938	40.8	32.9	8.4	41.3	17.9	5.3	1.4	6.7	4.1	.5	.2	3.0	3.4	100
1939	41.3	32.5	7.9	40.4	18.3	5.0	1.5	6.5	4.2	.4	.2	3.2	3.8	100
1940	40.6	32.8	7.2	40.0	19.4	5.4	1.6	7.0	4.7	.5	.2	3.3	3.7	100
1941	39.7	31.7	6.7	38.4	21.9	6.5	1.6	8.1	6.0	.6	.3	3.8	3.1	100
1942	40.7	28.9	6.1	35.0	24.3	7.6	1.5	9.1	6.2	.5	.4	4.4	3.7	100
1943	43.6	28.0	5.7	33.7	22.7	6.4	1.8	8.2	5.5	.5	.9	3.8	3.8	100
1944	45.3	24.7	5.5	30.2	24.5	6.7	1.7	8.4	6.1	.6	1.1	3.9	4.4	100
1945	46.4	22.0	5.4	27.4	26.2	7.1	1.9	9.0	6.5	.7	1.3	4.1	4.6	100
1946	48.4	19.1	5.4	24.5	27.1	6.6	2.3	8.9	5.4	.5	1.2	6.7	4.4	100
1947	47.0	21.8	5.1	26.9	26.1	7.7	2.0	9.7	5.7	.8	1.0	6.2	2.7	100
1948	48.0	20.4	5.0	25.4	26.6	7.2	2.0	9.2	6.1	.8	1.1	5.8	3.6	100
1949 [4]	47.1	23.2	4.6	27.8	25.1	7.7	2.1	9.8	4.8	.8	.8	5.4	3.5	100

[1] Consumed as milk or cream in cities and villages and on farms where produced.
[2] Data not broken down into American and other, 1924–28.
[3] Includes dry cream, malted milk, dry part skim milk, dry ice cream mix and, for 1946 and later years, whole milk equivalent of the fat in cottage cheese; also residual, including miscellaneous minor uses; milk fed to calves; net imports, exports, and year-end carry-over of milk and cream, as well as any inaccuracies of independently determined use estimates.
[4] Preliminary.

The American dairy industry always has utilized for food practically all of the milk fat produced, but the forms in which it has been utilized and consumed have shifted substantially over the years. The proportion of milk used in butter showed a general down trend from 1924 through 1949. (See table 6 and figures 7 and 8.) The largest proportion used—45 percent—was in 1924. A slight upturn occurred in the 1930's but in that period the percentage used in butter was about two percentage points below the 1920's. In the 1935–39 period, about 41 percent of the Nation's milk supply was used for making butter, and during the decade of the 1940's the proportion declined rather sharply. In the 1945–49 period it averaged 26 percent. The proportion of milk used in making both creamery butter and farm butter declined between the middle 1920's and 1949, with a relatively greater decline in that of farm butter. In 1949, 23 percent of the milk supply was used in creamery butter and less than 5 percent was used in making farm butter. For 1924, the percentages were 31 percent for creamery and 14 percent for farm butter. The proportion of milk used in all other manufactured dairy products has increased with few interruptions, since 1924. The proportion of total milk used in making cheese, dry whole milk, evaporated milk, condensed milk, and ice cream increased gradually through 1931. After a slight decline in the early 1930's, an upward trend was resumed, which has prevailed to date with few exceptions. In the last 5-year period, 1945–49, nearly a fourth of the Nation's milk supply was utilized each year in the products other than butter, enumerated above. The proportion increased for all items listed for the period, except condensed milk. In no year, however, did the proportion of milk utilized for this product equal more than 1 percent of the total national supply.

In contrast to the situation for milk fat, a substantial portion of the solids not fat has been channeled into nonfood lines, mainly into animal feeding (tables 40 and 41). However, the volume so involved has been decreased as consumption of most processed dairy products containing solids-not-fat has risen. Unlike the stability in consumption per person of milk fat—ranging between 30 and 33 pounds over the last 30 years—consumption of solids-not-fat has gradually increased from less than 40 pounds in the middle 1920's to around 50 pounds in the late 1940's. These changes stem from the general alterations in pattern of per capita consumption among the different items discussed above (tables 42 and 43). The sharp rise in consumption per person of total solids-not-fat has occurred while production of total solids-not-fat per person has been fairly stable. As a result, the proportion of total output of solids-not-fat utilized for food has increased from approximately 50, to around 70 percent in recent years.

Dairy industry makes important contributions to Nation's diet

Consumption of fresh whole milk and ice cream reached new high levels in the middle 1940's and some other items were above prewar levels. Equating quantities of these other products to whole milk on the basis of the protein and calcium they contain, and adding them to the amount of fresh whole milk consumed, gives an annual total equivalent to 270 quarts per person for 1946, or nearly 3 glasses a day per person. A slight decrease has occurred since 1946.

At current levels of consumption, dairy products make an important contribution to the nutritive value of the food supply. In 1948, for example, dairy products including and excluding butter, respectively, provided the following percentages of the total quantity of each nutrient consumed per person for which calculations were made:

[Percent]

	Including butter	Excluding butter
Calories	16.5	13.8
Protein	25.0	25.0
Fat	25.5	18.4
Calcium	76.0	76.0
Iron	3.5	3.5
Vitamin A	17.7	12.9
Thiamine	10.2	10.2
Riboflavin	47.1	47.1
Niacin	3.6	3.6
Ascorbic acid	5.7	5.7

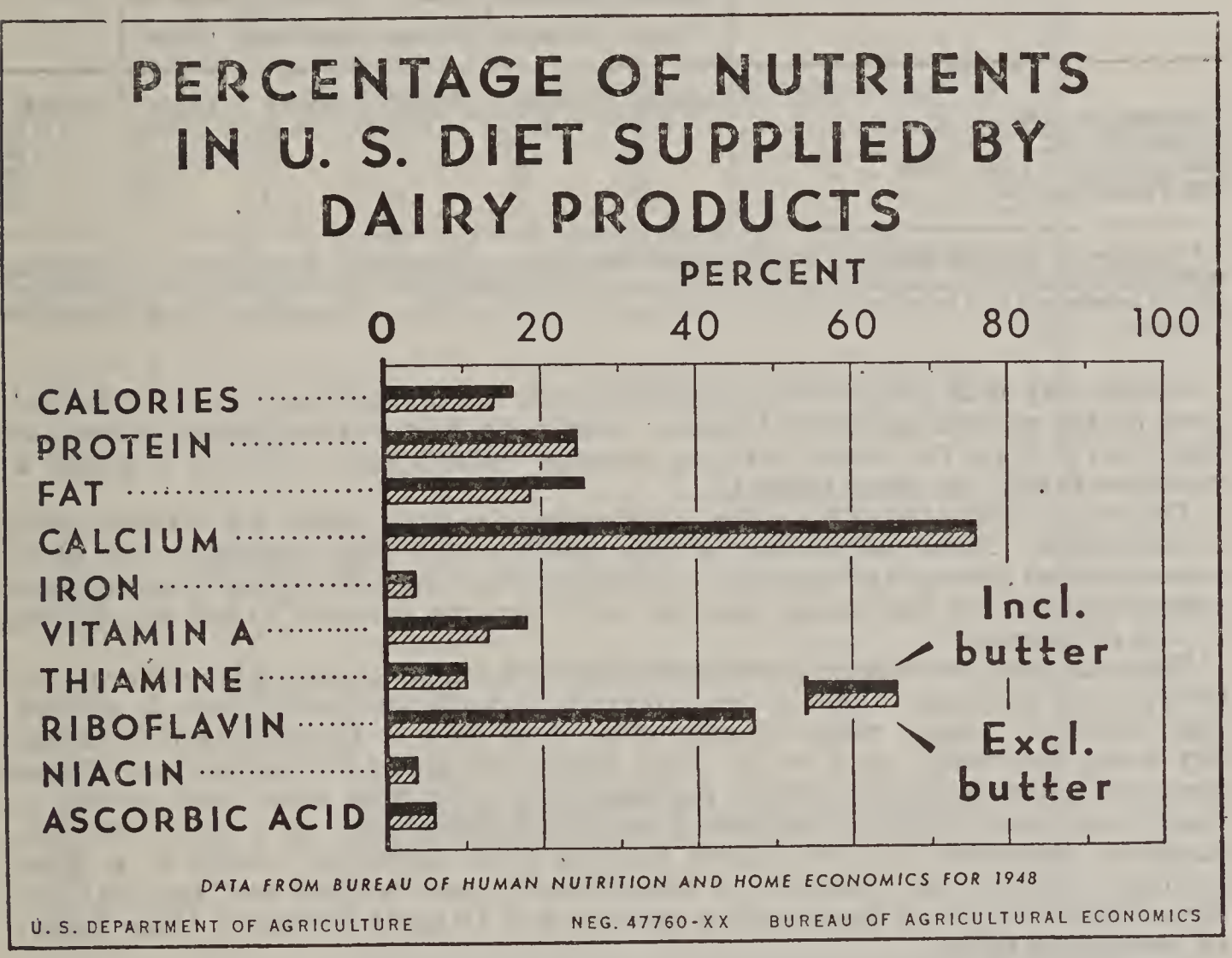
Milk and milk products now supply about three-fourths of the total calcium, the nutrient most likely to be low in American diets (fig. 9). The estimated quantity of calcium provided by the per capita food supply is very close to the recommended allowances of the National Research Council, weighted to a per capita basis. For other nutrients the estimated amount in the per capita food supply, on the average, is a fifth or more above the recommended allowance, thus providing some margin of safety. This means that needs for calcium, as currently estimated, could be achieved for every American only if the available supply were equally divided among the population. It is well known that supplies of foods and nutrients are not evenly distributed. Income, size and composition of families, food habits, and availability of foods are some of the factors that make for differences in consumption. The effect of income is suggested by

differences in the consumption of certain dairy products by urban families as shown below:

Item	Average purchased quantity used per person in a week, spring 1948, urban families in 2 income classes		$5,000–$7,500 as percentage of $1,000–$2,000
	$1,000–$2,000	$5,000–$7,500	
Milk, fluid whole---quart	2.15	3.41	159
Buttermilk---do	.13	.07	54
Milk, evaporated---pound	.68	.33	49
Cream---do	.09	.22	244
Ice cream---do	.13	.29	223
Cheese---do	.22	.38	173
Butter---do	.16	.28	175

Source: Dairy Products in City Diets, Commodity Summary No. 6, based on Food Consumption Surveys, 1948, Bureau of Human Nutrition and Home Economics.

FIGURE 9



Geographic differences reflecting food habits and perhaps income distribution are shown in table 7, which gives consumption of dairy products in four large cities. Families in Buffalo, Minneapolis-St. Paul, and San Francisco used more milk and its equivalent in other products than those in Birmingham. In this southern city, consumption of fluid whole milk was lower, but consumption of buttermilk and evaporated milk was higher than in the northern and western cities.

TABLE 7.—*Consumption of dairy products—Four cities: Average purchased quantities used at home per person in a week, housekeeping families of 2 or more persons, winter (January-March) 1948*

City	House-holds	Milk, cream, ice cream, cheese					
		Total milk equiv-alent [1]	Milk				
			Whole	Butter-milk	Evapo-rated	Nonfat dry milk
	Number	*Quart*	*Quart*	*Quart*	*Pound*	*Pound*
Birmingham, Ala	267	4.21	1.62	0.62	0.91	0.05
Buffalo, N. Y	258	5.09	3.48	.03	.43	0
Minneapolis-St. Paul, Minn	253	5.12	3.82	.07	.12	0
San Francisco, Calif	288	5.69	3.43	.06	.46	0

City	Milk, cream, ice cream, cheese					Butter
	Cream and ice cream		Cheese			
	Cream	Ice cream	Cottage	American	Other	
	Pound	*Pound*	*Pound*	*Pound*	*Pound*	*Pound*
Birmingham, Ala	0.04	0.12	0.02	0.20	0.01	0.10
Buffalo, N. Y	.10	.19	.16	.13	.05	.26
Minneapolis-St. Paul, Minn	.28	.25	.11	.15	.02	.35
San Francisco, Calif	.19	.21	.32	.14	.09	.24

[1] Includes all items in the group, a few of which are not shown separately. Factors used for expressing milk equivalent of the various dairy products were based on the protein and mineral content of each product. U. S. Department of Agriculture, Bureau of Human Nutrition and Home Economics, Family Economics Division.

Nonfat dry milk solids were purchased only in Birmingham where they had been on the market for several years. One in six families used some during the week covered by the study with an average consumption of about a pound a week per family for those using it.

Estimates of the nutritive value of these family diets reflect the differences in consumption. About 40 percent of city families had diets providing less than recommended amounts of calcium. The proportion was 36 percent when incomes were $5,000–$7,500 but among families with incomes between $1,000 and $2,000, it was 50 percent.

There is good nutritional justification for promoting increased consumption of milk and its products. Several types of research have been undertaken to achieve this objective. Some relate to expanding food uses of byproducts like nonfat dry milk, buttermilk, and whey. The Bureau of Human Nutrition and Home Economics has developed recipes for using dry milk, both whole and nonfat, in family meals and in school lunches or meals in institutions. As a special feature, improved formulas for bread have recently been developed, tested by a large baking company, and released for school lunch, institutional, and hospital use. Bread made following these recipes contains 6 to 10 parts by weight (flour basis) of nonfat dry milk.

Exploratory research is under way to promote consumer purchase and use of nonfat dry milk in communities where consumers have not been acquainted with this product.

Dairy industry provides substantial portion of food fats

Within limits, developments within the dairy industry are closely related to developments in the general fats and oils situation. The link between these two broad groups of products is the relationship of milk fat, mainly through butter, to the other types of food fats of both animal and vegetable origin.

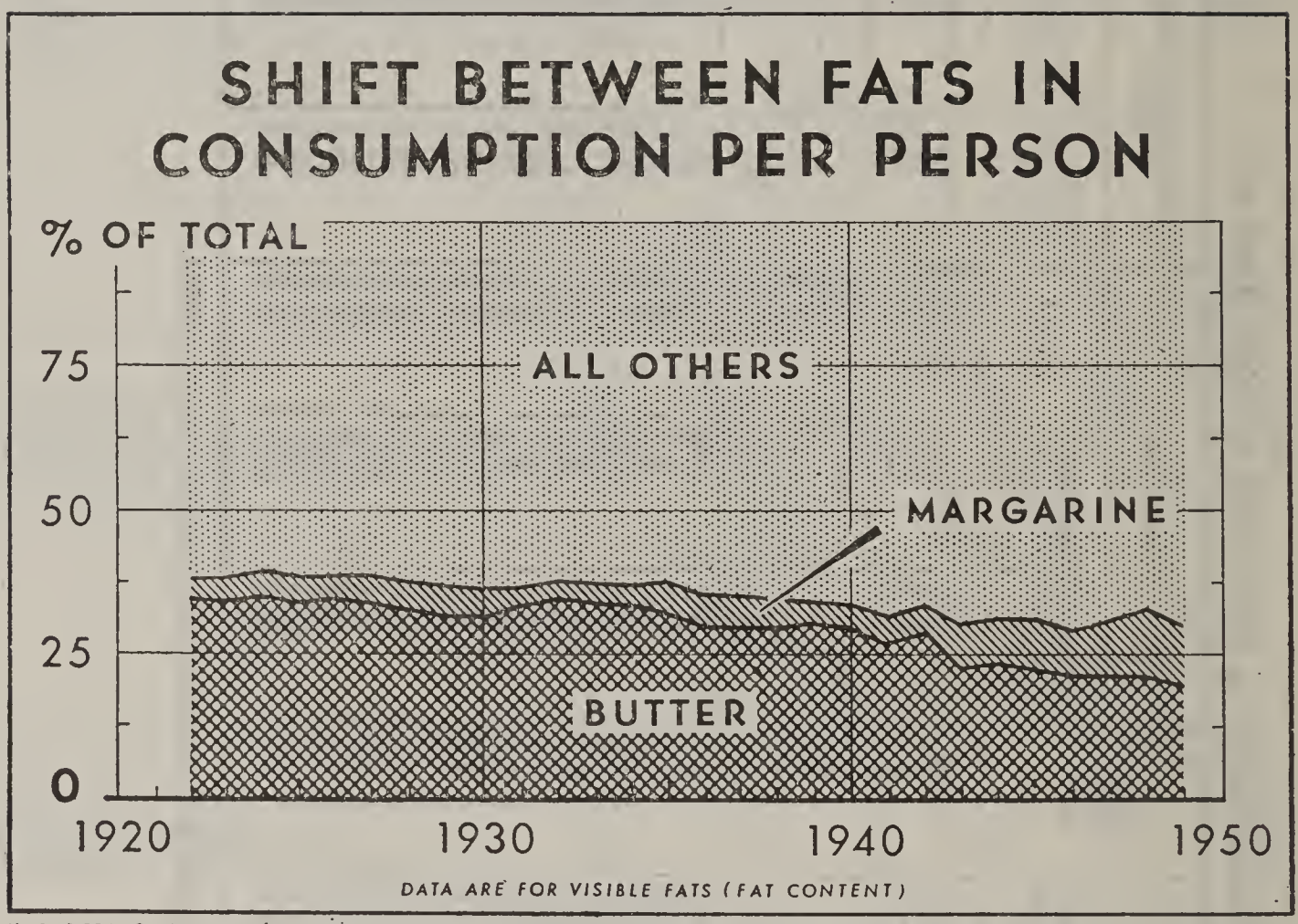
A substantial shift has occurred over three decades as to the source of the food fats and oils. In the early 1920's, seven-tenths were of animal and three-tenths of vegetable origin. In 1948, the two sources were of about equal importance (table 8 and fig. 10).

TABLE 8.—*Fats and oils products (fat content basis): Per capita consumption, by product and by origin, 1922–49*

Year	Butter	Lard	Margarine [1]		Shortening [1]		Other edible oils [2]	Food fats			Percentage of total food fats	
			Ingredients of animal origin	Ingredients of vegetable origin	Ingredients of animal origin	Ingredients of vegetable origin		Ingredients of animal origin	Ingredients of vegetable origin	Total [3]	Ingredients of animal origin	Ingredients of vegetable origin
	Pounds	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Percent*	*Percent*
1922	13.7	13.2	0.7	0.7	0.6	6.0	4.8	28.2	11.5	39.7	71.0	29.0
1923	14.2	14.2	.8	.9	.6	5.9	4.9	29.8	11.7	41.6	71.8	28.2
1924	14.4	14.1	.8	.9	(4)	(4)	3.9	----------	----------	41.1	----------	----------
1925	14.4	12.2	.7	1.0	(4)	(4)	4.9	----------	----------	42.8	----------	----------
1926	14.8	12.1	.7	1.1	(4)	(4)	5.2	----------	----------	43.3	----------	----------
1927	14.5	12.6	.7	1.3	(4)	(4)	4.0	----------	----------	42.8	----------	----------
1928	14.0	13.1	.6	1.6	(4)	(4)	4.7	----------	----------	43.3	----------	----------
1929	13.9	12.7	.7	1.8	.9	8.9	5.4	28.2	16.1	44.3	63.7	36.3
1930	13.9	12.6	.5	1.7	(4)	(4)	6.0	----------	----------	44.4	----------	----------
1931	14.5	13.5	.3	1.2	1.0	8.3	4.8	29.3	14.3	43.6	67.2	32.8
1932	14.6	14.3	.2	1.1	.6	6.9	4.5	29.7	12.5	42.2	70.4	29.6
1933	14.3	13.9	.2	1.4	.6	6.9	5.2	29.0	13.5	42.5	68.2	31.8
1934	14.6	12.9	.3	1.4	.8	8.6	5.2	28.6	15.2	43.9	65.3	34.7
1935	13.8	9.5	.2	2.2	1.4	10.6	5.4	24.9	18.2	43.1	57.8	42.2
1936	13.2	11.2	.2	2.3	1.5	10.8	5.7	26.1	18.8	44.8	58.1	41.9
1937	13.2	10.5	.1	2.4	.9	11.4	6.3	24.7	20.1	44.7	55.1	44.9
1938	13.2	11.0	.2	2.2	1.0	10.5	6.8	25.4	19.5	44.9	56.6	43.4
1939	13.9	12.6	.1	1.7	.8	9.8	7.2	27.4	18.7	46.2	59.4	40.6
1940	13.6	14.3	.2	1.7	.6	8.3	7.5	28.7	17.5	46.3	62.1	37.9
1941	12.8	13.7	.2	2.0	.9	9.4	8.3	27.6	19.7	47.4	58.4	41.6
1942	12.7	12.8	.2	2.0	1.1	8.2	7.6	26.8	17.8	44.6	60.1	39.9
1943	9.5	13.0	.2	2.9	1.1	8.4	6.5	23.8	17.8	41.6	57.2	42.8
1944	9.5	12.3	.2	2.9	.9	8.0	6.7	22.9	17.6	40.5	56.5	43.5
1945	8.8	11.6	.1	3.2	.9	8.2	6.5	21.4	17.5	38.8	55.0	45.0
1946	8.4	11.8	----------	3.1	.6	9.5	6.2	20.8	18.8	39.7	52.5	47.5
1947	9.0	12.7	.1	3.9	1.1	8.2	6.9	22.9	19.0	41.8	54.7	45.3
1948	9.0	12.9	.1	4.8	1.1	8.5	7.2	22.1	20.5	42.6	51.9	48.1
1949	8.4	11.8	.1	4.5	1.0	8.6	8.6	21.3	21.7	43.1	49.5	50.5

[1] Breakdown as to animal and vegetable origin based on quantity of animal fats and vegetable oils used in the manufacture of margarine and shortening.
[2] Assumed to be mostly of vegetable origin.
[3] Computed from unrounded numbers.
[4] Data on materials used not available.

FIGURE 10



Although dairy products supply a smaller proportion of the total (visible and invisible) [4] fat consumed per person than in former years, its contribution, nevertheless, is still very significant. The 30.2 pounds of milk fat (8.2 pounds in butter, 22 pounds in all other dairy products) consumed per person in 1949 were equivalent to 27 percent of the average total fat intake. In 1935–39, dairy products provided 31.6 pounds of milk fat (13.3 pounds in butter and 18.3 pounds in other dairy products), which accounted for 30 percent of the total fat intake. The increase in consumption of margarine in recent years has only partly offset the decline in consumption of butter (fig. 11). The fat content of the two combined in 1949 was 13 pounds, compared with a rather steady level around 16 pounds from 1922 through 1940. Total consumption of fat, in visible and invisible forms, increased from 106 pounds in 1935–39 to 113 pounds in 1949.

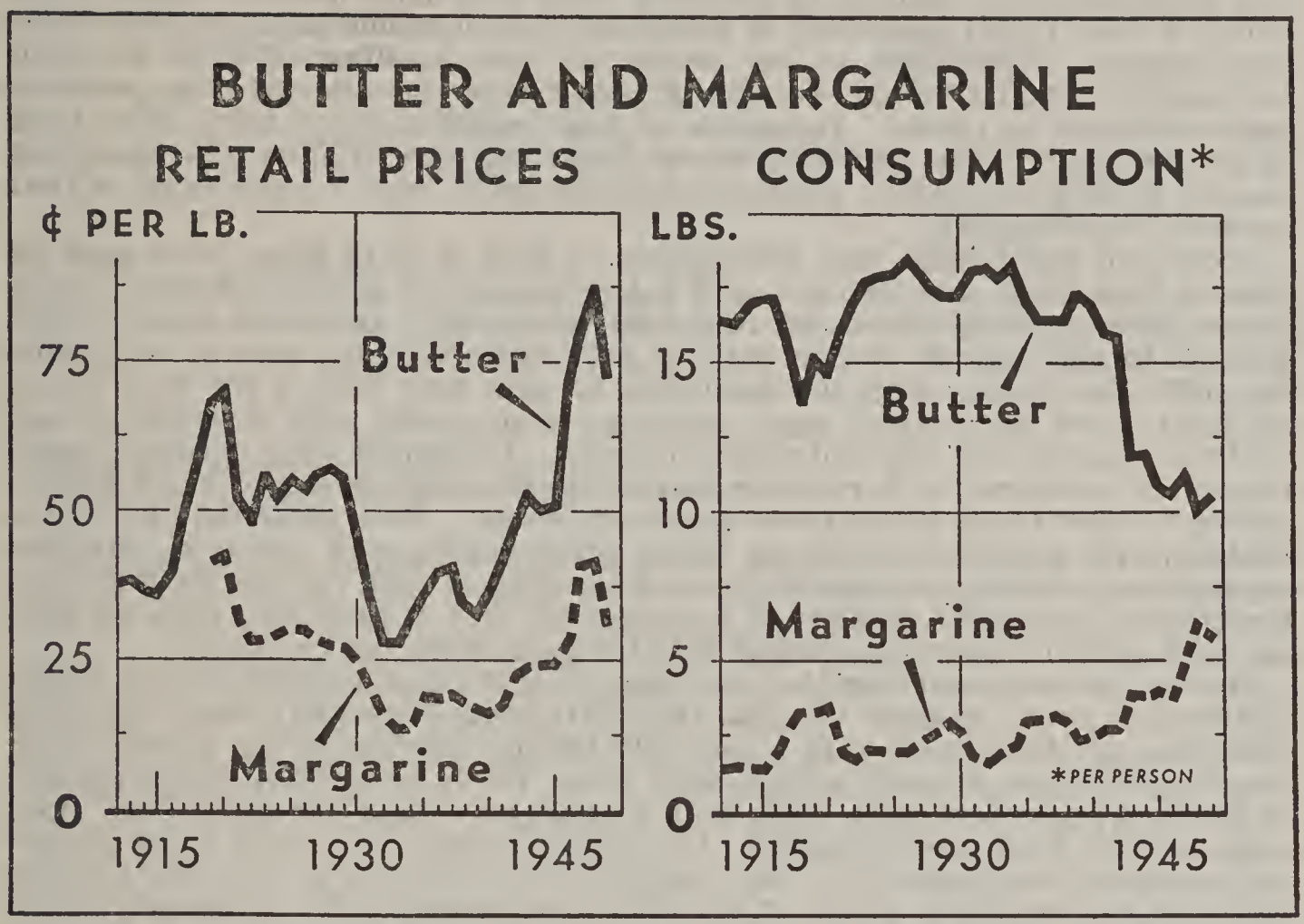
Less than half of the total fats consumed are classed as "visible" food fats and oils, consumption of which increased from 40 pounds in 1922 to the peak of 47 pounds in 1941. (For 1941, however, the consumption rate probably was overstated because of accumulation of stocks in channels not covered by stock surveys.) With wartime shortages and strict rationing, the per capita level dropped to 39 pounds in 1945. An increase has occurred each year since 1945, and in 1950 the per capita level will amount to nearly 44 pounds. Substantial differences in trends are noticeable also in the per capita consumption levels of the different fat products.

Substitutions of these products for different uses depend partly upon price and partly upon applicability of the particular product to the need. Vegetable shortening has been improved considerably for use in home recipes and thereby has tended to replace lard. A shift to vegetable shortening very likely has occurred also in factory production of cereal products.

The price per pound of butter is higher than all other standard food fats. In 1949 the retail price of butter in major cities averaged 72 cents a pound, compared with 31 cents a pound for (uncolored) margarine, 35 cents a pound for shortening, and 19 cents a pound for lard. Margarine is in a price range which permits its use as both shortening and spread. The price of margarine has been declining relative to prices of butter and shortening. From 1925–29 to 1949, the price of (uncolored) margarine declined 18 percent relative to butter and 36 percent relative to shortening, but increased 12 percent relative to lard.

[4] Visible fats include butter, lard, margarine, shortening, and other edible fats and oils. Invisible fats include fats supplied by dairy products other than butter, meats, and other foods.

FIGURE 11



U. S. DEPARTMENT OF AGRICULTURE NEG. 47375-XX BUREAU OF AGRICULTURAL ECONOMICS

In the 1948 food consumption budget study, the average city household unit spent $1.57 weekly for all fats and oils. Of this, butter accounted for 43 percent and margarine 17 percent.

To summarize interfat adjustments with reference to butter: The decline in consumption of butter is partly the result of a shift from use of butter to other products, both for spreads and for cooking purposes. The percentage of all families using some margarine increased from 16 percent in 1942 to 51 percent in 1948. The percentage of families using some butter dropped from 87 percent in 1942 to 67 percent in 1948.

Other spreads for bread, such as cheese spreads, also have increased in popularity. Moreover, per capita consumption of wheat flour has dropped from around 200 pounds in the pre-World War I period to less than 140 pounds in 1947–49. Consumption of potatoes, also to some extent a complementary product to butter, has declined steadily from more than 160 pounds in pre-World War I years to just a little more than 100 pounds (retail weight equivalent) in 1947–49.

Development of classified price plans, pooling and base rating or base surplus plans

A major change since 1920 in the field of pricing milk for sale in city markets was the development and widespread adoption of the classified price plan. One of the features of fluid-milk markets as now organized is that frequently different prices are paid at the same time to milk producers for different portions of their production. The fundamental reason for such a system of differential prices arises jointly from (*a*) the fact that some portions of the milk produced for sale in urban fluid milk markets are used as fluid cream or are manufactured into dairy products such as butter, cheese, or condensed or evaporated milk as well as for fluid purposes, and (*b*) the differences in the cost of transporting fluid milk, fluid cream, and butter and other concentrated dairy products. In some large fluid-milk markets, a single flat, or identical, price is paid for all milk purchased from producers but in the negotiations or calculations by which this price is determined, attention is given to the quantities of milk utilized in different ways. The transportation rate on 100 pounds of fluid milk over a given distance is 8 to 10 times as great as on the same amount of milk equivalent in 40 percent cream, and is 20 to 30 times as great as on the same amount of milk manufactured into butter.

It follows then that city milk markets tend to obtain their supply of milk for fluid use from the closest production area. Fluid cream tends to be obtained from more distant areas, and concentrated dairy products such as butter, cheese,

and condensed milk tend to be obtained from even more distant areas. This situation would hold regardless of any other considerations such as more stringent sanitary regulations on the production and handling of milk for fluid use than are required in the case of milk produced for manufacture into products such as butter or cheese. Inasmuch as fluid whole milk contains more than 86 percent water, milk producers whose farms are located close to urban areas usually enjoy a competitive location advantage on at least a large share of that market's requirements.

Forty and more years ago, distributors of fluid milk in large cities such as Boston, New York, and Chicago paid flat prices for all milk purchased. These prices were generally calculated to induce enough milk producers to ship their product to city buyers, rather than to milk-manufacturing plants, to provide the milk distributors with the quantities of milk they needed for their trade. By the turn of the century, many of the more successful milk distributors had achieved considerable size and volume of sales. Individual dairy farmers, recognizing the weakness of bargaining as individuals, organized into dairy cooperatives in order to get better prices for their product. Soon after the turn of the century, city health departments began promulgating and enforcing sanitary regulations governing the production and handling of milk for sale as fluid milk. Compliance with these regulations increased the cost of producing milk for fluid markets over and above the cost of milk for manufacturing purposes.

During the course of negotiations between officials of cooperatives and milk distributors over the price of milk, the distributors repeatedly made the point that they could pay fluid milk prices only for that portion of the farmer's production which was actually sold as fluid milk. Or, to turn the situation around, if a flat price system were used, milk distributors could accept only as much milk as their fluid needs required. Ordinarily, except for certain short periods of seasonally low production, the supply of milk offered by farmers for sale exceeded the fluid-milk needs of the milk distributors. The remainder, if not to be wasted, had to be manufactured into products of lower average value. It was a natural course of evolution in milk marketing for the farmers' representatives to demand that the milk distributors pay the higher fluid milk or class I price on all milk sold as fluid milk, a somewhat lower price on all milk disposed of as fluid cream, and a still lower price, competitive with manufacturing milk prices, for whatever milk was actually manufactured. In this way the classified price plan in urban milk markets was developed. Such plans recognize the basic fact of differences in transportation costs, mentioned earlier, and the need in the month of lowest milk production for some excess over current fluid needs. The excess commonly suggested is around 15 percent of current fluid consumption, which provides some margin of safety against unusual increases in demand or sharp wintertime drops in supplies. It also recognizes the higher costs involved in production of milk for fluid use under stringent sanitary regulations governing the care and stabling of cows, types of equipment used, methods of sterilization, and other considerations.

Many problems in the administration of such plans arose. It was imperative, in the interests of market stability, that all the available or inspected milk be sold. If some milk producers who held health department shipping permits were turned away without a market for their milk, it would be in their interest to cut their prices and to attempt to find a buyer at the lower price. Indeed, in some cases, there was literally no alternative market for a displaced producer of fluid milk as manufacturing milk plants unable to meet fluid milk prices had closed down or were moved to manufacturing milk territory. It was imperative that a cooperative be able to sell all the milk of its members. If it could not do so, it would lose members and also lose bargaining influence in the market.

As different milk distributors, in practice, had different patterns of milk utilization, it followed that they would pay different prices to their producers. For example, Distributors A and B with different proportions of milk receipts in the

different classes, would pay average prices as follows (for illustrative purposes only):

Distributor A [1]				Distributor B [2]			
Class of milk	Amount of milk	Price per hundredweight	Total value	Class of milk	Amount of milk	Price per hundredweight	Total value
	Hundredweight				*Hundredweight*		
I	900	$3.50	$3,150	I	700	$3.50	$2,450
II	100	3.00	300	II	200	3.00	600
				III	100	2.80	280
Total	1,000		3,450	Total	1,000		3,330

[1] Weighted average price to producers $3.45 per 100 pounds.
[2] Weighted average price to producers $3.33 per 100 pounds.

In this case, the difference in average or composite price is 12 cents per 100 pounds. To prevent such differences in average prices to producers, some, but not all cooperatives, pool the returns from all distributors so that each producer in the same location zone receives the same price. Applied to the case above for 2,000 hundred-weights of milk and total value of $6,780 average price would be $3.39 per hundredweight. Distributor A would pay this price to producers and would remit the difference between total pay-out to producers and total value of milk to the cooperative each month. Distributor B would pay this price to producers and would receive from the cooperative each month a check for the difference between Distributor B's total pay to producers and total value of Distributor B's milk. Thus, the pool would balance out each month. The principle is the same whether there are two or more than a hundred milk distributors in the pool. In some markets, individual dealer pools are employed rather than market-wide or association-wide pools. In some months, the distributors with the lowest average prices find it necessary, in order to hold their producers, to add a few cents per hundred-weight to their composite prices.

In the course of their operations, dairy cooperatives were faced with a situation in which the milk production of their members fluctuated widely between the spring and early summer and the late fall and early winter, whereas the demand for milk for fluid use was relatively stable. As a consequence, the markets in which they operated experienced a heavy "surplus" of milk in April, May and June of each year and were very short of milk in October, November, and December. At least two undesirable consequences arose from this situation. The more important of these was a tendency of the milkshed to enlarge during the short season by addition of new producers. These producers, once in the market, tended to stay. As new producers were added in the fall, the succeeding flush production situation was aggravated. Milk distributors complained of having too much milk and used the situation as a means of attempting to beat down the price of milk. In an effort to level out production over the year, cooperatives developed what came to be known as the base-surplus or base-rating plan. Under this plan, a daily base was established for each producer at the average level of his daily production during a selected period, usually the shortest production months. During the following year, each producer would be paid each month a base price for his deliveries up to a quantity of milk equal to his daily base times the number of days in the month. The remainder of his milk would be paid for at the surplus price. The base price was an average price for all milk sold in fluid form as milk or cream, together with any lower class milk, up

to an amount which equaled the total bases of all the members of the cooperative. The plan could be applied either on the basis of an individual dealer pool or on the basis of a market-wide or association-wide pool. The classified price plan was a way of pricing milk to dealers in accordance with its use. The base rating plan was a means for distributing the returns for milk in different uses among the producers themselves as an incentive to the development of more even production of milk from month to month and season to season. Theoretically, if the total base of all producers were equal to average daily class I and class II sales, a producer who managed to produce exactly his base amount each month would always be paid an average of class I and class II prices with no lower priced manufacturing milk involved. Actually, the prices received for base milk frequently led producers to make strenuous attempts to increase their respective bases each year to the end that the base price itself was diluted by inclusion of lower class milk.

During the war years, there was considerable abandonment of base-surplus plans.[5] Over the last 5 years, several markets have adopted what is often called a take-out and pay-back plan. Under this plan, a stitpulated amount of money, ranging in practice from 20 cents to 75 cents per hundredweight, is deducted from each producer's milk check on all milk sold in certain selected (flush production) months. The money thus aggregated is held in a total pool or in a set of monthly pools and is paid back to producers at a calculated rate during certain short-production months. The rate of deduction or take-out is determined by the association of milk producers and the rate of pay-back is calculated by spreading the pooled take-out funds over the total milk production during the pay-back months and determining the rate per hundredweight which will exactly exhaust the funds. The purpose of this plan is to provide an incentive to milk producers to level out their production more in line with the relatively stable demand for milk for fluid purposes.

The classified price plan, with varying modifications, has been widely accepted by organized milk producers, milk distributors, and State and Federal milk price agencies as an effective method of pricing milk for sale in urban markets. Federal milk orders administered by the United States Department of Agriculture employ the classified price plan and pooling procedures as required in the current marketing laws.

Ownership of dairy marketing agencies has become more concentrated

Some very significant changes have occurred in the structure of the dairy industry of the United States during the last 30 years. Dairy manufacturing plants have become fewer in number and larger in average size. Nation-wide business organizations have been developed. The channels through which manufactured dairy products are distributed have changed. Milk producers' cooperatives have become important in marketing. In part, all of these changes are results of problems which faced the industry, but they have in turn created or intensified other problems.

Number of plants decreases, average size increases

The 1947 Census of Manufacturers reported 6,803 plants classified as butter, cheese, concentrated milk (including plants producing evaporated, condensed, and dried milk), and ice-cream plants in the United States.[6] In 1919, there were 11,144 plants in these categories. Most of the reduction, however, took place between 1939 and 1947 (table 9). This reduction in number of plants occurred while there was a net growth in the total quantity of milk utilized in manufactured dairy products, indicating a considerable increase in average output per plant (table 10).

The biggest change was in number of plants producing butter and cheese. The reduction in number of cheese plants from 3,530 in 1919 to 1,811 in 1947 largely reflects improvements in transportation. In the days of horse transportation, cheese factories served areas of little more than a 3- or 4-mile radius.

---

[5] There are numerous administrative problems involved in the employment of a base-surplus plan.

[6] The Census of Manufactures enumerated all plants having one employee or more in 1947, and $5,000 value of products in previous censuses. Each plant is classified in an industry if half or more of its value of products is of products of that industry. Thus, numbers of plants shown by the census are smaller than those reported by BAE, which are the numbers of all plants reporting any production of specified products. The census figures for number of plants can be added together without duplication; BAE figures cannot.

Some cheese factories today assemble milk from 10 times as large a radius. Thus, large numbers of small factories have been displaced in States which early developed production of cheese.

TABLE 9.—*Number of dairy plants by type, United States, 1919–47*

Type of plant [1]	Number of plants [2]			
	1919	1929	1939	1947
Butter	3,738	3,527	3,506	2,157
Natural cheese	3,530	2,758	2,682	1,811
Evaporated and condensed milk	401	535	562	562
Ice cream and ices	3,475	3,150	2,696	2,273
Total, 4 types	11,144	9,970	9,446	6,803

[1] Classified according to the major product.
[2] Includes plants having more than $5,000 value of products, except in 1947 when plants included were those having one or more employees.

Source: Census of Manufactures, 1947.

TABLE 10.—*Average production per plant, specified dairy products, United States, 1919–48*

[In thousands of pounds]

Year	Average production per plant		
	Creamery butter	American cheese	Evaporated milk
1919	232	130	7,657
1929	386	161	10,132
1939	384	235	15,179
1948	375	486	24,693

Hirsch, D. E., Farmers' Cooperatives and the Trend Toward Large-Scale Dairy Plants, U. S. Farm Credit Administration, Miscellaneous Report 80, March 1945, pp. 27, 28. Data for 1948 based on Production of Manufactured Dairy Products, 1948, Bureau of Agricultural Economics, November 1949.

Improved transportation has been a factor in reducing the number of butter plants, as well as other types of plants, but numbers of butter plants also reflect the large reduction in creamery butter output from peak levels of the interwar period. In 1919, butter plants numbered 3,738. By 1939, when production of creamery butter was near its all-time record, there were still 3,506 plants, but in 1947 there were only 2,157.

The concentrated milk plants are the only group to show an increase in numbers during the last three decades. These plants increased from 401 in 1919 to 562 in 1947, though there was no change between 1939 and 1947. In 1947, only 135 plants which produced evaporated milk reported to the Bureau of Agricultural Economics, so most of the plants in this census industry group produce mainly condensed and dried milks. The Bureau of Agricultural Economics had reports from 156 evaporated milk plants in 1919.

In recent years, an increasing number of dairy plants have been equipped to produce several dairy products. The more highly diversified of these plants, known variously as flexible, diversified, or multiple-product plants, are few in number, but quite important in volume of production.[7] Of 9,739 dairy plants reporting to the Bureau of Agricultural Economics in 1944, there were about 100 such plants. Additional plants of this type have been built since 1944. The 100 plants in 1944 accounted for 6 percent of the production of butter in the United States, 2 percent of the American cheese, 7 percent of the evaporated milk, and more than 20 percent of the more important condensed and dried-milk products. The importance of these plants is accentuated by their ability to divert milk from use in one product to another as price relationships change.

[7] Cowden, J. M., and Trelogan, H. C., Flexibility of Operation in Dairy Manufacturing Plants, U. S. Department of Agriculture, Circular 799, September 1948, p. 9.

For example, the contraction in output of evaporated milk in 1948–49 was facilitated by the fact that some evaporated milk plants were equipped to divert milk from evaporated milk to butter, dried and/or condensed milk within the plant.

Growth in marketing organizations

Until the 1920's, dairy manufacturing plants were almost all independently owned. There had been some growth of chains of evaporated milk plants and centralizer creameries earlier, but nothing to compare with the rapid growth that occurred between 1923, when the National Dairy Products Corp. was formed, and 1930. In this period the National Dairy Products Corp. grew from nothing to the largest of the dairy companies, with sales of $375,000,000 (table 11); the Borden Co. trebled in size; and the Beatrice and Fairmont Creamery companies about doubled. In 1948, sales of the four companies combined totaled $1,943,848,000, nearly 2½ times as large as in 1930 (including the effects of price increases).

TABLE 11.—*Sales of four leading dairy companies compared with estimated total sales value of dairy products, 1919–48*

Year	Retail value [1]	Sales [2]				
		National Dairy Products Corp.	Beatrice Creamery Co.	The Borden Co.	Fairmont Creamery Co. (Delaware) [3]	Total, 4 companies
	Billions of dollars	*Thousands of dollars*	*Thousands of dollars*	*Thousands of dollars*	*Thousands of dollars*	*Thousands of dollars*
1919	4.90			122,284		
1920	4.76			120,294		
1921	3.86			99,880	26,899	
1922	4.06			92,059	28,565	
1923	4.37	13,569		100,245	33,521	
1924	4.66	20,181		109,667	33,027	
1925	4.92	105,377	35,051	123,353	35,674	299,455
1926	4.96	134,550	33,974	124,912	37,504	330,940
1927	5.00	145,330	52,744	132,047	39,823	369,944
1928	5.23	212,632	53,307	180,850	(4)	
1929	5.30	300,021	83,682	328,467	47,747	759,917
1930	4.90	374,558	82,811	345,423	[5] 51,586	854,378
1931	4.12	320,788	64,059	284,587	36,295	705,729
1932	3.11	252,654	46,264	212,349	29,031	540,298
1933	3.01	231,197	44,868	186,301	33,617	495,983
1934	3.60	267,415	54,883	215,724	40,371	578,393
1935	3.94	290,441	57,117	229,888	42,995	620,441
1936	4.22	329,172	59,667	238,845	46,005	673,689
1937	4.47	351,016	64,224	237,562	46,884	699,686
1938	4.14	334,355	59,324	212,039	41,447	647,165
1939	4.27	336,694	63,641	208,789	39,186	648,310
1940	4.38	347,410	69,526	216,796	43,856	677,588
1941	4.95	431,050	85,184	259,128	56,983	832,345
1942	5.66	562,452	101,628	325,350	81,046	1,070,476
1943	5.94	580,173	106,507	371,866	83,363	1,141,909
1944	6.01	593,853	110,325	410,478	79,231	1,193,887
1945	5.73	632,767	125,110	459,455	79,296	1,296,628
1946	8.73	742,409	170,006	542,999	108,943	1,964,357
1947	12.74	897,323	181,716	602,959	113,331	1,795,329
1948	13.50	986,404	192,199	649,592	115,653	1,943,848

[1] Derived by dividing farm value by farmer's share estimated from commodity price spreads. Valuation is at retail store sales level.
[2] Moody's Manual of Investments: Industrials. Sales of individual companies include some products that are not dairy products.
[3] Before 1929 known as Fairmont Creamery Co. (Nebraska).
[4] Not available.
[5] Covers a 14-month period.

Meat packers and grocery chains also are important large-scale marketing agencies for dairy products. The meat packers began handling butter and cheese along with meats at an early date. In point of volume handled of these products, they even outrank some of the large dairy companies. Some of the meat packers operate distributing chains which handle butter and other dairy products. They market their own output, along with products purchased from

Correction of page 1992

For example, the contraction in output of evaporated milk in 1948–49 was facilitated by the fact that some evaporated milk plants were equipped to divert milk from evaporated milk to butter, dried and/or condensed milk within the plant.

Growth in marketing organizations

Until the 1920's, dairy manufacturing plants were almost all independently owned. There had been some growth of chains of evaporated milk plants and centralizer creameries earlier, but nothing to compare with the rapid growth that occurred between 1923, when the National Dairy Products Corp. was formed, and 1930. In this period the National Dairy Products Corp. grew from nothing to the largest of the dairy companies, with sales of $375,000,000 (table 11); the Borden Co. trebled in size; and the Beatrice and Fairmont Creamery companies about doubled. In 1948, sales of the four companies combined totaled $1,943,848,000, nearly 2½ times as large as in 1930 (including the effects of price increases).

TABLE 11.—*Sales of four leading dairy companies compared with estimated total sales value of dairy products, 1919–48*

Year	Retail value [1]	Sales [2]				
		National Dairy Products Corp.	Beatrice Creamery Co.	The Borden Co.	Fairmont Creamery Co. (Delaware) [3]	Total, 4 companies
	Billions of dollars	*Thousands of dollars*	*Thousands of dollars*	*Thousands of dollars*	*Thousands of dollars*	*Thousands of dollars*
1919	2.38	----------	----------	122,284	----------	----------
1920	2.53	----------	----------	120,294	----------	----------
1921	2.34	----------	----------	99,880	26,899	----------
1922	2.31	----------	----------	92,059	28,565	----------
1923	2.65	13,569	----------	100,245	33,521	----------
1924	2.59	20,181	----------	109,667	33,027	----------
1925	2.82	105,377	35,051	123,353	35,674	299,455
1926	2.93	134,550	33,974	124,912	37,504	330,940
1927	3.09	145,330	52,744	132,047	39,823	369,944
1928	3.19	212,632	53,307	180,850	[4]	----------
1929	3.33	300,021	83,682	328,467	47,747	759,917
1930	3.14	374,558	82,811	345,423	[5] 51,586	854,378
1931	2.66	320,788	64,059	284,587	36,295	705,729
1932	2.21	252,654	46,264	212,349	29,031	540,298
1933	2.17	231,197	44,868	186,301	33,617	495,983
1934	2.36	267,415	54,883	215,724	40,371	578,393
1935	2.58	290,441	57,117	229,888	42,995	620,441
1936	2.81	329,172	59,667	238,845	46,005	673,689
1937	2.90	351,016	64,224	237,562	46,884	699,686
1938	2.72	334,355	59,324	212,059	41,447	647,165
1939	2.76	336,694	63,641	208,789	39,186	648,310
1940	3.05	347,410	69,526	216,796	43,856	677,588
1941	3.39	431,050	85,184	259,128	56,983	832,345
1942	4.08	562,452	101,628	325,350	81,046	1,070,476
1943	3.97	580,173	106,507	371,866	83,363	1,141,909
1944	4.14	593,853	110,325	410,478	79,231	1,193,887
1945	4.40	632,767	125,110	459,455	79,296	1,296,628
1946	5.89	742,409	170,006	542,999	108,943	1,564,357
1947	6.32	897,323	181,716	602,959	113,331	1,795,329
1948	6.98	986,404	192,199	649,592	115,653	1,943,848

[1] Derived by dividing farm value by farmer's share estimated from commodity price spreads. Valuation is at retail store sales level.

[2] Moody's Manual of Investments: Industrials. Sales of individual companies include some products that are not dairy products.

[3] Before 1929 known as Fairmont Creamery Co. (Nebraska).

[4] Not available.

[5] Covers a 14-month period.

Meat packers and grocery chains also are important large-scale marketing agencies for dairy products. The meat packers began handling butter and cheese along with meats at an early date. In point of volume handled of these products, they even outrank some of the large dairy companies. Some of the meat packers operate distributing chains which handle butter and other dairy products. They market their own output, along with products purchased from

independent plants, controlling the distribution all the way to the retail store. The grocery chains have gone directly to manufacturers or to marketing cooperatives for their manufactured dairy products, bypassing the earlier commission firms and wholesalers in the central markets. Some of the grocery chains own their own dairy plants, particularly fluid milk plants.

Cooperative associations of farmers were manufacturing some dairy products in large quantities before 1900. It was in the 1920's, however, that they became important in the distribution of dairy products, and in bargaining for the sale of milk to fluid milk distributors. Four of the larger cooperative associations had sales of $147,000,000 in 1931.[8] Their sales increased 162 percent between 1931 and 1949, totaling in the latter year $384,000,000 (table 12).

Change in marketing channels

The wholesalers and jobbers channel, once dominant in the marketing of butter has dwindled in importance.[9] Producer marketing cooperatives probably had much to do with the change, although the activities of the meat packers, the large dairy companies, and the chain stores also were factors. During the period of price control (1942–46) such vertical integration received renewed impetus. Over a long period, however, "there will continue to be a need for the highly selective services of wholesale-jobbers in best satisfying the peculiar or highly discriminating tastes of relatively small groups of people * * *."[10]

The marketing of cheese has always shown some centralization of control at the warehousing stage, the first step from the factory. This centralization was increasing in the 1930's, and the trend may have continued. However, the invention of process cheese led to a further degree of centralized control in cheese marketing. In the mid-1930's, it was estimated that 40 percent of the American and foreign types of cheese produced in this country were marketed as process chees and that two companies, National Dairy Products and Borden, handled nearly all of it. Since then, patents which gave these two companies the ability to acquire such control have expired, but they continue to dominate the cheese-marketing structure.[11]

Marketing of evaporated milk has been in the hands of the manufacturers, who distribute their products chiefly to wholesale grocers and chain stores. Small producers and specialized middlemen have never been important factors in the handling of evaporated milk.[12]

The processing and distributing of fluid milk and ice cream is largely through local plants. In both product fields, horizontal integration through regional and national concerns has been important, but this has not substantially affected the actual physical methods of distribution. Two trends in the distribution of fluid milk have been most significant: One, the trend toward increased sales of milk through stores; the other, a trend toward increased size of market areas. The trend toward sales through stores was most pronounced during the 1930's.[13] The other development—the broadening of market areas—has been most pronounced since the end of the war. It was favored by more widespread use of paper bottles, improvements in transportation, and by the fact that the distributors serving smaller towns, because of their small size, are at a disadvantage from the standpoint of operating costs.[14] As a result of recent developments, milk in many areas of the country moves a greater distance after bottling than it was moved originally from farm to plant. Broader distribution of fluid milk has created serious problems for producers of fluid milk because of the accompanying shifts in supply areas, and for sanitary regulation of milk because it conflicts with the local autonomy upon which such regulation has been based.

---

[8] Froker, R. K., Colebank, A. W., and Hoffman, A. C., Large-Scale Organization in the Dairy Industry, U. S. Department of Agriculture Circular 527, July 1939, p. 8.

[9] Nichols, William H., Postwar Developments in the Marketing of Butter, Iowa Agricultural Experiment Station Res. Bul. 250, February 1939, p. 370.

[10] P. 374 of source cited in footnote 7, p. 1991.

[11] P. 40 of source cited in footnote 8.

[12] P. 43 of source cited in footnote 8.

[13] Herrmann, Louis F., and Welden, W. C., Prewar Developments in Milk Distribution, U. S. Farm Credit Administration, Misc. Rept. 62, November 1942, p. 3.

[14] Sharp, John W., The Intermarket Movement of Paper Container Milk in Ohio, M. S. Thesis, Ohio State University, 1949. Midwestern Milk Marketing Conference Proceedings, fourth annual conference, Madison, Wis., April 1949, pp. 81–95. Proceedings, fifth annual conference, Columbus, Ohio, March 1950, pp. 1–12.

915089—50——5

TABLE 12.—*Sales of 4 leading dairy producers cooperative markeing associations, 1921–49*

Year	Dairymens' League Cooperative Association, Inc.	Land O'Lakes Creameries	Challenge Cream and Butter Association	Pure Milk Association	Total sales of 4 cooperative associations
1921	$61,943,832		$3,658,176		
1929	89,116,833	$52,631,641	17,669,079	$30,071,472	$189,489,025
1930	80,165,184	47,221,543	16,787,974	37,696,574	181,871,275
1931	70,156,911	35,734,976	10,938,765	29,746,739	146,577,391
1937	59,300,040	37,378,486	20,521,543	24,320,335	141,520,404
1949	151,118,928	102,342,268	60,323,996	70,233,916	384,019,108

Data for 1921–37 from p. 10 of source cited in footnote 8. Data for 1949 from annual reports of the association.

III. SOME ASPECTS OF MARKETING DAIRY PRODUCTS [15]

Over the last 30 years many changes have occurred in the processing and distribution of dairy products. By and large, continuous attempts have been made to improve the efficiency of performing given operations but these attempts to cut operating costs have been partially and in some cases completely offset as a result of an increase in demand for and supply of processors' and distributors' services (that is, services as to processing, packages of different sizes and types, delivery, etc.). As per capita incomes increase through time, there appears to be some tendency for the demand for total marketing services to increase much more proportionately, than the demand for the actual food products. In the long-run, this tends to increase gross margins between final consumers and farm producers. Many cost factors are beyond the complete control of the dairy industry. These include such items as wage rates, material, and equipment prices.

Gross margins between producers and consumers fluctuate

The farmer's share of the retail price has varied widely with changes in the general level of prices. In 1932, farmers received only 57 percent of the retail price of butter, as compared with 76 percent in 1947 and 1948. The farmer's share has ranged more widely for the other major dairy products than for butter—from 38 to 63 percent for cheese, from 26 to 53 percent for evaporated milk and from 37 to 57 percent for fluid milk sold through distributors [16] (tables 44–48).

The producer received 55 percent of the average retail price of all dairy products in 1949, based on the 1935–39 average quantities consumed. Butter returned to producers the largest share of the retail price, 72 percent. Evaporated milk was lowest of the four major dairy products in this respect, returning to farmers 42 percent of the retail price. Cheese and fluid milk [17] returned 54 and 53 percent, respectively. These figures and the prices on which they are based are shown in table 13.

TABLE 13.—*Price spreads between farmers and consumers, dairy products, United States, 1949*

Item	Unit	Product				
		Fluid milk [1]	Butter	American cheese	Evaporated milk	All dairy products [2]
		Per quart	*Per pound*	*Per pound*	*Per 14½-ounce can*	
Retail price	Cents	20.6	71.0	55.5	13.6	122.43
Marketing margin	do	9.6	20.1	25.6	7.8	55.15
Farm value	do	11.0	50.9	29.9	5.8	67.28
Farmer's share	Percent	53.0	72.0	54.0	42.0	55.00

[1] Fluid milk marketed through wholesale channels.
[2] For the average quantities purchased by a family of three during the period 1935–39.

[15] The role of dairy cooperatives in this field is discussed separately, beginning on p. 2004.
[16] The percentages shown here differ from those published regularly in the Marketing and Transportation Situation, which include milk retailed by farmers.
[17] Fluid milk marketed through wholesale channels.

The marketing margin on dairy products is divided among several marketing agencies. The most recent estimates of the share of each agency are for the year 1939, when processing absorbed 11.3 percent, wholesaling 4.1 percent, retailing 22.6 percent, and all other marketing costs, including transportation, 6.1 percent.

Combined costs of retailing and wholesaling were lowest for butter and evaporated milk, about 21 percent each. Retailing and wholesaling expenses for fluid milk (not including the plant costs for pasteurizing and bottling) were 29 percent, and retailing and wholesaling expenses for American cheese were 35 percent of the consumer's dollar (table 14).

Wages and salaries for people engaged in performing marketing services account for the largest part of the cost of marketing dairy products. On the average, in 1939, nearly 22 percent of the consumer's dollar spent for four major dairy products went for wages and salaries in marketing. Butter and evaporated milk had the lowest cost for wages and salaries while fluid milk had the highest. Costs of buildings and equipment were lowest for butter, highest for evaporated milk, and averaged about 6 percent of the consumer's dollar for the four products combined.

Expenses for supplies and materials averaged nearly 6 percent of the consumer's dollar for the four products but there was greater variation among products in this item than in any other. Supplies and materials for butter accounted for only 3.2 percent of the consumer's dollar, while evaporated milk supplies and materials absorbed 18.5 percent. This expense for evaporated milk is made up primarily of the costs of cans and their shipping containers.

Profits of marketing agencies in 1939 were estimated to average 3.4 percent of the consumer's dollar, ranging from 2.2 percent for butter to 7 percent for American cheese (table 15).

The importance of wages as an element of marketing costs adds some interest to wage rates in the dairy industry. Average hourly earnings in the butter industry in 1939 were 48.4 cents per hour. By 1948 they had increased to $1 per hour. In the ice cream industry, average hourly earnings were 62.6 cents in 1939 and $1 per hour in 1948. Since 1948, separate data are not available for the different product groups within the dairy industry. However, for dairy products, including butter, cheese, evaporated milk, and ice cream, average hourly earnings rose from $1.04 in 1947 to $1.22 in 1949 (table 16).

TABLE 14.—*Approximate distribution by marketing functions of the consumer's dollar spent for 4 principal dairy products, fluid milk, butter, American cheese, and evaporated milk, United States, 1939*

[Percent]

Marketing function	Product				
	Fluid milk	Butter	American cheese	Evaporated milk	4 products combined
Retailing	----------	12.9	24.1	15.4	22.6
Wholesaling	[1] 29.0	7.7	11.2	6.2	4.1
Transportation (long haul)	----------	1.6	1.2	6.9	1.0
Processing	9.6	10.0	12.9	30.0	11.3
Assembly	6.1	3.5	2.0	5.2	5.1
Farm production	55.3	64.3	48.6	36.3	55.9
Total	100.0	100.0	100.0	100.0	100.0

[1] Includes retailing and wholesaling.

TABLE 15.—*Approximate distribution by type of expense of the consumer's dollar spent for 4 principal dairy products, fluid milk, butter, American cheese, and evaporated milk, United States, 1939*

[Percent]

Type of expense	Product				
	Fluid milk	Butter	American cheese	Evaporated milk	4 products combined
Marketing services and materials:					
Wages and salaries	26.1	12.9	22.8	17.0	21.8
Property	6.0	4.2	8.3	9.2	5.9
Supplies and materials	5.6	3.2	4.2	18.5	5.8
Transportation (long haul)		1.6	1.2	6.9	1.0
Other	3.7	11.6	7.9	6.9	6.2
Profits	3.3	2.2	7.0	5.2	3.4
Farm production	55.3	64.3	48.6	36.3	55.9
Total	100.0	100.0	100.0	100.0	100.0

TABLE 16.—*Wage rates in specified dairy processing industries, 1939–49* [1]

[Cents per hour]

Year	Creamery industry	Ice cream	Evaporated and condensed	All dairy products [2]
1939	48.4	62.6	(3)	(3)
1940	48.6	64.0	(3)	(3)
1941	51.6	65.7	(3)	(3)
1942	57.9	69.8	(3)	(3)
1943	65.0	74.2	68.6	(3)
1944	70.9	79.4	73.7	(3)
1945	75.3	83.1	77.4	(3)
1946	85.1	91.9	89.0	(3)
1947	95.6	100.03	100.04	104
1948	100.05	100.12	100.16	115
1949				122

[1] Data reported by Bureau of Labor Statistics.
[2] Includes cheese and special dairy products industries, in addition to those shown.
[3] Data not available.

Milk prices

Appendix tables 49 through 55 present selected annual and monthly price data. In table 49 are shown monthly and annual prices for class I or fluid milk, f. o. b., city, 3.5 percent butterfat basis, paid by milk dealers to producers in nine geographic areas and for the United States from 1920 through 1949. In table 51 are shown average monthly and annual prices paid to producers at condenseries, f. o. b., plant, 3.5 percent butterfat basis, for the United States from 1922 through 1949. Table 52 shows for the 1930–49 period the annual average class I and condensery prices together with the ratio of class I to condensery prices. For the 20-year period 1930–49, the annual average of class I prices was about 1½ times as large as the average of condensery prices. From 1930 through 1940 the ratio is distinctly greater than from 1941 through 1949. During the war years class I milk prices were more closely controlled than were prices paid to producers for manufacturing purposes.[18]

Interregional shipments of milk and cream usually small relative to market use

The volume of fluid milk and cream shipments between markets and regions has always been small relative to total consumption (tables 56–61). The reasons for this lie fundamentally in the bulk and perishability of these products. The perishability of fluid milk and cream affects their transportation costs and gives rise to the sanitary regulations which also affect the intermarket movement of these products.[19]

[18] The condensery price series does not directly represent prices paid for milk at creameries and cheese factories, but its annual movements are representative of changes in prices of milk used in making cheese and butter.

[19] Gaumnitz, E. W., and Reed, O. M., Some Problems Involved in Establishing Milk Prices, U. S. Agricultural Adjustment Administration Marketing Information Series DM–2, September 1947, pp. 58–67.

During the last 10 years there has been a full cycle in the volume of intermarket shipments of fluid milk and cream, shown by the data on total receipts of milk and cream at major markets (table 17 and tables 56–61). Although the details vary among markets, the general effect is similar. In the New York, Philadelphia, and Boston markets, for which data have been available longest, total milk receipts by rail and truck show a gradually rising trend (tables 56–58). Distant supplies, however, show an ebb and flow. In the late 1920's and early 1930's, there was a tendency for receipts of milk from the East North Central States to increase. At the peak in 1932, receipts of milk at the three cities from the East North Central States amounted to 0.03 percent of total receipts. The flow of milk to the Northeast from this source then ebbed to nothing. In 1943, increasing consumption of milk outstripped northeastern supplies, and shipments were again received from the east north central region. This time, the west north central region also was drawn on for milk supplies for the Northeast. At the peak in 1946, 0.04 percent of the total receipts at the three markets were from the north central region. By 1949, this movement had again practically ceased.

TABLE 17.—*Total class I milk, class I milk sold to outside markets, and emergency or "other source" milk, selected Federal order markets, by years, 1940 (or first subsequent year data are available), 1949*

[In millions of pounds]

TOTAL CLASS I SALES

Year	Boston	New York	Philadelphia	Omaha-Council Bluffs	Quad Cities [1]	Chicago	Kansas City	Cincinnati	St. Louis	New Orleans [2]
1940	620.6	2,838.0	--------	46.1	--------	991.3	------	--------	211.2	--------
1941	666.5	2,868.2	--------	49.4	--------	1,002.2	82.0	133.5	235.1	--------
1942	722.8	3,013.9	--------	55.4	--------	1,094.3	95.8	(6)	267.7	97.9
1943	817.4	3,296.7	838.9	72.8	--------	1,228.7	139.4	166.3	295.5	122.4
1944	863.3	3,313.5	866.4	82.1	50.2	1,297.3	151.9	180.0	298.3	138.5
1945	936.0	3,464.1	877.1	95.4	52.8	1,363.4	166.9	189.7	316.8	155.2
1946	968.1	3,671.1	881.4	96.6	57.1	1,482.6	176.7	192.6	(364.9)324.0	169.0
1947	890.5	3,511.6	845.1	97.3	56.1	1,517.8	174.3	196.7	(351.8)315.4	163.2
1948	878.7	3,430.9	829.3	98.3	59.5	1,562.6	182.7	204.3	(339.2)303.7	166.4
1949	824.8	3,431.0	820.2	100.8	62.8	1,601.9	191.7	213.3	(358.9)358.9	172.5
OUTSIDE MARKET CLASS I MILK (INCLUDED IN TOTAL CLASS I ABOVE)										
1940	49.4	334.0	--------	0.1	(4)	(4)	------	--------	12.8	--------
1941	70.4	313.5	--------	.6	(4)	(4)	0.1	14.2	20.5	--------
1942	90.9	398.2	--------	.3	(4)	(4)	.1	(6)	14.2	(4)
1943	156.7	545.4	111.6	--------	(4)	(4)	11.4	16.4	10.8	(4)
1944	178.8	432.0	136.6	6.6	(4)	(4)	12.8	18.3	13.7	(4)
1945	223.9	459.1	130.5	11.2	(4)	(4)	7.4	20.5	14.2	(4)
1946	234.2	511.8	104.8	10.4	(4)	(4)	1.9	19.6	6.6	(4)
1947	182.8	392.4	100.7	11.4	(4)	(4)	.3	23.6	8.3	(4)
1948	180.7	380.9	95.7	(4)	(4)	(4)	.2	29.2	9.2	(4)
1949	[5] 121.4	388.9	84.6	(4)	(4)	(4)	.8	32.7	22.1	(4)
EMERGENCY AND "OTHER SOURCE" MILK USED FOR CLASS I										
1940	--------	None	--------	--------	--------	None	------	--------	14.5	--------
1941	0.1	None	--------	--------	--------	None	------	None	16.0	--------
1942	.3	None	--------	--------	--------	None	1.4	None	32.4	5.0
1943	2.5	None	50.1	--------	--------	None	12.9	None	37.7	8.8
1944	1.7	None	53.1	0.1	--------	None	6.7	None	17.9	10.5
1945	14.7	None	63.8	2.3	--------	None	5.6	None	25.9	15.8
1946	26.2	None	61.7	.3	--------	None	4.6	None	44.6	26.2
1947	14.5	None	42.6	.9	--------	None	.9	None	39.9	16.0
1948	8.7	None	26.7	3.0	(4)	None	4.4	None	34.3	10.2
1949	[5] 7	None	11.9	(3)	(4)	None	.1	None	17.8	[3] 1.0

[1] Moline, East Moline, and Rock Island, Ill., and Davenport, Iowa.
[2] Market utilized additional milk equivalent from standardizing concentrated products, some of which was class I as follows: 1942, 11.7; 1943, 11.6; 1944, 11.1; and 1945, 0.7 million pounds, respectively.
[3] Ten-month total only (March-December).
[4] Figures not available.
[5] Preliminary.
[6] Market under mediation agreement for part of 1942 which did not include total market.

Source: Lee, James D., Dairy Production and Marketing Statistics, Northeastern Dairy Conference, Boston, Mass. March 1950.

Data for a larger number of markets are available for the last 10 years from reports of Federal Milk Market Administrators (table 17). They show the same general trends in other parts of the country as in the Northeast—intermarket movements of milk increasing after 1940 to a peak in 1946, then declining.

Quantities of outside-market class I milk represent sales which handlers made to purchasers outside the respective marketing areas. The marketing areas generally include the metropolitan districts and contiguous minor civil divisions. In populous areas of the country, smaller cities as a rule draw from supplies of the neighboring large cities when milk is scarce. The figures show that increased milk movements of this sort went along with increased interregional movements.

Quantities of emergency or "other source" milk used for Class I show roughly the trends in interregional movements of milk to the respective markets. Some emergency milk would be from nearby sources. Also, some of the emergency milk may have been classified in lower classes, and some milk appears to be received at large markets by firms which are not engaged in milk distribution in the marketing area, or are not otherwise regulated by the order. Although the latter two factors would tend to offset the first, the figures still must be considered to be approximations to the volume of interregional shipments.

One feature of intermarket movements of milk not shown in the preceding tables is their highly seasonal character. This is illustrated in table 18, showing emergency receipts of milk at Boston during 1943–48. More than 90 percent of the emergency milk was received during the period November through February each year. This fact is the reflection in interregional movements, of a similar seasonal pattern within milksheds. In the Boston market, for example, only 28 percent of the milk received at plants beyond 200 miles from that city in April 1950 was used in class I products, while during the preceding November, 48 percent was used in class I. Because interregional movements of milk take place mainly during the season of low production, their importance may be much greater than would be inferred from the figures cited above, which on an annual basis showed that Midwestern milk at the largest Eastern markets accounted for only 0.03 to 0.04 percent of total receipts even in peak years of the past.

Reference has already been made to the increasing importance of the intermarket movement of bottled milk in paper containers.[20]

The cost of transporting milk over long distances amounts to a substantial percentage of its value at destination. During the milk shortages in Boston in 1946–47 and 1947–48, transportation costs averaged 21 and 16 percent, respectively, of the total cost of emergency milk (table 19). (The average length of haul was about 1,000 miles in 1946–47 and about 700 miles in 1947–48.) Milk imported into Memphis, Tenn., in 1948 incurred long-haul transportation costs amounting to 21 percent of the total cost f. o. b. Memphis.[21] (Highway mileage about 625 miles.) At prices in effect for fluid milk at New York City in June 1950, freight from Wisconsin would be from 36 to 38 percent of the total.

---

[20] See p. 1993.

[21] Herrmann, Louis F., Costs of Importing Milk, Memphis, Tenn., U. S. Bureau of Agricultural Economics, Marketing and Transportation Situation, MTS–80, January 1950.

TABLE 18.—*Purchases of emergency milk by Boston dealers from sources outside New England and costs per hundredweight on a 3.7 percent basis, 1946–48*

Period	Quantity purchased	Weighted average cost			Gross cost
		At shipping point	Transportation	At Boston	
	Pounds	*Per hundredweight*	*Per hundredweight*	*Per hundredweight*	
Emergency period No. 1:					
Oct. 20–31, 1946	700,305	$5.16	$1.05	$6.21	$43,488
November	6,155,055	5.23	1.39	6.62	407,529
December	2,220,525	5.12	1.37	6.49	144,203
Jan. 1–19, 1947	17,640	5.20	1.91	7.11	1,254
Total or average	9,093,525	5.20	1.36	6.56	596,474
Emergency period No. 2:					
Oct. 29–31, 1947	130,084	5.85	.94	6.79	8,831
November	6,688,292	5.58	1.20	6.78	453,402
December	6,445,447	5.71	1.15	6.86	442,024
January 1948	2,355,964	5.89	.98	6.87	161,961
February	1,654,191	6.11	.90	7.01	115,982
Mar. 1–3	26,488	6.13	.70	6.83	1,808
Total or average	17,300,466	5.72	1.12	6.84	1,184,008

Source: Market Administrator, Greater Boston Marketing Area. May 1948 mimeograph, 1 page.

See also Lee, James D., Dairy Production and Marketing Statistics, Northeastern Dairy Conference, Boston, Mass., March 1950, p. 32.

TABLE 19.—*Relation of transportation cost to estimated shipping distance, emergency milk purchases by Boston dealers from sources outside New England, 1946–48*

Period	Approximate distance shipped [1]	Transportation cost	
		Total	Per 100 miles
	Miles	*Per hundredweight*	*Per hundredweight*
October 20–31, 1946	860	$1.05	$0.122
November	1,010	1.39	.138
December	1,010	1.37	.136
January 1–19, 1947	1,420	1.91	.135
October 29–31, 1947	840	.94	.112
November	740	1.20	.162
December	710	1.15	.162
January, 1948	700	.98	.140
February	710	.90	.127

[1] Shipping distances estimated from distances of representative points of origin in each State, weighted by quantities received in Boston.

Source: Computed from data in table 18 and in Lee, James D., cited in table 18, (p. 32 of reference).

The costs of shipping other dairy products amount to much smaller percentages of their delivered prices than does the cost of shipping fluid milk (table 20). For example, butter shipped from Wisconsin to New York incurs freight costs of only 2.5 percent of the New York price.

Transportation cost as a percentage of total cost is a convenient means of emphasizing the importance of transportation cost in long hauls of milk, but the cost in dollars and cents of shipping 100 pounds of milk in various forms tells more clearly than percentage relationships why production of fluid milk is confined largely to local areas, whereas other dairy products regularly move great distances.

When 100 pounds of milk is made into evaporated milk in Wisconsin and shipped to New York City, the freight on the evaporated milk would be about 46 cents (table 21) as compared with about $1.80 for 100 pounds of fresh milk. The butter and milk powder from 100 pounds of milk could be shipped from Wisconsin to New York for about 14½ cents.

The difference between the cost of shipping milk from the edge of a milkshed and the cost of shipping manufactured dairy products from the same point is a measure of part of the difference in price that can be expected at the market. Among other factors, the principal one is the price difference which will persuade milk producers to meet the additional sanitary requirements for milk for fluid use as compared with milk for manufacturing purposes. Attempts to measure this difference directly have met with little success. In addition, the fact that seasonal variation is great for fluid milk supplies but small for consumption makes it difficult to determine economic milkshed boundaries, and the proper price differences between markets.

TABLE 20.—*Freight rates on selected dairy products from Wisconsin to New York City, as percentages of delivered prices*

Item	Unit	New York wholesale price June 1950	Freight from Wisconsin to New York [1]	Freight as percentage of price
Fluid milk	100 pounds	[2] $4.76–$5.00	[7] $1.81	36–38
Cream	10-gallon can	[3] 32.75	2.45	7.5
Evaporated milk	Case	5.25	.38	7.2
Cheese	Pound	[4] .351	.014	4.0
Butter	do	[5] .599	.015	2.5
Milk powder	do	[6] .116	.0088	7.6

[1] From tables 22 and 62.
[2] Class I milk, f. o. b. city.
[3] Bottling quality.
[4] Current single daisies.
[5] 92 score.
[6] Nonfat dry milk solids, roller process, carlots.
[7] In cans, minimum of 200 cans per carlot. Shawano, Wis., to New York City. Tank car rate is $1.43 per hundredweight.

TABLE 21.—*Freight on selected dairy products from Wisconsin, Michigan, Ohio, and New York milkshed to New York City*

[Based on products from 100 pounds 3.7 milk]

Product	Net weight	Freight to New York City from—				Difference in freight from New York milkshed and—		
		Wisconsin	Michigan	Ohio	New York milkshed	Wisconsin	Michigan	Ohio
	Pounds	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*	*Cents*
Cheddar cheese	9.46	14.4	12.5	12.0	8.0	6.4	4.5	4.0
Whole milk powder	12.0	11.7	10.7	10.3	6.8	4.9	3.9	3.5
Butter	4.44	6.9	6.1	5.8	3.8			
Powder (skim)	7.9	7.7	7.1	6.8	4.4			
Butter and powder	12.34	14.6	13.2	12.6	8.2	6.4	5.0	4.4
Cream	9.25	27.1	22.3	20.6	8.3			
Powder (skim)	7.50	7.3	6.7	6.5	4.2			
Cream and powder	16.75	34.4	29.0	27.1	12.5	21.9	16.5	14.6
Evaporated milk	43.5	46.2	42.5	41.0	23.1	23.1	19.4	17.9

Source: Statement of Milk Dealers' Association of Metropolitan New York, Inc., on Pricing Class III Milk. January 24, 1950, Elmira, N. Y., p. 2.

Of major, but by no means exclusive, interest in considering price differences between markets is the cost of transporting milk between those markets. Freight rates for a number of representative origins, destinations, and types of movement are given in tables 22 and 23.

TABLE 22.—*Freight rates on milk, Shawano, Wis., to Boston, to New York, and to Philadelphia, from Sept. 15, 1939, to Feb. 1, 1950*

Destination, rate	Sept. 15, 1939	Mar. 18, 1942	May 15, 1943	July 1, 1946	Jan. 1, 1947	Apr. 1, 1947	Oct. 13, 1947	Jan. 5, 1948	May 6, 1948	Jan. 11, 1949	Jan. 15, 1949	Sept. 1, 1949	Feb. 1, 1950
Boston:													
200 can minimum:													
Per can	$1.31	$1.35	$1.31	$1.42	$1.51	$1.51	$1.661	$1.812	$1.89	$1.9845	$1.91	$2.08	$1.63
Per hundredweight [1]	1.54	1.59	1.54	1.67	1.78	1.78	1.95	2.13	2.22	2.33	2.25	2.45	1.92
Tank, 5,000 gallons, minimum:													
10 gallons	1.163	1.198	1.163	1.242	1.334	1.21	1.331	1.452	1.51	1.5855	1.52	1.66	1.30
Per hundredweight [2]	1.35	1.39	1.35	1.44	1.55	1.41	1.55	1.69	1.76	1.84	1.77	1.93	1.51
New York:													
200 can minimum:													
Per can	1.25	1.29	1.25	1.35	1.44	1.44	1.584	1.728	1.80	1.89	1.82	1.98	1.54
Per hundredweight [1]	1.47	1.52	1.47	1.59	1.69	1.69	1.86	2.03	2.12	2.22	2.14	2.33	1.81
Tank, 5,000 gallons, minimum													
10 gallons	1.110	1.145	1.110	1.181	1.272	1.15	1.265	1.38	1.44	1.512	1.47	1.60	1.23
Per hundredweight [2]	1.29	1.33	1.29	1.37	1.48	1.34	1.47	1.60	1.67	1.76	1.71	1.86	1.43
10 gallons [3]	1.21	1.25	1.21	1.31	1.39	----	----	----	----	----	----	----	----
Per hundredweight [2]	1.41	1.45	1.41	1.52	1.62	----	----	----	----	----	----	----	----
Philadelphia:													
200 can minimum:													
Per can	1.18	1.22	1.18	1.28	1.36	1.36	1.496	1.632	1.70	1.785	1.76	1.92	1.49
Per hundredweight [1]	1.39	1.44	1.39	1.51	1.60	1.60	1.76	1.92	2.00	2.10	2.07	2.26	1.75
Tank, 5,000 gallons, minimum:													
10 gallons	1.048	1.083	1.048	1.120	1.201	1.08	1.188	1.296	1.35	1.4175	1.40	1.53	1.19
Per hundredweight [2]	1.22	1.26	1.22	1.30	1.40	1.26	1.38	1.51	1.57	1.65	1.63	1.78	1.38
10 gallons [3]	1.14	1.17	1.14	1.23	1.31	----	----	----	----	----	----	----	----
Per hundredweight [2]	1.33	1.36	1.33	1.43	1.52	----	----	----	----	----	----	----	----

[1] Converted at 85 pounds per can.
[2] Converted at 8.6 pounds per gallon.
[3] Rates derived from can rates from Shawano to Chicago and combined with tank car rates from Chicago. No tank car rates quoted from Shawano to New York or Philadelphia until Apr. 1, 1947. Tank car rates shown immediately above for periods prior to Apr. 1, 1947, are estimates determined from the applicable can rate and the percentage that established tank car rate to Boston was to can rate to Boston. Unconverted rates and derived rates furnished by Mr. John Sullivan, milk agent, Boston & Maine Railroad.

915089—50——6

TABLE 23.—*Freight rates for specified shipments of milk, June 1950*

Origin	Destination	Distance	In 10-gallon cans		In tank cars	
			Minimum 2,000 gallons	Minimum 2,500 gallons	Minimum 5,000 gallons	Minimum 7,500 gallons
		Miles	*Cents per hundred-weight*	*Cents per hundred-weight*	*Cents per hundred-weight*	*Cents per hundred-weight*
Appleton, Wis	Dallas, Tex	1,255		220		
Do	New Orleans, La.	1,105	180	176	144	135
Madison, Wis	Memphis, Tenn.	658	135	128	108	101
Minneapolis, Minn	Boston, Mass.	1,437	208	203	166	156

Dairy industry subject to numerous health-protecting measures

Over a period, various Government agencies in the United States have developed numerous precautionary measures to guard against the possibility of milk carrying any kind of disease. The marketing of milk and its products now is subject to Federal, State, and local food, drug, and related laws and ordinances. Milk and dairy products entering interstate commerce are subject to the Federal Food, Drug, and Cosmetic Act and regulations issued thereunder. These are adminstered by the Food and Drug Administration of the Federal Security Agency. Most States also have pure-food laws and regulations applicable to milk, cream, and manufactured dairy products. All cities and many smaller communities have sanitary ordinances applicable to fluid milk marketed for local consumption as fluid milk. These sanitary requirements for milk are established by local authorities to protect the health of the people in those localities and are applied under local jurisdiction. With the increase in demand for fluid milk and the improved transportation facilities for milk, interest is growing in developing uniform health standards and requirements for milk and in arranging for reciprocal recognition for inspections by cooperating States and cities. One purpose is to obtain the benefit of broad knowledge, experience, and views regarding necessary health requirements. Another purpose is to facilitate the movement of milk from one supply area to another whenever conditions of production and demand warrant such movement.

Cooperation among States and cities in the development of uniform sanitary standards and regulations is encouraged by the United States Public Health Service. Some of the activities of the United States Department of Agriculture facilitate this objective. The United States Public Health Service, for example, has developed a milk ordinance which it has recommended for general use by States and cities. With funds authorized by the Research and Marketing Act, the National Research Council is studying the effect of health and sanitary regulations upon milk quality. These activities of the United States Public Health Service and the United States Department of Agriculture are carried out on a service and advisory basis. These two agencies do not have regulatory authority in regard to local sanitary regulations. This authority is in the hands of the States and municipalities.

IV. INDUSTRY PRACTICES

On farms

Over the years, the handling of milk on the farm has seen numerous improvements. Generally speaking, these have been aimed at increased labor efficiency, at improved sanitation, or both. Perhaps the most important single development since 1920 has been the marked expansion in the use of milking machines. In 1920 only 55,000 milkers were on farms in the United States, whereas by 1949 the number had increased to 685,000.[22] The second outstanding development has been the expanding use of mechanical refrigeration for milk cooling on farms. In 1920 very few farms had such equipment. Now a large proportion of the commercial dairy farms in market-milk areas have it. A fairly new improvement

[22] In 1944, the latest year for which data are available on number of farms, there was a total of 2,473,000 farms producing milk for sale as milk, cream, or farm-churned butter.

with great potentialities is the so-called fast milking procedure. This can be adapted to most cows and enable a cow to be milked in roughly half the usual time. The labor saved can be used for other productive work or for increased leisure time.

Of considerable importance also have been the persistent efforts of milk-industry field men together with field men employed by dairy cooperatives and employees of State and national agricultural health departments in educating dairy farmers. Sanitary standards for dairy farms have been progressively raised, along with improvements in methods by which milk of better quality can be produced. This development has affected the production of milk both for manufacturing purposes and for use as fluid milk and fluid cream, although milk produced for sale in urban fluid milk markets is still quite generally subject to more rigorous sanitary requirements than is milk for other uses.

In fluid-milk plants

Improvements in methods of handling milk in bottling plants over the last 30 years have resulted in better economy of space, lower labor requirements, and better quality of product.

Continuous-flow pasteurizers—either standard time and temperature or short-time high temperature—replaced the older vat-holding method of pasteurization. Improved stainless steel alloys in new equipment, replacing copper, greatly retard the development of undesirable flavors in milk. Development of the phosphatase test has led to better milk through better control of pasteurization practices. Improvements in methods of washing and sterilizing glass bottles have also occurred.

In fluid milk delivery

During World War II, greatly increased requirements for rubber and gasoline forced a reduction in the amount of delivery service, on both wholesale and retail routes, that could be given by milk dealers. On the wholesale routes, call-backs and special deliveries were largely eliminated, and wholesale operations went on a 6-day basis. On the retail routes, every-other-day delivery was adopted. Under every-other-day delivery, the amount of products left at each retail stop is approximately doubled and in a given amount of time each driver can distribute a larger load. Consequently, product put-off per man-hour and per truck-mile were substantially increased. After some preliminary doubts as to the effects of the change, every-other-day delivery was wholeheartedly accepted by the larger distributors as necessary during the wartime period. Long before the war ended, however, far-sighted milk dealers began to appreciate the practicable usefulness of every-other-day delivery. Every-other-day delivery has continued under peacetime operations because modern production and processing practices have improved the keeping quality of milk, and because mechanical refrigeration is widely used in homes. In a few cities, every-other-day delivery on retail routes on a 6-day week basis has been established.

A larger proportion of total retail sales of bottled milk is now made through stores rather than by home delivery than was the case 20 years ago. The shift has been gradual over this period for the country as a whole. In some large cities such as New York, Chicago, Los Angeles, and San Francisco, more than half of all retail milk sales are made through stores. This shift has apparently been of less consequence in markets in which the retail price, either by State price regulation, or by industry practice, has been the same for milk sold cash and carry from stores as for milk delivered to homes.

Product modification

Homogenization, a process originally applied to ice cream and evaporated milk, has been used increasingly for milk over the last two decades. In this process, the milk is forced under very high pressure through very small openings in a metal plate, breaking up the clusters of globules of butterfat in the milk and reducing the size of all the globules. After homogenization, the butterfat is and remains evenly distributed throughout the milk. Homogenization of milk helps to prevent the development of undesirable flavors.

The addition of vitamin D to milk was begun on a commercial scale soon after 1930, when equipment was developed for continuous-flow irradiation of milk through the use of either carbon arc or mercury vapor lamps. Initially, milk was irradiated to contain 135 U. S. P. units of vitamin D per quart. Subsequently, this was increased to 400 units of vitamin D per quart. Since 1944, irradiation has been largely displaced by the addition of concentrates of vitamins directly to the milk. Most of the vitamin D milk is homogenized as well.

Milks fortified with other vitamins have also been developed, but they have not yet become very important.

Fluid milk containers

Glass bottles have been changed in design to reduce breakage and weight, to use less space, and to permit smaller caps. Since the end of World War II, the light-weight square milk bottle has been rapidly adopted by the milk trade throughout the country. Its main advantage lies in the saving of space.

The use of paper containers has increased tremendously over the last 15 years. In some fluid milk markets, half or more of the milk sold through stores is now distributed in paper. Some plants are equipped to process and distribute milk exclusively in paper containers. The paper container, itself, costs substantially more per quart than the cost of breakage and loss per trip for glass bottles, but this extra cost tends to be offset by economies in the plant (in handling, washing, sorting, and storing bottles) and in delivery. Significant savings are possible in delivery of milk in paper where large loads may be carried.

Manufactured dairy products

Butter.—The vacreator, and the vane and aluminum churns are items of equipment, the use of which has helped to improve the quality of butter. Recent attempts to develop a continuous butter-making process have encountered problems of quality of product and cost of production. If successful, they promise to have a greater effect upon the manufacture of butter than any yet experienced in this industry.

Cheese.—In the production of cheese, pasteurization of milk for cheese-making has come into general use. Pasteurization permits better control of quality, resulting in a more uniform product with better keeping characteristics. The first successful applications were in the production of soft unripened cheese types like cream, neufchatel, and cottage cheese. Later, the procedure was adapted to the ripened cheese types, of which Cheddar is the most important.

Ice cream.—The continuous ice cream freezer has come into use since about 1930, resulting in some economies in manufacture and favoring the marketing of ice cream in factory-packed containers. The texture of ice cream has been improved during the last 25 years; first, in the late 1920's and early 1930's, by raising the percentage of milk solids-not-fat in ice cream, and more recently, by use of emulsifiers, either with or without a high content of milk solids-not-fat.

Evaporated milk

Processes in producing evaporated milk have been modified with the substitution of continuous sterilization for batch sterilization, and the use of higher vacuum in the evaporation of water made possible by improvement in vacuum pumps. These improvements decreased operating costs, and helped produce a more uniform product. Also, most of the evaporated milk now produced is fortified with vitamin D.

Containers

Packaging improvements have affected the marketing of dairy products as much, perhaps, as improvement in processes. The process cheese industry owes its revolutionary development as much to the advantages of the size and type of container as to the characteristics of the product itself. "Rindless" natural cheese is another significant cheese-packaging innovation. Bulk butter has practically disappeared from retail stores, in favor of butter packaged in attractive cartons in 1-pound solids or quarter pound prints.

The ice cream industry has shifted substantially from the multiple use of metal cans for the delivery of bulk ice cream to the use of single service container, thus eliminating the work of can return and can cleaning and maintenance.

Packaging is one of the problems that face the dry milk industry. Lack of a sufficiently cheap, but adequate container appears to be one of the barriers to wider direct use of this product by consumers and even by some types of industrial users.

V. THE ROLE OF COOPERATIVES IN DAIRY MARKETING

In response to incentives of various kinds, farmers have, by group action, formed cooperative types of business organizations through which they may have greater influence over the marketing of their products. A truly cooperative dairy association is controlled by member patrons according to democratic principles, and its savings are allocated to all producer-patrons in proportion to their patronage. The immediate objectives of a dairy marketing cooperative are

(1) to make such adjustments in marketing services as are necessary for increased efficiency and to best meet the needs of farmers, and (2) to increase returns to producer-patrons for their milk and cream.

Cooperative dairy associations may be classified approximately according to products marketed, service rendered, or functions performed, as follows:

A. Market milk cooperatives:
    1. Receiving (raw product)
    2. Price bargaining
    3. Distributing (finished products)
B. Manufacture-dairy-products cooperatives:
    1. Assembling (raw products)
    2. Processing:
        (*a*) Butter making
        (*b*) Cheese making
        (*c*) Milk drying
        (*d*) Diversified
        (*e*) Other processing
    3. Merchandising (finished products)
C. Dairying-service cooperatives:
    1. Quality improvement (raw products)
    2. Artificial breeding (dairy cattle)
    3. Herd improvement
    4. Specialized service

In early 1950 the number of farmers' dairy associations was approximately as follows:

Dairy marketing	2,040
Dairy herd improvement	2,000
Dairy breeding	1,460
Dairy service	100
Total farmers' dairy co-ops	5,600

Since the middle 1930's the trend has been rather definitely toward fewer dairy marketing associations. In 1937 there were more than 2,400 associations, compared with 2,040 in 1950. The number of members reached a new high of 788,000 about 2 years after the last war. The previous high of 757,000 had occurred during the heart of the depression of the 1930's. The combined volume of business of all dairy marketing cooperatives reached an all-time high of nearly $2,000,000,000 in 1947. This increase over previous years reflected the general upward trend in price levels and did not mean that farmers' cooperatives as a group were a more important part of the dairy industry than they were 10 or 15 years previously.

Cooperatives play an important part in the handling of nearly all the principal dairy products. They are particularly important in handling market milk and in the production and marketing of butter, cheese, and dried milk. No data are available relative to the significance of cooperatives in national distribution of market milk. In 1949 about 25 percent of the total quantity of milk consumed as milk or cream in cities and villages was sold in markets under Federal marketing orders. Perhaps three-fourths of the milk sold in those markets was handled by cooperatives. About two-fifths of the butter, one-sixth of the cheese, one-fourteenth of the evaporated milk, and more than half of the nonfat dry-milk solids are produced by cooperatives. However, cooperatives play a less important role in distribution than in production of those commodities.

Dairy cooperatives are concerned with rendering services to their patrons and for that reason they may extend the scope of their activity beyond the processing and marketing of dairy products. They frequently furnish market information and technical advice to producers, represent producers in matters of public interest, and arrange for cooperative buying of farm supplies.

Market milk cooperatives

Receiving associations.—Organizations that process and distribute fluid milk products ordinarily receive the milk direct from farms. To supply the very large cities, however, country milk-receiving stations may be operated by the organization that distributes the milk in the city, or by a specialized cooperative established to assemble milk. Such receiving associations sell to the more favorable sales outlet, in view of both short-term and long-term considerations. They

customarily receive, cool, weigh, and test the milk; standardize the butterfat content; make advance payments to producer patrons on the basis of current price levels; and annually make final settlements to producers in accordance with the amount of operating savings.

Price bargaining associations.—The strictly bargaining association does not engage in the physical handling of milk. Acting as a sales agency, it bargains for prices on a collective basis and attempts to see that all the milk is satisfactorily disposed of and that all patrons receive equitable treatment. During recent decades, classified price plans, formula pricing procedures, and various seasonal pricing methods have been developed by bargaining cooperatives to facilitate bargaining negotiations.

In addition to price negotiation or representation, the milk bargaining associations serve their patrons by assuring them of a market, by systematizing delivery of milk to the market to eliminate unnecessary transportation costs, by representing patrons in legislative matters, and by keeping patrons informed of market conditions. In the latter service they often assist patrons to adjust their production to market needs by instituting systems of payment that discourage large seasonal fluctuations in production. They may also check producers' milk weights and tests, guarantee or actually handle payments to producers, supervise or control hauling of milk from farms to plants, and participate in quality-improvement programs.

When receipts of milk substantially exceed total fluid requirements, including normal reserves, the excess reserves must be made into manufactured dairy products. Cooperatives send such surplus milk to specialized manufacturing plants. In the absence of such outlets, they may establish plants themselves, thus performing some of the functions of a dairy marketing cooperative. Many fluid milk bargaining associations were organized during and following World War I, and by 1929, associations of this type existed in most of the major fluid milk markets.

Distributing associations.—Distributing associations take physical possession of all or most of the milk sold through them. Milk distributing associations have increased steadily in number since World War I. In 1918, there were 16 active associations, in 1929 there were 79, and in 1940 there were 101 specialized associations of this type. Many of the milk-distributing associations organized during recent years, and particularly those in Southeastern States, were the result of consolidations of the business of producer-distributors. Most, but not all, of the successful associations distributing milk at retail are in small markets where the volume is not sufficient to justify a bargaining association. In such markets, the milksheds are relatively compact and the surplus problem is not of major significance.

Manufactured dairy products cooperatives

Processing associations.—Production of manufactured dairy products is a field in which farmers' cooperatives have grown substantially. Some cooperatives assemble milk from farms at receiving stations before delivering it to manufacturing plants. A number of cooperatives operate large diversified or flexible plants capable of manufacturing several different dairy products. Most of the associations producing those products operate specialized plants and it is, therefore, possible to consider large groups of them on a product basis.

In 1944, the number of cooperatives making butter was more than twice the number making cheese. There were 1,164 associations in 30 States that made butter, 501 in 22 States that made cheese, and more than 200 associations in two dozen States that produced dried milk products. Wisconsin, Minnesota, and Iowa contained three-fourths of the associations making butter, 80 percent of those making cheese, and 60 percent of those drying milk.

The three States of Minnesota, Iowa, and Wisconsin together make two-fifths of the butter produced in the United States. In 1943, cooperatives made 70 percent of the butter produced in Minnesota, 54 percent in Iowa, and 59 percent in Wisconsin. More than three-fourths of the total number of cooperative creameries were in those three States. For the year 1942, the annual production of cooperative creameries in Minnesota averaged 378,000 pounds of butter.

Cheese making.—In 1944, 501 cooperatives manufactured cheese. This was only two-thirds as many as were reported a dozen years earlier. During the 20-year period, 1926–45, the proportion of total cheese produced by farmers' cooperatives declined sharply. In 1926, they produced over 32 percent and in 1945 only about 16 percent of the total production in the United States. This decline in relative importance occurred despite the fact that cooperatives produced about 20 percent more cheese in 1945 than in 1926.

Approximately three-fourths of the cheese associations are in Wisconsin, and many of the others are in adjoining States. Most of these associations produce either American or domestic Swiss cheese. Annual production of cooperative factories making American cheese in Wisconsin averaged 294,000 pounds for the year 1942.

Milk drying.—Cooperatives process a large proportion of the total nonfat dry milk solids for human food manufactured by the spray and roller processes, approximately 58 percent in 1944. More proprietary than cooperative plants were in operation but on the average, the cooperatives were appreciably larger.

Before World War II, dried-milk products accounted for only a small part of the milk handled by dairy cooperatives. The war brought a tremendous demand for dry-milk solids. The Federal Government, through lend-lease funds, financed the construction of 16 dehydrating plants and the installation of dehydrating equipment in 9 other plants. Cost of the land, buildings, and equipment was nearly $6,000,000.

All the plants were leased to cooperatives which paid rent and had options either to renew the lease at the end of every 5 years or to buy the plant. In 1945, these plants produced more than 100,000,000 pounds of dried milk. Participation in the Federal program, and cooperation among local associations to supply central drying plants, greatly increased the relative importance of cooperatives in the production of dried milk.

According to records of the Bureau of Agricultural Economics and of the Farm Credit Administration, United States Department of Agriculture, in 1944, more than 200 cooperative plants manufactured several hundred million pounds of nonfat dry-milk solids. In terms of quantity manufactured by cooperatives, Wisconsin was the leading State, Minnesota ranked second, Idaho third, and California fourth.

In 1946, cooperatives manufactured about 47 percent of the total production of dried whole milk. Of the 29 associations engaged in such production, 15 were in Wisconsin; the remainder were in 6 other States.

Other processing.—Cooperatives manufacture large quantities of dairy products other than those mentioned in preceding paragraphs. As proportions of the total quantities produced in the Nation, however, those quantities are relatively unimportant.

In 1946, 11 dairy cooperatives produced about 214,000,000 pounds of evaporated milk (unsweetened, unskimmed case goods). That quantity represented about 7 percent of the total production in the United States. During the war period production by cooperatives increased greatly in response to governmental requirements for military personnel and for lend-lease. Before the war the large capital requirements for manufacture of evaporated milk, plus the difficulty of establishing satisfactory sales outlets, deterred cooperatives from manufacture of this product.

Cooperatives manufacture large quantities of ice cream and certain other dairy products, but a high proportion of the national total of each is produced by proprietary concerns.

Merchandising.—Relatively few merchandising cooperatives—those performing part or all the marketing functions from manufacturing plant to retailer—have been established. To date butter has been handled in largest volume, but cheese and condensed and dried products are also handled. These associations, although few in number, are very large operating units and account for a very sizable volume of sales annually.[22a]

VI. GOVERNMENT ACTIVITIES

Before 1933 Government activity in respect to the dairy industry was confined mainly to programs for eradication of bovine tuberculosis and other diseases of dairy cows, to research in the field of more efficient milk production on farms and more efficient handling in plants, to development of grading services, and to dissemination of production and marketing statistics. The dairy industry also has benefited somewhat by tariffs on imports. During the early 1930's dairy products were included in the scope of discussions and proposals for various action programs which have been carried out to varying degrees from 1933 to date.

A brief history of Federal milk marketing orders and agreements

During the period from 1920 to 1933 milk producers relied primarily upon the development of milk marketing cooperatives to protect their economic interests.

[22a] See table 12, p. 1994, for annual sales volumes of four leading cooperatives.

Depressed business conditions after 1930 caused such severe price cutting and other related developments that the cooperatives could not successfully cope with the situation and they turned to the Federal Government for help. Considerable differences of opinion arose among representatives of organized dairy farmers as to the best ways to raise prices of milk and dairy products toward parity levels and to reestablish orderly market conditions.

The Agricultural Adjustment Act of 1933 included dairy products in the list of basic commodities, provided for marketing agreements between handlers or processors and the Secretary of Agriculture, and also provided for licensing of handlers and processors as an enforcement measure. The method of operation that was devised for fluid milk markets relied almost entirely upon price control and enforcement, upon whole market areas, of marketing plans which had been developed and used by dairy cooperatives during the 1920's.

The Secretary of Agriculture, in 1933 and early 1934, issued marketing agreements and licenses or licenses without marketing agreements which regulated milk prices in about 50 urban areas. The first license and agreement were issued for the Chicago market and became effective on August 1, 1933. The license required milk dealers to buy milk only from producers who had "bases" and to pay minimum prices for milk deliveries up to certain percentages of each producer's base. The agreement that accompanied the license contained appendices which provided for a price schedule for contracting distributor's sales at wholesale and retail and a schedule of fair trade practices. Licenses somewhat similar to the one issued in Chicago and containing resale price schedules and fair trade practice schedules were issued in a total of 15 markets before the end of 1933.

These licenses and agreements were terminated, however, during the first half of 1934 and in most of these markets a new license was reissued in the place of the original marketing agreement and license. The significant difference between the first licenses and agreements and the reissued licenses was that the reissued licenses no longer provided for schedules of resale prices. Emphasis was placed instead upon requiring milk dealers to pay minimum prices for milk without at the same time providing for specified prices in the resale market.

In addition to the licenses and agreements regulating the handling of milk in city markets, a license and agreement were issued for the evaporated milk industry and a marketing agreement was issued for the dried skim milk industry. In addition, consideration was given to marketing agreements for the ice cream, butter, and cheese industries but licenses or agreements for these were never issued. The evaporated milk license and agreement remained in effect until June 30, 1947, and the dried skim milk agreement remained in effect until June 1, 1941.

In 1935, the Agricultural Adjustment Act was amended to provide more specific standards for regulating the handling of milk than had been contained in previous legislation. Instead of regulating by means of marketing agreements and licenses, the legislation of 1935 provided for the issuance of marketing agreements and orders. With respect to milk, the 1935 legislation specified that the Secretary could regulate minimum prices for milk according to use, could provide for the pooling of returns among producers on the basis of individual handler pools or market-wide pools, could provide for base-rating plans, and parity was continued as the standard for price fixing. Under this legislation, six orders regulating the handling of milk were issued.

The legislation of 1935 was incorporated in a law which was part of the general agricultural adjustment legislation. After the 1936 Supreme Court decision relating to processing taxes and acreage controls, those parts of the 1935 legislation which related to marketing agreements and orders both for milk and fruits and vegetables were reenacted, with some additions and amendments, as the Agricultural Marketing Agreement Act of 1937.

Under the legislation in 1935 and in 1937, specific provision was made validating all licenses, agreements, and orders in effect at the time of passage of the legislation. As a consequence, some of the early licenses were continued in effect for several years. It was impossible, however, to amend or change these licenses in any way after the legislation which had authorized their issuance had been superseded by other legislation. These were gradually changed, therefore, to milk orders. Table 24 shows the number of milk licenses and orders in effect on January 1 of each year, beginning in 1934.

TABLE 24.—*Number of licenses and orders regulating the handling of milk, effective Jan. 1 of specified years* [1]

Year	Licenses	Orders	Year	Licenses	Orders
1934	15	None	1943	5	23
1935	46	None	1944	4	21
1936	32	None	1945	1	24
1937	18	6	1946	1	27
1938	15	7	1947	1	29
1939	14	11	1948	None	30
1940	12	15	1949	None	30
1941	7	21	1950	None	35
1942	5	21	May 1, 1950		37

[1] A number of licenses were suspended and later terminated. Licenses under suspension are not considered as "effective."

NOTE.—First license effective Aug. 1, 1933; first order effective Feb. 1, 1936; most licenses effective Jan. 1 and Feb. 1, 1935.

Present legislation for the issuance of marketing agreements and orders continue under the authority provided by the Agricultural Marketing Agreement Act of 1937. This act has been amended a number of times since its original issuance but the amendments with respect to milk orders have been minor. Under this legislation, as of May 1, 1950, 37 orders regulating the handling of milk were in effect (table 24). One marketing agreement was also in effect as an adjunct of a marketing order.

A general objective of the Agricultural Marketing Agreement Act of 1937, as amended and as expressed by Congress, was "to establish and maintain such orderly marketing conditions for agricultural commodities in interstate commerce as will establish" parity prices for such commodities. In the case of milk specifically, however, the Secretary of Agriculture is directed by the act to establish minimum prices differing from the parity price if such parity price does not appear reasonable in view of the price of feeds, the available supplies of feeds, and other economic conditions which affect market supply and demand for milk and its products in the marketing area to which the contemplated order program relates. The actual minimum price so established shall be such as to "reflect such factors, insure a sufficient quantity of pure and wholesome milk, and be in the public interest."

This objective is attained by (*a*) establishing a level of prices to producers for milk which is reasonable in relation to the supply demand situation in the particular market, and which will provide a level of returns to farmers which assures that they can continue to supply the market with sufficient quantities of pure and wholesome milk; (*b*) distributing the proceeds from the sale of milk among milk producers in an equitable way; (*c*) affording a degree of protection for farmers against the economic consequences of price wars in the resale market, and (*d*) assuring accurate accounting for milk according to use, and accurate weighing of milk and testing for butterfat.

Federal milk marketing orders are initially promulgated only after petition of dairy farmers for such action. Before the order may be issued it must be approved by at least two-thirds of the dairy farmers affected by the order. If two-thirds of the farmers affected by an order desire its discontinuance and so indicate by vote, the Secretary of Agriculture is required to cancel the order. In 1949, more than 144,000 dairy farmers who produced more than 17,000,000,000 pounds of milk were included within the scope of Federal orders (table 25).

915089—50——7

TABLE 25.—*Estimated number of producers and estimated volume of pooled milk in Federal order markets, 1949* [1]

Market	Estimated average number of producers, year 1949	Estimated annual volume of pooled milk	Market	Estimated average number of producers, year 1949	Estimated annual volume of pooled milk
		Thousands of pounds			*Thousands of pounds*
Boston, Mass	13,770	1,455,237	New Orleans, La	2,694	214,789
Chicago, Ill	21,010	3,351,301	New York, N. Y	47,387	6,421,167
Cincinnati, Ohio	5,604	370,870	Omaha-Council Bluffs, Nebr.-Iowa	2,124	124,099
Cleveland, Ohio	7,419	657,490	Paducah, Ky	247	18,054
Clinton, Iowa	132	15,043	Philadelphia, Pa	9,158	1,064,328
Columbus, Ohio	2,411	188,042	Quad Cities, Ill.-Iowa	1,477	128,475
Dayton-Springfield, Ohio	2,672	223,739	Rockford-Freeport, Ill	600	44,491
Dubuque, Iowa	215	29,883	St. Louis, Mo	3,590	393,668
Duluth-Superior, Minn.-Wis	1,279	99,049	Sioux City, Iowa	547	34,573
Fall River, Mass	243	37,436	South Bend-La Porte, Ind	814	85,636
Fort Wayne, Ind	1,061	79,565	Suburban Chicago, Ill	2,642	284,746
Kansas City, Kans.-Mo	2,467	261,203	Toledo, Ohio	2,138	163,597
Knoxville, Tenn	559	73,974	Topeka, Kans	358	35,367
Lima, Ohio	307	25,528	Tri-State (Kentucky, Ohio, West Virginia)	1,609	122,746
Louisville, Ky	1,976	227,701	Wichita, Kans	621	63,214
Lowell-Lawrence, Mass	940	103,647			
Minneapolis-St. Paul, Minn	5,622	650,872			
Nashville, Tenn	767	106,551	Total, 33 markets	144,460	17,158,081

[1] Compiled by the Dairy Branch, Production and Marketing Administration, U. S. Department of Agriculture.

Role of State governments in pricing milk

Agencies of several State governments also are important in pricing fluid milk. In June 1950 there were 16 States which in some way regulated milk prices. The specific details of these regulatory measures vary considerably among States. For details of any one State, the documents issued by the State concerned should be consulted; the summaries which follow are only brief excerpts pertaining to prices which in most cases were lifted out of the context of the complete law.[23] Some other provisions of the laws also may have some price implications. The degree to which authority under the laws has been exercised by administrative bodies has not been determined in a comprehensive manner. Most of these State acts provide for the establishment of a marketing area at the request of producers who would be affected.

Maine: The Milk Commission of Maine is authorized to "fix and establish, after investigation and public hearing of which due notice has been given by publishing at least 3 days prior to said hearing in appropriate newspapers, the (minimum) wholesale and retail prices to be charged for milk distributed for sale within the State wherever produced, including the following sales:

"I. By dealers to dealers.

"II. By dealers to consumers.

"III. By stores to consumers, except for consumption on the premises where sold.

"IV. By dealers to stores either for consumption on the premises or resale to consumers.

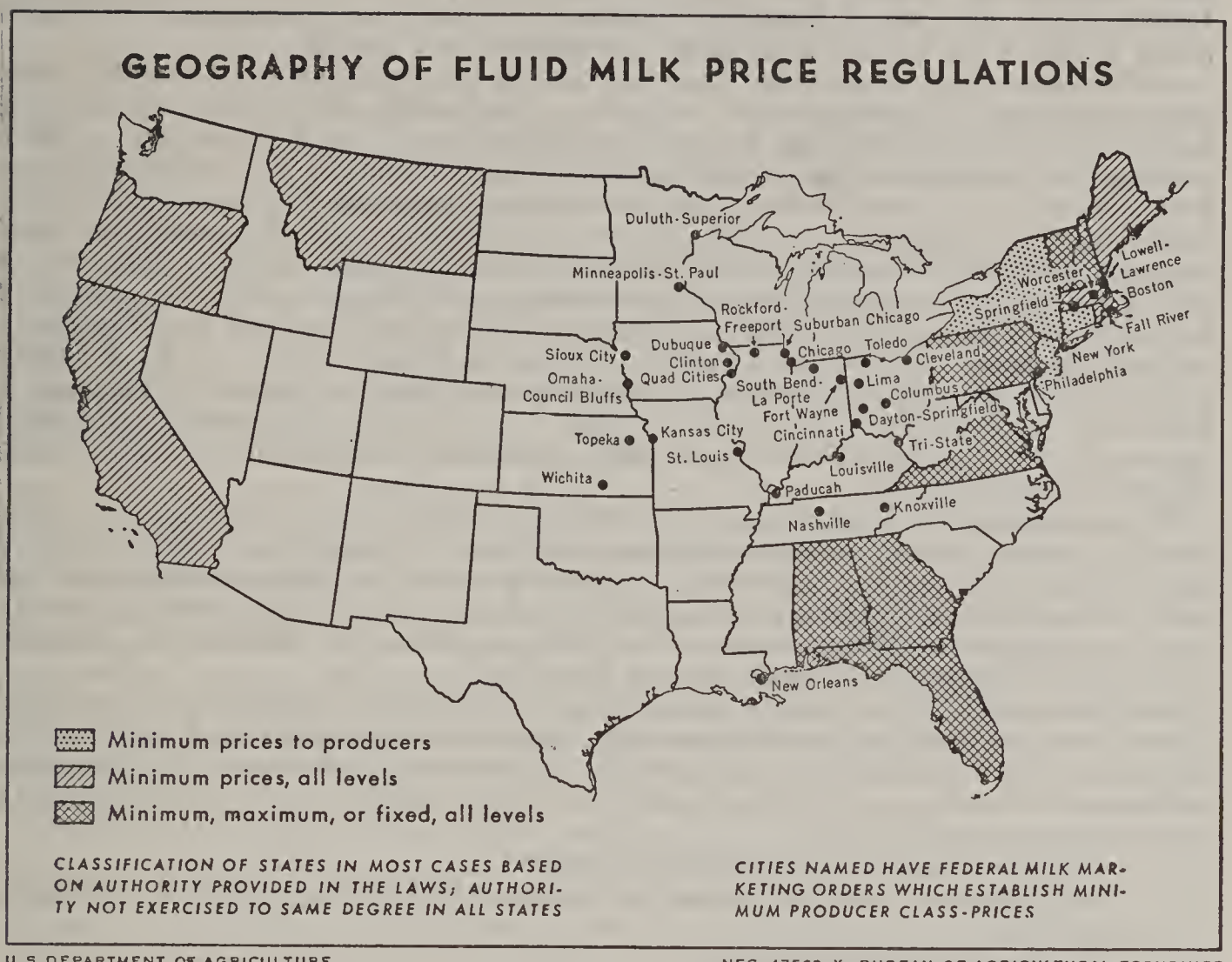
"V. By any person not included in the foregoing classifications to another person.

"VI. By producers to dealers."

The New Hampshire Milk Control Board is authorized to fix milk prices "whenever the board shall determine, either upon complaint or upon its own initiative, after public notice and hearing that the public health is menaced, jeopardized, or likely to be impaired or deteriorated by the loss or substantial lessening of a supply of milk of proper quality in a specified market, the board shall fix the just and reasonable minimum or maximum prices, or both, that shall be paid producers or associations of producers by distributors, and the manner of payment and the prices charged consumers and others for milk by distributors, as long as such condition is found to prevail in such market. The prices so fixed need not be uniform in all markets and may be changed from time to time after

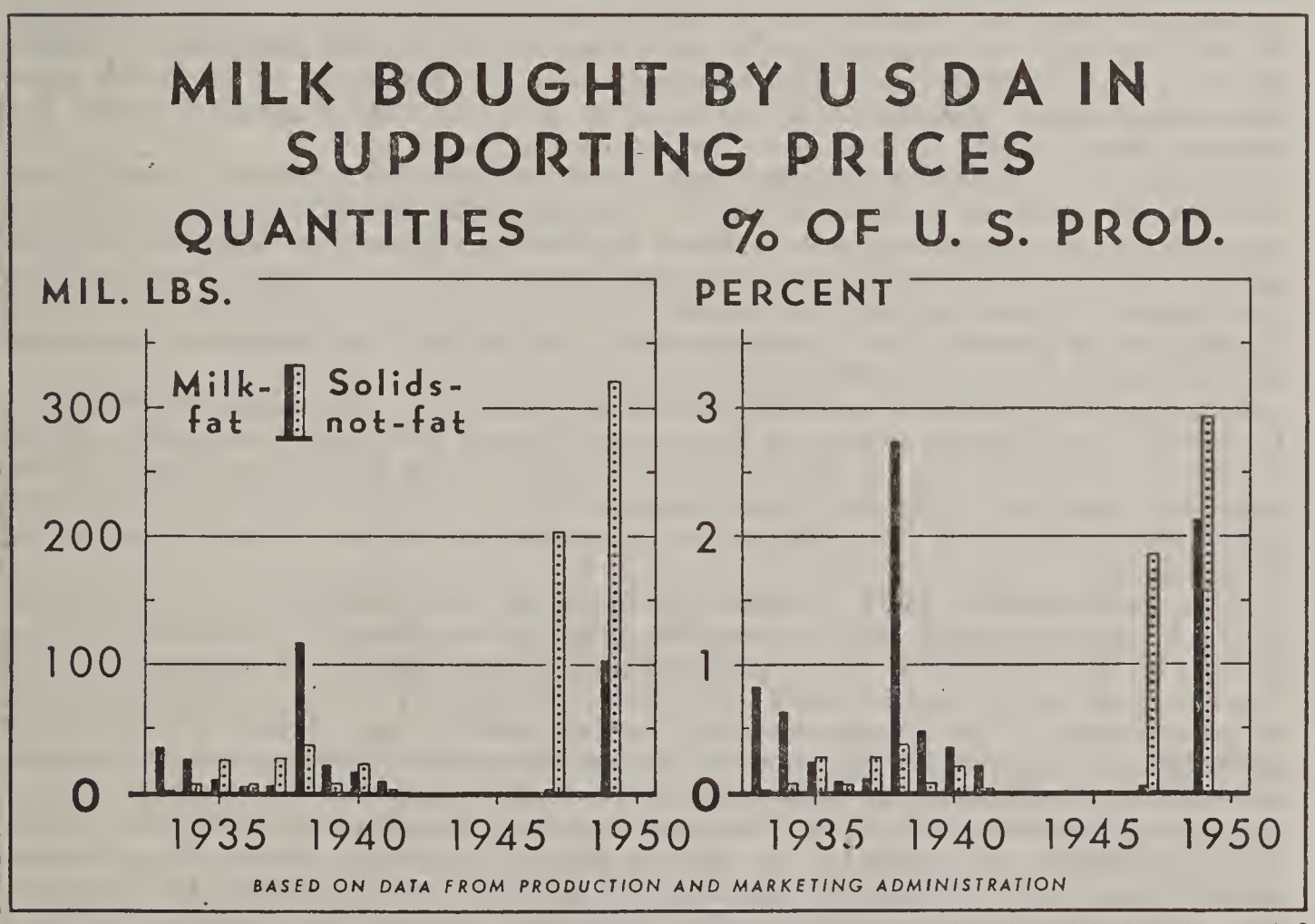
[23] These summaries were compiled from information on file as of June 1950.

FIGURE 12



U.S. DEPARTMENT OF AGRICULTURE NEG. 47563-X BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 13



U. S. DEPARTMENT OF AGRICULTURE NEG. 47748-XX BUREAU OF AGRICULTURAL ECONOMICS

such notice and public hearing as deemed by the board in the public interest * * *." As of March 1950, prices of milk in most important consuming areas of the State were regulated by the milk-control board.

In Vermont the law provides that "whenever the board shall determine, either upon complaint or upon its own initiative, after public notice and hearing, that by reason of the existence of any of the conditions set forth in the act a loss or substantial lessening of the supply of milk of proper quality in a specified market has occurred or is likely to be impaired or deteriorated by the loss or substantial lessening of the supply of milk of proper quality in a specified market, the board shall fix the just reasonable minimum or maximum price, or both, that shall be paid producers or associations of producers by distributors, and the manner of payment, and the prices charged consumers and others for milk by distributors, as long as such condition is found to prevail in such market. * * * Prices so fixed need not be uniform in all markets and may be changed from time to time after such notice and public hearings as deemed by the board in the public interest." In March 1950 most milk sold to consumers in the State was priced by the milk-control board.

The State law in Massachusetts gives the milk-control board authority under certain conditions to establish minimum prices, by areas, at several levels of distribution. However, important consuming areas in Massachusetts are now covered by Federal milk-marketing orders. As of March 1950, only the Mendon area in southwest Massachusetts had resale prices, in addition to producer prices, established by the milk-control board.

In the State of Rhode Island the milk-control board has authority "to establish, after investigation and public hearing, minimum wholesale and retail prices to be charged for milk purchased, received, processed, or sold within the State, wheresoever produced, including milk delivered or sold in any one or more of the following classes:

"1. By producer to consumer or dealer.

"2. By dealer to stores, either for consumption on the premises or resale to consumers.

"3. By dealer to consumer.

"4. By stores to consumer.

"5. By wholesaler to retailer.

"6. By any person not included in the foregoing classification to another person for commercial purposes."

In Connecticut the milk administrator has authority to establish minimum prices paid to producers for the different use classifications of milk. Uniform or blended prices are computed for each dealer in a manner specified by orders of the milk administrator. The administrator has authority to establish minimum retail milk prices, but this authority has not been exercised under the present law.

In New York State the commissioner of agriculture and markets is empowered through an order to fix and determine for individual marketing areas fair and equitable minimum prices to be paid to producers. "The commissioner shall fix prices to producers on the basis of the use thereof in the various classes, grades, and forms." Prices for milk in the New York City area are established through a cooperative Federal-State arrangement. The Buffalo and Rochester areas are covered by State milk-marketing orders.

For the State of New Jersey the law gives authority to the milk control board to establish minimum prices to be paid producers and minimum prices to be charged at later stages of distribution, including sales to the consumer. However, the practice of establishing minimum prices for stages other than farmers' sales was terminated in 1949 following executive order of the Governor of New Jersey.

The Pennsylvania Milk Control Commission has authority "to ascertain * * * and maintain such prices for milk in the respective marketing areas as will be most beneficial to the public interest, best protect the milk industry of the Commonwealth and insure a sufficient quantity of pure and wholesome milk to inhabitants of the Commonwealth, having special regard to the health and welfare of children residing therein. The commission shall base all prices upon all conditions affecting the milk industry in each milk-marketing area, including the amount necessary to yield a reasonable return to the producer (and), which return shall not be less than the cost of production, and a reasonable profit to the producer, and a reasonable return to the milk dealer or handler. In ascertaining such returns, the commission shall utilize a cross section representative of the average or normally efficient producers and dealers or handlers in the area."

The commission also is authorized to establish minimum and maximum prices at the wholesale and retail levels. Directives of the Pennsylvania Milk Control Commission are effective in all the populous sections.

The Milk Commission of the State of Virginia, "after public hearing and investigation, may fix the prices to be paid producers and/or associations of producers by distributors in any market or markets, may fix the minimum and maximum wholesale and retail prices to be charged for milk in any market, and may also fix different prices for different grades of milk."

The director of the milk control board in the State of Georgia "may determine, after public hearing, what prices for milk in the milkshed within which this act is applicable, will adequately protect the milk industry and insure a sufficient quantity of pure and wholesome milk to adults and minors." The law authorizes the board to establish "minimum and * * * maximum prices to be charged for milk handled within any milkshed to which this act is applicable and wheresoever produced."

The Milk Commission of Florida has authority to "ascertain by such investigations and proofs as the emergency permits and requires what prices for milk in the several localities and markets of the State and under varying conditions, will best protect the milk industry in the State and insure a sufficient quantity of pure and wholesome milk to adults and minors in the State, having special regard to the health and welfare of children, and be most to the public interest. The commission shall take into consideration all conditions affecting the milk industry including the amount necessary to yield a reasonable return to the producer and to the milk dealer." The commission also is authorized and directed to fix the minimum and "maximum wholesale and retail prices to be charged for milk handled within the State for fluid consumption, regardless of wheresoever produced."

In Alabama, "after holding such meetings and making such other investigations as the milk control board may deem advisable, the milk control board may fix by official order the following: (*a*) The minimum price or prices within the milkshed to be paid by milk dealers, producers, distributors and producer-distributors to producers and others for milk, in its various grades and uses, * * * (*b*) The milk control board is further empowered to fix the minimum or maximum prices, or both, to be charged, for milk sold wholesale or retail within each respective milkshed where such milk is sold for fluid consumption, regardless of where such milk may have been produced * * *, and (*c*) the milk control board may also fix the amount of charges to be allowed for the handling or distributing functions." Most milk consumed off of farms in the State of Alabama is now priced by the milk control board of that State.

In the State of Montana, the milk control board is empowered to fix by official order "minimum prices to be paid by the milk dealers to producers and others for milk * * * and minimum wholesale or retail prices to be charged for milk in its various grades and uses handled within the State for fluid consumption, and wheresoever produced."

Under the law of the State of Oregon, the milk market administration in that State "shall ascertain what prices for milk in each locality and marketing area of the State will best protect the milk industry and insure a sufficient quantity of pure and wholesome milk in the public interest." The board is empowered by order to "fix the minimum wholesale and retail prices to be charged for milk handled and sold within the State for human consumption in fluid form." Most milk consumed off of farms in the State of Oregon is now priced by the Oregon Milk Market Administration.

In California, the bureau of milk control has authority to establish minimum prices for fluid milk and cream to be paid by distributors to handlers and minimum wholesale and retail prices for fluid milk or fluid cream. Milk prices in California are established by marketing areas within the State, and at the present time, in the most important consuming sections of the State, minimum prices are established by the milk-control authority.

Price support purchase programs

Dairy products have been purchased in the markets from time to time since 1933 for the purpose of supporting returns to dairy farmers for milk and butterfat. (See table 26.) These purchase operations have been carried out under the authority of the Agricultural Adjustment Act of 1933, amendments thereto and related legislation, the Steagall amendment, the Agricultural Act of 1948, and the Agricultural Act of 1949. The prewar price support purchases were made principally to remove price-depressing surpluses from the markets from

time to time rather than to support specific price levels. No specific price levels were announced during the prewar period. The largest prewar dairy price-support operation was in 1938 when 142,000,000 pounds of butter were purchased.

Although several announcements were made during the war that the Department of Agriculture would support prices of dairy products, pursuant to the Steagall amendment, no support operations were necessary during the war years.[24]

TABLE 26.—*Purchases of dairy products by the Federal Government under price-support programs, 1933–May 31, 1950* [1]

[In thousands of pounds]

Period	Butter	Cheese	Evaporated milk	Nonfat dry milk solids	Period	Butter	Cheese	Evaporated milk	Nonfat dry milk solids
1933	43,234	----------	----------	---------	1939	25,398	0	3,209	5,035
1934	24,624	17,936	400	----------	1940	10,604	4,354	65,903	7,317
1935	7,055	192	47,027	15,840	1941	11,454	0	4,350	0
1936	2,951	932	6,160	3,594	1947	----------	----------	----------	211,311
1937	3,049	138	19,636	23,188	1949	114,273	25,526	----------	325,493
1938	141,979	3,463	19,470	31,260	1950 [2]	52,524	26,435	----------	193,485

[1] Includes purchases by or for the U. S. Department of Agriculture.
[2] Through May 31.

The Steagall amendment required that if the Secretary of Agriculture announced that an increase in the production of an agricultural commodity was necessary to the war effort, he must support prices to producers for that commodity for a specified period following the end of hostilities at not less than 90 percent of parity. Pursuant to such announcements the Department of Agriculture purchased, during 1947, 211,000,000 pounds of nonfat dry milk solids to assure producers of milk at least 90 percent of parity.

The Agricultural Act of 1948 in effect extended the Steagall amendment and required the Secretary to support prices to producers for milk and butterfat at 90 percent of parity through 1949. In carrying out that legislative requirement, the Department purchased during 1949, 114,000,000 pounds of butter, 26,000,000 pounds of cheese, and 325,000,000 pounds of nonfat dry milk solids.

The Agricultural Act of 1949 authorizes and directs the Secretary of Agriculture to support prices to producers for milk and butterfat at such level between 75 and 90 percent of parity as will obtain an adequate supply of milk. There was announced on December 22, 1949, a program to purchase manufactured dairy products so as to support the prices to farmers for manufacturing milk at approximately 80 percent of the parity equivalent for such milk during the period January 1950 through March 1951. Purchases during the first 6 months of 1950 under that program approximated 96,000,000 pounds of butter, 56,000,000 pounds of cheese, and 257,000,000 pounds of nonfat dry milk solids.

Products purchased by the Department under prewar support programs were disposed of principally for welfare and relief feeding in the United States. Because of improved economic conditions, relatively small quantities of products have been distributed in such outlets under postwar support programs. Domestic disposition has been primarily to school-lunch programs and sales back to the trade, with smaller quantities donated under section 416 of the Agricultural Act of 1949. Total disposition of dairy products purchased under the 1949 and 1950 support programs, through May 1950, amounted to 33,000,000 pounds of nonfat dry milk solids. Most of the nonfat dry milk solids was used in foreign relief feeding programs.

Food stamp plan

The prewar price-support purchase programs were supplemented by the food stamp plan. From May 1939 through May 1941 and again from November 1941 to August 1942, butter was on the list of commodities which could be bought in

[24] During most of the wartime and immediate postwar period of price controls, the Commodity Credit Corporation made direct payments to milk producers on milk and butterfat sold by them. It also made subsidy payments to cheese manufacturers on Cheddar cheese production and payments to milk handlers on fluid milk in certain markets. The purpose of these payments was to increase the returns to dairy farmers in order to help them maintain production of milk to meet wartime requirements, without an increase in the price ceilings on milk and other dairy products.

retail stores with blue stamps under the stamp plan. It has been estimated that needy persons who participated in the stamp program bought approximately 69,000,000 pounds of butter with blue stamps under the program.

Low-cost milk program

The low-cost milk program, to increase the use of milk by needy persons, was introduced in various cities from August 1939 to March 1941, and was ended in June 1943. Under this program, the Department made payments to handlers or sponsoring agencies who accepted the responsibility for distributing milk to eligible participants. About $6,300,000 were paid out under this program.

School milk and school-lunch programs

The school milk or penny milk program, to encourage consumption of milk by children, was started in May 1940. Under this program, the Department entered into contracts with local sponsoring agencies, whereby these agencies agreed to purchase and distribute milk to children at a charge of not more than 1 cent per half pint. Milk was distributed free to children who were unable to pay. The Department paid for the cost of the milk, and the sponsor and the child paid for the processing and handling costs. Nearly $7,000,000 in payments were made under the program before it became a part of the school-lunch program in 1943.

Milk has been a component of most lunches under the school-lunch program since its beginning in 1943, and local agencies also have purchased dairy products for use in school lunches. Since the passage of the National School Lunch Act of 1946, substantial quantities of nonfat dry milk solids, cheese, and butter have been distributed by the Department to local agencies for school lunch use in accordance with section 6 of that act. Part of those products were purchased by the Department specifically for school-lunch use, and others were repackaged and distributed from stocks acquired under price-support programs.

Section 32

Since 1936 the Department has purchased and distributed dairy products without charge to schools and other eligible participants, pursuant to section 32 of Public Law 320, Seventy-fourth Congress, approved August 24, 1935, in order to encourage domestic consumption of these products. This program has been carried out with funds derived from a portion of custom duties set aside each year for this purpose, in accordance with section 32 of the above law.

ECA program

During the last 2 years, more than $100,000,000 have been authorized by the Economic Cooperation Administration for the procurement of dairy products in the United States by European countries authorized to receive assistance under the Foreign Assistance Act of 1948. Sales have been handled primarily through commercial trade channels. Cheese and dried and evaporated milk have been the principal products exported under the program.

Grading and inspection services

The Department maintains an inspection and grading service for dairy products, in cooperation with State agencies. The work is financed from service fees, and the inspection and grading services are available to the dairy industry and other Federal and local Government agencies.

Reporting and analytical services

The United States Department of Agriculture provides daily, weekly, and monthly market news reports covering major dairy products. Coverage of the reports has been expanded considerably since they were begun in 1918. In cooperation with 41 States, the Department provides a crop and livestock reporting service which issues periodic reports covering production, prices, and stocks of major manufactured dairy products, many series relative to farm production of milk, and sales and prices of fluid milk in major cities. In the last two decades the Department has added a service involving analysis of the current and prospective situation for dairy products. These are based on the numerous data published by the United States Department of Agriculture and other agencies, Government and private.

Research of help to dairy farmers

The United States Department of Agriculture and the land-grant colleges have for many years conducted research programs designed to assist dairy farmers in achieving more efficient production of milk.

Research on feeding practices

Research has developed many new ways to more efficiently provide farm feed supplies and more efficiently feed dairy cattle. Improved pasture management practices have been developed that will at least double the yields of the average bluegrass pasture. New varieties of crops and improved cultural and management methods have resulted in greatly increased yields of feed crops on most farms.

Improved methods of producing, harvesting, and utilizing forages, such as grass silage, artificial dehydration, and barn drying hay, have been developed to reduce the hazards and losses in harvesting feed crops and increase the quality of the feed. New types of farm machinery and facilities for feed storage and animal housing have resulted in increased efficiency in dairy farming and at the same time reduced the workload of the farmer.

Development of feeds, based on scientific research on the nutritional requirements of cattle and the nutritive properties of feed, has contributed greatly to the proper feeding of cattle and the increased output of milk on dairy farms.

Improvements in cattle.—Much of the success in dairying is dependent upon the development of efficient high-producing cows. Milk production per cow has increased from 4,785 pounds in 1925 to 5,239 pounds in 1949. Some of this improvement can be attributed to the development of better cows through breeding. One of the outstanding developments has been the proved sire system of breeding to improve the producing ability of dairy cattle. This proven system is being adopted widely among dairy farmers. The Dairy Herd Improvement Association (DHIA) program has made it possible to not only assist farmers in improving the efficiency of their dairy farming operations, but it also has located superior proved bulls so that they could be used on a much wider scale. The DHIA program has shown a growth of from 468 associations in 1920 to 1,143 in 1930; 1,300 in 1940; and 1,973 in 1950. Today well over 1,000,000 cows are on test in this country.

A third significant development in dairy cattle improvement is artificial insemination. This technique permits mating of cows with semen from bulls by artificial methods. Thus farmers, especially those with only a few cows, need not keep a bull and bulls can be concentrated and provide service over a fairly wide area for a much larger number of cows in many herds. It enables spreading the influence of superior proved bulls over a large cow population. This offers the best means yet developed to rapidly improve the producing ability of the dairy cows through proved sire breeding. While artificial insemination is only about 12 years old in the United States, on January 1, 1950, there were in operation 1,460 breeding associations with 372,968 herds and 2,827,530 cows enrolled, or over 10 percent of the United States dairy-cow population.

Disease control.—Advances have been made in the control and elimination of important cattle diseases. The fever tick has been eradicated from the southern part of the United States. Foot-and-mouth disease has been kept out and tuberculosis has been practically eliminated. Effective methods have been developed for the control and eradication of Bang's disease and regional and area campaigns are in effect to eliminate that disease. Much has been learned about the control and elimination of mastitis but this and sterility remain troublesome diseases causing large economic loss to the industry.

Development of foreign outlets for United States dairy products

The United States Government is exploring the possibility of building up foreign outlets for United States dairy products. A project designed to survey export prospects for dairy products in the Caribbean area, Central America, and Venezuela, and Colombia was launched late in 1949. These countries export agricultural products and raw materials in considerable quantity to the United States and therefore they have dollars available for purchase of exports from the United States. The project was planned to cover both long-term prospects and current marketing problems. Ten selected areas were surveyed over a period of 2½ months by a representative of the United States Department of Agriculture employed in the Office of Foreign Agricultural Relations.

Preliminary general findings were as follows: (1) Trade advantages enjoyed by the United States in these areas during the war and early postwar years are disappearing, as soft currency exporting countries in western Europe and South America are developing exportable supplies and devaluing their currencies. They can sell equivalent products in these markets at lower prices than can competing United States exporting firms. (2) United States exporters should give chief emphasis to promotion of those dairy products which are complementary to the products of the local dairy industry in these areas. (3) Industry-wide efforts

should be made to establish and maintain high and uniform quality standards. (4) Some improvements should be made in the matter of shipping, packaging, and selling of particular products.

It appears that Caribbean areas are likely to continue to be important markets for our dried whole milk for several years. We can also expect a moderate long-term market for processed cheddar cheese. Evaporated milk may continue to go to Cuba, Curacao, Panama, and other markets, but some countries, notably Cuba and Mexico, are tending to become self-sufficient in the production of sweetened condensed milk. Butter will probably continue to be sold in small quantities, but competition from Denmark, New Zealand, and the Netherlands is increasing. Nonfat dry milk, which contains an abundance of nutrients sorely needed by the great mass of low-income people in these Central and South American areas, can conceivably fall within their power to buy. In developing an export program for this product, an active, coordinated program by governments and distributors in importing countries and by the dairy industry of this country is imperative.

VII. RELATIVE IMPORTANCE OF FOREIGN TRADE TO THE UNITED STATES DAIRY INDUSTRY

During most of the period between World War I and World War II, the United States was on a net import basis so far as total dairy products were concerned. This net import balance resulted primarily from the imports of foreign types of cheese. The magnitude of imports was relatively small, however; the net import balance of 1935–39—0.4 billion pounds of milk—was equivalent to about a third of 1 percent of our domestic milk production. With the various wartime programs during the 1940's exports increased sharply, and at the peak of war operations they were equivalent to 7 percent of production (milk-fat basis) (tables 40, 41, and 71–76).

Since the peak during World War II, exports of dairy products from the United States have decreased almost without interruption. In 1949, total exports were equivalent to 2.7 billion pounds of milk (fat basis), or about 2 percent of domestic milk production. This reflects the increase in competition that United States dairy products are meeting in world markets, which, in turn, is a result of increases in milk production in foreign countries to or in excess of prewar levels, and the deflation of many foreign currencies in the fall of 1949 in terms of United States dollars. By the end of 1949 or early in 1950, the supply of fluid milk in many other countries of the world was sufficient to meet demands for fluid milk at prevailing prices, and excess supplies of milk were diverted into several manufactured dairy products, particularly butter and cheese. Increased dairy production in other exporting countries of the world has thus far had limited effect on the United States dairy industry, because most of the exportable surpluses from the other countries are committed through long-time bilateral agreements to shipment to the United Kingdom and some other countries. In addition, imports of butter into the United States are not currently allowed.

Increases in world production are occurring for many manufactured dairy products. However, in terms of milk used, the largest increases in the postwar era have occurred in butter and cheese. World production of butter in 1949 is now estimated at 7,900,000,000 pounds. This is approximately 8 percent larger than in 1948, but still only about 82 percent of prewar. Current indications point to a 1950 production of at least 90 percent of the prewar level. For the same countries, production of cheese in 1949 was 3,611,000,000 pounds, compared with 3,153,000,000 pounds in 1948, and 3,155,000,000 pounds in 1934–38. Production of canned milk increased in most countries both in 1948 and 1949, and currently is well above the prewar level.

Countries important as exporters of dairy products have been selling large quantities of butter and cheese to the United Kingdom under long-term bilateral agreements, in the hope of maintaining a relatively sure market for a large portion of their exportable surpluses. In the search for export markets outside the United Kingdom, smaller quantities of butter and cheese are being sold to a number of countries at higher prices than to the United Kingdom. These sales have done much to help maintain a more favorable trade balance for several dairy countries. These same exporters of dairy products feel there is a potential market for both butter and cheese in the United States at current domestic prices, and that such transactions would do much to alleviate their dollar shortage problem.

These countries, Denmark, the Netherlands, Australia, Italy, Switzerland, and New Zealand, have expressed particular interest in making substantial exports of dairy products to the United States. This would help give those countries an increased supply of dollars as well as a higher price outlet for their dairy

915089—50——8

FIGURE 14

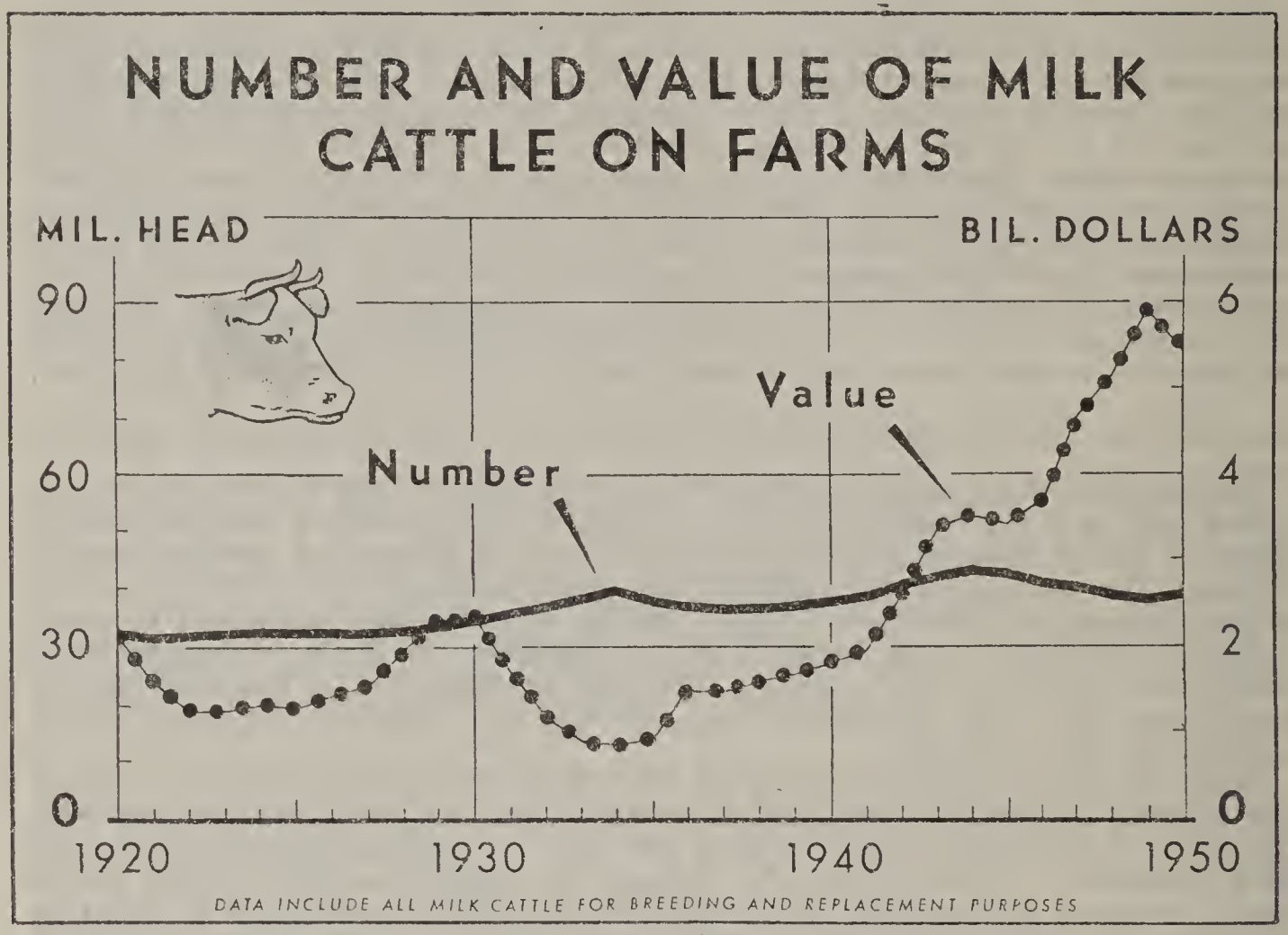


FIGURE 15

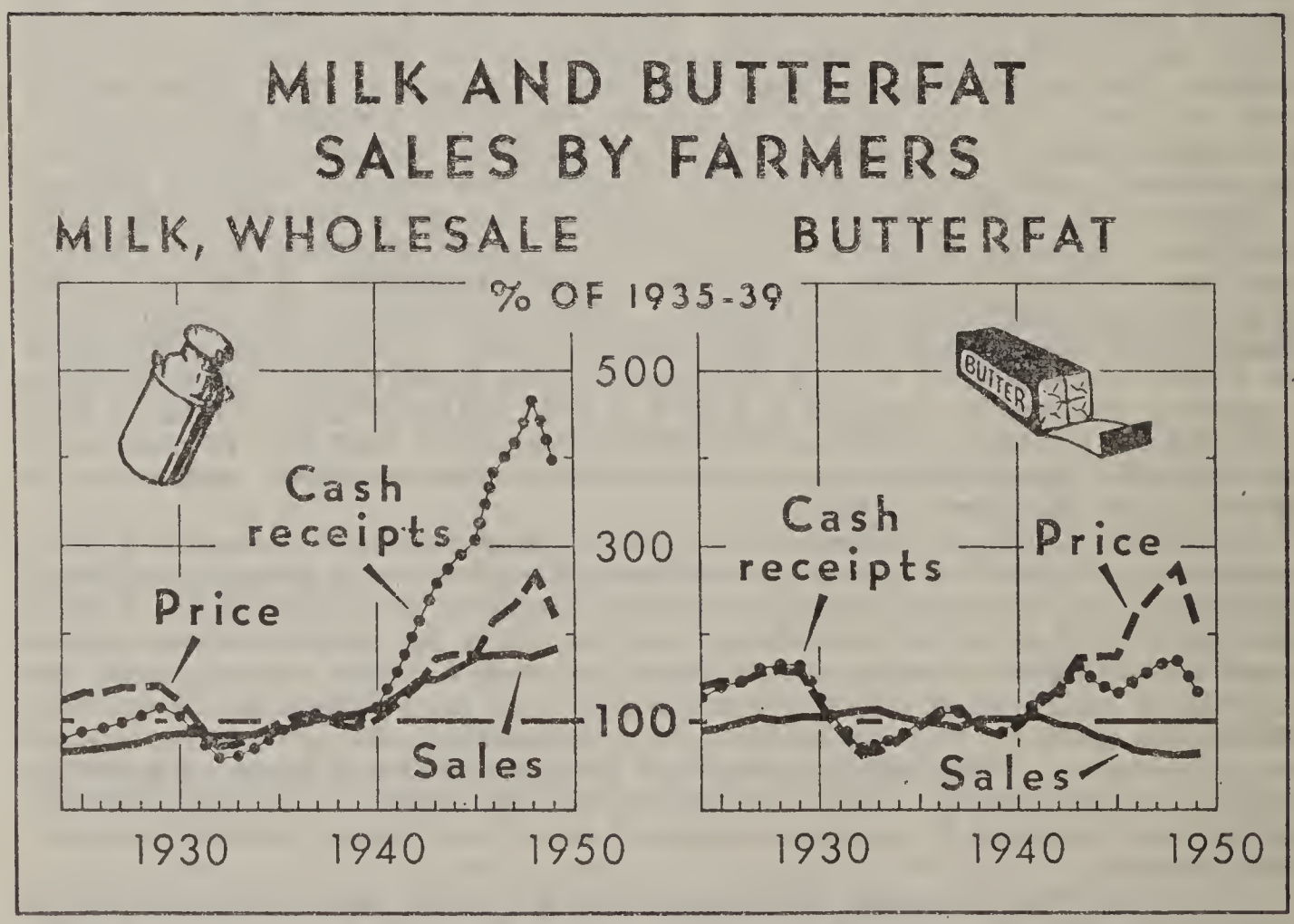


FIGURE 16

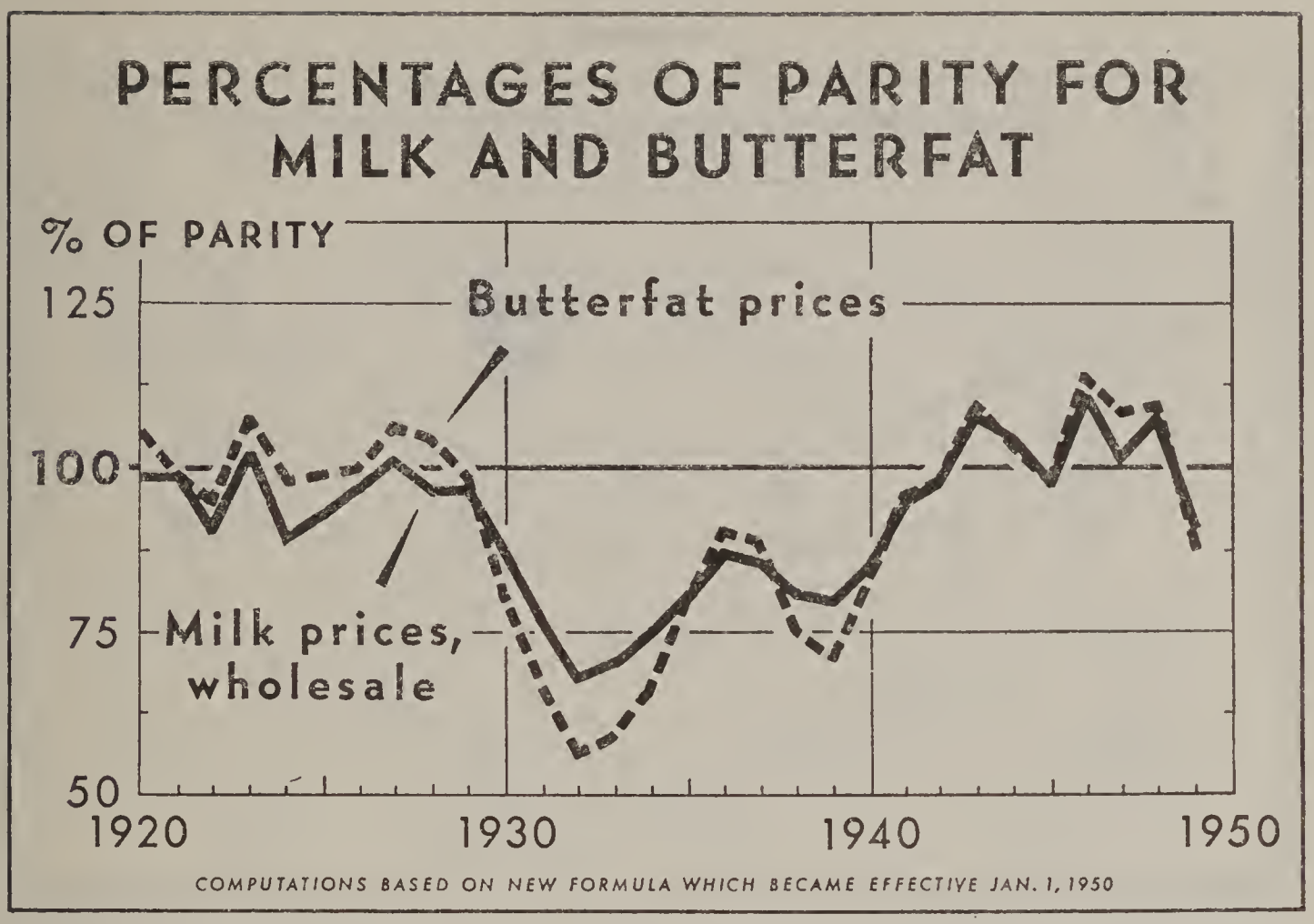


FIGURE 17

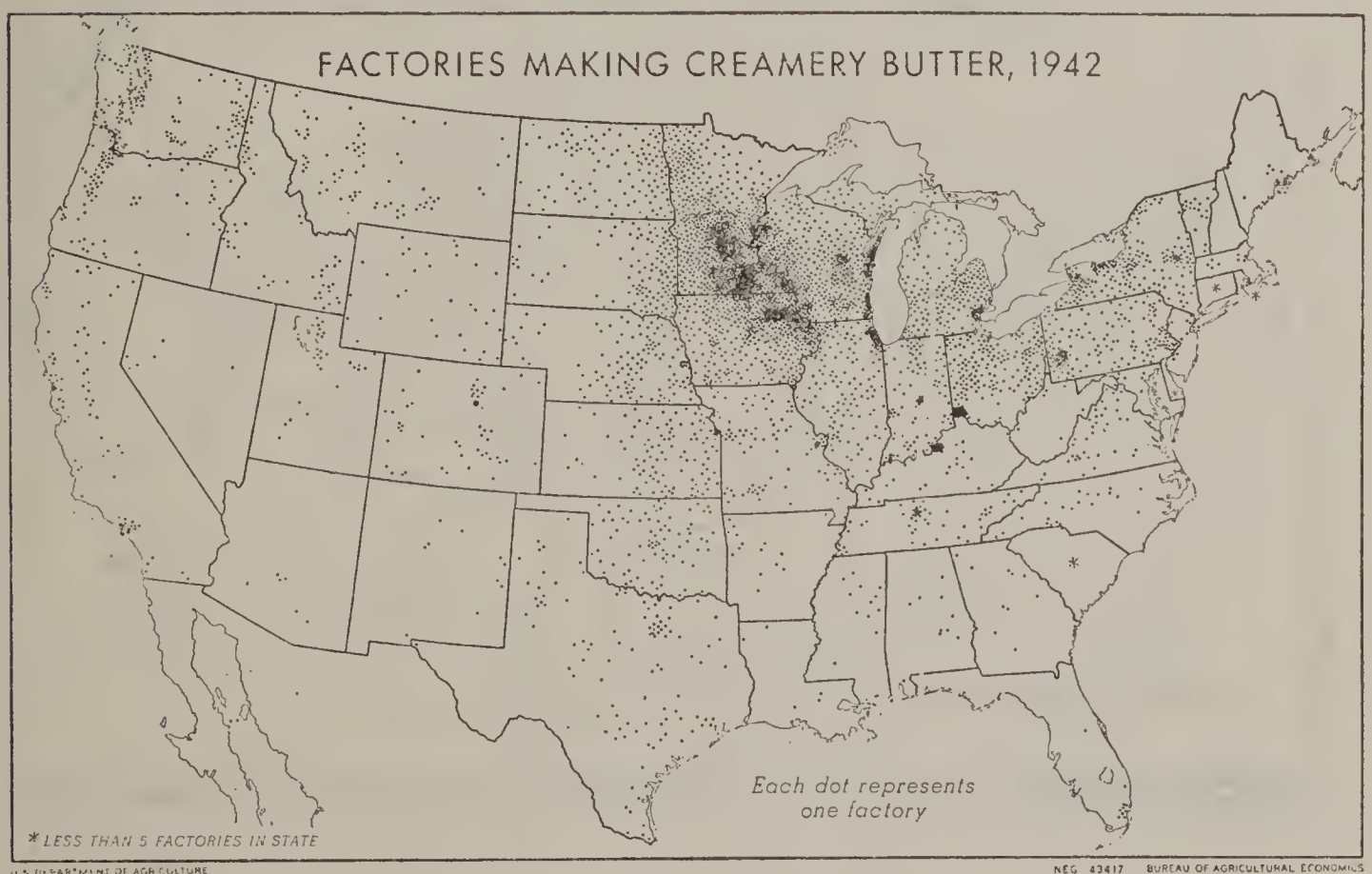


FIGURE 18

FIGURE 19

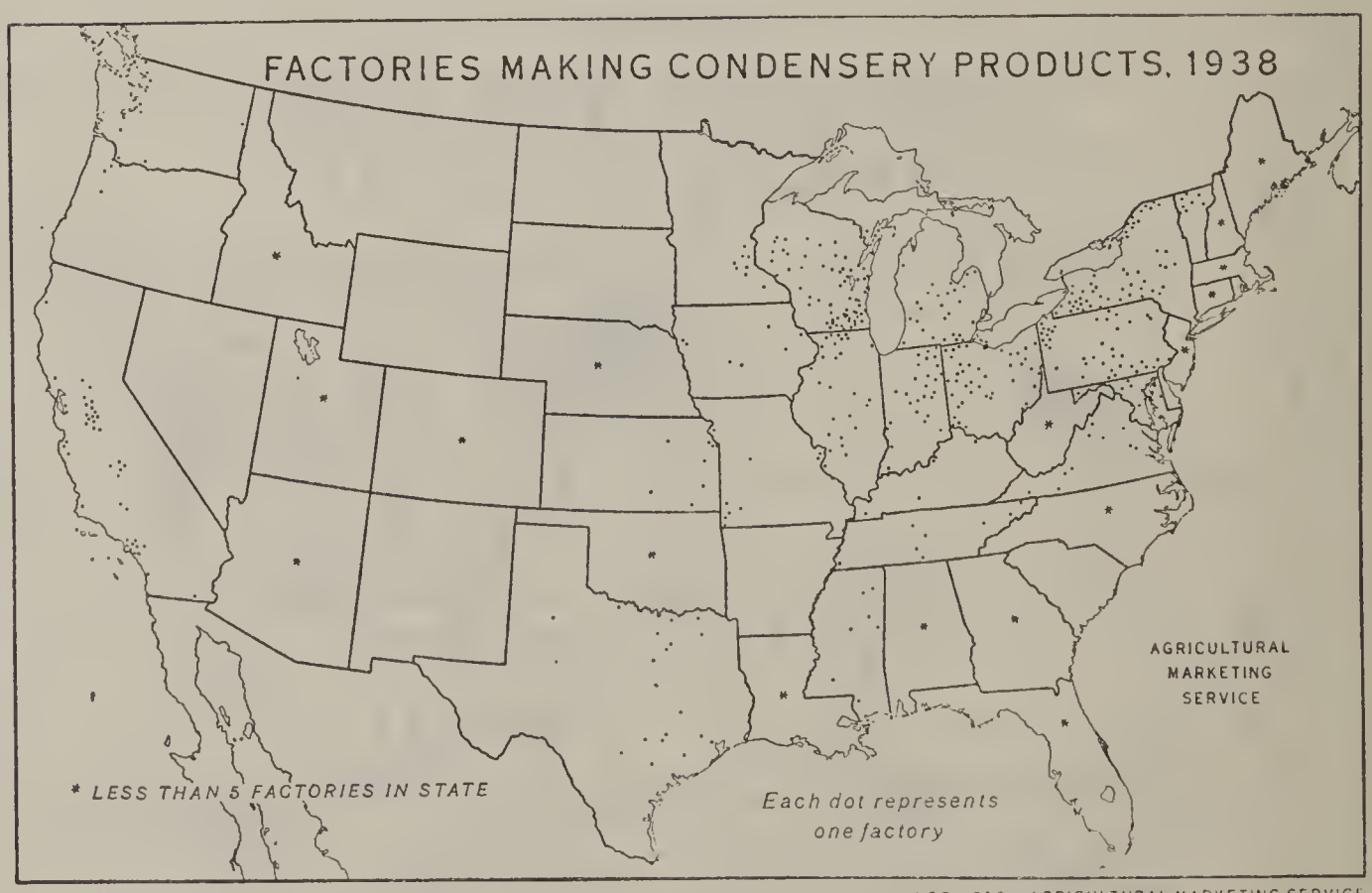


FIGURE 20

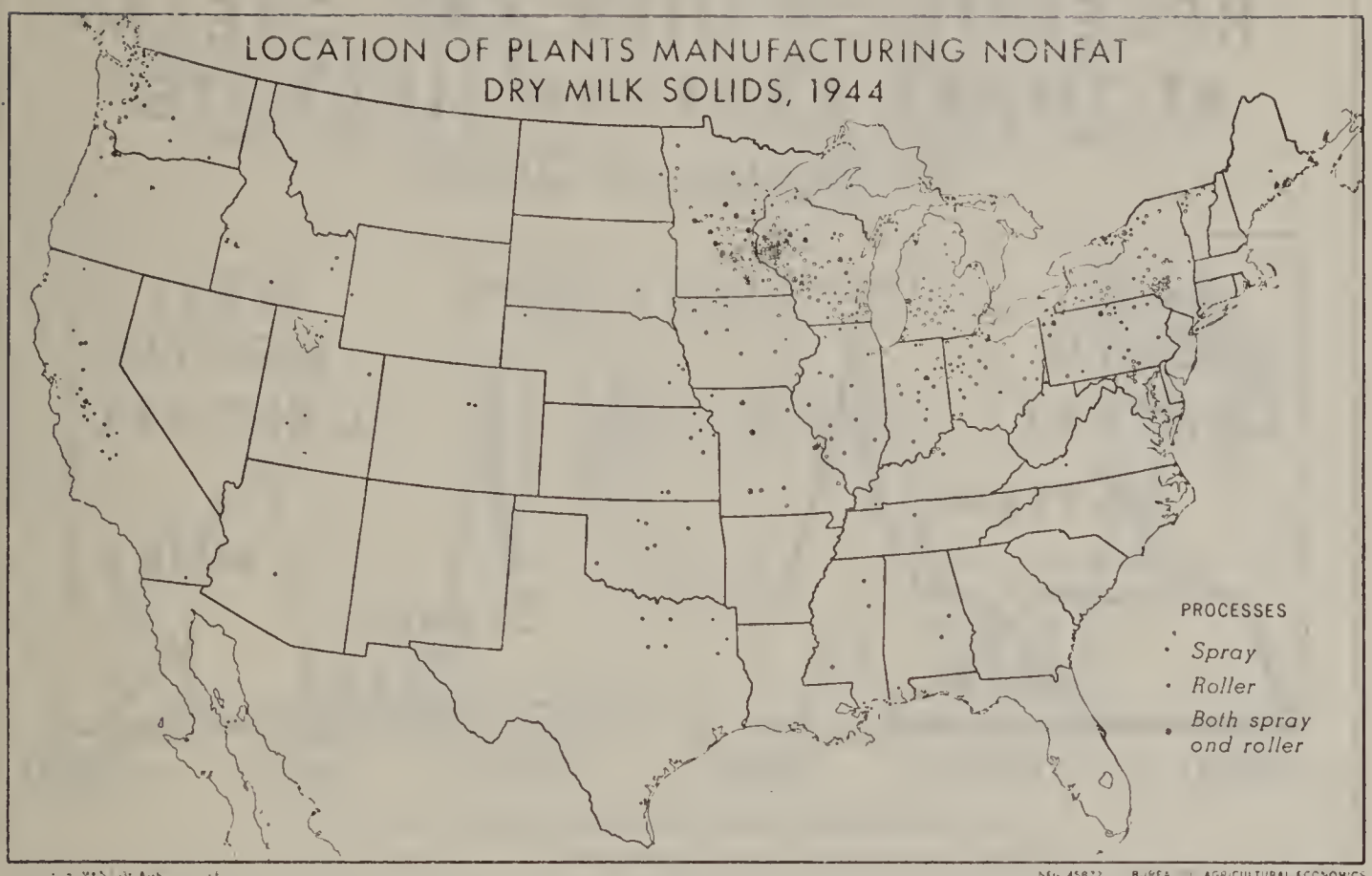


FIGURE 21

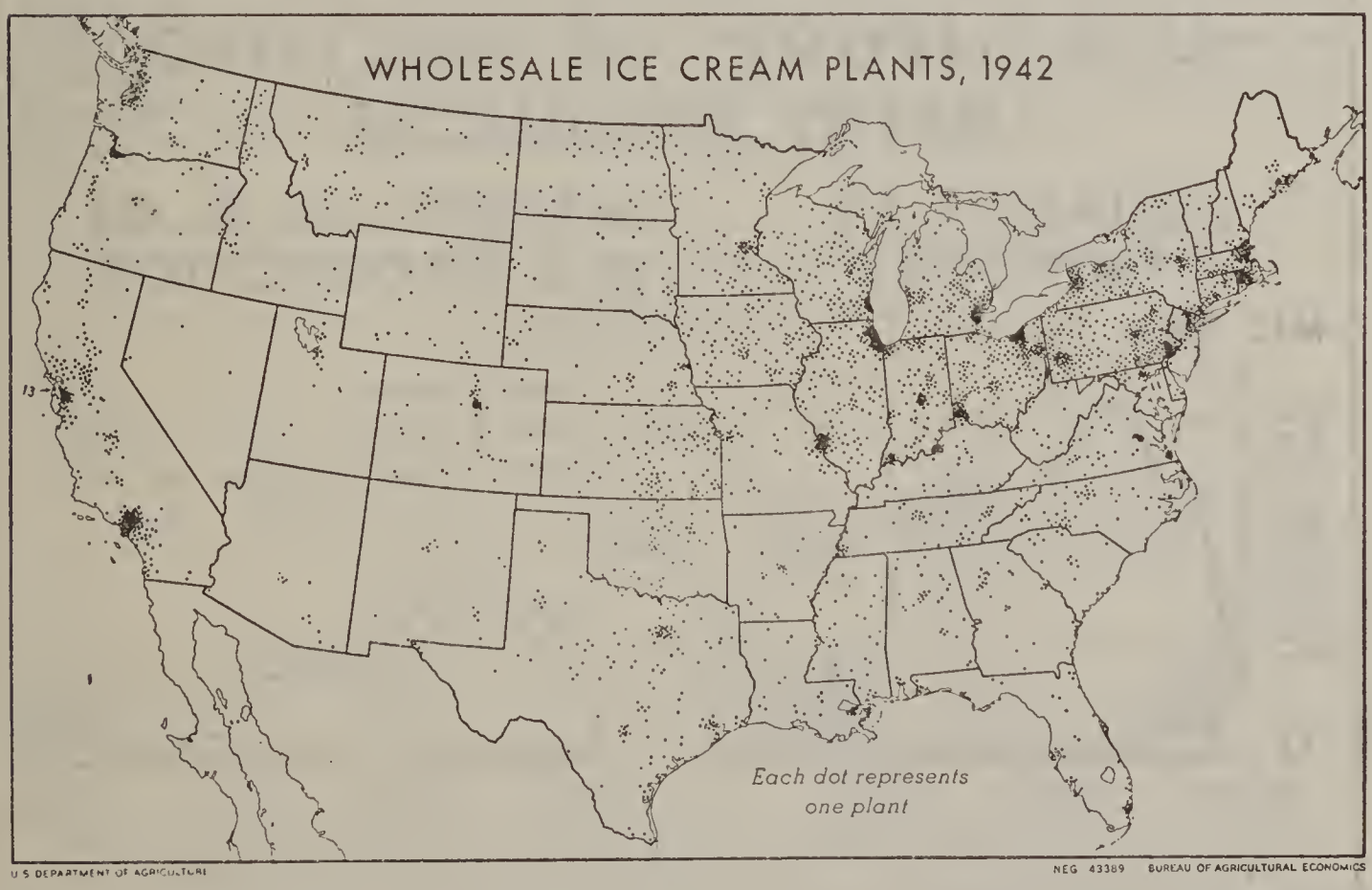
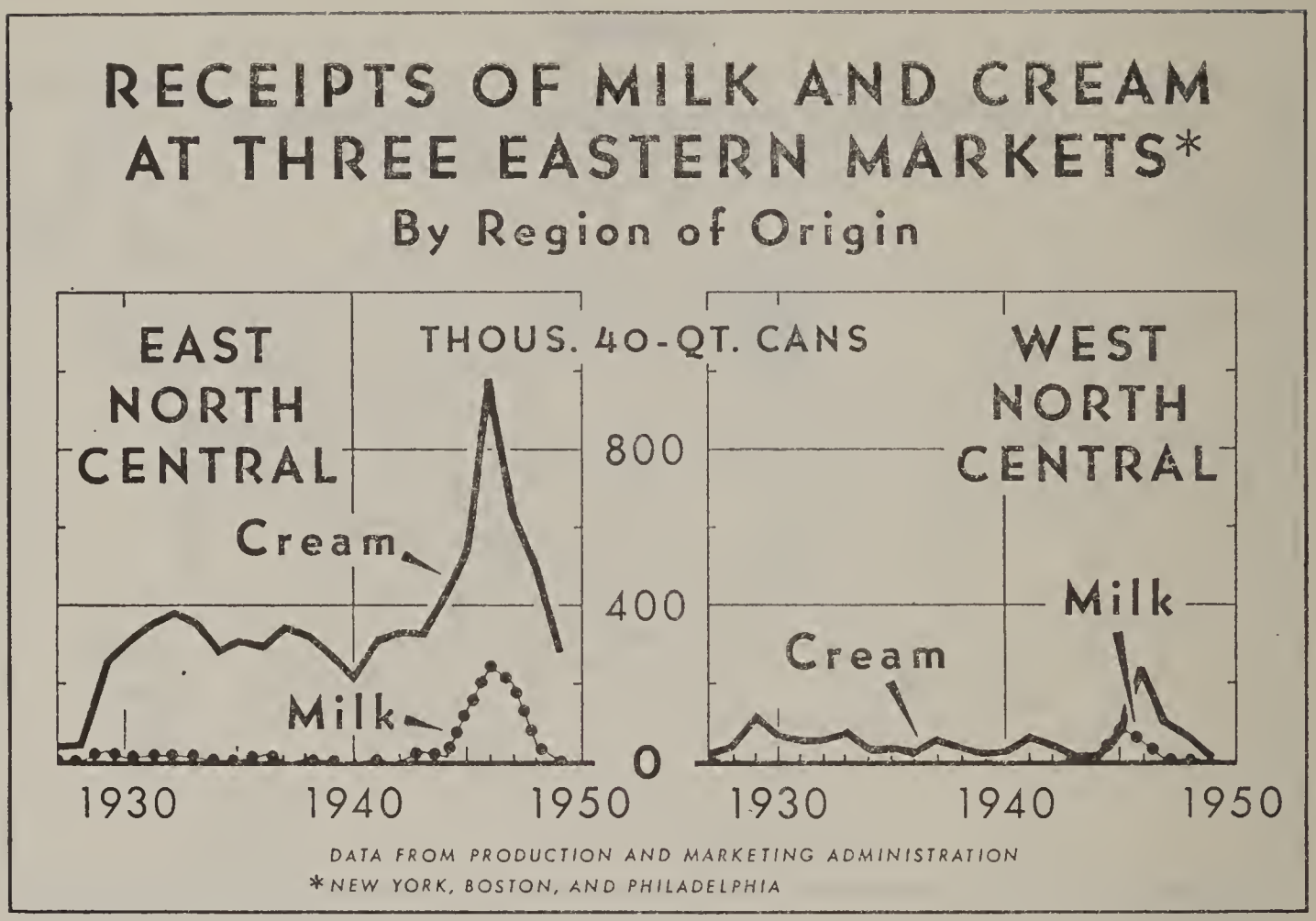
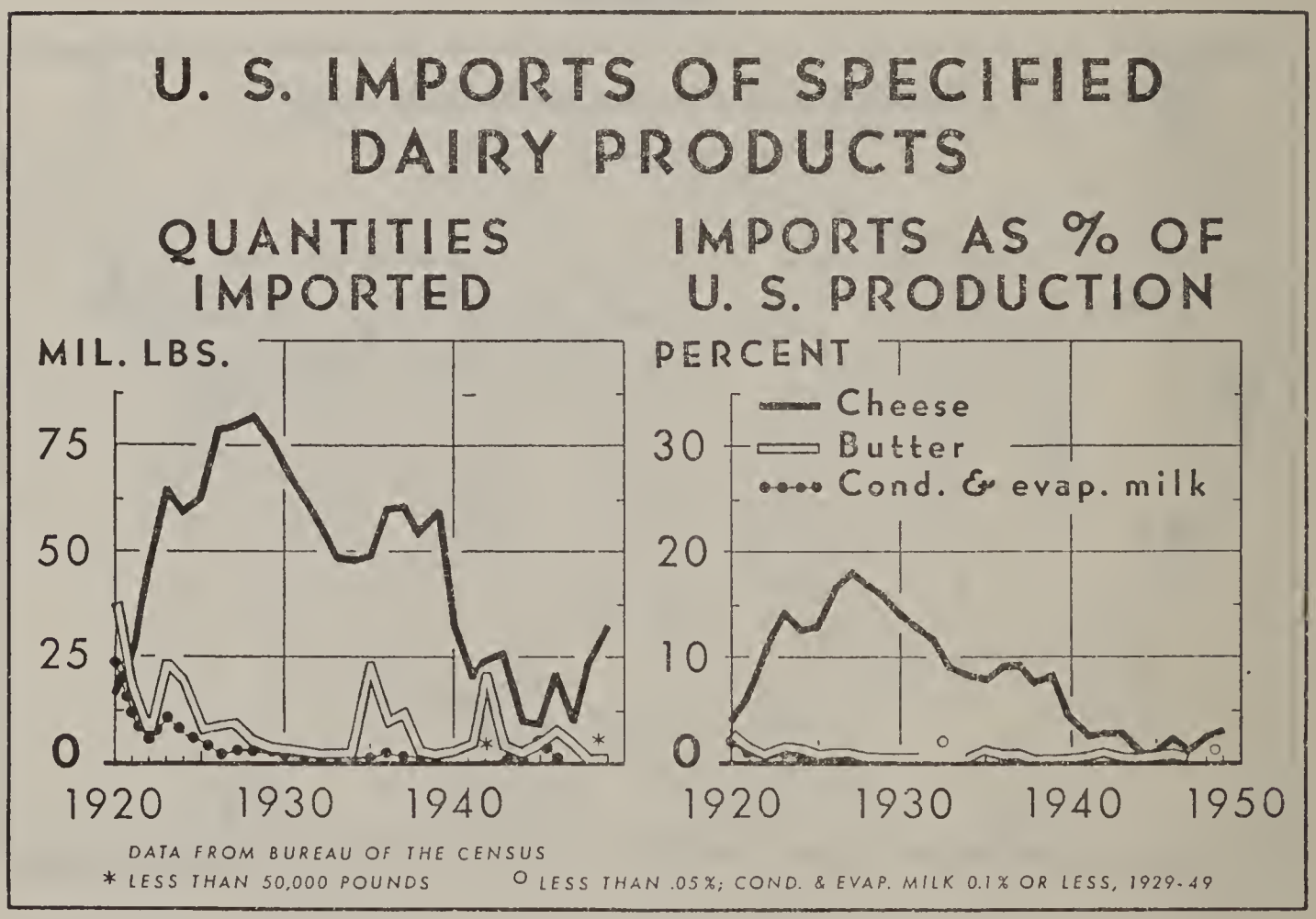


FIGURE 22



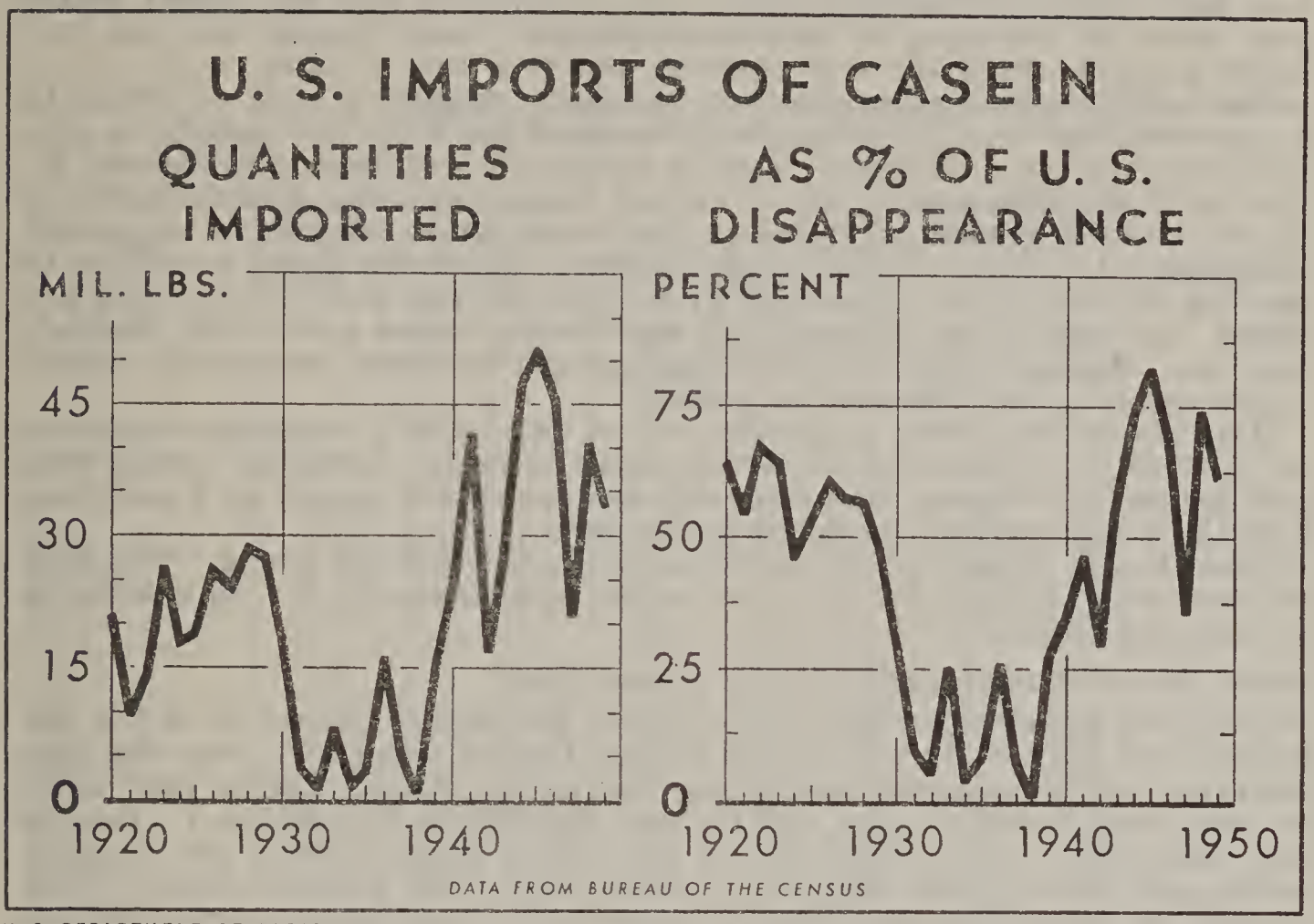
U. S. DEPARTMENT OF AGRICULTURE NEG. 47740-XX BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 23



U. S. DEPARTMENT OF AGRICULTURE NEG 47742-XX BUREAU OF AGRICULTURAL ECONOMICS

FIGURE 24



U. S. DEPARTMENT OF AGRICULTURE NEG. 47749-XX BUREAU OF AGRICULTURAL ECONOMICS

products. It is difficult to estimate how much these countries would gain currently over their present outlets by exporting larger supplies of dairy products to the United States. This arises because price and sales conditions specified in the various long-term contracts are susceptible to considerable change. It is possible also that some countries would desire to sacrifice somewhat in terms of price received per unit of product, in the interest of increasing their total supply of dollars. Starting from the price at which butter and cheese are currently sold to the United Kingdom in long-time contractual arrangements, it is possible to derive an illustrative price of foreign dairy products delivered into the United States. This calculation is illustrated in table 27.

TABLE 27.—*Approximate landed prices of butter and cheese from specified foreign countries, based on the United Kingdom contract prices, 1949–50*

[Cents per pound]

Country	Butter			Cheese	
	Domestic price	United Kingdom contract price	Approximate landed price in the United States [1]	United Kingdom contract price	Approximate landed price in the United States
New Zealand	28	31.6	41	17.7	26
Australia	23	31.4	41	17.5	26
Denmark		33.9	43		
Netherlands	56	[2] 39.0	48	27.0	34

[1] Based upon tariff at 7 cents per pound which is applicable to the first 10,000,000 pounds.
[2] Average price of all butter exports during the year.

These data indicate that under free market conditions, at least a limited quantity of both butter and cheese probably would flow into the United States, as the contract prices with the United Kingdom, adjusted to f. o. b. United States basis, are lower than domestic wholesale support prices by nearly a third in the case of butter and about an eighth in the case of cheese.

At present, butter imports into the United States are governed by Public Law 590, which specifies that butter can be imported into the United States only upon the obtaining of individual licenses; such licenses are not currently granted. This law was renewed, effective July 1, 1950.

The tariff schedule stipulates that the first 5,000,000 pounds of butter to be imported into the United States, in each of the following periods, is subject to 7 cents per pound duty: April 1 to July 15, and July 16 to October 31. The tariff schedule also would allow the import into the United States of up to 50,000,000 pounds of butter at the 7-cents-per-pound rate in the period November 1 to March 31 each year. All excess quantities would be subject to the full 14 cents duty. However, even with the full duty of 14 cents per pound, the landed cost of butter in the United States from New Zealand, Australia, Denmark, and the Netherlands would be below the current United States support price of 60 cents per pound.

Most cheese items have a specific rate of duty with a stipulated minimum ad valorem rate. The highest cheese import duty is 5 cents per pound with a 25 percent ad valorem minimum, and some rates are as low as 3 cents per pound with a 15 percent ad valorem minimum.

Canned milk import duties vary from 1 to 1¾ cents per pound. The duty on dried whole milk is 3.1 cents per pound, and on nonfat dry milk solids is 1.5 cents per pound.

Importance of countries shifted from prewar years

Numerous significant shifts have occurred in the last decade as to the distribution of United States exports among foreign countries. For the concentrated dairy products other than butter, the United States now ships to many more countries than was the case just before World War I. Part of this development is an outgrowth of the United States foreign aid program during and since World War II. However, much of it is the result of an increase in demand in the countries concerned. This applies particularly to dry milks. A substantial increase has occurred in volume of dry milks shipped to Western Hemisphere countries. Many more Asiatic countries are buying United States dry milks than previously (table 63.)

Cheese is the only dairy food product now important in the United States import picture. So far in the postwar period, Europe has not regained the prewar levels in shipments to this country and the United States is now obtaining proportionately larger amounts from South America. Total imports in 1949 were only about half the prewar level (table 64).

A slight amount of casein was exported in 1949, compared with none in 1939. However, imports of this item doubled in that decade. As in prewar years the United States still gets most of its casein from Argentina. Canada has become more important as a source of casein.

TABLE 28.—*Number of farms reporting milk produced and dairy products sold, United States, 5-year intervals, 1919–49* [1]

	Farms reporting milk produced			Farms reporting dairy products sold	Specialized dairy farms [3]
	Number	Percent of total farms	Number of people on these farms [2]		
1919	[4] 5,043,000	[4] 78.2	26,000,000	----------	----------
1924	4,988,000	78.3	25,000,000	----------	----------
1929	4,616,000	73.4	24,000,000	2,883,000	605,000
1934	5,237,000	76.9	26,000,000	----------	----------
1939	4,663,000	76.5	25,000,000	2,648,000	619,000
1944	4,495,000	76.7	21,000,000	2,473,000	559,000
1949	----------	----------	23,000,000	----------	----------

[1] Data on number of farms from Census of Agriculture.
[2] Approximations based on number of farms with cows and number of people per farm.
[3] Definitions vary somewhat from one period to another: 1929—farms with milk, milk products, and dairy animals contributing 40 percent or more of the value of products sold or used by the operator's household; 1939—farms with milk and milk products the largest single source of income; and 1944—farms with milk and milk products making up more than 50 percent of the value of all products sold and the value of all products sold at least equal to the value of products used by farm households. The 1939 figure comparable to the 1944 definition would be 509,000 dairy farms.
[4] Includes 682,000 farms reporting dairy cows for which the census estimated milk production.

TABLE 29.—*Farmers' disposition of milk, United States, 1924–49*

[In millions of pounds]

Year	Total production on farms	Milk sold or utilized for preparation of dairy products sold from farms					Milk fed or consumed on farms where produced			
		For deliveries to plants and dealers		For retail sales of milk and cream by farmers	For farm-churned butter sold	Total utilized for products sold	Consumed in the farm household		Fed to calves	Total used on farms
		As milk	As cream				As milk or cream	As farm butter		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1924	89,240	25,907	29,366	6,139	3,683	65,095	11,841	9,562	2,742	24,145
1925	90,699	26,830	30,417	6,270	3,458	66,975	11,662	9,278	2,784	23,724
1926	93,325	27,707	32,123	6,397	3,364	69,591	11,506	9,370	2,858	23,734
1927	95,172	28,600	33.356	6,564	3,222	71,742	11,315	9,214	2,901	23,430
1928	95,843	30,367	32,814	6,718	2,994	72,893	11,207	8,799	2,944	22,950
1929	98,988	33,347	33,808	6,843	2,773	76,771	10,932	8,273	3,012	22,217
1930	100,158	34,497	33,974	6,847	2,497	77,815	11,207	8,150	2,986	22,343
1931	103,029	34,614	35,468	6,976	2,507	79,565	11,913	8,554	2,997	23,464
1932	103,810	33,501	36,095	7,028	2,640	79,264	12,507	9,180	2,859	24,546
1933	104,762	33,705	36,524	7,073	2,505	79,807	12,784	9,293	2,878	24,955
1934	101,621	33,869	33,867	7,081	2,223	77,040	12,773	9,120	2,688	24,581
1935	101,205	35,647	32,564	6,977	2,124	77,312	12,410	8,807	2,676	23,893
1936	102,410	38,777	31,904	6,734	1,907	79,322	12,077	8,256	2,755	23,088
1937	101,908	40,470	30,644	6,567	1,753	79,434	11,955	7,795	2,724	22,474
1938	105,807	42,657	32,728	6,449	1,679	83,513	11,950	7,494	2,850	22,294
1939	106,792	43,801	32,987	6,217	1,551	84,556	12,167	7,102	2,967	22,236
1949	109,502	47,170	33,044	6,102	1,441	87,757	12,063	6,688	2,994	21,745
1941	115,268	52,121	34,091	5,945	1,380	93,537	12,020	6,587	3,124	21,731
1942	118,884	59,185	31,322	5,862	1,238	97,607	11,856	6,127	3,294	21,277
1943	117,785	60,116	30,188	5,739	1,081	97,124	11,615	5,770	3,276	20,661
1944	117,992	64,338	26,422	5,669	1,037	97,466	11,685	5,571	3,270	20,526
1945	121,504	69,836	24,288	5,619	1,075	100,818	11,671	5,680	3,335	20,686
1946	119,713	70,591	21,380	5,539	1,090	98,600	12,318	5,540	3,255	21,113
1947	119,065	71,127	20,969	5,178	966	98,240	12,295	5,302	3,228	20,825
1948	115,527	69,607	19,664	4,905	892	95,068	12,314	5,036	3,109	20,459
1949 [1]	119,136	73,114	20,095	4,623	827	98,659	12,480	4,778	3,219	20,477

[1] Preliminary.

TABLE 30.—*Farmers' disposition of milk: Each use as percentage of milk produced, United States, 1924–49*

[Percent]

Year	Total production on farms	Milk sold or utilized for preparation of dairy products sold from farms					Milk fed or consumed on farms where produced			
		For deliveries to plants and dealers		For retail sales of milk and cream by farmers	For farm-churned butter sold	Total utilized for products sold	Consumed in the farm household		Fed to calves	Total used on farms
		As milk	As cream				As milk or cream	As farm butter		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1924	100	29.0	32.9	6.9	4.1	72.9	13.3	10.7	3.1	27.1
1925	100	29.6	33.5	6.9	3.8	73.8	12.9	10.2	3.1	26.2
1926	100	29.7	34.4	6.9	3.6	74.6	12.3	10.0	3.1	25.4
1927	100	30.0	35.0	6.9	3.5	75.4	11.9	9.7	3.0	24.6
1928	100	31.7	34.2	7.0	3.2	76.1	11.7	9.2	3.0	23.9
1929	100	33.7	34.2	6.9	2.8	77.6	11.0	8.4	3.0	22.4
1930	100	34.4	33.9	6.8	2.6	77.7	11.2	8.1	3.0	22.3
1931	100	33.6	34.4	6.8	2.4	77.2	11.6	8.3	2.9	22.8
1932	100	32.3	34.8	6.8	2.5	76.4	12.0	8.8	2.8	23.6
1933	100	32.2	34.9	6.8	2.5	76.2	12.2	8.9	2.7	23.8
1934	100	33.3	33.3	7.0	2.2	75.8	12.6	9.0	2.6	24.2
1935	100	35.2	32.2	6.9	2.1	76.4	12.3	8.7	2.6	23.6
1936	100	37.9	31.2	6.6	2.0	77.5	11.8	8.1	2.6	22.5
1937	100	39.7	30.1	6.4	1.7	77.9	11.7	7.6	2.8	22.1
1938	100	40.3	30.9	6.1	1.6	78.9	11.3	7.1	2.7	21.1
1939	100	41.0	30.9	5.8	1.5	79.2	11.4	6.7	2.7	20.8
1940	100	43.1	30.2	5.6	1.2	80.1	11.0	6.1	2.8	19.9
1941	100	45.2	29.6	5.2	1.1	81.1	10.4	5.7	2.8	18.9
1942	100	49.8	26.3	4.9	1.1	82.1	10.0	5.2	2.7	17.9
1943	100	51.0	25.6	4.9	1.0	82.5	9.9	4.9	2.7	17.5
1944	100	54.5	22.4	4.8	.9	82.6	9.9	4.7	2.8	17.4
1945	100	57.5	20.0	4.6	.9	83.0	9.6	4.7	2.7	17.0
1946	100	59.0	17.9	4.6	.9	82.4	10.3	4.6	2.7	17.6
1947	100	59.7	17.6	4.3	.9	82.5	10.3	4.5	2.7	17.5
1948	100	60.3	17.0	4.2	.8	82.3	10.7	4.4	2.6	17.7
1949 [1]	100	61.4	16.9	3.9	.6	82.8	10.5	4.0	2.7	17.2

[1] Preliminary.

TABLE 31.—*Number of milk cows and production of milk on farms, by regions, 1924–49*

Year	North Atlantic			East North Central			West North Central			South Atlantic			South Central			Western			United States		
	Number of milk cows on farms [1]	Production per milk cow [2]	Total production on farms [2]	Number of milk cows on farms [1]	Production per milk cow [2]	Total production on farms [2]	Number of milk cows on farms [1]	Production per milk cow [2]	Total production on farms [2]	Number of milk cows on farms [1]	Production per milk cow [2]	Total production on farms [2]	Number of milk cows on farms [1]	Production per milk cow [2]	Total production on farms [2]	Number of milk cows on farms [1]	Production per milk cow [2]	Total production on farms [2]	Number of milk cows on farms [1]	Production per milk cow [2]	Total production on farms [2]
	Mil.	*Lbs. of milk*	*Mil. lbs. of milk*	*Mil.*	*Lbs. of milk*	*Mil. lbs. of milk*	*Mil.*	*Lbs. of milk*	*Mil. lbs. of milk*	*Mil.*	*Lbs. of milk*	*Mil. lbs. of milk*	*Mil.*	*Lbs. of milk*	*Mil. lbs. of milk*	*Mil.*	*Lbs. of milk*	*Mil. lbs. of milk*	*Mil.*	*Lbs. of milk*	*Mil. lbs. of milk*
1924	3.2	5,084	16,036	5.3	4,737	25,257	5.8	3,884	22,420	1.6	3,371	5,559	3.6	2,936	10,654	1.9	4,952	9,314	21.4	4,167	89,240
1925	3.1	5,144	15,869	5.3	4,806	25,673	5.9	3,931	23,126	1.6	3,366	5,517	3.7	2,989	10,913	1.9	5,045	9,601	21.5	4,218	90,699
1926	3.0	5,311	15.748	5.3	4,955	26,082	5.9	4,058	23,944	1.6	3,613	5,712	3.7	3,277	12,079	1.9	5,094	9,760	21.3	4,379	93,325
1927	2.9	5,402	15,681	5.2	5,015	25,903	5.9	4,167	24,553	1.6	3.819	5,935	3.7	3,419	12,812	1.9	5,331	10,288	21.2	4,491	95,172
1928	2.9	5,397	15,565	5.1	5,063	25,695	5.9	4,289	25,398	1.6	3,786	5,895	3.8	3,352	12,878	1.9	5,359	10,412	21.2	4,516	95,843
1929	2.9	5.392	15,582	5.2	5,167	26,640	6.1	4,368	26,515	1.6	3,755	5,899	4.0	3,397	13,431	2.0	5,524	10,921	21.6	4,579	98,988
1930	3.0	5,395	15,948	5.3	5,043	26,919	6.2	4,359	27,185	1.6	3,554	5,726	4.1	3,243	13,183	2.0	5,568	11,197	22.2	4,508	100,158
1931	3.0	5,392	16,414	5.5	4,988	27,612	6.5	4,291	27,829	1.7	3 583	6,020	4.3	3,225	13,854	2.1	5,467	11,300	23.1	4,459	103,029
1932	3.1	5,228	16,276	5.7	4,819	27,550	6.8	4,135	28,090	1.8	3,483	6,137	4.6	3,142	14,450	2.1	5,333	11,307	24.1	4,307	103,810
1933	3.1	5,156	16,194	5.9	4,682	27,608	7.1	4,075	29,046	1.8	3,351	6,176	4.9	2,967	14,439	2.2	5,164	11,299	25.1	4,180	104,762
1934	3.1	5,183	15,948	6.0	4,589	27,313	7.1	3,760	26,806	1.9	3,292	6,209	5.0	2,820	14,004	2.2	5,183	11,341	25.2	4,033	101,621
1935	3.0	5,334	16,072	5.8	4,726	27,456	6.6	3,940	26,074	1.9	3,356	6,242	4.8	2,940	14,049	2.1	5,361	11,312	24.2	4,184	101,205
1936	3.0	5,408	16,418	5.8	4,916	28,279	6.4	4,047	25,854	1.8	3,465	6,262	4.7	3,025	14,088	2.1	5,517	11,509	23.7	4,316	102,410
1937	3.0	5,446	16,517	5.7	4,919	28,099	6.2	4,053	24,950	1.8	3,588	6,350	4.6	3,157	14,518	2.1	5,540	11,474	23.3	4,366	101.908
1938	3.0	5,477	16,629	5.7	5,099	29,197	6.0	4,396	26,549	1.8	3,689	6,438	4.6	3,297	15,181	2.1	5,726	11,813	23.2	4,558	105,807
1939	3.0	5,475	16,681	5.8	5,134	29,538	6.0	4.449	26,857	1.7	3,755	6,560	4.6	3,251	14,947	2.1	5,836	12,209	23.3	4,589	106,792
1940	3.1	5,621	17,351	5.9	5,224	30,621	6.2	4,491	27,712	1.8	3,733	6,597	4.6	3,131	14,534	2.1	5,906	12,687	23.7	4,625	109,502
1941	3.1	5,717	17,832	6.0	5,385	32,404	6.3	4,618	29,312	1.8	3,808	6,900	4.8	3,248	15,547	2.2	5,955	13,273	24.3	4,741	115,268
1942	3.1	5,838	18,244	6.2	5,432	33,743	6.5	4,595	30,026	1.9	3.788	7,080	5.0	3,211	16,163	2.3	5,907	13,628	25.1	4,740	118,884
1943	3.1	5,626	17,678	6.3	5,260	33,369	6.7	4,477	29,842	1.9	3,738	7,162	5.2	3,111	16,095	2.3	5,846	13,639	25.6	4,606	117,785
1944	3.2	5,605	18,013	6.5	5,239	33,866	6.6	4,346	28,653	2.0	3,755	7,337	5.2	3,120	16.228	2.3	5,918	13,895	25.8	4,578	117,992
1945	3.2	5,817	18,778	6.5	5,572	36,109	6.3	4,576	28,719	1.9	3,942	7,644	5.1	3.199	16,298	2.3	6,042	13,956	25.3	4,797	121,504
1946	3.2	5,724	18,145	6.4	5,643	35,836	5.9	4,808	28,504	1.9	4,011	7,725	4.9	3,237	15,721	2.2	6,144	13,782	24.5	4,891	119.713
1947	3.2	5,951	18,852	6.2	5,675	35,233	5.7	4,898	27,730	1.9	4,112	7,919	4.7	3,322	15,477	2.2	6,292	13,854	23.8	4,997	119,065
1948	3.1	5,914	18,540	6.0	5,709	34,280	5.3	4,944	26,278	1.9	4,193	8,021	4.4	3,371	14,928	2.1	6,311	13,480	22.9	5,038	115,527
1949 [3]	3.2	6,240	19,744	5.9	5,997	35,615	5.2	5,107	26,454	1.9	4,380	8,471	4.4	3,482	15,307	2.1	6,365	13,545	22.7	5,239	119,136

[1] Average number on farms during years, heifers that have not freshened excluded.
[2] Excludes milk sucked by calves and milk produced by cows not on farms.
[3] Preliminary.

TABLE 32.—*Milk fed or consumed on farms where produced, by regions, 1924–49*

[In millions of pounds]

Year	North Atlantic			East North Central			West North Central			South Atlantic			South Central			Western			United States		
	Fed to calves	Consumed in the farm household		Fed to calves	Consumed in the farm household		Fed to calves	Consumed in the farm household		Fed to calves	Consumed in the farm household		Fed to calves	Consumed in the farm household		Fed to calves	Consumed in the farm household		Fed to calves	Consumed in the farm household	
		As milk or cream	As farm butter		As milk or cream	As farm butter		As milk or cream	As farm butter		As milk or cream	As farm butter		As milk or cream	As farm butter		As milk or cream	As farm butter		As milk or cream	As farm butter
1924	512	1,144	557	873	2,287	1,162	749	2,787	2,183	136	1,628	1,564	165	3,121	3,535	307	874	561	2,742	11,841	9,562
1925	512	1,111	529	880	2,246	1,088	773	2,771	2,146	134	1,560	1,500	167	3,099	3,473	318	875	542	2,784	11,662	9,278
1926	515	1,081	503	896	2,185	1,015	796	2,748	2,092	137	1,492	1,569	190	3,121	3,656	324	879	535	2,858	11,506	9,370
1927	505	1,048	457	890	2,139	917	821	2,743	2,039	143	1,448	1,615	201	3,062	3,679	341	875	507	2,901	11,315	9,214
1928	497	1,007	395	889	2,127	837	860	2,768	1,965	143	1,419	1,550	203	3,012	3,588	352	874	464	2,944	11,207	8,799
1929	496	955	346	915	2,095	742	888	2,711	1,795	140	1,362	1,492	208	2,947	3,480	365	862	418	3,012	10,932	8,273
1930	473	1,006	323	911	2,167	708	882	2,750	1,697	131	1,392	1,486	201	2,991	3,526	388	901	410	2,986	11,207	8,150
1931	475	1,074	316	903	2,314	755	883	2,844	1,686	139	1,496	1,588	212	3,223	3,778	385	962	431	2,997	11,913	8,554
1932	430	1,129	327	852	2,398	867	885	2,973	1,829	126	1,553	1,705	202	3,448	3,950	364	1,006	502	2,859	12,507	9,180
1933	445	1,167	344	841	2,455	886	908	3,043	1,888	124	1,561	1,741	203	3,513	3,910	357	1,045	524	2,878	12,784	9,293
1934	453	1,176	327	766	2,460	822	816	2,983	1,775	121	1,600	1,736	195	3,518	3,910	337	1,036	550	2,688	12,773	9,120
1935	437	1,136	304	800	2,393	752	799	2,830	1,704	119	1,581	1,711	189	3,475	3,814	332	995	522	2,676	12,410	8,807
1936	455	1,086	292	848	2,372	655	791	2,693	1,535	118	1,584	1,666	196	3,375	3,625	347	967	483	2,755	12,077	8,256
1937	465	1,045	268	830	2,345	574	752	2,598	1,407	122	1,590	1,650	203	3,426	3,445	352	951	451	2,724	11,955	7,795
1938	470	1,049	267	867	2,357	549	811	2,550	1,334	126	1,553	1,611	213	3,495	3,296	363	946	437	2,850	11,950	7,494
1939	470	1,031	264	911	2,368	472	855	2,569	1,201	133	1,618	1,572	220	3,610	3,181	378	971	412	2,967	12,167	7,102
1940	469	1,047	237	918	2,350	420	869	2,541	1,135	129	1,631	1,506	213	3,529	2,997	396	965	393	2,994	12,063	6,688
1941	472	1,036	239	954	2,303	382	919	2,533	1,057	136	1,655	1,506	228	3,551	3,025	415	942	378	3,124	12,020	6,587
1942	472	1,010	213	1,043	2,247	314	955	2,501	935	145	1,631	1,442	250	3,555	2,887	429	912	336	3,294	11,856	6,127
1943	457	965	212	1,040	2,135	294	939	2,428	833	149	1,644	1,412	258	3,566	2,679	433	877	340	3,276	11,615	5,770
1944	466	964	216	1,023	2,117	268	918	2,406	802	153	1,622	1,377	270	3,710	2,579	440	866	329	3,270	11,685	5,571
1945	469	954	226	1,065	2,091	287	914	2,441	803	158	1,596	1,373	286	3,695	2,654	443	894	337	3,335	11,671	5,680
1946	443	1,027	237	1,094	2,263	266	876	2,542	711	165	1,659	1,371	254	3,864	2,642	423	963	313	3,255	12,318	5,540
1947	449	1,020	188	1,060	2,169	264	867	2,502	675	167	1,736	1,335	254	3,941	2,544	431	927	296	3,228	12,295	5,302
1948	444	1,029	181	1,015	2,203	248	815	2,488	671	175	1,763	1,274	239	3,896	2,379	421	935	283	3,109	12,314	5,036
1949 [1]	452	1,024	158	1,073	2,203	209	831	2,511	597	186	1,873	1,249	255	3,927	2,317	422	942	248	3,219	12,480	4,778

[1] Preliminary.

TABLE 33.—*Whole milk sold by farmers to plants and dealers, by regions, 1924–49*

Year	North Atlantic			East North Central			West North Central			South Atlantic			South Central			Western			United States		
	Quantity sold	Price per 100 pounds	Value of sales	Quantity sold	Price per 100 pounds	Value of sales	Quantity sold	Price per 100 pounds	Value of sales	Quantity sold	Price per 100 pounds	Value of sales	Quantity sold	Price per 100 pounds	Value of sales	Quantity sold	Price per 100 pounds	Value of sales	Quantity sold	Price per 100 pounds	Value of sales
	Mil. lb.	*Dol.*	*Mil. dol.*	*Mil. lb.*	*Dol.*	*Mil. dol.*	*Mil. lb.*	*Dol.*	*Mil. dol.*	*Mil. lb.*	*Dol.*	*Mil. dol.*	*Mil. lb.*	*Dol.*	*Mil. dol.*	*Mil. lb.*	*Dol.*	*Mil. dol.*	*Mil. lb.*	*Dol.*	*Mil. dol.*
1924	9,740	2.34	227.5	10,427	1.98	206.5	1,378	2.09	28.8	897	3.17	28.5	851	2.83	24.1	2,614	2.24	58.6	25,907	2.22	574.0
1925	9,789	2.59	253.3	10,719	2.10	225.1	1,584	2.20	34.8	921	3.27	30.1	936	2.80	26.2	2,881	2.38	68.6	26,530	2.38	638.1
1926	9,857	2.60	256.1	11,016	2.12	233.4	1,678	2.18	36.6	987	3.26	32.2	1,067	2.80	29.8	3,102	2.34	72.7	27,707	2.38	660.7
1927	9,988	2.75	274.9	11,060	2.25	248.8	1,760	2.28	40.2	1,066	3.34	35.6	1,223	2.78	33.9	3,503	2.41	84.4	28,600	2.51	717.8
1928	10,257	2.78	285.2	11,784	2.26	266.1	1,970	2.29	45.1	1,098	3.32	36.5	1,449	2.82	40.9	3,809	2.43	92.6	30,367	2.52	766.4
1929	10,581	2.87	303.7	13,235	2.20	291.7	2,217	2.26	50.2	1,195	3.35	40.0	1,875	2.84	53.2	4,244	2.43	103.3	33,347	2.53	842.2
1930	11,000	2.55	280.1	13,479	1.88	253.6	2,508	1.96	49.2	1,147	3.17	36.3	1,953	2.60	50.8	4,410	2.13	94.1	34,497	2.21	764.1
1931	11,442	1.95	222.8	13,468	1.39	187.6	2,391	1.53	36.6	1,153	2.68	30.9	1,804	1.96	35.4	4,356	1.64	71.3	34,614	1.69	584.5
1932	11,283	1.45	163.6	12,764	1.06	135.6	2,303	1.13	26.1	1,108	2.12	23.5	1,824	1.35	24.6	4,219	1.28	54.0	33,501	1.28	427.3
1933	11,144	1.54	171.5	13,026	1.09	142.1	2,243	1.08	24.3	1,127	1.96	22.1	1,905	1.35	25.8	4,260	1.25	53.4	33,705	1.30	439.2
1934	11,014	1.88	206.6	13,252	1.27	168.2	2,139	1.35	29.0	1,181	2.22	26.2	1,847	1.65	30.5	4,436	1.42	63.1	33,869	1.55	523.5
1935	11,406	1.98	225.3	13,952	1.54	214.3	2,270	1.56	35.4	1,259	2.35	29.6	2,063	1.89	39.0	4,697	1.65	77.4	35,647	1.74	621.0
1936	11,974	2.06	246.9	15,349	1.82	279.6	2,684	1.78	47.8	1,375	2.41	23.2	2,354	2.02	47.5	5,041	1.85	93.2	38,777	1.93	748.2
1937	12,197	2.12	258.4	16,093	1.78	287.0	2,868	1.88	53.8	1,450	2.64	38.3	2,632	2.13	56.1	5,230	1.96	102.4	40,470	1.97	796.1
1938	12,352	1.95	241.3	17,064	1.49	255.0	3,173	1.63	51.6	1,573	2.51	39.4	2,959	1.86	55.1	5,536	1.64	90.9	42,657	1.72	733.2
1939	12,525	1.96	245.1	17,514	1.42	249.3	3,299	1.53	50.6	1,733	2.44	42.3	2,947	1.82	53.6	5,783	1.62	93.8	43,801	1.68	734.7
1940	13,304	2.11	281.1	19,085	1.57	300.5	3,651	1.65	60.3	1,845	2.57	47.4	3,007	1.94	58.4	6,278	1.74	109.3	47,170	1.82	857.0
1941	13,878	2.44	338.5	21,443	2.00	429.2	4,238	1.91	80.9	2,111	2.83	59.8	3,499	2.27	79.3	6,952	2.16	150.1	52,121	2.18	1,138.0
1942	14,463	2.89	417.3	24,652	2.32	572.2	5,486	2.28	125.0	2,403	3.36	80.7	4,497	2.72	122.4	7,684	2.68	206.0	59,185	2.57	1,523.7
1943	14,057	3.41	479.5	24,650	2.86	705.8	5,965	2.83	169.0	2,534	3.89	98.5	4,749	3.38	160.7	8,161	3.20	261.3	60,116	3.12	1,874.8
1944	14,411	3.54	509.9	25,740	2.95	758.1	7,209	2.88	207.6	2,752	4.02	110.6	5,181	3.46	179.5	9,045	3.30	298.8	64,338	3.21	2,064.4
1945	15,209	3.54	538.5	28,210	2.92	823.8	8,527	2.85	242.7	3,043	4.01	122.0	5,393	3.47	187.1	9,454	3.32	313.6	69,836	3.19	2,227.7
1946	14,578	4.42	644.7	28,380	3.69	1,048.3	9,524	3.56	338.7	3,113	4.71	146.5	5,432	4.21	228.8	9,564	4.03	385.9	70,591	3.96	2,792.8
1947	15,413	4.79	738.0	28,153	3.86	1,086.2	9,138	3.73	340.8	3,323	5.37	176.9	5,402	4.83	261.0	9,698	4.37	424.0	71,127	4.26	3,027.0
1948	15,234	5.47	833.7	27,521	4.52	1,243.4	8,639	4.30	371.3	3,491	5.77	201.3	5,284	5.41	285.8	9,438	4.81	454.1	69,607	4.87	3,389.5
1949 [1]	16,579	4.57	758.0	28,600	3.40	973.7	8,810	3.36	296.2	3,851	5.18	199.5	5,612	4.61	258.8	9,662	4.20	405.9	73,114	3.96	2,892.2

[1] Preliminary.

TABLE 34.—*Cream sold by farmers to plants and dealers, by regions, 1924–49*

Year	North Atlantic			East North Central			West North Central			South Atlantic			South Central			Western			United States		
	Quantity butterfat sold	Price per pound	Value of sales	Quantity butterfat sold	Price per pound	Value of sales	Quantity butterfat sold	Price per pound	Value of sales	Quantity butterfat sold	Price per pound	Value of sales	Quantity butterfat sold	Price per pound	Value of sales	Quantity butterfat sold	Price per pound	Value of sales	Quantity butterfat sold	Price per pound	Value of sales
	Mil. lb.	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*
1924	46.4	45.9	21.3	317.4	42.1	133.6	511.5	38.8	198.6	11.5	39.7	4.6	68.0	36.7	25.0	147.8	42.0	62.1	1,102.7	40.4	445.1
1925	42.7	47.9	20.4	327.7	43.7	143.1	532.2	40.7	216.8	13.4	40.1	5.4	76.4	37.8	28.8	149.4	46.4	69.3	1,141.7	42.4	483.8
1926	39.6	48.1	19.1	337.8	43.5	147.0	562.4	40.5	227.5	15.4	40.1	6.2	104.3	36.6	38.1	147.9	43.8	64.7	1,207.4	41.6	502.6
1927	37.5	50.6	19.0	336.6	47.3	159.2	583.6	43.9	256.2	18.4	41.5	7.6	125.3	38.3	47.9	153.6	45.0	69.1	1,255.0	44.5	559.0
1928	31.5	51.5	16.2	306.5	47.9	146.9	608.0	45.9	279.1	17.7	43.0	7.6	121.9	41.0	49.9	148.1	47.0	69.6	1,233.7	46.1	569.3
1929	26.7	51.6	13.8	293.3	46.4	136.0	648.8	45.1	292.3	18.1	42.4	7.6	131.1	40.6	53.2	153.1	46.5	71.2	1,271.1	45.2	574.3
1930	26.4	42.8	11.3	295.3	35.9	106.1	665.8	34.1	226.9	15.6	34.0	5.3	117.7	30.5	35.9	154.9	35.3	54.6	1,275.9	34.5	440.2
1931	25.9	31.9	8.3	313.8	26.0	81.5	690.0	24.6	169.7	17.3	24.6	4.3	127.2	20.5	26.1	158.4	25.3	40.0	1,332.6	24.8	329.9
1932	25.4	24.8	6.3	330.4	19.0	62.9	690.0	17.7	122.4	16.8	17.6	2.9	133.5	14.0	18.8	160.1	18.4	29.4	1,356.2	17.9	242.7
1933	24.8	23.6	5.8	320.5	20.1	64.3	721.8	18.6	134.2	16.8	17.9	3.0	131.8	15.8	20.8	155.3	18.9	29.3	1,371.0	18.8	257.5
1934	21.3	26.7	5.7	306.9	23.6	72.5	656.9	22.8	149.8	16.7	21.0	3.5	120.5	19.4	23.4	150.0	22.7	34.1	1,272.2	22.7	289.0
1935	17.5	30.7	5.4	292.7	28.8	84.3	635.8	28.2	179.0	16.7	25.1	4.2	118.8	24.3	28.9	142.1	29.3	41.7	1,223.6	28.1	343.5
1936	16.4	34.1	5.6	277.5	33.1	91.8	626.0	32.2	201.8	16.2	29.3	4.7	122.6	28.7	35.1	138.5	33.9	46.9	1,197.2	32.2	386.0
1937	17.8	34.8	6.2	252.4	34.5	87.1	598.4	33.3	199.2	16.6	30.0	5.0	133.6	29.7	39.7	132.4	34.4	45.6	1,151.3	33.3	382.8
1938	17.2	30.2	5.2	259.7	27.3	70.9	649.3	26.5	172.2	18.6	24.4	4.5	150.2	22.5	33.8	134.8	26.9	36.2	1,229.9	26.3	322.9
1939	16.0	26.8	4.3	261.2	24.7	64.4	661.0	23.8	157.5	17.6	22.6	4.0	142.1	21.0	29.8	140.0	25.3	35.5	1,237.9	23.9	295.5
1940	15.2	30.3	4.6	253.3	29.4	74.5	680.5	28.1	191.0	17.8	24.8	4.4	140.0	24.9	34.8	143.4	28.8	41.3	1,250.3	28.0	350.6
1941	13.9	35.2	4.9	234.6	35.2	82.5	720.9	34.4	247.8	19.0	29.7	5.6	159.2	31.6	50.3	142.3	35.4	50.3	1,289.9	34.2	441.4
1942	11.8	40.6	4.8	167.6	39.7	66.6	707.4	39.9	282.1	18.6	35.2	6.5	148.4	36.7	54.5	130.2	41.8	54.4	1,183.9	39.6	468.9
1943	10.2	49.6	5.1	161.1	50.3	81.0	691.3	50.3	348.0	17.4	46.1	8.0	146.0	46.9	68.5	113.9	50.7	57.7	1,139.9	49.9	568.3
1944	9.4	49.0	4.6	142.4	50.9	72.5	607.1	50.9	309.1	17.3	46.2	8.0	131.9	47.4	62.6	91.0	50.5	46.0	999.1	50.3	502.8
1945	9.3	49.1	4.6	132.7	50.8	67.4	561.0	50.9	285.3	18.7	46.2	8.6	122.3	47.6	58.2	75.6	50.5	38.2	919.6	50.3	462.3
1946	7.2	64.7	4.6	110.4	65.1	71.9	518.9	65.0	337.4	16.3	59.1	9.6	91.4	59.7	54.5	62.6	64.8	40.6	806.8	64.3	518.6
1947	8.2	72.7	5.9	109.9	72.0	79.1	508.2	73.1	371.7	16.1	64.8	10.4	85.6	64.6	55.2	62.6	72.2	45.2	790.5	71.8	567.6
1948	7.1	79.8	5.7	101.3	78.3	79.3	477.5	81.9	391.3	15.8	67.5	10.7	79.2	70.7	56.0	60.2	79.8	48.0	741.2	79.7	591.0
1949 [1]	8.3	61.9	5.1	114.0	61.3	69.9	479 9	63.0	302.1	16.6	53.3	8.8	83.0	54.7	45.4	56.0	62.6	35.0	757.7	61.5	466.3

[1] Preliminary.

TABLE 35.—*Retail sales of milk and cream by farmers, by regions, 1924–49*

Year	North Atlantic			East North Central			West North Central			South Atlantic			South Central			Western			United States		
	Quantity sold [1]	Price per pound	Value of sales	Quantity sold [1]	Price per pound	Value of sales	Quantity sold [1]	Price per pound	Value of sales	Quantity sold [1]	Price per pound	Value of sales	Quantity sold [1]	Price per pound	Value of sales	Quantity sold [1]	Price per pound	Value of sales	Quantity sold [1]	Price per pound	Value of sales
	Mil. qt.	*Cents*	*Mil. dol.*	*Mil. qt.*	*Cents*	*Mil. dol.*	*Mil. qt.*	*Cents*	*Mil. dol.*	*Mil. qt.*	*Cents*	*Mil. dol.*	*Mil. qt*	*Cents*	*Mil. dol.*	*Mil. qt.*	*Cents*	*Mil. dol.*	*Mil. qt.*	*Cents*	*Mil. dol.*
1924	894	11.3	101.3	664	10.4	69.0	381	9.9	37.5	214	12.6	27.0	283	11.8	33.4	422	11.6	48.7	2,858	11.1	316.9
1925	887	11.5	101.8	667	10.4	69.6	394	9.9	39.2	232	12.9	29.9	311	11.8	36.8	423	11.4	48.4	2,914	11.2	325.6
1926	883	11.6	102.3	674	10.6	71.4	401	9.9	39.9	250	13.1	32.8	339	11.8	40.1	428	11.7	50.1	2,975	11.3	336.6
1927	887	11.5	101.8	681	10.6	72.3	417	10.0	41.6	267	13.1	34.9	369	11.8	43.5	432	11.5	49.8	3,053	11.3	343.8
1928	875	11.7	102.5	689	11.0	76.1	430	10.0	43.2	288	13.2	37.9	402	11.9	47.7	439	11.6	50.8	3,123	11.5	358.2
1929	870	11.8	102.9	698	10.8	75.2	441	10.1	44.5	304	13.0	39.6	432	11.8	51.2	443	11.7	51.7	3,188	11.5	365.1
1930	887	11.8	104.5	692	10.6	73.3	448	9.9	44.6	296	12.8	37.8	418	11.5	48.1	448	11.4	51.0	3,189	11.3	359.1
1931	898	10.6	95.3	702	9.4	66.1	455	9.1	41.2	307	11.6	35.7	440	10.1	44.6	442	10.4	46.1	3,244	10.1	329.1
1932	907	9.4	85.5	707	8.3	58.8	465	7.7	36.0	308	10.1	31.1	442	8.4	37.1	440	9.4	41.2	3,269	8.9	289.6
1933	908	9.5	86.0	714	7.9	56.2	468	7.2	33.5	309	9.8	30.3	443	8.3	36.9	446	9.0	40.0	3,288	8.6	282.9
1934	918	10.5	96.3	719	8.6	61.5	455	7.8	35.5	308	10.5	32.4	439	9.0	39.5	454	9.5	43.3	3,293	9.4	308.4
1935	892	10.7	95.5	702	9.1	63.6	446	8.5	38.1	310	10.8	33.5	437	9.6	41.9	456	10.0	45.5	3,243	9.8	318.0
1936	844	10.9	92.2	670	9.5	63.7	425	8.9	37.7	309	11.0	33.9	428	9.8	42.1	459	10.2	47.0	3,135	10.1	316.7
1937	810	11.2	91.1	631	10.0	63.1	402	9.2	37.2	317	11.3	35.8	440	10.0	44.1	456	10.8	49.1	3,056	10.5	320.4
1938	798	11.1	89.0	596	9.8	58.6	394	9.0	35.7	312	11.1	34.8	449	9.8	44.1	448	10.7	47.8	2,997	10.3	309.8
1939	774	11.2	87.0	549	9.6	52.6	366	8.9	32.6	309	11.0	34.1	446	9.7	43.4	446	10.4	46.6	2,890	10.3	296.2
1940	753	11.5	86.3	523	9.7	50.6	358	8.9	31.9	313	11.1	34.6	449	9.8	44.0	445	10.4	46.5	2,841	10.3	293.9
1941	730	11.9	86.7	513	10.2	52.5	341	9.3	31.6	315	11.5	36.2	441	10.2	45.1	426	10.9	46.5	2,766	10.8	298.5
1942	708	12.9	91.5	496	11.2	55.4	332	10.0	33.0	314	12.7	39.8	452	11.3	51.3	426	12.0	51.0	2,728	11.8	322.0
1943	694	13.7	94.9	475	12.0	57.2	316	10.8	34.2	321	13.9	44.5	450	12.4	55.6	413	13.1	53.9	2,669	12.8	340.4
1944	694	14.1	97.6	456	12.5	57.1	309	11.3	34.8	326	14.4	47.0	450	12.8	57.6	404	13.4	54.2	2,639	13.2	348.2
1945	676	14.2	96.2	451	12.6	56.9	310	11.6	36.0	326	14.6	47.5	449	13.1	58.8	402	13.4	53.9	2,614	13.4	349.3
1946	670	16.4	110.1	428	14.4	61.8	301	13.2	39.6	324	16.4	53.3	446	14.7	65.8	410	15.1	62.0	2,579	15.2	392.5
1947	639	18.8	119.9	326	16.5	53.7	294	15.4	45.4	313	18.5	57.8	436	17.2	75.1	400	17.3	69.1	2,408	17.5	421.0
1948	599	20.0	120.0	292	18.0	52.5	273	16.9	46.2	306	19.8	60.5	427	18.5	79.1	386	18.6	71.8	2,283	18.8	430.1
1949 [2]	540	19.9	107.5	255	16.8	42.9	260	16.7	43.4	299	19.7	58.8	421	18.1	76.4	376	18.6	70.0	2,151	18.5	398.9

[1] Milk equivalent of milk and cream.
[2] Preliminary.

TABLE 36.—*Farm-churned butter sold by farmers, by regions, 1924–49*

Year	North Atlantic			East North Central			West North Central			South Atlantic			South Central			Western			United States		
	Quantity sold	Price per pound	Value of sales	Quantity sold	Price per pound	Value of sales	Quantity sold	Price per pound	Value of sales	Quantity sold	Price per pound	Value of sales	Quantity sold	Price per pound	Value of sales	Quantity sold	Price per pound	Value of sales	Quantity sold	Price per pound	Value of sales
	Mil. lb.	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*	*Mil. lb.*	*Cents*	*Mil. dol.*
1924	46.2	45.3	20.9	32.5	40.6	13.2	25.1	37.6	9.4	28.9	37.0	10.7	34.9	33.9	11.8	8.6	40.9	3.5	176.2	39.5	69.6
1925	43.5	46.7	20.3	29.8	41.8	12.5	22.3	38.9	8.7	28.1	36.5	10.2	34.2	35.2	12.1	7.7	43.7	3.3	165.6	40.5	67.1
1926	41.5	47.1	19.5	27.4	42.9	11.8	19.6	40.4	7.9	29.9	36.9	11.0	36.9	35.4	13.0	6.7	43.5	2.9	162.0	40.9	66.2
1927	38.5	49.2	18.9	25.2	44.8	11.3	17.4	41.9	7.3	30.9	36.7	11.3	37.8	34.9	13.2	5.6	44.4	2.5	155.4	41.5	64.5
1928	33.9	49.3	16.7	22.7	46.2	10.5	15.4	43.8	6.8	30.7	38.2	11.7	37.5	36.9	13.8	4.8	46.3	2.2	145.0	42.6	61.8
1929	30.9	49.6	15.3	19.7	45.6	9.0	13.0	44.0	5.7	30.1	38.0	11.4	37.6	36.7	13.8	3.9	46.4	1.8	135.0	42.2	57.0
1930	26.8	41.9	11.2	17.3	37.7	6.5	11.4	35.3	4.0	27.1	34.2	9.3	35.2	33.2	11.7	3.7	37.5	1.4	121.6	36.3	44.1
1931	24.6	31.7	7.8	17.5	28.0	4.9	11.8	26.3	3.1	27.2	26.5	7.2	37.3	24.6	9.2	3.9	28.3	1.1	122.4	27.2	33.3
1932	24.3	24.2	5.9	19.3	21.2	4.1	14.0	19.8	2.8	27.9	20.4	5.7	38.7	19.1	7.4	4.5	21.3	1.0	128.7	20.8	26.7
1933	23.8	23.6	5.6	18.7	21.2	4.0	13.4	19.7	2.6	26.6	18.5	4.9	34.8	18.3	6.4	4.6	21.3	1.0	122.1	20.1	24.5
1934	21.3	25.9	5.5	17.5	24.4	4.3	10.3	22.8	2.3	24.4	20.5	5.0	30.4	20.8	6.3	4.6	24.9	1.2	108.5	22.7	24.6
1935	19.4	30.7	6.0	15.4	29.2	4.5	9.1	28.3	2.6	24.3	23.0	5.7	31.4	24.6	7.7	4.3	30.9	1.3	104.0	26.7	27.8
1936	17.4	33.1	5.8	13.2	32.6	4.3	7.7	31.6	2.4	22.3	25.1	5.6	29.2	26.1	7.6	3.8	34.0	1.3	93.5	28.8	27.0
1937	15.8	35.1	5.5	11.0	33.7	3.7	6.8	32.9	2.2	21.9	25.3	5.5	27.7	26.8	7.4	3.2	34.9	1.1	86.3	29.6	25.5
1938	15.3	31.0	4.7	10.3	28.9	3.0	6.3	27.5	1.7	21.5	23.8		26.1	25.0	6.5	3.1	29.3	.9	82.6	26.6	22.0
1939	14.6	28.2	4.1	8.6	26.1	2.3	5.5	25.0	1.4	19.7	23.0	4.5	25.0	24.1	6.0	2.9	27.7	.8	76.4	25.0	19.1
1940	13.3	30.5	4.1	7.8	30.0	2.3	4.9	28.5	1.4	18.9	23.5	4.4	23.2	25.1	5.8	2.6	30.3	.8	70.8	26.6	18.9
1941	12.8	35.3	4.5	7.0	35.4	2.5	4.2	34.0	1.4	17.9	26.1	4.7	23.6	28.3	6.7	2.4	36.3	.9	68.0	30.4	20.7
1942	12.0	40.8	4.9	5.3	40.7	2.2	3.3	39.2	1.3	16.4	31.0	5.1	22.0	32.9	7.2	1.9	42.2	.8	61.1	35.2	21.5
1943	10.8	50.6	5.4	4.3	49.4	2.1	2.7	47.6	1.3	15.3	39.3	6.0	18.5	41.0	7.6	1.8	49.5	.9	53.3	43.7	23.3
1944	10.3	48.5	5.0	3.8	48.5	1.8	2.5	47.2	1.2	15.4	40.1	6.2	17.8	42.4	7.5	1.6	47.5	.8	51.3	43.8	22.5
1945	10.7	49.3	5.3	4.2	49.1	2.0	2.5	47.8	1.2	15.9	42.6	6.8	18.3	43.7	8.0	1.7	48.1	.8	53.2	45.3	24.1
1946	11.1	66.1	7.3	4.1	65.8	2.7	2.2	63.2	1.4	16.5	53.5	8.8	19.0	55.1	10.5	1.6	64.7	1.0	54.5	58.3	31.8
1947	9.3	71.3	6.6	3.5	72.6	2.6	1.9	70.2	1.4	14.8	58.0	8.6	17.4	60.1	10.5	1.5	74.3	1.1	48.5	63.3	30.7
1948	8.5	78.5	6.7	3.3	77.8	2.6	1.9	76.2	1.5	13.8	59.1	8.2	15.8	62.8	9.9	1.4	79.5	1.1	44.8	66.8	29.9
1949 [1]	7.3	65.5	4.8	2.8	62.2	1.7	1.8	62.6	1.1	13.4	54.4	7.3	15.1	55.9	8.4	1.2	65.0	.8	41.6	58.1	24.1

[1] Preliminary.

TABLE 37.—*Typical commercial family-operated dairy farms in New York, Wisconsin, and the Corn Belt, land use, livestock numbers, investment, income, and expenses for 1949*

Item	Unit	Central New York dairy farm	Southern Wisconsin dairy farm	Corn Belt hog-dairy farm
Total land in farm	Acres	147	123	145
Proportion of land rented	Percent	25	46	48
Proportion of land in:				
Cropland harvested	do	37	59	67
Pasture and other	do	63	41	33
Crops harvested:				
Corn	Acres	8.4	27.6	43.1
Small grains	do	9.0	24.9	31.3
Hay	do	35.8	19.4	19.9
Other	do	1.6	1.2	2.9
Crop yields:				
Corn	Bushels	----------	66.6	61.0
Oats	do	34.2	51.8	46.8
Livestock, Jan. 1:				
Milk cows	Number	20.9	17.6	11.1
Hogs	do	2.2	21.1	39.4
Poultry	do	108.0	137.0	116.0
Farms with tractors	Percent	60	100	95
Proportion of cash receipts from:				
Crops	do	9	8	24
Hogs	do	----------	21	34
Milk and butterfat	do	66	45	25
Other	do	25	26	17
Proportion of cash expenditures for:				
Feed	do	49	10	8
Labor	do	15	24	32
Power and machinery	do	18	32	31
Other	do	18	34	29
Total investment	Dollars	21,255	28,911	35,674
Land and buildings	do	10,584	16,359	23,635
Equipment	do	2,003	2,403	2,412
Livestock	do	6,795	6,438	5,289
Crops on hand	do	1,873	3,711	4,338
Cash receipts	do	8,356	7,924	7,494
Cash expenditures	do	4,458	3,404	3,123
Net cash farm income	do	3,898	4,520	4,371
Return per hour to all labor used	do	0.84	1.00	0.81
Percentage return to investment	Percent	5.1	4.9	5.7

Source: Farm Costs and Returns, 1949, with comparisons, Commercial family-operated farms in 7 major farming regions, USDA, BAE, F. M. 78, May 1950.

TABLE 38.—*Number of milking herds and milk production by size of herd, United States, 1929, 1939, and 1944* [1]

Size of milking herd (number of cows)	Number of milking herds			Percent of total		
	1929	1939	1944	1929	1939	1944
	Thousands	*Thousands*	*Thousands*			
1 to 2	2,275	2,358	2,346	49.3	50.6	52.4
3 to 9	1,782	1,712	1,438	38.6	36.7	32.1
10 to 19	454	467	527	9.8	10.0	11.8
20 to 29	73	85	114	1.6	1.8	2.5
30 or more	32	41	56	.7	.9	1.2
Total	4,616	4,663	4,481	100.0	100.0	100.0

Size of milking herd (number of cows)	Milk production			Percent of total		
	1929	1939	1944	1929	1939	1944
	Million gallons	*Million gallons*	*Million gallons*			
1 to 2	1,374	1,370	1,367	12.4	11.9	10.8
3 to 9	4,347	4,025	3,536	39.3	35.0	27.8
10 to 19	3,331	3,482	4,026	30.2	30.3	31.6
20 to 29	1,041	1,255	1,739	9.4	10.9	13.7
30 or more	959	1,376	2,052	8.7	11.9	16.1
Total	11,052	11,508	12,720	100.0	100.0	100.0

[1] Data from Census of Agriculture.

TABLE 39.—*Gross income from farm products and cash receipts from farm marketings, total and dairy, with percentages of total, United States, 1924–49*

Year	Gross income from farm products [1]		Income from dairy as a percentage of total	Cash receipts from farm marketings and Government payments		Cash receipts from dairy as a percentage of total
	Dairy [2]	Total [3]		Dairy [2]	Total [3]	
	Millions of dollars	*Millions of dollars*	*Percent*	*Millions of dollars*	*Millions of dollars*	*Percent*
1924	1,908	11,842	16.1	1,406	10,220	13.8
1925	2,021	12,777	15.8	1,515	10,996	13.8
1926	2,064	12,401	16.6	1,566	10,564	14.8
1927	2,185	12,451	17.5	1,685	10,756	15.7
1928	2,262	12,738	17.8	1,756	11,072	15.9
1929	2,324	13,003	17.9	1,838	11,303	16.3
1930	2,043	10,563	19.3	1,607	9,025	17.8
1931	1,643	7,627	21.5	1,277	6,373	20.0
1932	1,286	5,756	22.3	986	4,747	20.8
1933	1,309	6,468	20.2	1,004	5,445	18.4
1934	1,498	7,870	19.0	1,146	6,780	16.9
1935	1,696	8,979	18.9	1,310	7,659	17.1
1936	1,878	9,996	18.8	1,478	8,622	17.1
1937	1,931	10,272	18.8	1,525	8,862	17.2
1938	1,741	9,106	19.1	1,388	7,823	17.7
1939	1,687	9,360	18.0	1,346	8,116	16.6
1940	1,879	9,803	19.2	1,520	8,571	17.7
1941	2,303	12,717	18.1	1,899	11,318	16.8
1942	2,796	17,200	16.3	2,336	15,516	15.1
1943 [4]	3,362	21,909	15.3	2,824	19,746	14.3
1944 [4]	3,829	22,959	16.7	3,282	20,758	15.8
1945 [4]	4,083	24,259	16.8	3,519	22,003	16.0
1946 [4]	4,850	27,975	17.3	4,136	25,351	16.3
1947	4,834	33,146	14.6	4,046	30,051	13.5
1948	5,303	33,519	15.8	4,441	30,583	14.5
1949	4,516	30,661	14.7	3,781	28,156	13.4

[1] Includes receipts from marketings and value of quantities consumed in farm households on farms where produced.
[2] Includes milk, cream and farm butter. Does not include income from animals from milking herds.
[3] Includes all Government payments 1933 to date, except those of conservation program.
[4] Includes production payments for dairy 1943–46.

TABLE 40.—*Total milk fat: Supply and distribution, United States, 1924–49* [1]

Year	Supply				Distribution											Per capita production	Percent of total production utilized for human use
									U. S. Department of Agriculture				Domestic disappearance				
														Civilian			
	Production	Beginning commercial stocks	Imports	Total supply	Ending commercial stocks	Commercial exports and shipments	Fed to calves	Other uses	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Total	Per capita		
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*lb.*	*lb.*	*Percent*
1924	3,671	65	37	3,773	89	32	107	2						3,543	30.8	31.9	97.1
1925	3,722	89	29	3,840	85	22	109	2						3,622	31.1	31.9	97.1
1926	3,818	85	36	3,939	64	21	112	2						3,740	31.6	32.3	97.1
1927	3,882	64	37	3,983	77	19	113	2						3,772	31.5	32.4	97.1
1928	3,905	77	35	4,017	84	20	117	2						3,794	31.3	32.2	97.0
1929	4,004	84	32	4,120	120	20	118	2						3,860	31.5	32.7	97.1
1930	4,037	120	27	4,184	103	18	116	2						3,945	31.9	32.6	97.1
1931	4,160	103	25	4,288	65	17	118							4,088	32.8	33.3	97.2
1932	4,191	65	22	4,278	55	13	111							4,097	32.6	33.4	97.4
1933	4,228	55	19	4,302	144	11	113							4,034	31.9	33.5	97.3
1934	4,115	144	19	4,278	93	14	106							4,067	32.0	32.4	97.4
1935	4,109	93	37	4,239	79	15	106							4,041	31.6	32.1	97.4
1936	4,157	79	32	4,268	116	13	109							4,032	31.3	32.2	97.4
1937	4,137	116	32	4,285	92	13	107							4,073	31.4	31.9	97.4
1938	4,291	92	22	4,405	169	15	113							4,108	31.4	32.8	97.4
1939	4,330	169	23	4,522	104	17	118							4,285	32.5	32.9	97.3
1940	4,459	104	14	4,577	103	29	120							4,326	32.6	33.6	97.3
1941	4,688	103	11	4,802	184	38	128			29	79	108	90	4,255	32.1	35.0	97.4
1942	4,832	18	25	5,041	76	20	131		29	79	166	216	191	4,409	33.3	35.7	97.3
1943	4,800	76	12	4,888	78	12	130		79	185	202	308	427	3,931	30.3	34.9	97.3
1944	4,809	78	5	4,892	64	15	130		185	40	257	112	586	3,983	30.8	34.6	97.3
1945	4,948	64	7	5,019	67	29	133		40	95	178	233	407	4,152	32.0	35.2	97.3
1946	4,877	67	14	4,958	84	48	130		95	8	193	106	83	4,505	32.3	34.3	97.3
1947	4,851	84	7	4,942	96	148	128		8	1	28	21	56	4,493	31.3	33.5	97.4
1948	4,710	96	10	4,816	127	110	124		1	(2)	11	11	78	4,366	29.9	32.0	97.4
1949 [3]	4,854	127	13	4,994	114	103	128		(2)	94	3	97	59	4,494	30.2	32.3	97.4

[1] Quantities produced and fed to calves determined by applying annual fat test to reported quantities of milk. Data in other columns calculated by applying fat test to quantities of dairy products concerned.

[2] Less than .5 million pounds.

[3] Preliminary.

TABLE 41.—*Total milk solids-not-fat: Supply and distribution, United States, 1924–49* [1]

Year	Supply				Distribution											
								U. S. Department of Agriculture				Domestic disappearance			Per capita production	Percent of total production utilized for human use
	Total production	Imports	Beginning commercial stocks	Total supply	Fed to animals or wasted	Ending commercial stocks	Commercial exports and shipments	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Civilian			
													Total	Per capita		
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*	*Lb.*	*Percent*
1924	8,429	26	53	8,508	4,061	43	49						4,355	37.9	73.4	51.8
1925	8,545	31	43	8,619	4,121	53	38						4,407	37.8	73.3	51.8
1926	8,766	36	53	8,855	4,292	41	30						4,492	38.0	74.2	51.0
1927	8,912	34	41	8,987	4,356	52	27						4,552	38.0	74.4	51.1
1928	8,943	33	52	9,028	4,291	60	31						4,646	38.3	73.7	52.0
1929	9,192	29	60	9,281	4,318	90	30						4,843	39.5	75.0	53.0
1930	9,269	22	90	9,381	4,384	91	28						4,878	39.4	74.9	52.7
1931	9,527	18	91	9.636	4,685	66	30						4,855	38.9	76.3	50.8
1932	9,597	16	66	9,679	4,660	53	17						4,949	39.4	76.4	51.4
1933	9,683	14	53	9,750	4,673	87	14						4,976	39.4	76.7	51.7
1934	9,400	14	87	9,501	4,484	82	16						4,919	38.7	74.0	52.3
1935	9,363	16	82	9,461	4,348	54	16						5,043	39.4	73.1	53.6
1936	9,471	40	54	9,565	4,260	108	15						5,182	40.2	73.5	55.0
1937	9,426	20	108	9,554	4,186	89	17						5,262	40.6	72.7	55.6
1938	9,777	16	89	9,882	4,394	107	22						5,359	41.0	74.8	55.1
1939	9,866	20	107	9,993	4,413	81	20						5,479	41.6	74.9	55.3
1940	10,110	10	81	10.201	4,481	105	51						5,564	41.9	76.1	55.7
1941	10,628	6	105	10,739	4,513	135	66		35	148	183	74	5,768	43.5	79.3	57.5
1942	10,954	7	135	11,096	4,276	82	27	35	225	294	554	177	5,980	45.2	80.8	61.0
1943	10.855	7	82	10,944	3,977	86	16	225	155	415	345	390	6,130	47.3	79.0	63.4
1944	10,874	3	86	10,963	3,634	99	20	155	148	446	439	647	6,124	47.4	78.3	66.6
1945	11,190	3	99	11,292	3,740	63	47	148	220	370	442	510	6,490	50.0	79.7	66.6
1946	11,029	6	63	11,098	3,238	112	101	220	35	454	269	107	7,271	52.2	77.6	70.6
1947	10.970	3	112	11.085	3,359	99	296	35	17	133	115	170	7,046	49.1	75.7	69.4
1948	10,652	11	99	10,762	3,122	181	207	17	16	109	108	126	7,018	48.0	72.3	70.7
1949 [2]	10,977	15	181	11,173	3,202	144	229	24	263	262	501	53	7,044	47.4	73.1	70.8

[1] Production determined by applying percentage of solids-not-fat in whole milk to quantity of milk produced. Total consumption by civilians obtained by multiplying per capita consumption by the civilian population. The per capita figure, in turn, was obtained by applying the percentage of solids-not-fat in all dairy product to the quantities involved. Quantities in remaining columns except "fed to animals or wasted" were determined by applying percentages of solids-not-fat in each product to the total amount of products. The quantity "fed to animals or wasted" is the difference between total supply and total distribution among consumption, exports and ending stocks.

[2] Preliminary.

TABLE 42.—*Per capita consumption of milk solids-not-fat, by type of dairy product, United States, 1924–49*

[Pounds]

Year	Total	Fluid milk	Fluid cream	Manufactured dairy products containing both fat and solids-not-fat					Skim milk products	
				Total	Cheese	Condensed and evaporated whole milk [1]	Ice cream	All other [2]	Manufactured [3]	Unprocessed [4]
1924	37.9	24.3	0.7	4.6	1.4	2.1	0.8	0.3	1.1	7.2
1925	37.8	24.3	.7	4.6	1.4	2.0	.9	.3	1.1	7.1
1926	38.0	24.3	.7	4.6	1.4	2.0	.9	.3	1.4	7.0
1927	38.0	24.3	.7	4.5	1.3	2.0	.9	.3	1.6	6.9
1928	38.3	24.4	.7	4.6	1.3	2.1	.9	.3	1.8	6.8
1929	39.5	24.7	.7	5.1	1.4	2.4	1.0	.3	2.2	6.8
1930	39.4	24.6	.7	5.0	1.4	2.4	.9	.3	2.3	6.8
1931	38.9	24.3	.7	4.8	1.4	2.3	.8	.3	2.3	6.8
1932	39.4	24.7	.7	4.7	1.3	2.5	.6	.3	2.4	6.9
1933	39.4	24.5	.7	4.8	1.4	2.5	.6	.3	2.3	7.1
1934	38.7	23.4	.7	5.1	1.5	2.6	.7	.3	2.4	7.1
1935	39.4	23.6	.7	5.4	1.6	2.8	.7	.3	2.6	7.1
1936	40.2	23.9	.7	5.6	1.6	2.8	.9	.3	3.0	7.0
1937	40.6	23.9	.7	5.9	1.7	2.9	1.0	.3	3.1	7.0
1938	41.0	23.8	.7	6.1	1.8	3.0	1.0	.3	3.4	7.0
1939	41.6	24.0	.7	6.3	1.8	3.1	1.1	.3	3.6	7.0
1940	41.9	24.0	.7	6.7	1.8	3.4	1.1	.4	3.6	6.9
1941	43.5	24.7	.7	6.8	1.8	3.2	1.4	.4	4.3	7.0
1942	45.2	26.1	.8	7.1	1.9	3.1	1.6	.5	4.4	6.8
1943	47.3	28.7	1.0	6.6	1.5	3.3	1.1	.7	4.2	6.8
1944	47.4	30.0	1.0	5.8	1.4	2.7	1.1	.6	4.0	6.6
1945	50.0	30.3	1.0	7.1	2.0	3.2	[5] 1.2	.7	5.0	6.6
1946	52.2	29.7	1.1	8.2	2.0	3.2	[5] 2.3	.7	6.8	6.4
1947	49.1	27.9	.9	8.1	2.1	3.5	[5] 1.9	.6	5.8	6.4
1948	48.0	27.2	.9	7.9	2.1	3.6	[5] 1.7	.5	5.7	6.3
1949 [6]	47.4	27.0	.9	7.8	2.2	3.5	[5] 1.6	.5	5.5	6.2

[1] Excludes solids-not-fat contained in condensed milk used in making ice cream.
[2] Includes dried whole milk, malted milk, butter and frozen desserts other than ice cream.
[3] Includes dried products nonfat solids, buttermilk, whey and condensed and evaporated skim and buttermilks and skim milk cheeses.
[4] Includes fresh skim milk, chocolate drinks, fresh and cultured buttermilks.
[5] Includes dry ice cream mix.
[6] Preliminary.

TABLE 43.—*Per capita consumption of milk solids-not-fat by proportional distribution among dairy products, United States, 1924–49*

[Percent]

Year	Total	Fluid milk	Fluid cream	Manufactured dairy products containing both fat and solids-not-fat					Skim milk products	
				Total	Cheese	Condensed and evaporated whole milk	Ice cream	All other	Manufactured	Unprocessed
1924	100.0	64.2	1.8	12.1	3.7	5.5	2.1	0.8	2.9	19.0
1925	100.0	64.2	1.9	12.2	3.7	5.3	2.4	.8	2.9	18.8
1926	100.0	63.9	1.8	12.2	3.7	5.3	2.4	.8	3.7	18.4
1927	100.0	63.9	1.8	11.9	3.4	5.3	2.4	.8	4.2	18.2
1928	100.0	63.7	1.8	12.0	3.4	5.5	2.3	.8	4.7	17.8
1929	100.0	62.5	1.8	12.9	3.5	6.1	2.5	.8	5.6	17.2
1930	100.0	62.3	1.8	12.8	3.6	6.1	2.3	.8	5.8	17.3
1931	100.0	62.4	1.8	12.4	3.6	5.9	2.1	.8	5.9	17.5
1932	100.0	62.7	1.8	11.9	3.3	6.3	1.5	.8	6.1	17.5
1933	100.0	62.2	1.8	12.2	3.6	6.3	1.5	.8	5.8	18.0
1934	100.0	60.5	1.8	13.2	3.9	6.7	1.8	.8	6.2	18.3
1935	100.0	59.8	1.8	13.8	4.1	7.1	1.8	.8	6.6	18.0
1936	100.0	59.5	1.7	13.9	4.0	7.0	2.2	.7	7.5	17.4
1937	100.0	59.0	1.7	14.5	4.2	7.1	2.5	.7	7.6	17.2
1938	100.0	58.1	1.7	14.8	4.4	7.3	2.4	.7	8.3	17.1
1939	100.0	57.7	1.7	15.1	4.3	7.5	2.6	.7	8.7	16.8
1940	100.0	57.2	1.7	16.0	4.3	8.1	2.6	1.0	8.6	16.5
1941	100.0	56.8	1.6	15.6	4.1	7.4	3.2	.9	9.9	16.1
1942	100.0	57.8	1.8	15.7	4.2	6.9	3.5	1.1	9.7	15.0
1943	100.0	60.6	2.1	14.0	3.2	7.0	2.3	1.5	8.9	14.4
1944	100.0	63.3	2.1	12.3	3.0	5.7	2.3	1.3	8.4	13.9
1945	100.0	60.6	2.0	14.2	4.0	6.4	2.4	1.4	10.0	13.2
1946	100.0	57.0	2.1	15.6	3.8	6.1	4.4	1.3	13.0	12.3
1947	100.0	56.9	1.8	16.5	4.3	7.1	3.9	1.2	11.8	13.0
1948	100.0	56.7	1.9	16.4	4.4	7.5	3.5	1.0	11.9	13.1
1949	100.0	56.9	1.9	16.5	4.6	7.4	3.4	1.1	11.6	13.1

Computations based on data in table 42.

TABLE 44.—*Fluid milk: Marketing margin, farm value, and retail price, 1913–49*

Year	Farm value of quantity equivalent to retail unit	Retail price per quart	Marketing margin	Farm value as a percentage of retail price	Marketing margin as a percentage of retail price
	Cents	*Cents*	*Cents*	*Percent*	*Percent*
1913	5.01	8.2	3.2	61	39
1914	4.97	8.3	3.3	60	40
1915	4.73	8.2	3.5	58	42
1916	5.17	8.4	3.2	62	38
1917	6.93	10.2	3.3	68	32
1918	8.59	12.6	4.0	68	32
1919	9.21	14.1	4.9	65	35
1920	9.48	15.2	5.7	62	38
1921	7.49	13.2	5.7	57	43
1922	6.75	12.0	5.3	56	44
1923	7.54	12.5	5.0	60	40
1924	7.42	12.2	4.8	61	39
1925	7.54	12.6	5.1	60	40
1926	7.66	12.7	5.0	60	40
1927	7.65	12.8	5.1	60	40
1928	7.74	12.9	5.2	60	40
1929	7.79	13.0	5.2	60	40
1930	7.45	12.8	5.4	58	42
1931	6.40	11.5	5.1	56	44
1932	5.22	9.8	4.6	53	47
1933	5.00	9.5	4.5	53	47
1934	5.79	10.3	4.5	56	44
1935	6.12	10.8	4.7	57	43
1936	6.25	11.2	5.0	56	44
1937	6.60	11.7	5.1	56	44
1938	6.39	11.7	5.3	55	45
1939	6.13	11.4	5.3	54	46
1940	6.22	11.8	5.6	53	47
1941	6.60	12.6	6.0	52	48
1942	7.40	13.8	6.4	54	46
1943	[1] 8.17	14.5	[2] 6.3	56	44
1944	[1] 8.30	14.7	[2] 6.5	56	44
1945	[1] 8.30	14.7	[2] 6.5	56	44
1946	[1] 9.97	16.8	[2] 6.8	59	41
1947	11.80	18.8	7.0	63	37
1948	12.85	20.8	8.0	62	38
1949	11.83	20.2	8.4	59	41

[1] Excludes subsidy payments to producers.
[2] Includes subsidy payments to handlers and dealers.

1913–18, estimates (previously unpublished) based on prices of milk in Wisconsin whereas other year based on United States average dealers' buying price; 1919–48, compiled from Price Spreads Between Farmers and Consumers, U. S. Department of Agriculture, Agricultural Information Bulletin No. 4, November 1949.

TABLE 45.—*Fluid milk, marketed through dealer distributors: Marketing margin, farm value, and retail price, 1913–49*

Year	Farm value of quantity equivalent to retail unit	Retail price per quart	Marketing margin	Farm value as a percentage of retail price	Marketing margin as a percentage of retail price
	Cents	*Cents*	*Cents*	*Percent*	*Percent*
1913	4.25	8.7	4.5	49	51
1914	4.18	8.8	4.6	48	52
1915	3.88	8.6	4.7	45	55
1916	4.35	8.9	4.6	49	51
1917	6.22	10.8	4.6	58	42
1918	7.85	13.5	5.6	58	42
1919	8.24	15.1	6.9	55	45
1920	8.28	16.3	8.0	51	49
1921	6.16	14.2	8.0	43	57
1922	5.42	12.7	7.3	43	57
1923	6.33	13.4	7.1	47	53
1924	6.13	12.9	6.8	48	52
1925	6.26	13.4	7.1	47	53
1926	6.40	13.4	7.0	48	52
1927	6.40	13.6	7.2	47	53
1928	6.50	13.6	7.1	48	52
1929	6.56	13.9	7.3	47	53
1930	6.17	13.6	7.4	45	55
1931	5.06	12.1	7.0	42	58
1932	3.93	10.3	6.4	38	62
1933	3.69	9.9	6.2	37	63
1934	4.36	10.8	6.4	40	60
1935	4.75	11.4	6.6	42	58
1936	4.96	11.7	6.7	42	58
1937	5.38	12.2	6.8	44	56
1938	5.18	12.2	7.0	42	58
1939	4.96	11.9	6.9	42	58
1940	5.09	12.4	7.3	41	59
1941	5.55	13.2	7.6	42	58
1942	6.48	14.5	8.0	45	55
1943	[1] 7.31	15.1	[2] 7.8	48	52
1944	[1] 7.47	15.2	[2] 7.8	49	51
1945	[1] 7.51	15.2	[2] 7.8	49	51
1946	[1] 9.17	17.3	[2] 8.1	53	47
1947	10.96	19.2	8.2	57	43
1948	11.99	21.4	9.4	56	44
1949	10.95	20.6	9.6	53	47

[1] Excludes subsidy payments to producers.
[2] Includes subsidy payments to handlers and dealers.

Compiled from Price Spreads Between Farmers and Consumers, U. S. Department of Agriculture, Agricultural Information Bulletin No. 4, November 1949.

TABLE 46.—*Butter: Marketing margin, farm value, and retail price, 1913–49*

Year	Farm value of quantity equivalent to retail unit	Retail price per pound	Marketing margin	Farm value as a percentage of retail price	Marketing margin as a percentage of retail price
	Cents	*Cents*	*Cents*	*Percent*	*Percent*
1913	23.0	36.0	13.0	64	36
1914	21.4	34.0	12.6	63	37
1915	21.7	33.4	11.7	65	35
1916	24.7	37.0	12.3	67	33
1917	31.6	45.7	14.1	69	31
1918	38.3	54.2	15.9	71	29
1919	44.5	64.5	20.0	69	31
1920	46.0	65.8	19.8	70	30
1921	31.6	48.5	16.9	65	35
1922	30.2	44.9	14.7	67	33
1923	35.5	52.0	16.5	68	32
1924	33.4	49.2	15.8	68	32
1925	34.8	51.2	16.4	68	32
1926	34.5	50.9	16.4	68	32
1927	36.5	53.1	16.6	69	31
1928	37.8	53.7	15.9	70	30
1929	37.2	52.8	15.6	70	30
1930	29.0	44.6	15.6	65	35
1931	21.0	34.2	13.2	61	39
1932	15.1	26.5	11.4	57	43
1933	15.6	26.4	10.8	59	41
1934	19.0	30.1	11.1	63	37
1935	23.4	34.6	11.2	68	32
1936	26.6	37.6	11.0	71	29
1937	27.6	38.7	11.1	71	29
1938	21.9	33.2	11.3	66	34
1939	20.0	31.1	11.1	64	36
1940	23.4	34.4	11.0	68	32
1941	28.2	39.4	11.2	72	28
1942	33.1	45.5	12.4	73	27
1943	[1] 41.1	51.3	[2] 13.0	80	25
1944	[1] 41.4	49.0	[2] 12.6	84	26
1945	[1] 41.4	49.7	[2] 12.5	83	25
1946	[1] 53.7	68.6	14.9	78	22
1947	59.7	78.2	18.5	76	24
1948	64.1	84.6	20.5	76	24
1949	50.9	71.0	20.1	72	28

[1] Excludes subsidy payments to producers.
[2] Includes subsidy payments to processors.

Compiled from Price Spreads Between Farmers and Consumers, U. S. Department of Agriculture, Agricultural Information Bulletin No. 4, November 1949.

TABLE 47.—*American cheese: Marketing margin, farm value, and retail price, 1913–49*

Year	Farm value of quantity equivalent to retail unit	Retail price per pound	Marketing margin	Farm value as a percentage of retail price	Marketing margin as a percentage of retail price
	Cents	*Cents*	*Cents*	*Percent*	*Percent*
1913	13.4	21.6	8.2	62	38
1914	13.1	22.3	9.2	59	41
1915	13.1	22.6	9.5	58	42
1916	15.7	25.1	9.4	63	37
1917	20.9	32.3	11.4	65	35
1918	24.8	35.0	10.2	71	29
1919	27.1	41.4	14.3	65	35
1920	25.3	40.4	15.1	63	37
1921	17.7	33.1	15.4	53	47
1922	17.9	32.0	14.1	56	44
1923	21.3	35.9	14.6	59	41
1924	17.9	34.8	16.9	51	49
1925	20.1	36.0	15.9	56	44
1926	19.7	36.2	16.5	54	46
1927	21.2	37.0	15.8	57	43
1928	21.0	38.6	17.6	54	46
1929	19.9	37.4	17.5	53	47
1930	15.8	34.4	18.6	46	54
1931	11.4	27.7	16.3	41	59
1932	8.5	22.6	14.1	38	62
1933	9.2	22.0	12.8	42	58
1934	10.6	23.3	12.7	45	55
1935	13.3	25.5	12.2	52	48
1936	15.2	26.6	11.4	57	43
1937	15.6	27.8	12.2	56	44
1938	12.1	25.4	13.3	48	52
1939	11.7	24.1	12.4	49	51
1940	13.5	25.1	11.6	54	46
1941	17.7	29.6	11.9	60	40
1942	20.9	34.6	13.7	60	40
1943	[1] 25.2	37.9	[2] 16.5	66	44
1944	[1] 25.6	38.0	[2] 16.2	67	43
1945	[1] 25.5	37.8	[2] 16.2	67	43
1946	33.7	50.2	[2] 16.8	67	33
1947	34.7	56.7	22.0	61	39
1948	39.4	62.8	23.4	63	37
1949	29.9	55.5	25.6	54	46

[1] Excludes subsidy payments to producers.
[2] Includes subsidy payments to processors.

Compiled from Price Spreads Between Farmers and Consumers, U. S. Department of Agriculture, Agricultural Information Bulletin No. 4, November 1949.

TABLE 48.—*Evaporated milk: Farm value, retail price, and marketing margin, 1919–49*

Year	Farm value of quantity equivalent to retail unit	Retail price per 14½-ounce can	Marketing margin	Farm value as a percentage of retail price	Marketing margin as a percentage of retail price
	Cents	*Cents*	*Cents*	*Percent*	*Percent*
1919	6.62	14.8	8.2	45	55
1920	6.15	14.2	8.1	43	57
1921	3.95	12.8	8.8	31	69
1922	3.49	10.4	6.9	34	66
1923	4.52	11.3	6.8	40	60
1924	3.75	10.6	6.9	35	65
1925	4.05	10.5	6.4	39	61
1926	4.05	10.7	6.7	38	62
1927	4.34	10.7	6.4	41	59
1928	4.34	10.4	6.1	42	58
1929	4.19	10.1	5.9	41	59
1930	3.43	9.4	6.0	36	64
1931	2.43	8.5	6.1	29	71
1932	1.83	7.0	5.2	26	74
1933	2.02	6.7	4.7	30	70
1934	2.34	6.9	4.6	34	66
1935	2.76	7.2	4.4	38	62
1936	3.21	7.9	4.7	41	59
1937	3.21	7.9	4.7	41	59
1938	2.56	7.3	4.7	35	65
1939	2.54	7.0	4.5	36	64
1940	2.84	7.2	4.4	39	61
1941	3.71	8.1	4.4	46	54
1942	4.27	9.2	4.9	46	54
1943	[1] 5.36	10.4	5.0	52	48
1944	[1] 5.46	10.4	4.9	52	48
1945	[1] 5.39	10.4	5.0	52	48
1946	[1] 6.90	11.9	5.0	58	42
1947	7.10	13.5	6.4	53	47
1948	8.00	15.3	7.3	52	48
1949	5.77	13.6	7.8	42	58

[1] Excludes subsidy payments to producers.

Compiled from Price Spreads Between Farmers and Consumers, U. S. Department of Agriculture, Agricultural Information Bulletin No. 4, November 1949.

TABLE 49.—*Milk dealers' average buying prices, by geographic divisions, for standard grade milk used for city distribution as milk and cream, 1920–49*

[Per hundredweight of 3.5 percent milk f. o. b. local shipping points or country plants]

Year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	United States
1920	$4.10	$3.46	$3.35	$3.30	$4.35	$3.42	$4.28	$3.10	$3.61	$3.54
1921	3.45	2.76	2.34	2.34	3.53	2.53	2.94	2.41	2.85	2.69
1922	3.02	2.45	1.94	1.92	3.07	1.94	2.28	2.02	2.41	2.31
1923	3.30	2.79	2.53	2.35	3.34	2.42	2.70	2.37	2.76	2.71
1924	3.12	2.54	2.49	2.19	3.50	2.73	2.56	2.36	2.70	2.63
1925	3.32	2.70	2.49	2.18	3.46	2.50	2.59	2.45	2.71	2.69
1926	3.38	2.70	2.51	2.21	3.80	2.47	2.63	2.40	2.69	2.76
1927	3.52	2.86	2.54	2.25	3.55	2.47	2.38	2.39	2.61	2.73
1928	3.62	2.89	2.54	2.32	3.50	2.58	2.46	2.41	2.52	2.78
1929	3.71	3.02	2.57	2.36	3.46	2.48	2.49	2.44	2.52	2.82
1930	3.69	2.94	2.47	2.20	3.28	2.35	2.34	2.25	2.40	2.69
1931	2.79	2.37	1.96	1.84	2.76	2.03	1.79	2.09	2.05	2.20
1932	2.26	1.71	1.48	1.49	2.23	1.58	1.43	1.76	1.72	1.72
1933	2.23	1.76	1.35	1.27	2.11	1.51	1.32	1.51	1.55	1.60
1934	2.58	2.19	1.65	1.57	2.36	1.84	1.68	1.63	1.69	1.89
1935	2.74	2.31	1.79	1.78	2.46	1.92	1.97	1.78	1.78	2.05
1936	2.66	2.42	1.91	1.86	2.55	2.05	1.96	1.85	1.88	2.13
1937	2.76	2.65	2.14	2.04	2.78	2.24	2.07	2.06	2.05	2.32
1938	2.81	2.54	2.06	1.95	2.79	2.09	2.00	1.98	1.95	2.26
1939	2.80	2.40	1.91	1.84	2.73	2.03	1.97	1.85	1.91	2.17
1940	2.82	2.56	1.96	1.87	2.74	2.13	1.92	1.82	1.93	2.21
1941	3.00	2.72	2.21	2.01	2.90	2.34	2.09	1.96	2.20	2.40
1942	3.42	3.13	2.54	2.33	3.23	2.87	2.66	2.25	2.70	2.79
1943	3.68	3.37	2.93	2.73	3.58	3.29	3.22	2.66	3.10	3.16
1944	3.74	3.42	3.02	2.80	3.73	3.40	3.31	2.87	3.13	3.24
1945	3.75	3.43	3.04	2.81	3.77	3.44	3.32	2.89	3.14	3.26
1946	4.56	4.14	3.63	3.48	4.45	4.03	3.90	3.51	3.78	3.92
1947	5.32	4.95	4.19	4.08	5.37	4.80	4.81	4.37	4.66	4.71
1948	5.96	5.42	4.72	4.58	5.71	5.23	5.32	4.69	4.91	5.17
1949	5.64	5.16	3.93	3.88	5.63	4.64	5.18	4.74	4.60	4.76

TABLE 50.—*Dealers' average buying price for standard grade milk for city distribution as milk and cream (3.5 percent butterfat, f. o. b. city) in selected markets, 1930–49*

Year	Boston, Mass.	New York, N. Y.	Philadelphia, Pa.	Washington, D. C.	Chicago, Ill.	Minneapolis, Minn.	Kansas City, Mo.	Los Angeles, Calif.	Denver, Colo.	Portland, Oreg.	Richmond, Va.	Louisville, Ky.	New Orleans, La.	Miami, Fla.
1930	$3.98	(1)	$3.51	$3.56	$2.67	$2.36	$2.41	[2] $2.83	[3] $1.90	[4] $2.32	$3.85	$2.19	$2.72	$4.00
1931	2.91	[5] $3.52	2.98	3.41	2.32	1.86	2.36	[6] 2.39	[7] 1.75	[8] 1.77	3.27	[6] 1.98	2.27	3.45
1932	[6] 2.30	2.70– 2.72	2.30	3.00	1.88	[5] 1.43	1.70	[4] 1.85	[4] 1.82	[6] 1.52	2.72	1.76	1.63	2.05
1933	2.62	2.67– 2.79	2.25	2.79	1.70	[3] 1.42	1.65	1.74	[6] 1.83	[4] 1.34	2.53	[8] 1.78	1.74	2.27
1934	2.99	3.07– 3.20	2.60	2.76	2.00	1.70	1.95	1.99	[8] 1.97	1.78	3.04	2.07	1.81	3.26
1935	3.17	3.16– 3.30	2.60	2.72	2.09	1.84	2.14	2.02	2.02	1.88	3.14	2.20	1.96	3.51
1936	3.06	3.30– 3.45	2.57	2.85	1.95	2.00	2.20	2.06	2.00	2.07	3.27	2.58	2.17	3.62
1937	2.88	3.00– 3.13	2.88	3.23	2.16	2.15	2.58	2.44	2.20	2.34	3.27	2.58	2.17	3.62
1938	3.19	2.85– 3.02	2.82	3.16	1.85	1.81	2.44	2.24	2.11	2.12	3.43	2.74	2.40	3.74
1939	3.18	[4] 3.06– 3.23	2.78	3.19	1.76	1.80	2.31	2.23	2.10	2.03	3.42	2.25	2.40	3.73
1940	3.15	3.15– 3.32	2.78	3.24	1.94	1 84	2.14	2.18	2.02	2.03	3.46	2.37	2.40	3.62
1941	3.23	3.23– 3.44	2.91	3.37	2.37	2.18	2.20	2.57	2.10	2.33	3.58	2.75	2.49	3.70
1942	3.72	3.64– 3.86	3.44	3.65	2.74	2.60	2.57	3.26	2.46	2.86	3.90	3.00	2.75	4.09
1943	3.92	4.03– 4.25	3.75	3.90	3.32	3.09	3.36	3.66	2.90	3.18	4.17	3.52	3.28	4.43
1944	3.96	4.22– 4.42	3.75	4 00	3.34	3.12	3.43	3.71	3.15	3.32	4.25	3.52	3.42	4.65
1945	3.97	4.26– 4.42	3.71	4.02	3.30	3.16	3.37	3.72	3.15	3.32	4.25	3.53	3.38	4.63
1946	4.79	5.07– 5.25	4.40	4.87	4.15	4.05	4.16	4.38	3.75	3.96	4.82	4.33	4.16	5.35
1947	5.38	5.53– 5.77	5.23	5.71	4.16	4.16	4.42	4.81	4.65	4.86	5.48	4.49	4.86	6.51
1948	6.16	6.28– 6.52	5.55	6.13	4.78	4.60	5.09	5.07	4.88	5.51	6.02	5.10	5.33	7.15
1949	5.82	5.88– 6.12	5.33	5.97	3.77	3.79	4.22	4.82	4.94	5.34	5.99	4.29	5.13	7.09

[1] Not available.
[2] 6 months average.
[3] 7 months average.
[4] 9 months average.
[5] 5 months average.
[6] 11 months average.
[7] 8 months average.
[8] 10 months average.

TABLE 51.—*Average price per hundredweight paid producers by condenseries for milk of 3.5 percent butterfat, f. o. b. factory, United States, 1922–49*

Year	January	February	March	April	May	June	July	August	September	October	November	December	Average
1922	$1.70	$1.53	$1.50	$1.48	$1.45	$1.45	$1.60	$1.71	$1.75	$1.86	$2.08	$2.31	$1.70
1923	2.40	2.37	2.31	2.22	2.04	2.02	2.12	2.16	2.18	2.23	2.21	2.21	2.21
1924	2.18	2.13	2.09	1.93	1.72	1.64	1.66	1.66	1.66	1.70	1.71	1.85	1.83
1925	1.92	1.93	1.93	1.93	1.88	1.82	1.91	1.98	2.01	2.09	2.15	2.15	1.98
1926	2.17	2.06	2.03	1.93	1.81	1.79	1.79	1.84	1.95	2.00	2.09	2.22	1.97
1927	2.28	2.28	2.20	2.14	2.00	1.91	1.91	2.00	2.07	2.15	2.20	2.25	2.12
1928	2.27	2.22	2.08	2.05	1.97	1.92	1.96	2.07	2.16	2.19	2.21	2.28	2.12
1929	2.23	2.18	2.14	2.07	1.99	1.92	1.91	1.96	1.97	2.04	2.07	2.02	2.04
1930	1.87	1.71	1.69	1.68	1.67	1.58	1.54	1.61	1.72	1.75	1.67	1.56	1.67
1931	1.42	1.35	1.27	1.21	1.12	1.04	1.02	1.03	1.12	1.22	1.23	1.19	1.18
1932	1.12	.99	.95	.93	.86	.81	.77	.80	.85	.86	.86	.92	.89
1933	.95	.84	.82	.81	.93	1.00	1.07	1.10	1.09	1.10	1.08	1.00	.98
1934	.97	1.10	1.11	1.02	1.06	1.09	1.09	1.21	1.17	1.20	1.32	1.35	1.14
1935	1.46	1.57	1.42	1.46	1.23	1.13	1.13	1.18	1.22	1.31	1.49	1.57	1.35
1936	1.58	1.62	1.47	1.40	1.29	1.39	1.63	1.74	1.74	1.65	1.64	1.62	1.56
1937	1.59	1.58	1.63	1.49	1.43	1.42	1.46	1.52	1.61	1.65	1.71	1.71	1.57
1938	1.53	1.42	1.36	1.24	1.17	1.15	1.16	1.15	1.14	1.16	1.21	1.26	1.25
1939	1.20	1.18	1.11	1.07	1.10	1.13	1.16	1.18	1.35	1.43	1.48	1.49	1.24
1940	1.50	1.45	1.36	1.29	1.26	1.27	1.30	1.32	1.34	1.40	1.52	1.59	1.38
1941	1.46	1.45	1.48	1.56	1.66	1.75	1.87	1.97	2.06	2.12	2.16	2.17	1.81
1942	2.16	2.08	1.98	1.92	1.90	1.85	1.86	2.01	2.13	2.28	2.35	2.47	2.08
1943	2.53	2.55	2.56	2.58	2.59	2.59	2.60	2.62	2.64	2.68	2.70	2.72	2.61
1944	2.74	2.74	2.71	2.65	2.61	2.60	2.62	2.63	2.65	2.66	2.66	2.67	2.66
1945	2.68	2.68	2.66	2.63	2.61	2.60	2.61	2.61	2.56	2.60	2.63	2.68	2.63
1946	2.70	2.73	2.74	2.76	2.78	2.90	3.53	3.63	3.91	4.20	4.30	4.18	3.36
1947	3.83	3.55	3.50	3.32	3.01	2.96	3.11	3.30	3.52	3.60	3.78	4.04	3.46
1948	4.16	4.07	3.95	3.96	3.99	4.04	4.21	4.21	3.98	3.55	3.34	3.33	3.90
1949	3.10	2.90	2.81	2.72	2.69	2.69	2.71	2.77	2.80	2.82	2.86	2.98	2.81

TABLE 52.—*Prices paid for milk by city milk distributors and by condenseries, 3.5 percent fat basis, United States, 1930–49*

Year	Prices paid producers by dealers for standard grade milk for city distribution as milk or cream	Prices paid producers by condenseries	Ratio of milk distributors' price to condensery price	Year	Prices paid producer s by dealers for standard grade milk for city distribution as milk or cream	Prices paid producers by condenseries	Ratio of milk distributors' price to condensery price
	Hundredweight	*Hundredweight*			*Hundredweight*	*Hundredweight*	
1930	$2.69	$1.67	161	1942	$2.79	$2.08	134
1931	2.20	1.18	186	1943	3.16	2.61	121
1932	1.72	.89	193	1944	3.24	2.66	122
1933	1.60	.98	163	1945	3.26	2.63	124
1934	1.89	1.14	166	1946	3.92	3.36	117
1935	2.05	1.35	152	1947	4.71	3.46	136
1936	2.13	1.56	137	1948	5.17	3.90	133
1937	2.32	1.57	148	1949	4.76	2.81	169
1938	2.26	1.25	181				
1939	2.17	1.24	175	20-year average	2.832	1.976	151
1940	2.21	1.38	160				
1941	2.40	1.81	133				

TABLE 53.—*Prices paid by plants for milk of specified uses and prices for certain manufactured dairy products, United States, by months, July 1946–May 1950*

Year and month	Milk for butter and byproducts [1]		Manufacturers' price per pound of nonfat dry milk (spray and roller United States average for month) [2]	Price per pound of butter 92-score Chicago (average for month) [3]	Price per pound received by farmers for butterfat (United States average for middle of month) [4]	Milk for American cheese [1]		Price per pound of American cheese at Wisconsin Cheese Exchange (average for month)	Milk for canning [5]		Manufacturers' price per case of evaporated milk (United States average for month) [2]	Average prices for 3 manufacturing uses, butter-powder, American cheese, and evaporated milk [6]	
	Fat content	Price paid per 100 pounds (United States average for month)				Fat content	Price paid per 100 pounds (United States average for month)		Fat content	Price paid per 100 pounds (United States average for month)		Fat content	Price paid per 100 pounds (United States average for month)
	Percent		*Cents*	*Cents*	*Cents*	*Percent*		*Cents*	*Percent*			*Percent*	
1946—July		$3.62	14.6	69.7	70.6		$3.77	37.1		$3.85	$5.09	3.83	$3.77
August		3.93	14.4	69.8	70.8		4.06	40.9		4.06	5.32	3.91	4.03
September		4.33	14.7	76.2	75.6		4.62	43.5		4.56	5.46	4.05	4.53
October		4.61	14.6	83.2	90.0		4.93	46.5		5.09	5.79	4.21	4.91
November		4.72	14.7	80.0	84.4		4.95	45.3		5.28	5.88	4.26	5.00
December		4.46	14.5	79.7	87.0		4.47	39.9		4.98	5.88	4.13	4.64
1947—January	3.92	3.77	13.1	66.2	74.5	3.90	4.03	38.4		4.37	5.86	3.97	4.05
February	3.85	3.59	11.4	69.0	67.8	3.82	3.74	37.0		3.96	5.72	3.88	3.75
March	3.80	3.48	10.0	69.0	73.5	3.76	3.67	37.5		3.85	5.64	3.81	3.67
April	3.76	3.14	10.0	61.1	68.5	3.71	3.35	33.8		3.58	5.42	3.75	3.37
May	3.77	2.96	9.4	60.4	63.1	3.76	3.06	29.8		3.26	5.23	3.79	3.10
June	3.76	3.08	9.6	63.0	63.0	3.78	3.11	31.6		3.21	5.18	3.78	3.14
July	3.79	3.23	9.5	68.0	68.1	3.81	3.30	33.4		3.38	5.19	3.82	3.31
August	3.87	3.60	9.6	74.8	73.3	3.85	3.52	34.5	3.97	3.66	5.20	3.89	3.58
September	4.02	3.99	10.2	79.2	84.0	3.98	3.90	36.5	4.15	4.10	5.24	4.04	3.98
October	4.16	3.95	11.0	70.1	74.5	4.12	4.16	38.6	4.28	4.28	5.31	4.18	4.15
November	4.20	4.34	12.4	79.9	78.1	4.21	4.38	39.3	4.39	4.61	5.52	4.26	4.44
December	4.09	4.51	14.1	86.3	87.7	4.07	4.54	42,1	4.28	4.81	5.70	4.14	4.62
Average		3.64	10.9	70.6	73.0		3.73	36.0		3.92	5.43		3.76
1948—January	3.92	4.40	14.6	84.1	87.7	3.93	4.54	43.2	4.15	4.81	5.83	4.00	4.59
February	3.85	4.22	14.9	81.7	84.9	3.85	4.31	41.5	4.03	4.60	5.99	3.91	4.39
March	3.75	4.00	14.8	79.0	80.3	3.75	3.96	37.9	3.90	4.35	6.00	3.81	4.11
April	3.72	4.03	14.3	80.5	84.7	3.69	4.01	40.1	3.83	4.28	6.08	3.75	4.12
May	3.73	4.05	14.4	79.6	83.6	3.74	4.19	43.2	3.88	4.38	6.41	3.79	4.24
June	3.71	4.13	14.8	80.9	82.8	3.73	4.29	43.6	3.85	4.39	6.48	3.77	4.30
July	3.77	4.23	15.1	78.8	84.4	3.80	4.52	46.8	3.90	4.61	6.61	3.83	4.50

August	3.87	4.24	15.8	75.3	81.1	3.89	4.45	43.8	4.00	4.69	6.71	3.93	4.51
September	4.01	4.17	15.7	71.8	75.6	4.02	4.32	40.6	4.17	4.64	6.56	4.07	4.41
October	4.17	3.90	15.8	63.3	67.8	4.22	3.99	35.6	4.38	4.30	6.26	4.27	4.08
November	4.12	3.72	15.9	62.7	64.3	4.19	3.80	34.8	4.40	4.03	5.94	4.24	3.85
December	4.02	3.66	15.1	64.8	65.7	4.04	3.73	37.0	4.30	3.96	5.95	4.11	3.78
Average	----------	4.06	15.1	75.2	78.6	----------	4.18	40.7	----------	4.42	6.24	----------	4.24
1949—January	3.93	3.41	13.1	63.2	65.6	3.90	3.32	32.1	4.17	3.62	5.81	4.00	3.43
February	3.81	3.21	11.5	62.8	64.1	3.83	3.06	29.9	4.06	3.36	5.66	3.91	3.19
March	3.75	3.02	11.5	60.3	63.4	3.76	2.93	29.1	3.96	3.14	5.45	3.81	3.02
April	3.71	2.90	11.7	59.0	61.4	3.73	2.85	29.5	3.88	2.99	5.18	3.76	2.90
May	3.73	2.90	11.8	58.9	60.6	3.74	2.86	30.0	3.89	2.95	5.05	3.78	2.90
June	3.74	2.88	11.6	58.8	59.3	3.73	2.84	30.0	3.88	2.93	5.09	3.78	2.88
July	3.76	2.95	11.7	59.9	58.9	3.79	2.85	28.7	3.93	2.99	5.12	3.82	2.92
August	3.86	3.10	11.8	61.9	60.5	3.87	3.02	30.8	4.02	3.14	5.11	3.92	3.08
September	4.01	3.25	12.1	61.9	61.7	4.05	3.20	30.7	4.26	3.32	5.08	4.11	3.25
October	4.15	3.40	12.3	62.1	62.1	4.18	3.33	30.8	4.37	3.43	5.08	4.23	3.38
November	4.11	3.37	12.2	62.0	62.6	4.19	3.36	31.3	4.40	3.50	5.09	4.24	3.41
December	4.03	3.30	12.1	62.2	63.3	4.05	3.28	31.3	4.32	3.47	5.09	4.13	3.35
Average	----------	3.14	12.0	61.1	62.0	----------	3.08	30.4	----------	3.24	5.23	----------	3.14
1950—January	3.92	3.24	11.7	61.3	62.5	3.92	3.14	30.8	4.19	3.38	5.10	4.00	3.24
February	3.84	3.15	11.8	62.1	63.1	3.84	3.08	31.2	4.06	3.35	5.10	3.91	3.18
March	3.78	3.03	11.7	60.1	62.4	3.76	2.98	30.2	4.01	3.28	5.10	3.84	3.08
April	3.77	2.98	11.8	59.8	61.0	3.74	2.91	29.6	3.95	3.19	5.10	3.81	3.01
May	3.76	2.94	11.6	59.8	60.6	3.75	2.88	29.4	3.92	3.14	5.09	3.80	2.97

[1] For January 1947 to date, compiled from Milk Prices Paid at Creameries and Cheese Factories, BAE, Chicago, Ill. For the previous 6 months, monthly price data for the United States have been estimated from the corresponding series for Wisconsin and published in Agricultural Prices February 1949.

[2] Compiled from Evaporated, Condensed, and Dry Milk Report, BAE.

[3] Compiled from Statistical Supplement to Monthly Domestic Dairy Markets Review, Production and Marketing Administration.

[4] Compiled from Agricultural Prices, BAE.

[5] Compiled from Evaporated, Condensed and Dry Milk Report, BAE, for the period August 1947 to date. For the previous 13 months, the monthly price data have been estimated from the related series on 3.5 percent condensery milk and published in Agricultural Prices, February 1949.

[6] Monthly prices for milk used in manufacturing butter-powder, American cheese, and evaporated milk are weighted by quantities of milk used for each purpose. This series will be published monthly in Agricultural Prices.

TABLE 54.—*Milk: Average wholesale price per 100 pounds, received by farmers, United States, by months, August 1909–50*

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average
1909	------	------	------	------	------	------	------	$1.38	$1.50	$1.69	$1.78	$1.84	----------
1910	$1.82	$1.78	$1.63	$1.51	$1.33	$1.26	$1.35	1.50	1.63	1.75	1.84	1.89	$1.58
1911	1.83	1.76	1.58	1.34	1.21	1.17	1.31	1.46	1.56	1.70	1.83	1.86	1.52
1912	1.83	1.77	1.65	1.49	1.34	1.26	1.39	1.53	1.63	1.76	1.85	1.88	1.59
1913	1.83	1.76	1.67	1.53	1.38	1.31	1.43	1.52	1.64	1.80	1.88	1.92	1.61
1914	1.88	1.79	1.68	1.50	1.33	1.29	1.40	1.52	1.60	1.77	1.87	1.88	1.60
1915	1.83	1.76	1.65	1.51	1.35	1.31	1.38	1.47	1.57	1.72	1.86	1.89	1.58
1916	1.85	1.81	1.71	1.59	1.46	1.39	1.48	1.62	1.76	2.04	2.20	2.23	1.73
1917	2.20	2.19	2.12	2.14	2.07	1.99	2.16	2.42	2.58	2.94	3.04	3.13	2.38
1918	3.23	3.14	2.98	2.63	2.42	2.25	2.49	2.81	3.09	3.47	3.75	3.89	2.96
1919	3.70	3.36	3.22	3.02	2.94	2.91	3.10	3.31	3.40	3.50	3.67	3.77	3.29
1920	3.66	3.49	3.31	3.06	2.91	2.89	3.06	3.27	3.39	3.36	3.30	3.02	3.22
1921	2.87	2.62	2.44	2.33	2.04	1.85	2.03	2.26	2.29	2.44	2.42	2.37	2.30
1922	2.19	2.10	1.93	1.81	1.79	1.80	1.96	2.07	2.24	2.44	2.60	2.76	2.11
1923	2.68	2.58	2.47	2.37	2.25	2.23	2.35	2.47	2.60	2.69	2.71	2.65	2.49
1924	2.56	2.46	2.32	2.16	1.99	1.95	2.02	2.11	2.24	2.26	2.39	2.47	2.22
1925	2.45	2.40	2.35	2.28	2.17	2.14	2.23	2.36	2.47	2.60	2.64	2.64	2.38
1926	2.57	2.48	2.38	2.28	2.18	2.13	2.21	2.33	2.45	2.57	2.66	2.71	2.38
1927	2.66	2.60	2.51	2.43	2.30	2.26	2.31	2.41	2.58	2.69	2.77	2.79	2.51
1928	2.73	2.61	2.49	2.38	2.30	2.28	2.37	2.49	2.59	2.70	2.79	2.78	2.52
1929	2.72	2.67	2.59	2.47	2.36	2.30	2.37	2.47	2.58	2.68	2.70	2.59	2.53
1930	2.44	2.35	2.28	2.21	2.09	1.99	2.06	2.20	2.35	2.35	2.27	2.12	2.21
1931	1.95	1.87	1.78	1.65	1.54	1.50	1.57	1.67	1.75	1.77	1.73	1.61	1.69
1932	1.49	1.43	1.36	1.25	1.16	1.11	1.14	1.20	1.27	1.30	1.32	1.29	1.28
1933	1.19	1.12	1.08	1.09	1.17	1.26	1.36	1.43	1.47	1.49	1.55	1.48	1.30
1934	1.47	1.51	1.49	1.42	1.39	1.43	1.48	1.56	1.60	1.67	1.77	1.80	1.55
1935	1.84	1.86	1.79	1.75	1.61	1.52	1.54	1.59	1.65	1.74	1.87	1.93	1.74
1936	1.93	1.91	1.82	1.72	1.64	1.64	1.82	1.97	2.02	2.04	2.10	2.08	1.93
1937	2.05	2.02	1.98	1.87	1.79	1.75	1.82	1.91	2.03	2.11	2.22	2.22	1.97
1938	2.07	1.95	1.84	1.69	1.57	1.52	1.56	1.59	1.70	1.76	1.85	1.85	1.72
1939	1.79	1.73	1.58	1.46	1.42	1.45	1.54	1.68	1.82	1.95	2.02	2.00	1.68
1940	1.99	1.94	1.83	1.74	1.66	1.63	1.69	1.77	1.84	1.91	2.03	2.07	1.82
1941	2.00	1.95	1.93	1.92	1.97	2.03	2.16	2.29	2.42	2.56	2.66	2.66	2.18
1942	2.65	2.58	2.49	2.41	2.39	2.34	2.42	2.53	2.69	2.87	3.01	3.06	2.57
1943	3.09	3.08	3.07	3.05	3.04	3.03	3.08	3.16	3.24	3.32	3.39	3.39	3.12
1944	3.36	3.31	3.26	3.18	3.11	3.08	3.11	3.19	3.25	3.32	3.37	3.38	3.21
1945	3.34	3.29	3.21	3.12	3.08	3.04	3.08	3.14	3.22	3.32	3.38	3.42	3.19
1946	3.39	3.37	3.31	3.27	3.26	3.44	4.10	4.34	4.69	5.07	5.21	5.10	3.96
1947	4.77	4.46	4.27	4.00	3.71	3.67	3.87	4.15	4.45	4.66	4.94	5.08	4.26
1948	5.13	5.04	4.83	4.71	4.66	4.70	4.90	5.01	5.03	4.94	4.87	4.81	4.87
1949	4.52	4.35	4.04	3.74	3.61	3.59	3.71	3.86	4.02	4.17	4.25	4.21	3.96
1950	4.06	3.95	3.81	3.60	3.48	3.43	------	------	------	------	------	------	----------
	Including production payments												
1943	------	------	------	------	------	------	------	------	------	$3.65	$3.70	$3.74	----------
1944	$3.70	$3.66	$3.77	$3.69	$3.47	$3.44	$3.48	$3.56	$3.91	3.98	4.03	4.04	----------
1945	4.00	3.95	3.87	3.74	3.85	3.31	3.55	3.61	3.69	3.94	4.00	4.04	----------
1946	4.01	3.99	3.92	3.88	3.72	3.90	------	------	------	------	------	------	----------

NOTE.—Data available currently in Agricultural Prices issued at the end of each month.

TABLE 55.—*Butterfat (in cream): Average price per pound received by farmers, United States, by months, 1909–50*

[Cents]

Year	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15	July 15	Aug. 15	Sept. 15	Oct. 15	Nov. 15	Dec. 15	Weighted average [1]
1909	28.0	26.2	26.3	25.5	23.0	23.2	23.3	24.0	26.2	27.1	28.2	30.8	25.5
1910	29.4	27.5	28.7	27.4	24.9	24.2	24.5	25.2	26.5	27.0	28.0	27.6	26.4
1911	25.8	24.0	22.9	20.6	20.0	20.1	21.5	22.8	23.9	25.6	28.5	30.1	23.2
1912	32.4	28.7	27.6	28.3	26.0	24.2	23.9	23.4	25.5	26.8	29.0	30.9	26.7
1913	29.8	30.6	31.1	29.9	26.0	25.1	24.0	25.1	26.9	27.5	28.6	30.1	27.4
1914	28.6	26.4	25.1	23.2	23.3	23.4	23.8	25.2	26.5	27.0	29.1	29.7	25.5
1915	29.8	28.1	26.3	27.0	25.8	25.1	24.2	23.2	23.8	25.8	27.2	29.2	25.9
1916	29.0	28.8	31.0	31.1	28.1	26.5	26.1	27.8	29.6	31.7	34.7	36.0	29.4
1917	36.1	37.0	36.5	39.2	36.8	35.5	35.4	37.0	39.9	41.2	42.4	44.9	38.0
1918	47.5	46.4	41.8	40.4	41.0	40.2	41.2	42.1	48.9	52.9	56.5	61.2	45.4
1919	54.7	49.0	53.3	56.8	52.6	48.4	48.6	50.6	52.5	57.6	62.9	63.3	53.3
1920	61.8	59.1	59.7	61.3	54.5	52.7	52.5	52.0	55.3	56.3	56.5	49.4	55.5
1921	48.4	42.8	43.9	41.8	29.7	27.6	31.6	36.8	36.2	40.0	40.6	39.9	37.0
1922	33.4	34.0	34.5	33.4	33.4	33.9	34.8	32.8	35.5	39.2	44.2	50.3	35.9
1923	47.0	44.9	44.9	46.0	40.3	36.9	36.7	38.7	42.2	44.1	47.8	49.2	42.2
1924	50.6	48.5	46.4	40.8	37.6	37.1	37.8	35.8	36.5	36.6	37.0	41.1	40.4
1925	40.6	37.9	41.5	40.5	40.3	40.0	40.4	41.3	42.6	47.1	47.8	47.6	42.4
1926	45.2	43.1	42.9	40.4	39.1	39.3	38.6	38.6	40.5	42.4	44.3	47.9	41.6
1927	46.9	46.8	48.0	47.1	43.6	40.8	40.3	39.4	41.6	44.4	45.8	47.8	44.5
1928	48.5	46.0	46.5	45.4	44.2	43.5	43.3	44.3	46.5	47.0	47.6	49.2	46.1
1929	47.6	27.8	48.3	46.5	45.4	43.6	43.4	43.3	44.6	45.6	43.5	41.9	45.2
1930	36.7	35.4	34.9	37.3	36.5	31.6	31.6	35.2	37.7	37.0	35.3	30.6	34.5
1931	26.2	25.0	27.5	26.4	21.2	20.5	21.1	23.9	26.6	30.3	28.2	27.3	24.8
1932	22.8	19.8	19.5	17.8	16.3	14.6	14.4	17.5	17.6	17.8	18.4	21.1	17.9
1933	18.9	15.8	15.1	16.5	20.2	19.7	23.0	18.4	19.6	20.1	20.4	18.0	18.8
1934	16.1	21.6	23.5	21.0	21.5	22.2	22.1	24.3	24.0	24.3	27.2	28.2	22.7
1935	30.5	35.9	31.2	33.8	27.5	23.7	22.3	22.9	24.9	25.9	29.9	33.0	28.1
1936	33.5	34.9	31.7	31.2	27.1	27.7	32.6	35.7	35.5	33.5	33.1	33.6	32.2
1937	34.3	33.9	34.9	33.0	31.6	30.8	31.1	31.6	33.4	35.1	36.2	38.4	33.3
1938	33.5	30.5	29.8	27.0	25.1	23.7	24.2	24.1	24.1	24.4	25.0	27.0	26.3
1939	25.2	24.9	22.7	21.4	21.5	22.2	22.0	22.4	24.7	26.9	28.1	28.5	23.9
1940	30.0	29.7	28.3	27.5	26.9	25.6	25.9	26.7	27.1	28.8	31.0	34.8	28.1
1941	31.0	30.4	30.7	32.5	34.7	35.7	36.4	35.7	36.8	36.5	36.7	36.0	34.2
1942	36.2	36.2	35.7	37.0	38.6	37.4	37.6	40.7	43.1	46.6	47.9	48.9	39.6
1943	49.6	50.0	50.5	51.3	50.7	49.2	49.2	49.8	50.3	50.8	50.9	51.0	49.9
1944	50.8	51.0	51.1	50.9	50.8	50.2	50.2	50.2	50.2	50.3	50.7	51.0	50.3
1945	50.9	50.8	50.8	50.6	50.2	50.2	50.3	50.3	50.4	50.4	50.5	50.7	50.3
1946	51.2	51.3	51.8	51.7	51.3	52.3	70.6	70.8	75.6	89.9	84.3	86.9	64.3
1947	74.3	64.9	73.5	68.4	63.0	63.1	68.0	73.3	84.0	74.5	78.1	87.7	71.8
1948	87.8	84.9	80.3	84.7	83.6	82.8	84.4	81.1	75.6	67.7	64.3	65.7	79.7
1949	65.6	64.1	63.4	61.4	60.6	59.3	58.9	60.5	61.7	62.1	62.6	63.3	61.5
1950	62.5	63.1	62.4	61.0	60.6	59.7	------	------	------	------	------	------	----------
	Including production payments												
1943	------	------	------	------	------	------	------	------	------	53.6	53.7	53.8	----------
1944	54.0	54.2	57.2	57.0	54.9	54.3	54.4	54.4	58.5	58.6	59.0	59.3	----------
1945	58.8	58.7	58.7	60.3	59.9	59.9	61.1	61.1	61.2	65.2	65.3	65.5	----------
1946	67.4	67.5	68.0	67.9	65.5	66.5	------	------	------	------	------	------	----------

[1] Prior to 1924 yearly average obtained by weighting monthly United States average by normal marketings; subsequently obtained by weighting State yearly average by estimated amount of butterfat in cream sold.

NOTE.—Data available currently in Agricultural Prices issued at the end of each month.

TABLE 56.—*Milk: Receipts at New York, by regions, 1927–49*

[In 40-quart units]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States	Canada
1927	34,409,088	304	400	44,324	----------	----------	34,454,116	----------
1928	34,486,398	2,229	----------	66,164	----------	----------	34,554,791	----------
1929	34,536,258	6,090	----------	139,230	----------	----------	34,681,578	32,553
1930	34,175,359	1,556	----------	135,488	----------	----------	34,312,403	15,874
1931	31,995,581	13,038	----------	151,059	----------	----------	[1]35,529,807	5,170
1932	33,765,559	14,578	----------	197,091	----------	----------	33,977,228	----------
1933	32,845,728	7,558	----------	187,991	496	----------	33,041,773	----------
1934	31,366,650	1,343	----------	194,929	----------	----------	31,562,922	----------
1935	31,766,165	----------	----------	197,531	----------	----------	31,963,696	----------
1936	33,803,636	9,672	----------	235,946	----------	----------	34,049,254	----------
1937	36,028,979	----------	----------	204,308	----------	----------	36,233,287	----------
1938	35,470,207	----------	----------	216,583	----------	----------	35,686,790	----------
1939	37,391,116	----------	----------	220,994	----------	----------	37,612,110	----------
1940	37,137,689	----------	----------	287,213	----------	----------	37,424,902	----------
1941	38,546,081	----------	----------	263,958	----------	----------	38,810,039	----------
1942	39,336,308	----------	----------	196,027	----------	----------	39,532,335	----------
1943	42,025,239	----------	----------	105,780	----------	----------	42,131,019	----------
1944	43,253,955	----------	----------	156,355	----------	----------	43,410,310	----------
1945	44,273,120	----------	----------	138,775	----------	----------	44,411,895	----------
1946	46,487,042	2,788	----------	115,621	----------	----------	46,605,451	----------
1947	46,329,606	14,160	----------	150,028	----------	----------	46,493,794	----------
1948	45,218,703	702	----------	185,209	----------	----------	45,404,614	----------
1949	44,494,521	----------	----------	235,219	----------	----------	44,729,740	----------

[1] Includes 3,370,129 units shipped by truck. Origin by States not available.

Source: Compiled from Dairy and Poultry Market Statistics, Production and Marketing Administration.

TABLE 57.—*Milk: Receipts at Philadelphia, by regions, 1929–49*

[In 40-quart units]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States
1929	5,722,126	20,852	----------	1,610,933	----------	----------	[1] 7,433,134
1930	5,805,519	6,600	----------	1,583,198	----------	----------	7,395,317
1931	5,728,417	1,801	----------	1,513,460	----------	----------	7,243,678
1932	5,357,557	291	----------	1,480,244	----------	----------	6,838,092
1933	5,407,530	462	----------	1,379,639	----------	----------	6,787,631
1934	5,674,113	----------	----------	1,324,655	----------	----------	6,998,768
1935	5,718,785	1,392	----------	1,345,821	----------	----------	7,065,998
1936	5,871,582	966	----------	1,292,609	----------	----------	7,165,157
1937	6,066,899	----------	----------	1,264,153	----------	----------	7,331,052
1938	6,070,206	----------	----------	1,355,129	----------	----------	7,425,335
1939	6,670,695	----------	----------	1,378,584	----------	----------	8,049,279
1940	6,834,831	----------	----------	1,623,374	----------	----------	8,458,205
1941	7,113,980	696	----------	1,786,448	----------	----------	8,901,124
1942	7,663,966	----------	----------	1,673,758	----------	----------	9,337,724
1943	7,932,741	19,782	----------	1,377,244	----------	----------	9,329,767
1944	8,301,129	11,162	----------	1,489,818	----------	----------	9,802,109
1945	8,629,778	58,551	5,309	1,745,812	----------	----------	10,439,450
1946	8,630,387	43,511	6,216	1,793,343	----------	----------	10,473,457
1947	8,707,909	48,008	----------	1,805,708	----------	----------	10,561,625
1948	8,714,531	14,913	----------	1,761,353	----------	----------	10,490,797
1949	9,048,612	788	----------	1,977,871	----------	----------	11,027,271

[1] Includes 79,223 units. Origin not available by States.

Source: Compiled from Dairy and Poultry Market Statistics, Production and Marketing Administration.

TABLE 58.—*Milk: Receipts at Boston, by regions, 1930–49*

[In 40-quart units]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States
1930	6,176,942						6,176,942
1931	6,416,012						6,416,012
1932	6,294,319						6,294,319
1933	5,721,550						5,721,550
1934	5,753,927						5,753,927
1935	5,712,194						5,712,194
1936	5,593,455	4,464		478			5,598,397
1937	5,622,995						5,622,995
1938	5,712,887	1,088					5,713,975
1939	5,848,790	204					5,848,994
1940	6,107,860						6,107,860
1941	6,430,226						6,430,226
1942	7,161,182						7,161,182
1943	7,836,768	5,848	3,239				7,845,855
1944	8,286,839	94					8,286,933
1945	8,821,045	77,561	81,977				8,980,583
1946	9,021,983	195,806	44,165				9,261,954
1947	8,771,025	138,607	723				8,910,355
1948	9,296,761	22,455	39				9,319,255
1949	8,958,159						8,958,159

Source: Compiled from Dairy and Poultry Market Statistics, Production and Marketing Administration.

TABLE 59.—*Cream: Receipts at New York, by regions, 1927–49*

[In 40-quart units]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States	Canada
1927	1,506,557	35,221	18,530		210		1,560,518	10,857
1928	1,610,933	41,121	36,985	745	7,967		1,697,751	4,908
1929	1,664,044	70,733	24,904	1,077	30,123		1,790,881	36,035
1930	1,727,653	50,744	10,923	3,365	15,568		[1] 1,812,854	34,152
1931	1,845,920	36,594	6,333	1,712	6,704		[2] 1,912,056	1,339
1932	1,747,546	73,687	7,398	5,120	2,824		1,836,575	2,456
1933	1,488,391	74,308	800	4,162	5,800		1,573,461	
1934	1,473,616	43,524		1,433			1,518,573	
1935	1,384,547	63,967	203	570	1,661		1,450,948	
1936	1,464,027	47,367		1,238			1,512,632	
1937	1,459,632	61,540	1,259	4,492	3,387		1,530,310	
1938	1,397,417	48,328	300	22,982			1,469,027	
1939	1,555,987	25,955		1,521			1,583,463	
1940	1,469,345	18,317		227			1,487,889	
1941	1,416,021	35,203		504			1,451,728	
1942	1,246,878	43,191					1,290,069	
1943	712,307	37,354					749,661	
1944	749,780	61,692					811,472	
1945	885,575	85,043	430				971,048	
1946	964,781	198,996	14,146				1,177,923	
1947	1,037,414	116,650	1,750		250		1,156,064	
1948	878,124	76,914		800			955,838	
1949	988,457	8,021		1,939			998,417	

[1] Includes 4,601 (40-quart units) by truck. State of origin not available.
[2] Includes 14,793 (40-quart units) by truck. State of origin not available.

Source: Compiled from Dairy and Poultry Market Statistics, Production and Marketing Administration.

TABLE 60.—*Cream: Receipts at Philadelphia, by regions, 1929–49*

[In 40-quart units]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States
1929	50, 257	186, 209	86, 604	58, 415	12, 245	----------	[1] 394, 856
1930	49, 964	214, 553	35, 969	76, 746	15, 197	----------	[2] 393, 029
1931	64, 714	205, 379	10, 906	47, 970	4, 906	----------	333, 875
1932	43, 091	167, 262	3, 689	57, 038	2, 200	----------	273, 280
1933	73, 650	140, 209	9, 934	44, 584	200	----------	268, 577
1934	122, 919	108, 686	5, 496	25, 511	----------	----------	262, 612
1935	59, 042	130, 998	10, 206	30, 060	400	----------	230, 706
1936	79, 897	91, 633	200	33, 232	----------	----------	204, 962
1937	115, 740	82, 737	----------	34, 343	----------	----------	232, 820
1938	116, 791	67, 097	----------	47, 306	----------	----------	231, 194
1939	147, 300	71, 671	----------	33, 445	----------	----------	252, 416
1940	133, 958	103, 909	----------	39, 425	----------	----------	277, 292
1941	154, 559	116, 846	----------	34, 680	----------	----------	306, 085
1942	167, 664	128, 268	----------	30, 123	----------	----------	326, 055
1943	108, 259	136, 206	----------	24, 041	----------	----------	268, 506
1944	111, 906	194, 482	----------	33, 267	----------	----------	339, 655
1945	109, 147	221, 982	1, 791	24, 182	----------	300	357, 402
1946	94, 989	401, 120	17, 290	28, 438	----------	2, 457	544, 294
1947	87, 381	293, 888	2, 404	28, 137	----------	----------	411, 810
1948	55, 811	191, 751	1, 420	44, 006	----------	----------	292, 988
1949	73, 616	135, 330	659	85, 799	----------	----------	295, 404

[1] Includes 1,126 units. Origin by State not available.
[2] Includes 600 units. Origin by State not available.

Source: Compiled from Dairy and Poultry Market Statistics, Production and Marketing Administration.

TABLE 61.—*Cream: Receipts at Boston, by regions, 1930–49*

[In 40-quart units]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States	Canada
1930	491, 567	41, 702	16, 694	----------	600	----------	550, 563	31, 883
1931	424, 171	108, 635	29, 613	200	25, 491	----------	588, 110	----------
1932	340, 042	137, 955	41, 931	6, 640	15, 437	----------	542, 005	----------
1933	326, 351	139, 412	60, 560	1, 700	11, 383	----------	539, 406	----------
1934	407, 491	130, 541	25, 183	400	22, 649	----------	586, 264	----------
1935	415, 797	112, 608	22, 405	200	3, 600	----------	554, 610	----------
1936	377, 793	153, 557	25, 881	----------	14, 495	----------	571, 726	1, 380
1937	301, 137	197, 593	52, 051	----------	12, 548	----------	563, 329	14, 807
1938	298, 189	208, 306	35, 210	200	16, 370	----------	558, 275	527
1939	352, 268	172, 418	19, 420	----------	10, 800	200	555, 106	----------
1940	442, 659	94, 570	22, 320	----------	4, 400	----------	563, 949	----------
1941	386, 696	160, 151	58, 606	----------	----------	----------	605, 453	----------
1942	387, 554	156, 405	39, 406	----------	----------	----------	583, 365	----------
1943	318, 799	153, 354	13, 241	----------	2, 100	----------	487, 494	----------
1944	258, 291	167, 338	13, 532	----------	----------	----------	439, 161	----------
1945	225, 820	234, 104	70, 028	----------	1, 800	----------	531, 752	----------
1946	101, 312	376, 833	208, 171	----------	11, 249	----------	697, 565	----------
1947	177, 161	222, 585	91, 222	13, 063	4, 235	----------	508, 266	----------
1948	195, 603	229, 269	59, 199	4, 359	10, 882	----------	499, 312	----------
1949	345, 245	133, 713	6, 480	1, 500	4, 828	----------	491, 766	----------

Source: Compiled from Dairy and Poultry Market Statistics, Production and Marketing Administration.

TABLE 62.—*Freight rates on selected dairy products from Wisconsin, Michigan, Ohio, and New York milkshed to New York City*

Product	Wisconsin [1]	Michigan [1]	Ohio [1]	New York milkshed [1]
Butter (per 100 pounds)	$1.50	$1.33	$1.26	$0.83
Cheese (per 100 pounds)	1.40	1.22	1.17	.78
Evaporated milk (per 100 pounds)	.88	.81	.78	.44
Milk powder (per 100 pounds)	.88	.81	.78	.51
Cream (per can)	2.45	2.02	1.86	.75

[1] Based on 13 points in Wisconsin, 5 points in Michigan, and 2 points in Ohio where the condenseries formerly listed in the New York order were located.
[2] Based on 4 points—Chateaugay, Canton, Norwich, and Wellsboro. None of the rates here given include 3 percent tax.

Source: Statement of Milk Dealers' Association of Metropolitan New York, Inc., on pricing class III milk. Jan. 24, 1950, Elmira, N. Y., p. 2.

TABLE 63.—*Quantity and value of major dairy products exported by the United States by country of destination, 1939 and 1949*

Country of destination	Condensed and evaporated milk				All cheese				Butter				Dried whole milk				Nonfat dry milk solids			
	1939		1949		1939		1949		1939		1949		1939		1949		1939		1949	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Mil. lb.	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*
North America	9.3	623	55.6	8,027	1.1	230	2.2	959	1.8	493	1.9	1,261	1.0	284	7.9	4,227	.6	43	7.4	1,050
Canada	.2	14	.2	30	.1	14	.3	125	(1)	1	(1)	1	(1)	2	(1)	(2)	.1	8	(1)	(2)
Costa Rica	.6	56	1.5	232	(1)	2	(1)	4	(1)	1	(1)	(2)	.1	33	.5	299	(1)	2	(1)	6
El Salvador	(1)	1	.1	21	(1)	1	(1)	9	(1)	(2)	------	------	(1)	1	.1	61	(1)	(2)	(1)	2
Guatemala	.1	13	.3	53	(1)	10	.1	31	(1)	10	(1)	24	.1	25	1.1	649	(1)	(2)	.1	18
Honduras	.2	22	.4	77	(1)	2	.1	20	(1)	10	(1)	19	.1	21	.3	155	------	------	(1)	6
Mexico	1.6	98	3.9	520	.1	28	.3	142	.1	38	.1	44	(1)	13	2.2	983	.1	3	5.1	720
Nicaragua	.1	10	.3	45	(1)	1	(1)	2	(1)	2	(1)	3	(1)	6	(1)	28	------	------	(1)	(2)
Panama	(1)	3	3.4	454	.2	35	.4	179	.5	142	.3	211	.1	39	1.2	694	.1	9	.2	34
Panama Canal Zone	4.1	234	5.4	615	.4	75	.3	154	.9	224	.5	324	.3	87	.9	423	.1	7	.3	48
Bermuda	(1)	4	.8	95	(1)	8	(1)	8	(1)	1	(1)	27	(1)	(2)	.1	35	------	------	.1	8
Cuba	.3	24	29.5	4,403	.1	18	.3	118	(1)	(2)	.6	400	(1)	11	.1	45	.1	4	1.3	188
Netherlands West Indies	.8	58	4.9	681	.1	12	.2	77	.2	44	.2	156	.1	33	.8	481	(1)	1	.1	12
Dominican Republic	(1)	4	.7	149	(1)	2	(1)	5	------	------	(1)	2	(1)	4	.3	207	(1)	(2)	(1)	4
Haiti	.2	17	.9	143	(1)	10	.1	53	(1)	12	.1	42	(1)	4	.1	37	(1)	(2)	------	------
All other countries	.9	65	3.3	509	(1)	10	.1	31	(1)	8	(1)	6	(1)	5	.2	130	.1	6	(1)	4
South America	2.0	176	16.4	2,143	.2	41	1.1	509	.2	86	1.0	671	4.3	1,642	44.3	22,554	.2	14	1.0	153
Bolivia	.3	31	2.8	451	(1)	(2)	(1)	(2)	------	------	(1)	2	(1)	14	1.0	638	(1)	(2)	(1)	1
Brazil	(1)	(2)	(1)	3	(1)	(2)	(1)	1	------	------	(1)	1	.1	31	1.7	1,016	------	------	(1)	3
Chile	(1)	2	.7	117	(1)	(2)	------	------	(1)	1	------	------	(1)	2	.1	59	------	------	------	------
Columbia	.4	37	.4	51	(1)	6	(1)	5	.1	33	(1)	24	.5	210	.8	382	(1)	1	(1)	1
Ecuador	(1)	3	.2	28	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	9	.3	187	------	------	(1)	5
Peru	.5	29	10.3	1,187	(1)	3	------	------	(1)	5	.1	52	.1	25	.7	345	(1)	3	.2	33
Venezuela	.7	72	1.9	294	.1	30	1.1	502	.1	47	.9	592	3.5	1,339	39.7	19,902	.1	6	.7	110
All other countries	(1)	2	.1	12	(1)	(2)	(1)	1	(1)	(2)	(1)	(2)	(1)	12	(1)	25	(1)	3	------	------
Europe	.6	61	105.3	12,799	(1)	(2)	92.5	32,696	(1)	(2)	.1	55	(1)	11	21.3	9,370	.4	22	137.0	18,718
Belgium	------	------	39.8	4,504	(1)	(2)	3.3	1,309	------	------	------	------	(1)	2	.2	78	------	------	2.6	378
France	(1)	(2)	5.8	839	------	------	------	------	------	------	------	------	(1)	(2)	16.3	7,320	------	------	------	------
Germany	(1)	(2)	4.9	586	------	------	.5	175	------	------	(1)	8	------	------	3.8	1,605	------	------	91.1	12,329

See footnotes at end of table.

TABLE 63.—*Quantity and value of major dairy products exported by the United States by country of destination, 1939 and 1949*—Con.

Country of destination	Condensed and evaporated milk				All cheese				Butter				Dried whole milk				Nonfat dry milk solids			
	1939		1949		1939		1949		1939		1949		1939		1949		1939		1949	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Mil. lb.	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*
Europe—continued																				
Greece	.1	9	49.0	6,126	------	------	6.7	2,396	------	------	(1)	3	(1)	2	.1	69	------	------	23.7	3,288
Italy	------	------	.3	36	------	------	(1)	2	------	------	(1)	15	(1)	2	(1)	2	------	------	2.0	264
Netherlands	(1)	2	.2	25	------	------	(1)	13	------	------	------	------	------	------	(1)	1	------	------	------	------
Switzerland	------	------	.4	49	------	------	(1)	(2)	------	------	------	------	(1)	(2)	.8	290	------	------	.6	70
United Kingdom	.5	48	(1)	1	(1)	(2)	81.8	28,729	(1)	(2)	(1)	28	(1)	1	(1)	2	.4	22	------	------
All other countries	(1)	2	4.8	633	(1)	(2)	.2	72	(1)	(2)	(1)	1	(1)	4	(1)	3	(1)	(2)	17.0	2,389
Asia	17.8	1,209	143.5	24,990	.2	39	2.0	932	.3	80	1.0	723	.8	263	5.7	3,829	.9	55	67.9	9,654
Asia Minor	.1	7	1.0	125	------	------	.1	32	(1)	5	.2	116	(1)	11	.9	572	(1)	(2)	10.0	1,435
Asia Major	17.7	1,202	142.5	24,865	.2	39	1.9	900	.2	75	.8	607	.8	252	4.8	3,257	.9	55	57.9	8,219
British Malaya	.2	18	24.7	5,371	(1)	2	------	------	------	------	(1)	(2)	.3	100	.1	67	------	------	.5	123
Ceylon	------	------	1.6	339	(1)	(2)	------	------	------	------	------	------	(1)	1	.1	53	------	------	.6	103
China	.2	13	(1)	(2)	(1)	1	------	------	(1)	(2)	------	------	(1)	5	(1)	30	.2	14	.6	98
Hong Kong	.9	60	.7	95	(1)	1	(1)	15	(1)	2	(1)	(2)	(1)	7	.3	163	.1	6	.2	34
India (including Pakistan)	(1)	3	.7	136	(1)	1	(1)	(2)	(1)	1	------	------	(1)	4	.6	372	.1	5	1.0	152
Japan	(1)	1	.7	104	(1)	(2)	.1	40	(1)	(2)	.1	43	(1)	(2)	1.6	1,336	------	------	53.5	7,498
Indonesia	1.1	92	5.8	1,125	------	------	1.3	566	(1)	(2)	.1	41	.1	18	.3	200	(1)	(2)	(1)	4
Philippine Republic	14.3	960	105.4	17,300	.2	34	.5	278	.2	64	.7	519	.3	104	1.6	952	.5	30	1.4	207
All other countries	.8	55	2.9	395	(1)	(2)	(1)	(2)	(1)	8	(1)	2	(1)	13	.2	84	------	------	------	------
Africa	(1)	2	7.0	1,183	(1)	2	.2	144	(1)	1	.2	161	.2	85	2.2	1,270	(1)	2	.3	41
Oceania	.1	7	.1	21	(1)	2	(1)	4	(1)	(2)	(1)	1	(1)	(2)	(1)	9	(1)	(2)	.1	9
Total all countries	29.8	2,078	327.9	49,163	1.5	314	98.0	35,244	2.3	660	4.2	2,872	6.3	2,285	81.4	41,259	2.1	136	213.7	29,625

[1] Less than 50,000 pounds.
[2] Less than $500.

Source: Compiled from Bureau of Census data.

TABLE 64.—*Quantity and value of imports: Total cheese and casein to the United States, by country of origin, 1939 and 1949*

Country	Total cheese				Casein			
	1939		1949		1939		1949	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	Mil. lb.	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*	*Mil. lb.*	*1,000 dol.*
North America	6.5	936	2.0	745	(1)	2	2.5	474
Canada	6.5	935	1.9	721	(1)	2	2.5	474
Cuba	(1)	1	(1)	(2)				
Dominican Republic			.1	19				
All others			(1)	5				
South America	2.4	306	7.4	2,809	13.7	766	29.3	4,209
Argentina	2.4	305	7.4	2,809	13.6	763	28.9	4,163
Brazil	(1)	1					.2	23
Uruguay					.1	3	.2	23
All others								
Europe	50.2	11,601	21.2	12,951	2.1	115	1.2	180
Albania	.7	119						
Denmark	3.9	661	1.3	540			(1)	(2)
Finland	1.2	225	(1)	10				
France	3.4	808	1.4	1,037	2.0	96	1.0	149
Germany	.1	12			(1)	5		
Greece	.7	117	(1)	3				
Italy	8.3	1,712	10.3	6,160				
Netherlands	18.6	4,496	.7	339	.1	14	.2	31
Norway	.8	166	.4	166				
Switzerland	11.8	3,124	7.0	4,640				
United Kingdom	.1	30	(1)	8	(1)	(2)		
Yugoslavia	.5	95						
All others	.1	36	.1	48				
Oceania	(1)	(2)	1.3	290	(1)	2	.1	17
Australia							.1	17
New Zealand	(1)	(2)	1.3	290	(1)	2		
All others								
Asia	(1)	1	.1	40	(1)	1		
Duty-free	(1)	(2)						
Total, all countries	59.1	12,844	32.0	16,835	15.8	886	33.1	4,880

[1] Less than 50,000 pounds.
[2] Less than $500.

Source: Compiled from Bureau of the Census data.

TABLE 65.—*Creamery butter (including whey butter): Production, by regions, 1930–49*

[In millions of pounds]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States [1]
1930	26.7	446.8	800.7	10.9	94.0	218.6	1,597.7
1931	26.5	468.5	830.7	11.3	105.5	225.0	1,667.5
1932	24.9	476.1	832.2	13.3	124.7	222.9	1,694.1
1933	29.7	465.3	894.7	14.5	132.9	225.6	1,762.7
1934	30.7	468.4	850.4	13.0	117.7	214.5	1,694.7
1935	30.5	465.3	799.6	13.2	117.4	206.4	1,632.4
1936	29.3	467.6	790.9	13.6	118.9	209.1	1,629.4
1937	32.3	466.5	764.6	16.2	131.5	212.9	1,624.0
1938	32.0	509.6	851.6	18.5	150.7	223.8	1,786.2
1939	34.4	494.7	868.4	16.9	143.2	224.1	1,781.7
1940	40.9	510.5	899.8	16.5	137.2	231.9	1,836.8
1941	36.5	482.7	953.1	16.5	155.0	228.4	1,872.2
1942	46.1	446.4	911.0	15.5	141.7	203.4	1,764.1
1943	41.0	409.5	882.5	15.6	139.5	185.7	1,673.8
1944	42.2	372.1	769.1	15.5	126.4	163.2	1,488.5
1945	38.0	336.1	732.0	15.5	119.0	123.0	1,363.7
1946	26.5	274.6	661.5	13.9	94.2	100.6	1,171.3
1947	31.1	314.5	731.5	15.1	98.9	138.0	1,329.1
1948	25.5	284.5	673.6	14.3	90.5	121.6	1,210.0
1949 [2]	42.7	411.7	708.8	15.4	94.7	135.3	1,408.6

[1] Computed from unrounded numbers.
[2] Preliminary.

TABLE 66.—*Total cheese (excluding full skim American and cottage): Production, by regions, 1930–49*

[In millions of pounds]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States [1]
1930	63.3	349.3	21.7	1.5	13.9	50.0	499.7
1931	56.5	347.5	20.6	1.3	16.2	49.9	492.0
1932	50.4	335.9	19.6	.8	23.7	53.5	483.9
1933	56.3	368.1	25.1	1.0	31.8	60.8	543.1
1934	59.2	397.9	28.3	.8	32.2	60.6	579.0
1935	55.6	427.9	33.1	.8	41.4	61.9	620.7
1936	56.4	438.9	33.6	1.0	47.8	64.6	642.3
1937	65.9	420.4	37.8	1.4	57.1	66.2	648.8
1938	69.8	469.2	44.4	1.7	68.4	71.8	725.3
1939	69.6	470.6	43.0	1.1	55.6	68.6	708.5
1940	76.3	523.8	53.4	.9	59.4	71.7	785.5
1941	80.1	627.4	80.5	1.6	81.8	84.8	956.2
1942	99.0	711.1	113.0	1.4	96.0	91.8	1,112.3
1943	81.4	655.7	89.9	.3	82.4	83.6	993.3
1944	73.9	642.0	110.6	.7	97.0	93.0	1,017.2
1945	82.3	705.8	126.3	1.5	109.2	91.7	1,116.8
1946	77.9	716.1	122.0	1.5	99.1	89.8	1,106.3
1947	89.1	730.0	148.5	1.8	117.8	95.7	1,182.9
1948	91.5	679.0	130.6	2.1	106.8	84.4	1,094.4
1949 [2]	----	----	----	----	----	----	1,193.4

[1] Computed from unrounded figures.
[2] United States total is preliminary; regional data not available.

TABLE 67.—*Evaporated milk, unsweetened, unskimmed, case goods: Production, by regions, 1930–49*

[In millions of pounds]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States [1]
1930	107.4	813.7	85.9	13.2	90.3	338.6	1,449.1
1931	109.7	798.0	75.7	13.8	95.0	336.8	1,429.0
1932	129.7	888.3	80.9	14.7	110.4	346.6	1,570.6
1933	116.8	1,005.3	86.4	16.2	110.9	381.1	1,716.7
1934	105.9	1,033.7	83.1	18.3	114.2	356.4	1,711.6
1935	145.8	1,096.6	88.4	25.7	126.5	355.9	1,838.9
1936	203.0	1,205.4	103.6	24.0	138.1	369.7	2,043.8
1937	153.4	1,097.0	119.6	25.6	162.3	344.6	1,902.5
1938	161.0	1,188.6	139.4	41.2	195.3	378.7	2,104.2
1939	171.1	1,216.1	142.5	43.6	184.4	412.9	2,170.6
1940	196.7	1,376.9	182.5	52.7	183.2	472.7	2,464.7
1941	253.5	1,862.0	247.2	84.2	247.9	551.7	3,246.5
1942	255.9	2,023.4	274.6	106.3	274.4	583.9	3,518.5
1943	161.8	1,788.2	261.6	87.4	240.0	518.3	3,057.3
1944	137.2	1,916.8	314.2	117.2	306.8	635.9	3,428.1
1945	151.9	2,101.0	352.8	145.0	375.8	649.9	3,776.4
1946	64.6	1,644.8	309.9	122.8	348.8	559.7	3,050.6
1947	81.2	1,683.3	338.4	151.6	399.1	554.4	3,208.0
1948	123.5	1,709.7	348.5	166.5	428.1	606.6	3,382.9
1949 [2]							2,755.6

[1] Computed from unrounded figures.
[2] United States total preliminary, regional data not available.

TABLE 68.—*Nonfat milk solids, for human consumption: Production, by regions, 1935–49*

[In millions of pounds]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States [1]
1935	59.9	59.9	14.3	1.6	7.1	44.7	187.5
1936	65.0	82.5	19.2	1.9	6.9	48.3	223.8
1937	51.9	96.8	25.5	2.0	9.1	59.1	244.5
1938	61.0	113.7	33.7	4.3	11.6	64.8	289.1
1939	64.6	106.5	27.9	2.8	6.6	59.5	267.9
1940	83.0	122.0	36.3	3.6	6.8	70.1	321.8
1941	87.5	145.5	54.4	2.7	8.4	68.0	366.5
1942	111.0	253.1	97.1	2.3	7.9	94.0	565.4
1943	61.4	227.5	113.3	2.3	6.3	98.8	509.6
1944	60.0	249.6	152.8	3.5	11.2	105.8	582.9
1945	62.2	274.8	206.2	3.7	9.2	86.4	642.5
1946	47.9	266.6	243.4	3.1	7.8	84.7	653.5
1947	70.3	283.0	215.4	4.0	7.9	97.3	677.9
1948	65.2	300.0	213.7	7.1	8.1	87.5	681.6
1949 [2]							918.0

[1] Computed from unrounded numbers.
[2] United States total preliminary; regional data not available.

TABLE 69.—*Ice cream (product weight): Production, by regions, 1930–49*

[In millions of gallons]

Year	North Atlantic	East North Central	West North Central	South Atlantic	South Central	Western	United States [1]
1930	91.4	60.7	27.0	17.9	16.9	26.8	240.7
1931	83.9	50.4	21.9	15.5	12.5	24.0	208.2
1932	62.0	37.7	16.2	11.6	9.8	17.3	154.6
1933	56.8	36.2	15.5	13.2	11.5	15.7	148.9
1934	68.9	42.5	17.3	16.2	14.9	19.8	179.6
1935	73.3	47.3	20.1	17.8	18.1	22.8	199.4
1936	87.7	59.7	26.0	21.3	20.8	28.1	243.6
1937	104.9	68.8	28.5	24.8	22.3	31.6	280.9
1938	103.3	67.4	29.8	26.1	24.8	30.5	281.9
1939	108.9	72.6	32.1	28.3	27.8	34.8	304.5
1940	111.0	77.8	33.0	30.4	28.9	37.0	318.1
1941	131.8	95.0	39.7	40.9	40.6	42.2	390.2
1942	145.6	106.6	45.1	55.3	55.9	55.6	464.1
1943	121.6	89.6	39.8	52.5	53.9	54.2	411.6
1944	129.5	98.1	43.1	57.3	57.1	59.3	444.2
1945	143.6	105.1	45.9	58.7	58.0	65.1	476.4
1946	209.3	160.2	76.3	84.8	88.1	94.9	713.6
1947	189.2	143.4	69.3	70.8	73.3	82.9	628.9
1948	169.4	132.8	61.5	66.3	68.9	71.2	570.1
1949 [2]	171.6	126.4	58.9	62.8	65.0	69.1	553.7

[1] Computed from unrounded figures.
[2] Preliminary.

TABLE 70.—*Casein: Supply and disappearance, United States, 1919–49*

Year	Production	Imports [1]	Change in stocks	Domestic disappearance	Imports as a percentage of disappearance
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*Percent*
1919	14,407	17,077	----------	31,484	54.2
1920	11,526	21,239	----------	32,765	64.8
1921	8,076	9,717	----------	17,793	54.6
1922	6,927	14,342	----------	21,269	67.4
1923	14,548	26,490	----------	41,038	64.5
1924	20,759	17,750	----------	38,509	46.1
1925	16,660	18,804	----------	35,464	53.0
1926	16,953	26,281	----------	43,234	60.8
1927	18,033	24,210	----------	42,243	57.3
1928	22,151	28,651	----------	50,802	56.4
1929	30,537	27,583	----------	58,120	47.5
1930	41,965	18,500	----------	60,465	30.6
1931	35,335	3,503	----------	38,838	9.0
1932	24,428	1,201	----------	25,629	4.7
1933	24,087	8,142	----------	32,229	25.3
1934	37,331	1,491	----------	38,822	3.8
1935	37,638	3,230	----------	40,868	7.9
1936	46,140	16,209	----------	62,349	26.0
1937	67,467	5,210	----------	72,677	7.2
1938	48,549	417	----------	48,966	.9
1939	40,878	15,832	----------	56,710	27.9
1940	46,616	24,523	----------	71,139	34.5
1941	47,346	41,518	----------	88,864	46.7
1942	42,268	16,819	+2,301	56,786	29.6
1943	18,386	28,052	−4,569	51,007	55.0
1944	15,264	47,225	−1,150	63,639	74.2
1945	12,333	51,610	+1,300	62,643	82.4
1946	18,319	45,346	−2,400	66,065	68.6
1947	35,831	20,887	−975	57,693	36.2
1948	14,372	40,585	+335	54,622	74.3
1949	20,265	33,061	−260	53,586	61.7

[1] Compiled from Bureau of Census data.

TABLE 71.—*Butter, actual weight: Supply and distribution, United States, 1909–49*

Year	Supply				Distribution									
							Department of Agriculture					Domestic disappearance		
	Production [1]	Beginning commercial stocks [2]	Imports [3]	Total supply	Ending commercial stocks [2]	Commercial exports and shipments [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases	Use in margarine [4]	Military	Civilian	Civilian, per capita
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*
1909	1,622	----------	1	1,623	----------	6	----------	----------	----------	----------	6	----------	1,611	17.6
1910	1,706	----------	1	1,707	----------	6	----------	----------	----------	----------	6	----------	1,695	18.2
1911	1,762	----------	1	1,763	----------	9	----------	----------	----------	----------	6	----------	1,748	18.5
1912	1,592	----------	1	1,593	----------	8	----------	----------	----------	----------	6	----------	1,579	16.4
1913	1,608	----------	4	1,612	----------	6	----------	----------	----------	----------	6	----------	1,600	16.3
1914	1,685	----------	7	1,692	----------	7	----------	----------	----------	----------	5	----------	1,680	16.8
1915	1,751	----------	2	1,753	----------	21	----------	----------	----------	----------	3	----------	1,729	17.1
1916	1,793	49	1	1,843	46	31	----------	----------	----------	----------	3	----------	1,763	17.1
1917	1,648	46	1	1,695	51	11	----------	----------	----------	----------	4	----------	1,629	15.6
1918	1,464	51	2	1,517	44	29	----------	----------	----------	----------	5	----------	1,439	13.7
1919	1,646	44	10	1,700	54	38	----------	----------	----------	----------	6	----------	1,602	15.1
1920	1,567	54	37	1,658	59	21	----------	----------	----------	----------	4	----------	1,574	14.7
1921	1,741	59	18	1,818	48	12	----------	----------	----------	----------	1	----------	1,757	16.1
1922	1,870	48	7	1,925	27	15	----------	----------	----------	----------	1	----------	1,882	17.0
1923	1,986	27	23	2,036	30	10	----------	----------	----------	----------	2	----------	1,994	17.7
1924	2,082	30	18	2,130	66	12	----------	----------	----------	----------	2	----------	2,050	17.8
1925	2,074	66	7	2,147	53	8	----------	----------	----------	----------	2	----------	2,084	17.9
1926	2,156	53	7	2,216	34	8	----------	----------	----------	----------	2	----------	2,172	18.4
1927	2,171	34	8	2,213	46	7	----------	----------	----------	----------	2	----------	2,158	18.0
1928	2,114	46	5	2,165	44	8	----------	----------	----------	----------	3	----------	2,110	17.4
1929	2,160	44	3	2,207	82	8	----------	----------	----------	----------	3	----------	2,114	17.2
1930	2,121	82	2	2,205	63	7	----------	----------	----------	----------	2	----------	2,133	17.2
1931	2,212	63	2	2,277	27	7	----------	----------	----------	----------	(5)	----------	2,243	18.0
1932	2,276	27	1	2,304	22	7	----------	----------	----------	----------	(5)	----------	2,275	18.1
1933	2,343	22	1	2,366	111	6	----------	----------	----------	----------	(5)	----------	2,249	17.8
1934	2,253	111	1	2,365	47	6	----------	----------	----------	----------	(5)	----------	2,312	18.2
1935	2,171	47	23	2,241	40	7	----------	----------	----------	----------	(5)	----------	2,194	17.1
1936	2,131	40	10	2,181	61	6	----------	----------	----------	----------	----------	----------	2,114	16.4
1937	2,096	61	11	2,168	43	6	----------	----------	----------	----------	----------	----------	2,119	16.4
1938	2,240	43	2	2,285	129	8	----------	----------	----------	----------	----------	----------	2,148	16.4
1939	2,210	129	1	2,340	55	9	----------	----------	----------	----------	----------	----------	2,276	17.3
1940	2,240	55	1	2,296	41	11	----------	----------	----------	----------	----------	----------	2,244	16.9
1941	2,268	41	4	2,313	114	13	----------	----------	----------	----------	----------	70	2,116	16.0
1942	2,130	114	20	2,264	[6] 24	9	----------	1	14	15	----------	124	2,092	15.8
1943	2,015	[6] 24	3	2,042	[7] 35	6	1	123	[8] 88	210	----------	266	1,525	11.8
1944	1,818	[7] 35	2	1,855	[9] 21	6	123	7	91	−25	----------	321	1,532	11.9

1945	1,701	[9] 21	4	1,726	28	[10] 8	7	[11] 13	[10] 47	53		222	1,415	10.9
1946	1,505	28	7	1,540	23	[10] 6	[11] 13		[10] 11	−2		54	1,459	10.5
1947	1,645	23	4	1,672	22	[10] 17						28	1,605	11.2
1948	1,509	22	(5)	1,531	32	8						36	1,455	10.0
1949 [12]	1,692	32	(5)	1,724	26	6		[13] 107		107		32	1,553	10.5

[1] For 1909–23, inclusive, estim ates of total butter production were based on data of the Census of Manufactures, Census of Agriculture, and market receipts. For 1924–28, inclusive, factory production based on data from Census of Manufactures and reports by creameries to Bureau of Agricultural Economics. For creamery butter, 1929 to date and for farm butter, 1924 to date, data are as published by BAE. Data prior to 1909 available in U. S. Department of Agriculture Technical Bulletin No. 722, Production and Consumption of Manufactured Dairy Products in the United States.

[2] Stock data cover quantities in commercial storage warehouses, reported beginning 1916 in the Cold Storage Report, Production and Marketing Administration.

[3] Data on imports, exports, and shipments are those published by the Department of Commerce, except for the period during World War II when this information was supplemented and partially replaced by data from Department of Agriculture records. Imports prior to 1934 were "general imports," while for 1934 and following years they are "imports for consumption."

[4] Use of butter in margarine, prior to 1914 estimated; 1914–16 and beginning 1920 from Bureau of Internal Revenue; 1917–19 (fiscal year data), from Institute of Margarine Manufacturers.

[5] Less than 500,000 pounds.

[6] Cold-storage stocks of 25,000,000 pounds include about 1,000,000 pounds owned by Department of Agriculture and the Armed Forces.

[7] Total of 35,000,000 pounds includes approximately 30,000,000 pounds in cold storage and 5,000,000 pounds, outside cold storage. Cold-storage figure of 155,000,000 pounds includes about 125,000,000 pounds of Department of Agriculture and military stocks.

[8] Based on USDA shipment data.

[9] Cold-storage total of 60.5 million pounds includes approximately 39.6 million pounds of Department of Agriculture military stocks.

[10] Butter equivalent.

[11] In process of transfer from the military as of Jan. 1.

[12] Preliminary.

[13] Includes 10,000,000 pounds for distribution to school lunch program in 1950.

TABLE 72.—*All cheese (except full skim, cottage, pot and baker's): Supply and distribution, United States, 1909–49*

Year	Supply				Distribution								
							Department of Agriculture				Domestic disappearance		
	Production [1]	Beginning commercial stocks [2]	Imports [3]	Total supply	Ending com'l stocks [2]	Com'l exports and shipments [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Civilian	Civilian per capita
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*
1909	313	----------	38	351	----------	5	----------	----------	----------	----------	----------	346	3.8
1910	355	----------	44	399	----------	4	----------	----------	----------	----------	----------	395	4.2
1911	345	----------	45	390	----------	15	----------	----------	----------	----------	----------	375	4.0
1912	323	----------	49	372	----------	4	----------	----------	----------	----------	----------	368	3.8
1913	359	----------	56	415	----------	4	----------	----------	----------	----------	----------	411	4.2
1914	367	----------	55	422	----------	5	----------	----------	----------	----------	----------	417	4.2
1915	440	----------	39	479	----------	64	----------	----------	----------	----------	----------	415	4.1
1916	422	29	29	480	32	56	----------	----------	----------	----------	----------	392	3.8
1917	472	32	6	510	70	55	----------	----------	----------	----------	----------	385	3.7
1918	394	70	8	472	30	50	----------	----------	----------	----------	----------	392	3.7
1919	473	30	11	514	65	16	----------	----------	----------	----------	----------	433	4.1
1920	429	65	13	507	51	19	----------	----------	----------	----------	----------	437	4.1
1921	426	51	27	504	42	15	----------	----------	----------	----------	----------	447	4.1
1922	435	42	47	524	45	8	----------	----------	----------	----------	----------	471	4.2
1923	456	45	64	565	67	11	----------	----------	----------	----------	----------	487	4.3
1924	470	67	59	596	68	8	----------	----------	----------	----------	----------	520	4.5
1925	493	68	62	623	77	13	----------	----------	----------	----------	----------	533	4.6
1926	474	77	78	629	74	7	----------	----------	----------	----------	----------	548	4.6
1927	447	74	79	600	66	6	----------	----------	----------	----------	----------	528	4.4
1928	478	66	81	625	89	5	----------	----------	----------	----------	----------	531	4.4
1929	486	89	76	651	86	5	----------	----------	----------	----------	----------	560	4.6
1930	500	86	68	654	83	4	----------	----------	----------	----------	----------	567	4.6
1931	492	83	62	637	78	4	----------	----------	----------	----------	----------	555	4.4
1932	484	78	56	618	69	3	----------	----------	----------	----------	----------	546	4.3
1933	543	69	48	660	92	3	----------	----------	----------	----------	----------	565	4.5
1934	579	92	48	719	102	4	----------	----------	----------	----------	----------	613	4.8
1935	621	102	49	772	100	4	----------	----------	----------	----------	----------	668	5.2
1936	642	100	60	802	110	4	----------	----------	----------	----------	----------	688	5.3
1937	649	110	61	820	104	4	----------	----------	----------	----------	----------	712	5.5
1938	725	104	54	883	120	4	----------	----------	----------	----------	----------	759	5.8
1939	709	120	59	888	109	4	----------	----------	----------	----------	----------	775	5.9
1940	785	109	33	927	130	6	----------	----------	----------	----------	----------	791	6.0
1941	956	130	20	1,106	159	8	----------	56	92	148	11	780	5.9
1942	1,112	159	24	1,295	[4]119	8	56	[5] 20	305	269	56	843	6.4
1943	993	[4] 119	25	1,137	[6] 79	3	[5] 20	142	168	290	128	637	4.9
1944	1,017	[6] 79	9	1,105	[7] 75	4	142	35	297	190	212	624	4.8
1945	1,117	[7] 75	8	1,200	87	8	35	[8] 66	182	213	31	861	6.6

1946	1,106	87	21	1,214	121	10	[8] 66	9	202	145	8	930	6.7
1947	1,183	121	9	1,313	147	137	9	----------	45	36	4	989	6.9
1948	1,094	147	24	1,265	148	100	----------	----------	----------	----------	22	995	6.8
1949 [9]	1,193	148	32	1,373	168	103	----------	23	----------	23	10	1,069	7.2

[1] Items covered: All types of cheese except full-skim American cheese and cottage, pot and baker's cheese. Includes production by factories and quantities made on farms until 1927 when farm cheese ceased to be a significant factor. Data for 1909 and 1919 are as reported by the Census of Manufactures; estimates of total production for the years between 1909 and 1919 were derived by interpolation on the basis of market receipts data; for the intercensual years 1919–29, annual estimates were interpolated on the basis of data compiled by the Bureau of Agricultural Economics for part of the factories producing in that period; for 1930 to date, the data are as published by the Bureau of Agricultural Economics in Production of Manufactured Dairy Products; output of cheese on farms through 1926 was determined by interpolation between census years.

[2] Stock data cover quantities in commercial storage warehouses, reported beginning 1916 in the Cold Storage Report, Production and Marketing Administration.

[3] Data on imports, exports, and shipments are those published by the Department of Commerce, except for the period during World War II when this information was supplemented and partially replaced by data from Department of Agriculture records. Imports prior to 1934 were "general imports," while for 1934 and following years they are "imports for consumption."

[4] Cold-storage stocks include approximately 12,000,000 pounds held by USDA and military.

[5] The total stocks of 20,000,000 pounds include about 8,000,000 pounds held outside commercial cold storage.

[6] Cold-storage stocks of 176,000,000 pounds include about 102,000,000 pounds held by Department of Agriculture and military. USDA holdings outside of commercial cold storage estimated at 40,000,000 pounds and commercial holdings at 5.5 million pounds.

[7] Cold-storage total of 145,000,000 pounds includes 75,000,000 pounds held by USDA and military. USDA holdings outside commercial cold storage totaled approximately 11,000,000 pounds and commercial holdings were about 5,000,000 pounds.

[8] Includes 23,000,000 pounds transferred from military stocks.

[9] Preliminary.

TABLE 73.—*Condensed milk: Supply and distribution, United States, 1909–49*

Year	Supply				Distribution								
							U. S. Department of Agriculture				Domestic disappearance		
	Production [1]	Beginning commercial stocks [2]	Imports [3]	Total supply	Ending commercial stocks [2]	Commercial exports and shipments [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Civilian	
												Total	Per capita
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Pounds*
1909	368			368								368	4.0
1910	408			408		8						400	4.3
1911	450			450		9						441	4.7
1912	498			498		11						487	5.1
1913	549			549		10						539	5.5
1914	607			607		12						595	6.0
1915	655			655		32						623	6.2
1916	701			701		86						615	6.0
1917	746			746		164						582	5.6
1918	785			785		209						576	5.4
1919	689			689		322						367	3.5
1920	436	21	19	476	46	280						150	1.4
1921	295	46	7	348	25	96						227	2.1
1922	331	25	3	359	16	59						284	2.6
1923	333	16	8	357	15	59						283	2.5
1924	317	15	5	337	12	67						258	2.2
1925	345	12	4	361	26	45						290	2.5
1926	298	26		324	20	42						262	2.2
1927	302	20	1	323	25	38						260	2.2
1928	267	25	1	293	14	43						236	1.9
1929	349	14	1	364	25	43						296	2.4
1930	312	25	1	338	18	33						287	2.3
1931	253	18	1	272	13	21						238	1.9
1932	209	13	1	223	12	13						198	1.6
1933	182	12	1	195	9	6						180	1.4
1934	196	9		205	11	9						185	1.5
1935	193	11	1	205	9	6						190	1.5
1936	227	9	2	238	9	3						226	1.8

1937	229	9	1	239	6	9						224	1.7
1938	218	6	1	225	7	6						212	1.6
1939	197	7		204	6	3						195	1.5
1940	266	6		272	8	28						236	1.8
1941	308	8		316	12	83						221	1.7
1942	264	12		276	4	14			2	2		256	1.9
1943	286	4		290	6	6		20	39	59		219	1.7
1944	322	6		328	7	11	20	46	42	68		242	1.9
1945	349	7		356	5	34	46	22	86	62		255	2.0
1946	282	5		287	5	39	22	2	52	32		211	1.5
1947	422	5		427	9	109	2		2			309	2.2
1948	395	9		404	13	109			3	3		279	1.9
1949 [4]	398	13		411	7	79						325	2.2

[1] For the years 1909–18 annual production estimates were interpolated on the basis of Census of Manufactures data for 1909 and 1914. For 1919–49 the total output is as published by the Bureau of Agricultural Economics in Production of Manufactured Dairy Products.

[2] Manufacturers' stocks as published by BAE in Evaporated, Condensed and Dry Milk Report.

[3] Based on data reported by the Department of Commerce and, during World War II, by the U. S. Department of Agriculture.

[4] Preliminary.

TABLE 74.—*Evaporated milk: Supply and distribution, United States, 1909–49*

Year	Supply				Distribution								
							U. S. Department of Agriculture				Domestic disappearance		
	Production [1]	Beginning commercial stocks [2]	Imports [3]	Total supply	Ending commercial stocks [2]	Commercial exports and shipments [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Civilian	
												Total	Per capita
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*
1909	127		1	128								128	1.4
1910	148		1	149		13						136	1.5
1911	174		1	175		16						159	1.7
1912	203		2	205		18						187	1.9
1913	238		15	253		17						236	2.4
1914	276		34	310		21						289	2.9
1915	373		18	391		55						336	3.3
1916	495		18	513		146						367	3.6
1917	645		30	675		278						397	3.8
1918	834		20	854		353						501	4.8
1919	1,194		16	1,210		543						667	6.3
1920	980	98	5	1,083	171	146						766	7.1
1921	1,028	171	2	1,201	152	206						843	7.7
1922	950	152	1	1,103	48	141						914	8.2
1923	1,253	48	2	1,303	156	148						999	8.9
1924	1,190	156	2	1,348	102	154						1,092	9.5
1925	1,202	102	1	1,305	126	116						1,063	9.1
1926	1,158	126	1	1,285	71	88						1,126	9.5
1927	1,274	71	2	1,347	140	81						1,126	9.4
1928	1,337	140	1	1,478	153	89						1,236	10.1
1929	1,500	153	2	1,655	212	82						1,361	11.1
1930	1,449	212		1,661	202	74						1,385	11.2
1931	1,429	202	1	1,632	132	72						1,428	11.4
1932	1,571	132		1,703	100	55						1,548	12.3
1933	1,717	100		1,817	210	50						1,557	12.3
1934	1,712	210		1,922	157	56						1,709	13.4
1935	1,839	157		1,996	73	56						1,867	14.6
1936	2,044	73		2,117	259	48						1,810	14.0
1937	1,903	259		2,162	182	50						1,930	14.9
1938	2,104	182		2,286	205	52						2,029	15.5

1939	2,171	205	----	2,376	186	58	----	----	----	----	----	2,132	16.2
1940	2,465	186	----	2,651	188	148	----	----	----	----	----	2,315	17.4
1941	3,247	188	----	3,435	328	147	----	82	495	577	165	2,218	16.7
1942	3,519	328	----	3,847	83	50	82	813	378	1,109	432	2,173	16.3
1943	3,057	83	----	3,140	184	23	813	281	594	62	661	2,210	17.1
1944	3,428	184	----	3,612	143	29	281	146	587	452	1,218	1,770	13.7
1945	3,776	143	5	3,924	72	87	146	[4]463	527	844	816	2,105	16.2
1946	3,051	72	1	3,124	129	188	[4]463	26	827	390	51	2,366	17.0
1947	3,208	129	----	3,337	159	444	26	----	76	50	88	2,596	18.1
1948	3,383	159	----	3,542	425	256	----	1	76	77	113	2,671	18.3
1949 [5]	2,756	425	----	3,181	243	231	1	----	40	39	38	2,630	17.7

[1] For the years 1909–18 annual production estimates were interpolated on the basis of Census of Manufactures data for 1909 and 1914. For 1910–49 the total output is as published by the Bureau of Agricultural Economics in Production of Manufactured Dairy Products.

[2] Manufacturers' stocks as published by BAE in Evaporated, Condensed, and Dry Milk Report.

[3] Based on data reported by the Department of Commerce and, during World War II, by the U. S. Department of Agriculture.

[4] Includes 347,000,000 pounds transferred to the U. S. Department of Agriculture and 4,000,000 transferred to the United Nations Relief and Rehabilitation Association from military stocks in 1946.

[5] Preliminary.

TABLE 75.—*Dry whole milk: Supply and distribution, United States, 1910–49*

Year	Supply				Distribution								
							Department of Agriculture				Domestic disappearance		
	Production [1]	Beginning commercial stocks [2]	Imports [3]	Total supply	Ending commercial stocks [2]	Commercial exports and shipments [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Civilian	Civilian, per capita
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*
1910	1			1								1	0.01
1911	1			1								1	.01
1912	2			2								2	.02
1913	3			3								3	.03
1914	4			4								4	.04
1915	4			4								4	.04
1916	4			4								4	.04
1917	4			4								4	.04
1918	4			4								4	.04
1919	9			9								9	.08
1920	10			10		2						8	.07
1921	4	1		5	1	5						[4] −1	
1922	6	1		7	1	4						2	.02
1923	7	1	1	9	1	1						7	.06
1924	8	1	1	10	1	3						6	.05
1925	9	1	1	11	1	2						8	.07
1926	11	1	2	14	1	2						11	.09
1927	11	1	3	15	1	2						12	.10
1928	10	1	3	14	2	2						10	.08
1929	13	2	3	18	3	3						12	.10
1930	15	3	1	19	4	4						11	.09
1931	13	4		17	2	7						8	.06
1932	12	2		14	3	2						9	.07
1933	13	3		16	3	2						11	.09
1934	16	3		19	2	2						15	.12
1935	19	2	2	23	3	3						17	.13
1936	18	3	4	25	4	3						18	.14
1937	14	4	2	20	3	3						14	.11
1938	21	3		24	4	5						15	.11
1939	24	4		28	4	7						17	.13
1940	29	4		33	5	9						19	.14
1941	46	5		51	6	16					8	21	.16
1942	62	6		68	7	12			3	3	20	26	.20

1943	138	7	----------	145	8	12	----------	12	29	41	34	50	.39
1944	178	8	----------	186	16	14	12	12	36	36	76	44	.34
1945	217	16	----------	233	12	23	12	[5] 55	47	90	60	48	.37
1946	188	12	----------	200	18	61	[5] 55	5	93	43	7	71	.51
1947	165	18	----------	183	12	95	5	2	10	7	4	65	.45
1948	170	12	----------	182	18	97	2	----------	15	13	12	42	.29
1949 [6]	130	18	----------	148	11	94	----------	----------	----------	----------	2	41	.28

[1] For period 1910–17 annual output approximated on basis of Census of Manufactures data for 1914 and the Bureau of Agricultural Economics estimate for 1918. Production for the years 1918 to date are as reported by the Bureau of Agricultural Economics in Production of Manufactured Dairy Products.

[2] Manufacturers' stocks as published by Bureau of Agricultural Economics in Evaporated, Condensed, and Dry Milk Report.

[3] For the years 1920–31 the Department of Commerce reported a composite figure on milk and cream, powdered or dried. For this period, exports of dry whole milk were assumed to be 57 percent of the reported composite, the ratio which dry whole represented of the total of dry whole and dry skim in 1932–34. Likewise, shipments of dry whole for the period 1928–31 were assumed to be 39 percent of the combined shipments of dried whole and skim milk, the relationship which prevailed when the items were reported separately in 1932–34. Imports are "imports for consumption."

[4] Exports and change in stocks exceed production by 1,000,000 pounds.

[5] Includes 36,000,000 pounds transferred to U. .S Department of Agriculture from military stocks.

[6] Preliminary.

TABLE 76.—*Nonfat dry milk solids: Supply and distribution, United States, 1920–49*

Year	Supply				Distribution									
							Department of Agriculture				Domestic disappearance			
	Production [1]	Beginning commercial stocks [2]	Imports [3]	Total supply	Ending commercial stocks [2]	Commercial exports and shipments [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases for export	Military	Civilian	Civilian per capita	
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*	
1920	27			27		1						26	.2	
1921	25			25		4						21	.2	
1922	26		1	27		3						24	.2	
1923	40		2	42		1						41	.4	
1924	45		1	46		2						44	.4	
1925	47		4	51		2						49	.4	
1926	60		4	64		1						63	.5	
1927	77		3	80		1						79	.7	
1928	96		1	97		2						95	.8	
1929	135			135		2						133	1.1	
1930	169	17		186	22	3						161	1.3	
1931	170	22		192	14	6						172	1.4	
1932	176	14		190	9	2						179	1.4	
1933	187	9		196	16	1						179	1.4	
1934	192	16		208	19	1						188	1.5	
1935	188	19		207	6	1						200	1.6	
1936	224	6	20	250	22	2						226	1.8	
1937	245	22	1	268	21	3						244	1.9	
1938	289	21		310	28	7						275	2.1	
1939	268	28	1	297	9	3						285	2.2	
1940	322	9		331	26	10						295	2.2	
1941	366	26		392	19	8		3	30	33	7	325	2.5	
1942	565	19		584	26	4	3	72	133	202	17	335	2.5	
1943	510	26		536	22	1	72	47	234	209	31	273	2.1	
1944	583	22		605	38	1	47	96	220	269	104	193	1.5	
1945	643	38		681	14	5	96	[4] 74	193	171	243	248	1.9	
1946	653	14		667	39	12	[4] 74	24	174	124	41	451	3.2	
1947	678	39		717	15	72	24	[5] 16	102	94	119	417	2.9	
1948	682	15	3	700	44	33	[5] 16	17	85	86	52	485	3.3	
1949 [6]	918	44	5	967	49	29	17	[7] 180	[8] 256	419	2	468	3.1	

[1] Production for food uses, prior to 1936, based on proportion produced for food in 1936–40 applied to data on total output as reported by BAE for 1920–35. Beginning with 1935, data are as published by the Bureau of Agricultural Economics in Production of Manufactured Dairy Products.

[2] Manufacturers' stocks as reported by BAE in Evaporated, Condensed, and Dry Milk Report.

[3] For the years 1920–31 the Department of Commerce reported a composite figure on milk and cream, powdered or dried. In this period, exports of dry skim milk were assumed to be 43 percent of the reported composite, the portion which dry skim represented of the total of dry whole and dry skim in 1932–34. Likewise, shipments of dry whole for the period 1928–31 were assumed to be 61 percent of the combined shipments of dried whole and dried skim milk, the relationship which prevailed when the items were reported separately in 1932–34. Imports were reported beginning in 1922 and have been "imports for consumption" for the entire period.

[4] Includes 12,000,000 pounds transferred to UNRRA and PMA from military stocks in 1946.

[5] Includes 4,700,000 pounds purchased by Dairy Products Marketing Association during 1947 and transferred to PMA during 1948.

[6] Preliminary.

[7] Quantity of unsold product in possession of USDA plus 10,000,000 pounds transferred to school-lunch program during 1949.

[8] Includes 105,000,000 pounds transferred to International Children's Emergency Fund, Dec. 12, but none of that amount estimated to have left country before end of year.

TABLE 77.—*Ice cream: Supply and distribution, United States, 1909–49*

Year	Net milk used				Product weight			
	Production [1]	Domestic disappearance			Production [2]	Domestic disappearance		
		Military	Civilian	Civilian, per capita		Military	Civilian	Civilian, per capita
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*
1909	279	----------	279	3.1	141	----------	141	1.5
1910	354	----------	354	3.8	179	----------	179	1.9
1911	429	----------	429	4.5	216	----------	216	2.3
1912	503	----------	503	5.2	254	----------	254	2.6
1913	578	----------	578	5.9	291	----------	291	3.0
1914	672	----------	672	6.7	338	----------	338	3.4
1915	811	----------	811	8.0	409	----------	409	4.0
1916	961	----------	961	9.3	484	----------	484	4.7
1917	1,100	----------	1,100	10.6	555	----------	555	5.3
1918	1,269	----------	1,269	12.0	640	----------	640	6.1
1919	1,343	----------	1,343	12.7	677	----------	677	6.4
1920	1,493	----------	1,493	13.9	754	----------	754	7.0
1921	1,493	----------	1,493	13.7	751	----------	751	6.9
1922	1,614	----------	1,614	14.6	813	----------	813	7.3
1923	1,819	----------	1,819	16.1	915	----------	915	8.1
1924	2,161	----------	2,161	18.8	912	----------	912	7.9
1925	2,551	----------	2,551	21.9	1,085	----------	1,085	9.3
1926	2,561	----------	2,561	21.7	1,077	----------	1,077	9.1
1927	2,698	----------	2,698	22.5	1,122	----------	1,122	9.4
1928	2,763	----------	2,763	22.8	1,136	----------	1,136	9.4
1929	3,046	----------	3,046	24.8	1,221	----------	1,221	10.0
1930	2,880	----------	2,880	23.3	1,132	----------	1,132	9.1
1931	2,479	----------	2,479	19.9	979	----------	979	7.8
1932	1,840	----------	1,840	14.6	727	----------	727	5.8
1933	1,751	----------	1,751	13.8	700	----------	700	5.5
1934	2,103	----------	2,103	16.5	844	----------	844	6.6
1935	2,343	----------	2,343	18.3	937	----------	937	7.3
1936	2,875	----------	2,875	22.3	1,145	----------	1,145	8.9
1937	3,317	----------	3,317	25.6	1,320	----------	1,320	10.2
1938	3,310	----------	3,310	25.3	1,325	----------	1,325	10.1
1939	3,568	----------	3,568	27.1	1,431	----------	1,431	10.9
1940	3,730	----------	3,730	28.1	1,495	----------	1,495	11.3
1941	4,540	118	4,422	33.3	1,834	47	1,787	13.5
1942	5,338	224	5,114	38.7	2,181	90	2,091	15.8
1943	4,550	880	3,670	28.3	1,935	352	1,583	12.2
1944	4,697	949	3,748	29.0	1,999	380	1,619	12.5
1945	5,130	1,100	4,030	31.0	2,144	440	1,704	13.1
1946	8,196	375	7,821	56.1	3,283	150	3,133	22.5
1947	7,491	300	7,191	50.1	2,902	120	2,782	19.4
1948	6,808	300	6,508	44.5	2,638	120	2,518	17.2
1949 [3]	6,640	300	6,340	42.7	2,547	120	2,427	16.3
1950	----------	----------	----------	----------	----------	----------	----------	----------

[1] The net amount of milk (equivalent) used in making ice cream (fat solids basis) has been estimated annually beginning with 1924 by the BAE by allowing for the total quantity of milk fat used in ice cream and approximate quantities supplied in form of butter and condensed whole milk.

[2] Output 1909–18 approximated on basis of the Census of Manufactures for 1914 and BAE estimates for 1919 and subsequent years. Production reported in gallons, converted to pounds assuming a gallon of ice cream weighed 4.7 pounds through 1943, 4.5 pounds in 1944 and 1945, and 4.6 pounds beginning 1946.

[3] Preliminary.

TABLE 78.—*Total milk and fluid milk and cream: Supply and distribution, United States, 1924–49* [1]

Year	Supply				Distribution														
									U. S. Department of Agriculture				Domestic disappearance						
													Total milk			Use as fluid milk and cream			
	Production [2]	Beginning commercial stocks	Imports	Total supply	Ending commercial stocks	Commercial exports and shipments	Fed to calves	Other uses [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Civilian consumption	Per capita [4] consumption	Military	Civilian consumption	Per capita consumption [5]
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*
1924	93,660	1,650	946	96,256	2,261	829	2,742	40						90,384	787		39,822	347
1925	94,940	2,261	749	97,950	2,168	566	2,784	40						92,392	792		40,422	347
1926	97,404	2,168	906	100,478	1,631	536	2,858	40						95,413	807		41,065	347
1927	99,018	1,631	950	101,599	1,951	483	2,901	40						96,224	803		41,587	347
1928	99,367	1,951	902	102,220	2,151	518	2,944	60						96,547	796		42,270	348
1929	102,133	2,151	810	105,094	3,055	510	3,012	60						98,457	803		43,084	351
1930	102,984	3,055	697	106,736	2,614	449	2,986	40						100,647	813		43,273	350
1931	105,855	2,614	641	109,110	1,662	441	2,997							104,010	833		43,316	347
1932	106,636	1,662	560	108,858	1,405	337	2,859							104,257	830		44,069	351
1933	107,588	1,405	474	109,467	3,661	291	2,878							102,637	813		44,065	349
1934	104,447	3,661	472	108,580	2,358	322	2,688							103,212	812		42,287	333
1935	104,031	2,358	939	107,328	2,010	343	2,676							102,299	799		42,974	336
1936	105,236	2,010	812	108,058	2,935	298	2,755							102,070	792		43,925	341
1937	104,734	2,935	820	108,489	2,332	318	2,724							103,115	796		44,253	341
1938	108,633	2,332	551	111,516	4,286	374	2,850							104,006	796		44,358	339
1939	109,618	4,286	585	114,489	2,632	421	2,967							108,469	824		45,223	343
1940	112,328	2,632	337	115,297	2,586	739	2,994							108,978	821		45,582	343
1941	118,094	2,586	272	120,952	4,643	985	3,124			743	1,998	2,741	2,290	107,169	808	244	46,639	352
1942	121,710	4,643	632	126,985	1,918	504	3,294		743	1,978	4,204	5,439	4,781	111,049	839	438	49,068	371
1943	120,611	1,918	299	122,828	1,960	314	3,276		1,978	4,649	5,072	7,743	10,760	98,775	762	1,528	51,087	394
1944	120,818	1,960	126	122,904	1,614	376	3,270		4,649	1,006	6,466	2,823	14,750	100,071	775	1,647	53,038	411

Footnotes at end of table, p. 2074.

TABLE 78.—*Total milk and fluid milk and cream: Supply and distribution, United States, 1924–49* [1]—Continued

Year	Supply				Distribution														
									U. S. Department of Agriculture				Domestic dsappearance						
													Total milk			Use as fluid milk and cream			
	Production [2]	Beginning commercial stocks	Imports	Total supply	Ending commercial stocks	Commercial exports and shipments	Fed to calves	Other uses [3]	Beginning stocks	Ending stocks	Deliveries	Net purchases	Military	Civilian consumption	Per capita [4] consumption	Military	Civilian consumption	Per capita consumption [5]
	Mil. lb.	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*	*Mil. lb.*	*Mil. lb.*	*Lb.*
1945	124,330	1,614	169	126,113	1,687	703	3,335	----	1,006	2,387	4,461	5,842	10,236	104,310	804	1,600	56,071	432
1946	122,539	1,687	342	124,568	2,118	1,215	3,255	----	2,387	190	4,861	2,664	2,122	113,194	813	375	58,943	423
1947	121,891	2,118	166	124,175	2,411	3,711	3,228	----	190	15	698	523	1,404	112,898	787	250	57,045	398
1948	118,353	2,411	230	120,994	3,200	2,760	3,109	----	15	2	285	272	1,951	109,702	750	250	56,564	387
1949 [6]	121,962	3,200	308	125,470	2,854	2,581	3,219	----	2	2,372	86	2,456	1,448	112,912	760	300	57,180	385

[1] Milk equivalent of milk and cream and manufactured dairy products, including butter, computed on basis of fat content.
[2] Production on farms plus allowance for milk produced by cows not on farms.
[3] Milk equivalent of butter used in making margarine.
[4] Tentative approximations to the per capita consumption levels for total milk from 1909–23 are as follows:

	Pounds		*Pounds*		*Pounds*
1909	763	1914	740	1919	727
1910	752	1915	745	1920	729
1911	743	1916	741	1921	761
1912	757	1917	723	1922	775
1913	748	1918	719	1923	780

[5] Tentative approximations to the per capita consumption levels for fluid milk and cream from 1909–23 are as follows:

	Pounds		*Pounds*		*Pounds*
1909	351	1914	329	1919	343
1910	323	1915	326	1920	356
1911	309	1916	323	1921	354
1912	363	1917	336	1922	350
1913	350	1918	369	1923	336

[6] Preliminary.

TABLE 79.—*Oleomargarine: Production as reported to the U. S. Department of Agriculture, and per capita consumption, United States, 1917–49*

Year	Made from vegetable oils			Made from mixtures of vegetable and animal oils			Total	Civilian consumption, per person
	Uncolored	Colored	Total	Uncolored	Colored	Total		
	1,000 lb.	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*1,000 lb.*	*Lb.*
1917	21,803	1	21,804	262,004	6,895	268,899	290,703	2.7
1918	89,133	118	89,251	258,004	7,136	265,140	354,391	3.3
1919	132,906	9,793	142,699	218,151	10,468	228,619	371,318	3.3
1920	189,829	5,338	195,167	163,391	8,928	172,319	367,486	3.4
1921	99,265	2,026	101,291	104,587	5,989	110,576	211,867	2.0
1922	74,126	1,384	75,510	104,588	4,977	109,565	185,075	1.7
1923	93,971	2,808	96,779	121,721	7,078	128,799	225,578	2.0
1924	97,871	3,005	100,876	120,053	7,847	127,900	228,776	2.0
1925	108,490	4,215	112,705	109,663	8,243	117,906	230,611	2.0
1926	116,215	4,934	121,149	108,870	8,575	117,445	238,594	2.0
1927	148,576	5,047	153,623	109,471	9,508	118,979	272,602	2.3
1928	190,788	5,525	196,313	101,732	9,889	111,621	307,934	2.6
1929	215,460	6,172	221,632	109,502	11,096	120,598	342,230	2.9
1930	211,130	4,749	215,879	87,017	8,859	95,876	311,755	2.6
1931	162,931	2,150	165,081	52,876	3,996	56,872	221,953	1.8
1932	155,674	971	156,645	38,604	2,467	41,071	197,716	1.6
1933	199,008	703	199,711	40,719	1,801	42,520	242,231	1.9
1934	207,468	792	208,260	52,511	2,129	54,640	262,900	2.1
1935	329,764	936	330,700	46,087	1,890	47,977	378,677	3.0
1936	340,137	1,252	341,389	48,090	1,419	49,509	390,898	3.0
1937	349,477	955	350,432	40,320	748	41,068	391,500	3.1
1938	340,300	1,026	341,326	38,267	500	38,767	380,093	2.9
1939	265,901	1,045	266,946	34,492	392	34,884	301,830	2.3
1940	277,375	1,942	279,317	40,881	474	41,355	320,672	2.4
1941	309,771	3,725	313,496	50,661	1,052	51,713	365,209	2.7
1942	305,650	61,215	366,865	53,759	2,653	56,412	423,277	2.7
1943	447,883	108,526	556,409	45,765	7,957	53,722	610,131	3.9
1944	446,312	92,925	539,237	33,875	10,654	44,529	583,766	3.8
1945	490,881	89,124	580,005	24,438	9,540	33,978	613,983	4.0
1946	498,419	56,379	554,798	16,321	1,533	17,854	572,652	3.8
1947	661,411	55,725	717,136	20,919	654	21,573	738,709	5.0
1948	764,577	90,943	855,520	18,349	727	19,076	874,596	6.1
1949	647,072	167,829	814,901	20,860	1,254	22,114	837,015	5.7

Production compiled from Margarine Production, Production and Marketing Administration; civilian consumption computed from data on withdrawals for consumption as reported by the Bureau of Internal Revenue.

TABLE 80.—*Total supply and utilization of milk in the United States, 1924–49*

[In millions of pounds]

Item	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Milk production by cows on farms	89,240	90,699	93,325	95,172	95,843	98,988	100,158	103,029	103,810	104,762	101,621	101,205	102,410
Total[2]	93,660	94,940	97,404	99,018	99,367	102,133	102,984	105,855	106,636	107,588	104,447	104,031	105,236
Utilization (milk equivalent):													
Manufactured in plants:													
Creamery butter:													
Total	29,259	29,593	31,229	31,801	31,243	32,517	32,516	33,905	34,386	35,813	34,424	33,100	33,096
From whey cream	333	351	337	319	341	342	354	348	340	382	406	435	449
Net	28,926	29,242	30,892	31,482	30,902	32,175	32,162	33,557	34,046	35,431	34,018	32,665	32,647
Cheese:													
American	4,749	5,002	4,798	4,544	4,865	3,833	3,904	3,853	3,801	4,210	4,472	4,813	4,983
Other						1,061	1,157	1,122	1,082	1,259	1,354	1,424	1,463
Canned milk:													
Evaporated	2,558	2,585	2,491	2,739	2,875	3,223	3,113	3,072	3,377	3,694	3,677	3,947	4,385
Sweetened condensed	412	411	341	355	306	321	267	213	155	119	134	117	104
Bulk condensed milk:													
Unsweetened	202	277	212	247	218	372	312	269	235	213	226	250	316
Sweetened	103	97	121	86	84	112	136	99	92	89	94	80	108
Dry whole milk	60	68	82	87	73	101	118	96	91	97	121	156	137
Miscellaneous products[3]	62	55	61	66	69	67	68	54	36	36	37	43	53
Ice cream:													
Total	2,722	3,213	3,226	3,399	3,480	3,809	3,602	3,130	2,326	2,226	2,680	2,973	3,629
Fat from other products[4]	561	662	665	701	717	763	722	651	486	475	577	630	754
Net from milk and cream	2,161	2,551	2,561	2,698	2,763	3,046	2,880	2,479	1,840	1,751	2,103	2,343	2,875
Total factory products[6]	39,233	40,288	41,559	42,304	42,155	44,311	44,117	44,814	44,755	46,899	46,236	45,838	47,071
Used for farm butter	13,245	12,736	12,734	12,436	11,793	11,046	10,647	11,061	11,820	11,798	11,343	10,931	10,163
Consumed as milk or cream:													
In cities and villages	27,981	28,760	29,559	30,272	31,063	32,152	32,066	31,403	31,562	31,281	29,514	30,564	31,848
On farms where produced	11,841	11,662	11,506	11,315	11,207	10,932	11,207	11,913	12,507	12,784	12,773	12,410	12,077
Fed to calves	2,742	2,784	2,858	2,901	2,944	3,012	2,986	2,997	2,859	2,878	2,688	2,676	2,755
To balance[7]	(8)	(8)	(8)	(8)	205	680	1,961	3,667	3,133	1,948	1,893	1,612	1,322

See footnotes at end of table, p. 2077.

Item	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	[1] 1949
Milk production by cows on farms	101,908	105,807	106,792	109,502	115,268	118,884	117,785	117,992	121,504	119,713	119,065	115,527	119,136
Total [2]	104,734	108,633	109,618	112,328	118,094	121,710	120,611	120,818	124,330	122,539	121,891	118,353	121,962
Utilization (milk equivalent):													
Manufactured in plants:													
Creamery butter:													
Total	32,927	36,191	36,167	37,349	38,077	35,938	34,460	30,620	28,065	24,145	27,430	24,974	29,070
From whey cream	453	506	495	548	665	775	698	713	780	772	830	768	840
Net	32,474	35,685	35,672	36,801	37,412	35,163	33,762	29,907	27,285	23,373	26,600	24,206	28,230
Cheese:													
American	4,999	5,697	5,459	6,115	7,612	9,247	7,743	8,090	8,777	8,058	9,393	8,563	9,340
Other	1,485	1,553	1,632	1,747	1,945	1,874	2,179	2,045	2,346	2,894	2,381	2,330	2,540
Canned milk:													
Evaporated	4,065	4,490	4,636	5,266	7,023	7,592	6,594	7,384	8,147	6,567	6,899	7,271	5,890
Sweetened condensed	105	91	76	137	268	147	278	330	339	269	389	295	250
Bulk condensed milk:													
Unsweetened	325	314	260	312	278	307	249	289	310	237	423	539	610
Sweetened	104	103	119	165	172	163	145	138	167	151	179	98	80
Dry whole milk	103	162	185	223	347	474	1,052	1,355	1,650	1,421	1,250	1,293	980
Miscellaneous products [3]	55	42	54	54	63	94	196	514	720	552	515	559	550
Ice cream:													
Total	4,186	4,185	4,519	4,712	5,754	6,795	[5] 5,376	[5] 5,556	[5] 6,056	[5] 9,703	[5] 8,837	[5] 8,031	[5] 7,830
Fat from other products [4]	869	875	951	982	1,214	1,457	826	859	926	1,507	1,346	1,223	1,190
Net from milk and cream	3,317	3,310	3,568	3,730	4,540	5,338	[5] 4,550	[5] 4,697	[5] 5,130	[5] 8,196	[5] 7,491	[5] 6,808	[5] 6,640
Total factory products [6]	47,032	51,447	51,661	54,550	59,660	60,399	56.748	54,749	54,871	51,718	55,520	51,962	55,110
Used for farm butter	9,548	9,173	8,653	8,129	7,967	7,365	6,851	6,608	6,755	6,630	6.268	5,928	5,605
Consumed as milk or cream:													
In cities and villages	32,298	32,408	33,056	33,519	34,863	37,650	41,000	43,000	46,000	47,000	45,000	44,500	45,000
On farms where produced	11.955	11,950	12,167	12,063	12,020	11,856	11,615	11.685	11,671	12,318	12,295	12,314	12,480
Fed to calves	2,724	2,850	2,967	2,994	3,124	3,294	3,276	3,270	3,335	3,255	3,228	3,109	3,219
To balance [7]	1,177	805	1,114	1,073	460	1,146	1,121	1,506	1,698	1,618	—420	540	548

Current data for this table published annually in "Farm Production, Disposition, and Income from Milk" issued in April of each year.

[1] Preliminary.

[2] Includes allowance for milk produced by cows not on farms.

[3] For 1945 and earlier years includes dry cream, malted milk, dry part-skim milk and dry ice cream mix; for 1946 and later years, whole milk equivalent of the fat in cottage cheese.

[4] Milk equivalent of butter and condensed milk used in ice cream.

[5] Includes milk sherbets and ice milk not computed prior to 1943.

[6] Includes net milk equivalents on butter and frozen dairy products to avoid double counting of milk from which fat was reused in making a second dairy product.

[7] Residual, including miscellaneous minor uses; net imports, exports and year-end carry-over of milk and cream, as well as any inaccuracies of independently determined use estimates.

[8] The balance item represents a small negative figure in these years.