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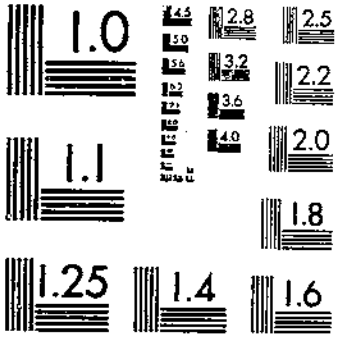

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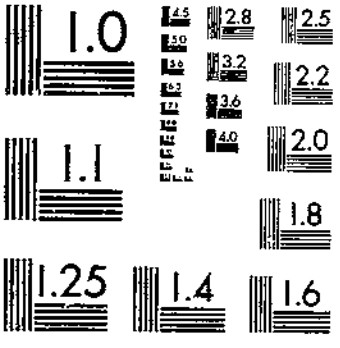

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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MARKET DISTRIBUTION OF CAR-LOT SHIPMENTS OF FRUITS AND VEGETABLES IN THE UNITED STATES

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INTRODUCTION

Approximately a million carloads of fruits and vegetables were shipped annually in the United States during the 10 years ended in 1931. In 1932 and 1933 car-lot shipments fell somewhat below the million mark. The distribution among the markets of these vast quantities of perishable-food products presents many problems. Loss from spoilage and deterioration is likely to result from delay in handling. Sharp price declines are frequently caused by rapid increases in market supplies. The fact that control of shipments is usually in the hands of a number of agencies acting independently adds to the difficulty of obtaining efficient distribution.

The purpose of this study is to analyze the available statistics on market distribution of car-lot shipments. The relative importance of markets is considered according to location, population, and commodity. The regularity of distribution to various markets, the distance of origin of supply from important markets, the relative importance of various commodities in the supply of different cities, and other pertinent phases are discussed.

Cooperative marketing associations and other shippers are constantly canvassing the possibilities of developing new market outlets and seeking means of obtaining a more effective distribution. Information of this kind should be helpful to these agencies in studying

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the available markets with a view to obtaining the most satisfactory market distribution of the crops in which they are interested.

In addition to car-lot shipments, immense quantities of fruits and vegetables are moved to market by motor truck. It was estimated that in 1929 from 12 to 16 percent of the fresh fruit and vegetable supplies moving a distance of more than 20 miles to market in the United States was hauled by truck. Since then motor-truck shipments have increased and in 1932, records of receipts in 10 large cities indicated that approximately one-third of the total fruit and vegetable supply in these markets, including nearby production, was moved by motor truck.

The motor-truck movement is particularly important from producing districts within 100 miles of large markets, but large quantities are trucked more than 100 miles. However, the great volume of fruits and vegetables that move distances of 500 miles or more to market is still hauled by rail. Even under the conditions of the last few years in the United States, it seems probable that roughly 75 percent of the fruit and vegetable shipments moving 20 miles or more to market, were hauled by rail or boat.

A large part of the fruit and vegetable movement from producing districts to small markets within trucking distance of large cities which formerly was shipped by rail direct is now shipped to the large markets by rail and distributed to the smaller markets by truck. Dealers in these small markets have found that there is considerable risk in purchasing a car lot of a commodity. It may require several days to sell the car-lot purchase and in the meantime the price in the nearby large market may drop sharply, thus forcing a reduction in price of the unsold portion of the car-lot shipment, because of competition of supplies trucked in from the large car-lot market. The use of the truck has probably resulted in a wider distribution of some fruits and vegetables among the villages and in rural districts.

Statistics on motor-truck shipments of fruits and vegetables are not available for most producing districts, and estimates of motor-truck receipts are available for only a limited number of markets. This study, therefore, deals largely with the analysis of car-lot shipment and unload data. Such information as is available on motor-truck movement is used in a supplemental way in explaining the statistics relating to car-lot distribution.

The 1931 car-lot shipments of 1,013,000 cars were 5 percent less than the 1929 shipments, and in 1930 also, the shipments were slightly less than in 1929. There was a pronounced decrease in car-lot shipments in 1932 and 1933 to 835,000 and 787,000 cars respectively. A part of this decrease in rail shipments in those 2 years was undoubtedly due to an increase in truck movement. For example, in New York City, rail and boat unloads in 1933 were 20 percent less than in 1931, whereas total unloads including rail, boat, and truck were only 15 percent less than in 1931.

This study is based chiefly on an analysis of shipment figures for 1930 and 1931, since these 2 years are presumed to be fairly representative of conditions during the last 5 years.

Imports of fruits and vegetables in 1931 amounted to 2 to 3 percent of the domestic car-lot shipments. Leading items in the im-

ports were grapefruit, tomatoes, and potatoes. Data on imports are excluded in this study when market receipts are compared with shipments.

The figures on car-lot shipments and unloads are from the records of the Bureau of Agricultural Economics. Domestic shipments by boat stated in car lots are included in the car-lot shipment statistics. The unload data used in the distribution analysis are chiefly on 16 important fruits and vegetables which comprised about 85 percent of the domestic car-lot rail and boat shipments of all fresh fruits and vegetables in both 1930 and 1931. The market-news price statistics of the Bureau of Agricultural Economics are used in a few instances to illustrate points regarding distribution.

LOCATION OF PRODUCING AREAS

Fresh fruits and vegetables for market are produced generally throughout the United States. Every State in 1930, originated car-lot shipments of one or more fruits or vegetables. A few States, however, contribute a large part of the total supply (table 1). Many of the important producing States are located at long distances from the leading markets.

TABLE 1.—*Car-lot shipments of fruits and vegetables, and percentage of total shipments by States, 1930*

State of origin	Shipments		State of origin	Shipments	
	Cars	*Percent*		*Cars*	*Percent*
Alabama	6,809	0.6	Nevada	629	0.1
Arizona	16,835	1.6	New Hampshire	846	.1
Arkansas	3,846	.4	New Jersey	11,796	1.1
California	305,897	29.0	New Mexico	354	.1
Colorado	35,563	3.4	New York	66,188	6.3
Connecticut	141	(1)	North Carolina	16,604	1.6
Delaware	3,234	.3	North Dakota	5,365	.5
Florida	95,189	9.0	Ohio	4,488	.4
Georgia	36,775	3.5	Oklahoma	3,572	.3
Idaho	32,449	3.1	Oregon	17,069	1.6
Illinois	5,728	.5	Pennsylvania	5,728	.5
Indiana	10,169	1.0	Rhode Island	2	(1)
Iowa	3,388	.3	South Carolina	17,438	1.7
Kansas	4,555	.4	South Dakota	840	.1
Kentucky	1,338	.1	Tennessee	8,978	.9
Louisiana	9,022	.9	Texas	53,727	5.1
Maine	58,298	5.5	Utah	3,912	.4
Maryland	7,372	.7	Vermont	712	.1
Massachusetts	4,098	.4	Virginia	43,776	4.2
Michigan	16,752	1.6	Washington	66,892	6.3
Minnesota	20,354	1.9	West Virginia	3,743	.4
Mississippi	6,504	.6	Wisconsin	19,088	1.8
Missouri	5,524	.5	Wyoming	2,211	.2
Montana	858	.1			
Nebraska	7,915	.8	Total	1,053,601	100.0

(1) Less than 0.05 percent.

LOCATION OF IMPORTANT MARKETS

The principal markets are in the northern part of the United States east of the Mississippi River. Slightly more than one-half of the population of the United States is in the region east of the Mississippi and north of the Ohio and Potomac Rivers. This region

includes many large cities and industrial centers that are consuming markets for immense supplies of fruits and vegetables.

The Middle Atlantic States, consisting of New York, New Jersey, and Pennsylvania, and including a population of 26,000,000, comprise the most important consuming region. The East North Central States of Ohio, Indiana, Illinois, Michigan, and Wisconsin with a population of 25,000,000 are second in importance as a consuming region.

Car-lot unload statistics of fruits and vegetables are not available for all markets so it is impossible to make a complete analysis of the market distribution of car-lot shipments. Car-lot unload reports of the Bureau of Agricultural Economics are available, however, for 66 markets throughout the country; reports of the Pennsylvania Department of Agriculture for unloads in three additional cities were used in the study (fig. 1). These markets include the larger cities, and have a total population of about 33,000,000. Including the metropolitan

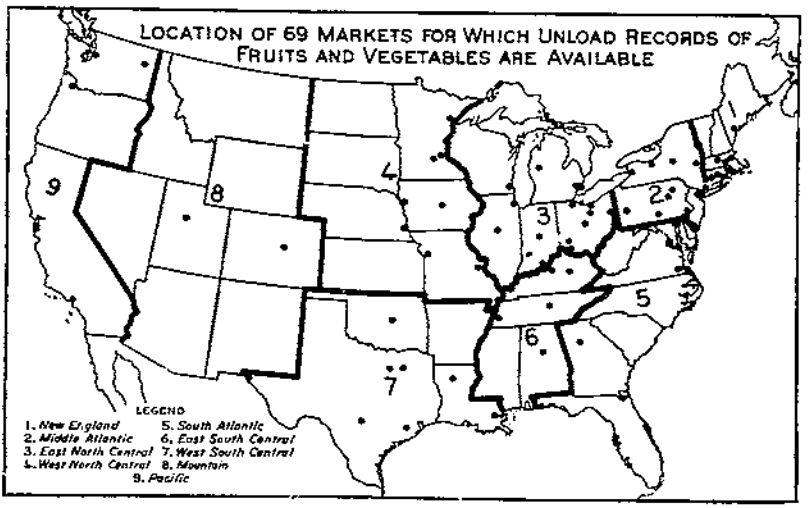

FIGURE 1.—These 69 markets, with a total metropolitan population of nearly 50,000,000, located in all nine geographic divisions, received about two-thirds of the United States car-lot shipments of 16 fruits and vegetables in 1930 and 1931.

population adjacent to these cities the population represented is about 49,000,000. The total population in places of 8,000 or more inhabitants in the United States, according to the 1930 census, was about 60,000,000.

Table 2 shows, by geographic divisions, the proportion of United States car-lot shipments of 16 fruits and vegetables which was unloaded in cities for which records were available in 1930. The car-lot unloads in 69 cities ranged from 49 percent of the United States car-lot shipments of apples to 90 percent of the grapefruit. For the 16 fruits and vegetables the ratio was 67 percent. Although this table does not present a complete picture of the geographical distribution of these commodities, it gives a fair idea of the relative importance of the various regions as consuming markets for car-lot shipments.

TABLE 2.—*Ratio of car-lot unloads, in 69 markets classified by geographical divisions, to United States car-lot shipments, 16 fruits and vegetables, 1930*

Commodity	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	Total
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Apples	1.9	16.4	13.6	4.7	2.2	1.9	2.2	0.5	5.8	49.2
Cabbage	4.8	25.2	15.2	6.3	8.4	3.9	2.6	.4	.7	67.5
Cantaloups [1]	7.7	40.5	20.5	5.6	3.7	1.0	.8	1.0	5.0	85.8
Celery	5.8	33.0	18.2	7.6	6.8	1.9	3.4	.2	3.2	80.7
Grapefruit	7.8	31.9	22.0	7.2	11.0	2.3	2.5	1.2	4.4	90.3
Grapes	9.6	39.9	14.3	4.0	1.9	.7	1.3	.6	5.3	77.6
Lemons	5.2	20.5	20.4	8.6	4.7	3.3	6.3	1.4	4.6	75.0
Lettuce	5.8	30.5	20.0	7.1	5.0	2.0	4.3	1.4	4.7	80.8
Onions	7.9	27.7	16.5	5.0	5.2	2.4	4.2	.3	5.0	74.2
Oranges [2]	9.2	32.9	19.1	5.0	4.8	2.0	2.7	.9	3.8	80.4
Peaches [3]	5.0	28.6	20.8	7.0	3.2	1.1	1.5	.9	7.0	75.1
Potatoes	5.3	16.8	17.7	4.4	3.2	1.6	2.5	.4	5.4	57.3
Strawberries	10.5	24.2	27.9	6.4	1.5	.8	1.0	1.1	1.2	74.6
Sweetpotatoes	6.8	20.0	24.4	4.4	7.1	1.8	3.2	1.2	4.6	73.5
Tomatoes	7.6	31.8	15.8	3.8	6.0	2.2	2.8	1.0	2.1	73.1
Watermelons	2.5	14.7	16.9	6.0	6.2	3.9	2.4	.8	5.8	59.2
Average	5.8	24.4	17.5	5.2	4.2	1.9	2.6	.7	4.8	67.1

[1] Includes casaba, Honey Ball, Honey Dew, and Persian melons, etc.
[2] Includes satsumas and tangerines.
[3] Percentages are based on peach shipments of 24,291 cars; this excludes shipments to canneries.

Considering briefly the geographic distribution of car-lot shipments of certain commodities, we find that the most important apple markets are in the Middle Atlantic and East North Central States where the recorded unloads were 16 and 14 percent respectively of the Nation's car-lot shipments. Forty percent of the car-lot shipments of cantaloups were recorded as unloads in cities in the Middle Atlantic States and 20 percent in the East North Central States. Grapes also show a high percentage of the shipments unloaded in the Middle Atlantic States.

Strawberries are trucked to market in large quantities from important producing sections serving the Middle Atlantic markets and the East North Central group of States is slightly more important as a consuming region for car-lot shipments of strawberries than is the Middle Atlantic region.

The development of the fruit and vegetable industries in the leading producing States—as California, Florida, Texas, and Washington—has been possible because transportation and refrigeration facilities permitted the shipment of these perishable products long distances to the important markets in the northeastern section of the United States.

The estimated average distances from market of the origin of car-lot shipments of 19 fruits and vegetables unloaded in New York City in 1930 are shown in table 3. Since the car-lot unloads in New York constituted more than 85 percent of the fruit and vegetable supply on the New York City jobbing markets in 1931, this distance of more than 1,400 miles as the average car-lot haul for fruits and vegetables to the New York market indicates the large extent to which the metropolis is dependent on distant producing areas for its food supply. Similar conditions apply in many other important markets in the northeastern part of the country.

TABLE 3.—*Average distance of origin of car-lot unloads of 19 fruits and vegetables at New York, 1930*

Commodity	Estimated average distance	Commodity	Estimated average distance
	Miles		*Miles*
Apples	1,321	Peaches	915
Cabbage	571	Pears	2,303
Cantaloups	2,369	Plums	2,293
Celery	1,102	Potatoes	399
Grapefruit	1,012	Strawberries	871
Grapes	2,414	Sweetpotatoes	424
Lemons	2,500	Tangerines	1,000
Lettuce	1,814	Tomatoes	1,262
Onions	904	Watermelons	793
Oranges	1,873	Average	[1] 1,436

[1] Average weighted according to number of cars of each commodity unloaded in New York.

FLUCTUATIONS IN DAILY MARKET SUPPLIES AS MEASURED BY PRICE

Under the present system of marketing, the control of shipments of fruits and vegetables in most instances is divided among a number of shippers which makes it very difficult to obtain the best possible distribution among the various markets. The shippers may be cooperative associations, national marketing agencies, local dealers, or city dealers usually acting independently of each other. The market-news facilities with information on number of car-lot shipments, destinations in some instances, market supply, and price data, are of assistance in the distribution of fruits and vegetables, but without centralized control of shipments it would not be expected that the most efficient distribution would result.

Much has been written concerning market gluts and irregularities in the distribution of fruits and vegetables. There are many instances during a season in which it apparently would be possible to have a more even flow of a product to market, and to regulate the supply so as to obtain more satisfactory returns to the shippers, if there were centralized control of a large part of the shipments of the commodity. On the whole, however, variations in supply on the markets from day to day are not so great as might be expected.

It is extremely difficult to obtain exact figures on the supply from day to day because of quantities held over by wholesalers and retailers, and because of motor-truck receipts. The jobbing prices on the markets are general indicators of the fluctuations in supply from day to day, assuming that the demand remains fairly constant. This is particularly true of the more perishable commodities, such as peaches and strawberries.

Tables 4 and 5 show the daily averages of market-news prices of Georgia peaches and Louisiana strawberries in certain markets during the principal part of the 1931 season. For peaches, the changes from one daily price to the next varied from 0 to 30 cents per bushel. In Pittsburgh, the price rose from $1.12 per bushel on August 7 to $1.42 on August 8, a 27-percent change (table 4). The average change was approximately 9 percent.

TABLE 4.—*Daily price per bushel to jobbers for Georgia Elberta peaches, specified markets, July 23 to August 10, 1931* [1]

Date	New York	Philadelphia	Pittsburgh	Chicago	Date	New York	Philadelphia	Pittsburgh	Chicago
July 23	$1.44	$1.25	$1.52	$1.75	Aug. 1	$0.94	$0.80	----------	$1.12
24	1.25	1.00	1.38	1.58	3	.94	.88	$1.08	1.18
25	1.25	----------	1.50	1.58	4	----------	1.12	1.02	1.18
27	1.18	1.20	1.32	1.48	5	1.12	1.08	1.03	----------
28	1.18	1.10	1.32	1.38	6	1.06	1.08	1.12	1.38
29	1.00	1.12	1.12	1.12	7	1.12	.95	1.12	1.32
30	1.25	.88	1.12	1.25	8	1.18	----------	1.42	1.32
31	1.00	----------	1.25	1.12	10	1.24	1.00	1.28	1.38

[1] Grade U.S. No. 1, all sizes. When the original prices included a range, the mid point is shown in this tabulation.

Relative to this average price change from day to day, it should be kept in mind that there is usually an increase in supply as the season progresses and as various districts begin to ship. This results in a downward trend in price, which for the peach prices shown in table 4 would average a little more than 1 percent decline per day. It is also to be kept in mind that price changes are not an exact measure of supply changes, chiefly because of changes in factors of composition of supply as quality, condition, and size. The supply of competing products and other factors may change the demand somewhat from day to day but the daily changes in average price are a fair index to daily changes in supply.

TABLE 5.—*Daily price per 24-pint crate to jobbers for Louisiana strawberries, specified markets, April 6 to May 14, 1931* [1]

Date	Pittsburgh	Cleveland	Detroit	Chicago	Date	Pittsburgh	Cleveland	Detroit	Chicago
Apr. 6	$4.00	$4.12	$4.00	$3.62	Apr. 25	$3.38	$3.00	$3.25	$2.88
7	3.88	4.12	4.00	----------	27	3.00	3.12	2.82	2.75
8	4.12	4.38	4.75	4.62	28	2.75	2.92	2.92	2.68
9	5.00	5.12	4.70	5.00	29	3.08	3.12	3.12	3.12
10	5.25	5.30	4.88	4.88	30	3.45	3.50	3.22	3.38
11	----------	5.12	4.88	5.00	May 1	3.62	3.58	3.28	3.12
13	5.42	5.38	5.12	5.12	2	3.62	3.58	3.12	3.12
14	5.38	5.38	5.12	4.62	4	3.52	3.45	3.15	3.12
15	5.00	----------	5.25	3.92	5	3.38	3.12	3.20	3.12
16	4.25	4.12	4.00	3.62	6	3.12	3.12	3.15	3.12
17	4.12	3.88	4.00	3.62	7	3.25	3.25	3.08	3.12
18	3.88	3.42	4.50	3.38	8	3.38	3.25	3.15	2.88
20	2.75	2.88	2.85	2.62	9	3.50	3.08	3.38	2.38
21	2.62	2.75	2.62	2.62	11	2.62	2.85	2.52	2.38
22	2.88	2.92	3.25	2.62	12	2.38	2.42	2.58	2.25
23	3.12	3.12	2.62	2.88	13	2.25	2.50	2.38	2.12
24	3.38	3.50	3.38	3.12	14	2.12	2.50	2.31	2.12

[1] Klondike strawberries, generally good quality and condition. When the original prices included a range, the mid point is shown in this table.

For strawberries, the average price change from one day to the next was 7 percent. The maximum change was 36 percent, which occurred in Detroit from Saturday, April 18, to Monday, April 20, when the average price dropped from $4.50 per crate to $2.88 (table 5). It will be noted that, for the period April 18 to 20, supplies increased greatly in Pittsburgh, Cleveland, Detroit, and Chicago as indicated by the sharp price decline. It is apparent, therefore, that there was a heavy supply of strawberries on most of the important markets

rather than an irregular supply among the markets. In many instances, price changes from day to day were in the same direction in the different markets indicating that general supplies for the markets were heavier or lighter rather than that one city had a heavy supply while another had a light supply.

Observations of price changes from day to day in important markets for other commodities—as tomatoes, lettuce, and celery—indicate fluctuations in price and supply generally similar to those for strawberries and peaches shown in tables 4 and 5.

The conclusion from these observations of market price changes from day to day is that the flow of fruits and vegetables to the leading markets is fairly even considering the fact that in most instances the control of distribution is not centralized. There are, however, instances of sharp fluctuations in price and supply.

COMPARISON OF SEASON'S SUPPLIES IN VARIOUS MARKETS AS MEASURED BY PRICE

In a good distribution the average seasonal prices on different markets should be such that when transportation and other marketing charges are deducted the prices on a shipping-point basis would be about the same for shipments to the different markets. This is assuming that the average quality and condition of the shipments are approximately the same on the various markets.

The average of daily prices to jobbers during the 1931 season is shown for certain fruits and vegetables in specified markets in table 6. It appears that there is not usually a wide variation in the seasonal prices in different cities. For example, in the case of Florida celery, where the differences in transportation charges to the markets listed are small, the highest seasonal price among the seven markets was $3.42 in Chicago, which was only 5 percent above the lowest, $3.26 in Philadelphia.

TABLE 6.—*Average daily price to jobbers for specified fruits and vegetables in 7 markets, 1931*

Commodity and market period	Boston	New York	Philadelphia	Pittsburgh	Detroit	Chicago	St. Louis
California cantaloups, Standard 45's, May 18–July 11	$2.85	$2.89	$2.86	$2.80	$2.83	$2.58	$2.00
Florida celery, 10-inch crates, Jan. 26–Apr. 18	3.36	3.32	3.26	3.37	3.39	3.42	3.34
California lettuce, crates, 4 to 5 dozen, Jan. 2–Apr. 9	2.82	2.81	2.61	2.67	2.73	2.68	2.76
Georgia peaches, U.S. No. 1 Elberta, bushels, 2 to 2½ inches, July 20–Aug. 11	1.21	1.19	1.09	1.25	1.44	1.41	.....
Florida potatoes, U.S. No. 1 barrels, Spaulding Rose No. 4, Apr. 8–May 15	6.55	6.27	6.22	6.09	6.57	6.54	.....
Louisiana strawberries, 24-pint crates, Klondike, Mar. 30–May 25	3.60	3.36	3.12	3.41	3.33	3.14	3.27
Mississippi tomatoes, U.S. No. 1 flats, June 15–July 8	.67	.72	.77	.71	.66	.68	.79

For Georgia peaches in bushel baskets the seasonal price in Detroit and Chicago was considerably higher than in the eastern markets. This may be due in part to the fact that the crate is preferred as a package for peaches in the East, whereas the bushel basket is preferred in the Middle West.

For Florida potatoes the seasonal price ranged from $6.22 per barrel in Philadelphia to $6.69 in Pittsburgh, an increase of 8 percent over the Philadelphia price.

On the whole it appears that the distribution of a commodity from a certain producing area is usually such that the seasonal price received by the shippers is not greatly different for the various markets.

COMPARISON OF VARIOUS METROPOLITAN DISTRICTS AS CAR-LOT MARKETS

The consuming capacity of any market is influenced by a number of factors among which may be mentioned the size of the city itself and of the metropolitan area of which it is the center, the extent to which the area outside of the metropolitan district draws on the market for supplies, the food habits of the population as determined by racial or other characteristics, the degree of prosperity, the changes in volume and location of production from year to year, and the trade methods and practices.

In a study of the market distribution of fruits and vegetables, it is essential to know what part of the domestic car-lot shipments of each commodity is unloaded in each of the leading markets and how much this is likely to vary from year to year. A comparison of the percentages of shipments of different commodities unloaded in any market is significant. The importance of the various markets can also be studied according to populations.

In table 7 is shown for 1930 and 1931 the percentages of United States car-lot shipments of 16 commodities unloaded in markets classified according to size of metropolitan districts. The metropolitan population figures are those shown in the 1930 census and include the population surrounding a city which is largely influenced economically and socially by the city. All metropolitan districts listed in table 7 have populations of 100,000 or more.

A comparison of the percentages of car-lot shipments unloaded in the specified markets in 1930 and 1931 shows remarkably small differences. This is true even though the car-lot shipments of some commodities as grapefruit, grapes, oranges, and peaches varied widely between the 2 years.

The population in the 61 market districts in 1930 was equal to about 72 percent of the urban population in places of 2,500 or more, and 40 percent of the total population.

The relation of unloads to shipments for each commodity and each market and group of markets with few exceptions shows a high degree of similarity for the 2 years. Although the grape shipments dropped from 70,890 cars in 1930 to slightly less than 47,000 in 1931, the percentages of total shipments unloaded in the 61 market districts were 77.2 and 79.7 respectively for the 2 years. For oranges, although the shipments increased from 65,923 in 1930 to more than 95,000 in 1931, the proportion of shipments unloaded in the 61 market districts dropped only 2.3 percent from 79.5 percent in 1930 to 77.2 percent in 1931.

TABLE 7.—*Percentage of United States car-lot shipments of 16 commodities unloaded in markets classified according to size of metropolitan districts, 1930 and 1931*

1930

Market[1]	Apples	Cabbage	Cantaloups[2]	Celery	Grapefruit	Grapes	Lemons	Lettuce	Onions	Oranges[3]	Peaches[4]	Potatoes	Strawberries	Sweetpotatoes	Tomatoes	Watermelons	16 commodities
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Boston	1.2	3.0	5.5	3.6	5.1	6.2	3.9	3.7	5.2	6.0	3.3	3.1	6.6	4.2	4.9	1.2	3.6
Chicago	5.5	4.8	8.9	7.1	9.1	6.8	7.8	8.7	5.7	7.5	6.6	6.4	9.9	8.6	6.7	4.8	6.7
Cleveland	1.3	1.7	3.0	1.7	2.8	1.5	2.6	2.0	2.1	2.5	2.2	1.6	3.0	2.9	.5	1.8	1.8
Detroit	1.9	2.1	3.2	3.1	3.2	2.0	2.7	3.1	3.6	3.1	3.1	3.2	4.8	3.7	3.1	2.6	2.9
Los Angeles	3.7	.0	1.4	.3	.6	2.1	.0	2.2	1.5	.3	2.7	2.6	.0	1.6	.1	3.6	1.9
New York-northeastern New Jersey[5]	10.8	13.4	25.9	19.2	18.3	27.2	10.5	18.7	16.0	19.5	18.8	9.6	12.9	8.9	19.5	7.0	14.6
Philadelphia	2.3	6.0	6.6	6.8	6.2	5.3	4.2	6.0	5.9	6.3	4.1	3.3	3.4	1.7	5.6	3.5	4.4
Pittsburgh	2.6	3.5	3.9	3.8	3.0	4.1	2.9	2.7	2.9	3.0	3.0	1.8	2.9	5.0	4.0	1.9	2.7
St. Louis	1.0	3.3	2.4	2.6	2.4	1.1	3.2	2.9	2.4	1.8	2.1	1.9	1.4	1.5	1.3	2.7	2.0
San Francisco	.8	.0	1.6	1.6	1.7	4.0	2.6	.6	1.7	1.6	2.1	1.4	.0	.8	1.0	.6	1.4
Total[1]	31.1	37.8	62.4	49.8	52.4	58.3	40.4	50.6	47.0	51.6	48.0	34.9	44.9	38.9	46.7	29.7	42.0
Baltimore	.5	3.9	1.6	2.9	2.7	.9	2.6	1.8	1.8	2.1	1.6	1.2	1.0	4.5	3.0	1.7	1.7
Buffalo-Niagara	.2	.7	1.4	1.6	1.6	1.0	1.1	1.2	.8	1.4	.8	.5	2.4	1.6	.8	.7	.8
Cincinnati	1.3	2.0	2.0	1.5	1.8	.8	2.8	1.3	1.4	1.5	2.8	1.4	2.9	2.9	1.3	2.4	1.6
Kansas City, Mo., and Kansas City, Kans	1.0	1.1	1.2	1.5	1.5	.8	1.7	1.4	1.0	.8	.8	1.0	.9	.6	.8	1.2	1.0
Milwaukee	1.0	.5	.8	1.4	.9	1.3	1.0	.9	.6	1.0	1.5	1.0	1.8	.3	.6	.7	1.0
Minneapolis and St. Paul	1.3	.6	1.0	2.0	1.7	1.2	1.9	1.4	.5	1.3	2.2	.4	2.3	1.2	.9	1.0	1.0
Providence, R.I., Fall River, and New Bedford, Mass.[6]	.1	.6	.6	.6	.4	.6	.3	.5	.8	.7	.4	.5	1.1	.5	.9	.3	.5
Scranton and Wilkes Barre[7]	.3	.6	.7	.9	.7	.9	.3	.6	1.1	.8	.6	.6	.3	.9	.9	.4	.6
Washington, D.C.	.3	1.6	1.2	1.6	1.9	.4	.3	1.3	1.0	1.1	.8	.7	.3	1.4	1.1	1.1	.9
Total[1]	6.0	11.6	10.5	14.0	13.2	7.9	12.0	10.4	9.0	10.7	11.5	7.3	13.0	13.9	10.3	9.5	9.1
42 districts[1]	11.2	17.0	12.3	16.0	23.3	11.0	21.6	19.0	16.9	17.2	14.7	14.2	15.1	19.5	14.6	19.2	15.1
61 districts[1]	48.3	66.4	85.2	79.8	88.9	77.2	74.0	80.0	72.9	79.5	74.2	56.4	73.0	72.3	71.6	58.4	66.2
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Car-lot shipments	107,033	38,205	36,179	26,411	20,001	70,890	14,274	55,628	39,577	65,923	24,291	252,411	10,578	19,045	34,050	59,011	873,507

	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Boston	1.8	3.6	5.4	3.7	5.1	6.9	3.5	3.9	5.5	5.9	3.9	2.9	6.0	5.4	5.7	1.3	3.9
Chicago	6.3	5.1	8.1	6.9	7.2	6.8	6.8	8.7	5.6	6.6	7.6	6.8	9.5	10.2	7.8	5.4	6.9
Cleveland	1.1	1.5	2.9	1.8	2.7	1.1	2.2	2.2	1.8	2.3	2.3	1.6	3.0	4.1	.5	2.1	1.8
Detroit	2.3	2.3	3.1	3.7	3.7	1.9	2.8	3.1	2.5	3.0	4.3	2.7	4.8	4.8	3.4	2.6	2.9
Los Angeles	3.7	.4	1.0	.4	.5	.1	.0	1.7	2.5	.1	1.8	2.7	.0	1.3	.1	3.8	1.8
New York-northeastern New Jersey [5]	12.9	17.0	25.2	20.7	18.8	28.4	13.5	19.1	19.9	20.2	16.9	9.2	14.1	7.3	19.9	7.7	15.3
Philadelphia	2.4	7.5	6.3	7.3	5.4	5.6	4.5	6.4	6.3	5.8	3.2	2.6	3.1	1.2	5.5	3.2	4.2
Pittsburgh	2.1	3.1	4.2	3.9	2.5	3.7	2.8	2.5	2.5	2.5	2.5	1.7	2.8	5.6	4.2	1.6	2.5
St. Louis	.6	3.9	2.2	2.5	2.2	1.2	2.7	2.7	2.5	1.8	1.2	1.9	2.1	1.0	2.2	3.3	2.0
San Francisco	.7	.0	1.4	1.5	1.4	4.4	1.9	.6	2.7	1.2	1.1	1.5	.0	.2	.4	.8	1.3
Total [1]	33.9	44.4	59.8	52.4	49.5	60.1	40.7	50.9	52.1	49.4	44.8	33.6	45.4	41.1	49.7	31.8	42.6
Baltimore	.4	3.8	1.7	3.2	2.0	1.0	2.8	1.7	1.8	1.9	.8	1.2	1.1	3.6	3.2	2.7	1.6
Buffalo-Niagara	.2	.7	1.1	1.6	1.6	.9	1.2	1.2	.6	1.4	1.2	.5	2.2	2.2	.8	.8	.9
Cincinnati	1.0	1.7	1.8	1.7	1.7	.9	2.4	1.3	1.3	1.5	2.2	1.3	3.5	3.3	1.4	2.9	1.6
Kansas City, Mo., and Kansas City, Kans	.9	1.2	1.3	1.5	1.6	.6	1.2	1.4	1.1	.8	1.0	1.1	1.3	.4	1.1	1.5	1.1
Milwaukee	1.6	.5	.8	1.6	1.0	1.0	.7	1.0	.5	1.0	2.3	1.0	1.9	.5	.7	.9	1.1
Minneapolis and St. Paul	1.2	.9	1.3	2.6	2.1	1.2	1.5	1.6	.8	1.3	1.8	.7	2.5	1.5	1.2	1.0	1.2
Providence, R. I., Fall River, and New Bedford, Mass. [6]	.3	.8	.8	.5	.4	.8	.3	.6	.9	.7	.8	.5	1.2	.7	1.0	.4	.6
Scranton-Wilkes Barre [7]	.3	.7	.7	.7	.7	.8	.3	.5	1.0	.8	.8	.5	.4	.9	.9	.4	.6
Washington, D.C	.3	1.5	1.3	1.8	1.5	.6	.1	1.4	1.1	1.1	.6	.9	.4	1.3	1.0	1.4	.9
Total [1]	6.2	11.8	10.8	15.2	12.6	8.4	10.5	10.7	9.1	10.5	11.5	7.7	14.5	14.4	11.3	12.0	9.6
42 districts [1]	10.9	16.2	13.5	15.5	22.4	11.2	18.5	19.3	16.2	17.3	13.7	14.3	14.9	19.6	15.1	18.5	15.3
61 districts [1]	51.0	72.4	84.1	83.1	84.5	79.7	69.7	80.9	77.4	77.2	70.0	55.6	74.8	75.1	76.1	62.3	67.5
Car-lot shipments [8]	Cars 98,348	Cars 38,668	Cars 36,567	Cars 22,475	Cars 28,995	Cars 46,895	Cars 18,253	Cars 49,878	Cars 33,772	Cars 95,331	Cars 37,963	Cars 240,624	Cars 13,767	Cars 16,131	Cars 27,654	Cars 52,066	Cars 857,387

[1] The total metropolitan populations of the various groups of districts according to the 1930 census were: for 10 districts of 1,000,000 or more population, 30,576,781; for 9 districts of 500,000 to 1,000,000, 6,950, 199; for 42 districts (listed in table 9) of 100,000 to 500,000, 11,853,450; total for 61 districts, 49,380,430.

[2] Includes casaba, Honey Dew, Honey Ball, Persian, etc.

[3] Satsumas and tangerines included.

[4] Intrastate shipments of California peaches, except those going to Los Angeles and San Francisco, were subtracted from the total United States peach shipments to obtain the figure (24,291) used in this computation as fresh-peach shipments for 1930, and 37,963 for 1931.

[5] Includes Newark, N.J.

[6] Unloads included are for Providence only.

[7] Unload reports from records of the Pennsylvania Department of Agriculture.

[8] Shipment and unload figures for 1931 are subject to revision.

The figures in table 7 indicate that there was a fairly even distribution among the markets of the total season's car-lot shipments of a commodity even though the number of cars shipped varied considerably in different years. In case of a small crop, however, there appears to be some tendency for a slightly higher percentage of shipments to go to the larger markets.

In view of the general similarity of the percentages for the 2 years, only the 1930 figures are used in the discussion in the following paragraphs.

In the group of 10 largest markets in 1930, the ratio of unloads to United States shipments in round numbers ranged from 30 percent for watermelons to 62 percent for cantaloups. In the next size group of 9 markets the range was from 6 percent for apples to 14 percent for celery, whereas in the group of 42 smaller markets the range was from 11 percent for grapes and apples to 23 percent for grapefruit. For the entire 61 marketing districts represented, the lowest ratio of unloads to shipments was for apples with 48 percent, and the highest was grapefruit with 89 percent. It is possible that this figure for grapefruit is slightly high as the reports of grapefruit unloads in some markets may have included some cars of mixed citrus fruit.

The fact that the percentage of apples unloaded in the 61 market districts is relatively low is explained by the comparatively wide distribution of apples including considerable shipments to the smaller markets and by the fact that large quantities of the apple shipments were exported.

Only 56 percent of the potato shipments were unloaded in 1930 in the 61 markets. This indicates that potatoes, which are a widely used commodity and are less perishable than many other vegetables and which take a lower freight rate than most others, are distributed in car lots to the smaller markets of less than 100,000 population to a greater extent than are most other fruits and vegetables.

Watermelons, too, are widely distributed among the smaller markets in car lots, since only 58 percent of the 1930 car-lot shipments were unloaded in the 61 metropolitan districts. The market-news reports showed shipments of southeastern watermelons to 426 destinations in 1930 and 418 in 1931. These destinations include important diversion points so that the number of markets at which shipments were actually unloaded was much greater than the number of original destinations.

The 61 markets received approximately 80 percent or more of the 1930 car-lot shipments of cantaloups, celery, grapefruit, lettuce, and oranges (table 7). These commodities which apparently did not have as wide a car-lot distribution as the others are among those of a more perishable nature.

Interesting facts as to the comparative importance of various markets are brought out by table 7. The New York-northeastern New Jersey metropolitan district, including unloads at New York and Newark, is by far the most important market and it absorbs immense quantities of fruits and vegetables. It received about 15 percent of the combined car-lot shipments of 16 fruits and vegetables. This district received 27 percent of the grape shipments in 1930, 26 percent of the cantaloup shipments, and about 19 percent each of the celery, lettuce, orange, peach, and tomato shipments, as compared with only

7 percent of the watermelon shipments, 9 percent of the sweetpotatoes, 10 percent of the potatoes, and 11 percent of the apples.

Chicago is the second city in importance as a car-lot market and unloaded about 7 percent of the shipments in 1930. Ten percent of the strawberry shipments were unloaded in Chicago, and 9 percent of the cantaloup, grapefruit, lettuce, and sweetpotato shipments compared with only 5 percent of the cabbage and watermelon shipments in 1930.

Other cities show variations in percentages of shipments unloaded, which can usually be explained in a general way by local marketing conditions. For example, heavy motor-truck receipts frequently explain why car-lot receipts are small. Motor-truck receipts of 16 fruits and vegetables in 1931 in 8 markets for which statistics are available are shown in table 8 and are important in the supply in most of these markets. The car-lot unloads of many commodities in Los Angeles were very small because a large part of the supply (58 percent of the domestic supply of 16 products in 1930 and 62 percent in 1931) was brought in by truck from producing areas. For apples, potatoes, and watermelons, however, the Los Angeles unloads are relatively as large as in most other markets. San Francisco, too, had small unloads of most commodities partly because of heavy truck receipts, and because car-lot unloads at Oakland are not included in the statistics.

TABLE 8.—*Motor-truck receipts of 16 fruits and vegetables in 8 markets, 1931*

Commodity	Boston	Denver	Kansas City, Mo.	Los Angeles	New York [1]	Philadelphia	Salt Lake City	San Francisco
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Apples	1,503	17	52	206	2,300	1,853	124	373
Cabbage	509	97	59	1,099	1,771	691	76	322
Cantaloups [2]	2	173	61	2,331	829	1,173	204	496
Celery	388	160	------	2,469	742	265	94	399
Grapefruit	13	------	------	1,003	------	------	2	24
Grapes	35	------	11	1,455	205	222	20	325
Lemons	------	------	------	612	------	------	20	40
Lettuce	1,054	200	36	3,415	1,214	412	110	1,300
Onions	83	62	14	505	1,519	212	85	49
Oranges	------	------	------	3,735	------	1	54	293
Peaches	25	------	18	1,446	1,833	1,824	126	354
Potatoes	99	499	205	1,870	4,579	3,571	574	269
Strawberries	180	46	38	628	609	1,083	68	286
Sweetpotatoes	------	------	43	625	1,847	1,879	1	149
Tomatoes	376	109	141	2,755	1,917	1,474	225	667
Watermelons	------	17	1	763	17	328	66	23
Total	4,312	1,360	686	25,037	19,182	14,088	1,804	5,369
Relation of truck receipts to total domestic car-lot and truck receipts	*Percent* 12	*Percent* 20	*Percent* 7	*Percent* 62	*Percent* 14	*Percent* 29	*Percent* 58	*Percent* 32

[1] Motor-truck receipts at Washington Street wholesale market and Wallabout and Gansevoort farmers' markets.
[2] Includes casaba, Honey Dew, Honey Ball, etc.

The low figure of less than 2 percent as the ratio of sweetpotato unloads in Philadelphia to United States car-lot shipments may be explained by the fact that Philadelphia is within easy trucking distance of important sweetpotato-producing districts. In 1930, about 73 percent of the Philadelphia sweetpotato receipts were brought in by truck.

It is apparent that the importance of any city or group of cities as a consuming market for car-lot shipments varies widely when different commodities are considered.

UNLOADS PER 100,000 POPULATION IN VARIOUS MARKETS AND GROUPS OF MARKETS

As a method of comparing various markets in regard to their consumption of domestic car-lot and boat shipments of fruits and vegetables, the unloads of 16 commodities per 100,000 metropolitan population have been computed for 61 metropolitan districts fo 1930 (table 9). The year 1930 was fairly representative of the years 1926 to 1931 in regard to fruit and vegetable shipments. For the 16 commodities under consideration in 1930 shipments were about 3 percent greater than in 1931. The consumption of any commodity, of course, varies somewhat from year to year according to total production.

The metropolitan districts have been grouped according to size including 10 districts of 1,000,000 or more population, 9 districts of 500,000 to 1,000,000, and 42 districts of 100,000 to 500,000 population.

In studying table 9, showing unloads per 100,000 population in various metropolitan districts, it should be kept in mind that in most instances these domestic unloads cannot be considered as consumption figures since some of the unloads were distributed by truck to points outside the metropolitan districts. For some commodities and some markets this outward movement of car-lot receipts may be partly, or more than, offset by motor-truck receipts from producing areas or in some cases by imports. Some of the smaller metropolitan districts are near enough to the larger cities to receive supplies from them by truck. Moreover, there are a few car-lot unloads within some metropolitan districts, for which statistics are not available. For example, unload statistics for the San Francisco district do not include unloads at Oakland; for the Albany-Schenectady-Troy district, only the unloads at Albany are available; and for the Providence-Fall River-New Bedford district, only the unloads at Providence are available. The table has value, however, in presenting certain general information relating to car-lot distribution.

The total car-lot and boat unloads of domestic shipments of 16 commodities per 100,000 population were not greatly different in the three groups of cities in 1930. For the group of largest cities the figure was 1,200 cars; for the next group 1,138 cars, and for the group of smaller cities 1,119 cars (table 9). When commodities are considered separately, there are some considerable variations in the different groups of cities.

The question as to whether the larger cities are relatively better markets than the smaller cities for certain commodities is answered in a general way through a study of table 9. As an illustration, the unloads of cantaloups and grapes averaged considerably greater per 100,000 population in the markets of more than 1,000,000 population than in the smaller markets. In the 10 metropolitan districts of more than 1,000,000 population the unloads of cantaloups per 100,000 population were 74 cars, compared with 55 in the 9 districts of 500,000 to 1,000,000 population, and 38 in 42 districts of 100,000 to 500,000 population. For grapes, the corresponding figures were 135, 80, and 66 cars.

Only very general conclusions can be drawn from such a comparison of unloads in different groups of markets, because wide differences appear when specific cities within any group are compared with respect to the unloads of certain commodities. These differences

can usually be explained in a general way by such factors as local production conditions, local distribution conditions, imports, or, for a few cities incomplete unload reports. For example, car-lot unloads of many commodities in Los Angeles as previously pointed out were very small because of nearness to producing districts.

A method of comparing unloads in cities of different sizes is to select certain markets within a size group, where truck receipts of the commodity are small, and make a comparison with markets selected on a similar basis in another size group. A straight average of the grape car-lot unloads per 100,000 population in Boston, Chicago, New York-northeastern New Jersey, Philadelphia, and Pittsburgh in 1930 is 151 cars. This compares with an average of 68 cars in the smaller markets of Columbus, Grand Rapids, Harrisburg, Hartford, and Syracuse.

A comparison of individual cities, where industrial conditions and racial characteristics differ, shows significant differences in the unloads of certain commodities per unit of population. The metropolitan populations of Columbus and Youngstown are not greatly different in size, yet in the latter city, which is largely industrial, grape unloads were 125 cars per 100,000 population in 1930 compared with 59 cars in Columbus. On the other hand celery unloads were only 10 cars per 100,000 population for the Youngstown district compared with 80 cars for Columbus. The smaller cities appear to be relatively better car-lot markets for watermelons, also southern cities are relatively better watermelon markets than northern cities.

Considering apples, one finds that in the group of largest markets, the unloads per 100,000 population varied from 54 cars in Boston, where important sources of apple supplies are near, to 173 cars in Los Angeles where sources are remote. The average for the group was 109 cars. In the group of 9 markets of 500,000 to 1,000,000 population, the apple unloads ranged from 17 cars per 100,000 in the Providence-Fall River-New Bedford district to 181 cars in the Cincinnati district with an average of 92. In the group of 42 smaller markets of 100,000 to 500,000 metropolitan population, the range in apple unloads per 100,000 was from 5 cars in Salt Lake City and Worcester, Mass., to 260 in Duluth with an average of 102 cars. It is evident, therefore, that extremely wide variations occur when various cities are compared as to their car-lot apple unloads per unit of population. The same is true for other commodities. It is difficult to account for some of these differences whereas others can be explained readily.

The apple unloads of 27 cars per 100,000 population in the Buffalo-Niagara metropolitan district were much smaller than at Cincinnati where they were 181 cars per 100,000. The chief reasons for this difference is that large quantities of apples are hauled by truck to the Buffalo-Niagara district, from the western New York apple-producing area, and that there is a considerable area surrounding Cincinnati which draws on that city for supplies.

In certain cities, as for example, Indianapolis and Columbus, where conditions may be considered somewhat similar, one would expect car-lot unloads of the different commodities per 100,000 population to be about the same, and in fact for most commodities this is true.

TABLE 9.—*Unloads of domestic car-lot and boat shipments, 16 fruits and vegetables, per 100,000 population in 61 metropolitan districts, 1930*

Metropolitan district	Apples	Cabbage	Cantaloups [1]	Celery	Grapefruit [2]	Grapes	Lemons	Lettuce	Onions	Oranges [2]	Peaches	Potatoes	Strawberries	Sweetpotatoes	Tomatoes	Watermelons	Total unloads per 100,000 population
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Boston	54	50	87	41	44	191	24	90	89	171	35	337	30	34	72	31	1,380
Chicago	135	42	73	43	42	111	25	111	51	113	36	374	24	37	53	65	1,335
Cleveland	116	53	92	37	46	88	31	94	71	139	45	327	26	47	15	90	1,317
Detroit	98	37	54	30	30	69	18	81	68	97	35	379	24	33	51	73	1,186
Los Angeles	173	1	21	3	5	4	0	52	26	9	28	282	0	13	1	92	710
New York-northeastern New Jersey [3]	106	47	86	47	34	177	14	95	58	118	42	222	13	15	61	38	1,173
Philadelphia	85	81	85	63	44	131	21	118	82	145	35	293	13	11	66	71	1,344
Pittsburgh	143	68	72	51	31	146	21	76	58	100	38	235	16	49	69	57	1,230
St. Louis	84	98	67	52	38	61	36	126	71	94	39	376	11	22	34	121	1,330
San Francisco [4]	65	0	45	33	27	218	28	25	52	82	40	280	0	13	27	30	965
Total	109	47	74	43	34	135	19	92	61	111	38	288	16	24	52	57	1,200
Baltimore	60	156	63	80	57	69	40	105	73	145	40	323	11	90	109	104	1,525
Buffalo and Niagara, N.Y.	27	33	63	51	38	83	19	81	41	110	25	150	31	37	32	50	871
Cincinnati	181	101	93	52	48	77	53	94	72	128	89	453	40	73	60	189	1,803
Kansas City, Mo. and Kansas City, Kans.	174	67	74	66	48	96	39	125	68	91	31	428	15	19	43	117	1,501
Milwaukee	140	24	37	50	25	121	20	70	31	91	48	341	25	7	30	60	1,120
Minneapolis-St. Paul	167	30	44	65	41	99	32	97	23	104	64	116	29	28	35	68	1,042
Providence, R.I., Fall River, and New Bedford, Mass. [5]	17	22	21	18	9	46	4	28	32	49	10	127	12	9	33	21	458
Scranton and Wilkes-Barre [6]	46	38	37	36	20	96	8	49	68	79	23	230	6	27	45	36	844
Washington, D.C.	52	96	70	66	61	46	7	117	66	117	32	304	6	43	61	102	1,246
Total	92	64	55	53	38	80	25	83	52	101	40	265	20	38	51	81	1,138
Akron, Ohio	86	28	28	13	7	54	2	46	29	23	32	253	12	25	16	87	741
Albany, Schenectady, and Troy, N.Y.	23	24	53	20	21	61	11	57	40	79	31	266	17	25	33	31	792
Atlanta	126	66	28	56	32	34	54	85	71	112	2	261	1	38	60	299	1,325
Birmingham	92	88	11	23	17	26	31	62	60	85	7	188	1	19	37	128	875
Bridgeport	45	38	37	23	22	113	15	48	38	110	32	291	10	18	29	41	910
Columbus	165	89	76	80	48	59	20	120	75	127	80	492	35	96	31	122	1,724
Dallas	164	57	8	43	37	42	47	142	82	97	5	357	8	54	73	60	1,276
Dayton	166	46	37	31	15	7	6	66	37	64	41	341	33	50	6	127	1,073
Denver	174	39	81	19	59	103	42	172	17	115	63	288	27	49	76	94	1,418
Des Moines	150	71	39	58	63	55	40	116	107	90	65	646	22	47	28	138	1,735
Duluth	260	38	35	44	24	86	17	75	62	78	42	94	22	13	55	49	994

El Paso	56	16	30	19	38	48	30	109	51	124	29	283	16	6	31	57	943
Evansville	76	183	20	53	40	28	33	89	98	137	31	564	15	8	[8] 309	162	1,846
Fort Worth	152	52	7	55	38	38	43	135	77	69	3	478	15	53	57	26	1,298
Grand Rapids	34	45	46	13	57	30	34	148	16	130	30	289	35	34	11	103	1,055
Harrisburg [6]	7	75	45	27	44	38	2	25	10	112	18	212	2	16	14	121	768
Hartford	30	17	31	20	29	90	10	38	15	92	11	76	10	21	23	16	529
Houston	118	33	6	41	27	55	51	107	84	86	31	363	0	42	43	77	1,164
Indianapolis	145	74	42	44	56	44	38	109	52	142	58	496	24	55	40	121	1,540
Jacksonville	160	106	30	66	[9] 579	38	0	115	144	107	36	303	0	0	69	310	2,063
Louisville, Ky	139	78	35	42	45	27	24	67	60	82	26	217	12	26	79	150	1,109
Memphis	134	154	33	48	41	53	55	114	95	121	13	383	2	12	42	157	1,457
Nashville	203	127	26	31	40	41	38	88	64	124	29	386	7	18	57	275	1,554
New Haven	60	46	37	28	32	288	4	107	73	119	29	286	10	37	61	34	1,251
New Orleans	66	72	36	44	15	43	43	100	112	87	23	219	0	2	41	146	1,049
Norfolk, Portsmouth, and Newport News, Va	77	98	12	39	18	20	4	50	56	79	9	147	2	6	22	42	681
Oklahoma City	176	89	10	60	35	37	37	141	70	104	13	370	12	6	52	44	1,256
Omaha, Nebr., and Council Bluffs, Iowa	222	73	56	53	47	104	39	105	44	103	69	413	31	29	46	106	1,540
Peoria, Ill	176	77	23	28	34	41	19	115	48	77	39	637	17	27	22	114	1,494
Portland, Oreg	126	21	79	27	42	91	25	116	45	133	46	208	15	47	34	98	1,153
Richmond	105	142	25	60	53	44	23	81	64	117	12	214	2	24	66	85	1,117
Rochester	11	21	52	33	40	122	25	80	27	120	19	137	19	34	22	64	826
Salt Lake City	5	13	57	0	29	55	35	123	31	123	2	72	13	31	41	94	724
San Antonio	122	11	3	53	5	56	49	110	58	73	20	288	2	54	40	11	964
Seattle	180	33	80	43	50	97	39	115	100	134	54	521	14	39	42	82	1,623
Spokane	54	20	73	34	31	54	30	116	77	110	112	360	9	47	30	154	1,311
Springfield and Holyoke, Mass.	34	36	36	25	30	88	7	59	32	95	15	320	18	22	43	40	900
Syracuse	16	29	63	36	48	123	20	85	36	140	26	181	33	42	50	58	986
Tampa and St. Petersburg, Fla	164	76	41	40	76	64	0	137	100	12	46	424	0	11	66	113	1,370
Toledo	78	40	32	37	31	20	18	83	39	86	45	432	23	39	4	62	1,060
Worcester, Mass	5	5	9	7	0	19	1	1	14	11	2	289	6	4	7	16	396
Youngstown, Ohio	46	28	27	10	10	125	4	42	41	36	20	231	12	32	8	68	740
Total	102	55	38	36	40	66	26	90	56	96	30	302	13	31	42	96	1,119

[1] Includes Honey Dew, Honey Ball, casaba, and Persian melons.
[2] Only straight car-lot shipments of grapefruit or oranges were used in these computations. Mixed citrus shipments (mostly grapefruit and oranges) amounted to about 14 percent of the straight car shipments of oranges and grapefruit. Tangerines and satsumas are included with oranges.
[3] For this district, computations were based on unloads at New York City and Newark.
[4] For this district, computations were based on car-lot unloads at San Francisco. Reports on car-lot unloads at Oakland are not available.
[5] For this district, computations were based on unloads at Providence. Reports of car-lot unloads at Fall River and New Bedford are not available.
[6] Unload figures for these markets were obtained from reports of the Pennsylvania Department of Agriculture.
[7] For this district, computations are based on unloads at Albany. Reports of car-lot unloads at Schenectady and Troy are not available.
[8] Probably includes some tomatoes for manufacture.
[9] Includes a large quantity of fruit for reshipment from Jacksonville.

Unloads of many fruits and vegetables per 100,000 are not greatly different in Boston and Cleveland. The fact that the car-lot unloads of tomatoes are relatively much heavier in Boston may be explained by local production and distribution conditions. Ninety cars of watermelons per 100,000 population were unloaded in Cleveland compared with 31 cars in Boston. This wide difference is probably due chiefly to the consuming habits of the people and to differences in distances from producing districts.

For a commodity like cantaloups it would be expected that car-lot consumption in the large markets—such as Boston, Chicago, Cleveland, New York, Philadelphia, and Pittsburgh—would be proportionate to the metropolitan populations. The unloads of cantaloups within this group vary within a rather narrow range from 72 cars per 100,000 at Pittsburgh to 92 cars at Cleveland.

The consumption of domestic grapefruit and lemons was not so great per unit of population in the New York City district as in many other cities (table 9). This is explained in part, at least, by the fact that the consumption of imported grapefruit and lemons was large in New York. The figures for grapefruit, oranges, and lemons do not include that part of these commodities which arrived in mixed carloads.

Unloads of most commodities for the Providence-Fall River-New Bedford district were generally small. The unload information available for use in the computation was for Providence only. It is probable that considerable quantities of some commodities were unloaded at other points in the metropolitan district. There may also be some distribution to the district from Boston.

A comparison of the car-lot unloads of different commodities per 100,000 population in any city or group of cities shows wide variations which are in general relationship to the volume of car-lot shipments of the commodities. The unloads per 100,000 population in Philadelphia ranged from 11 cars of sweetpotatoes to 293 cars of potatoes. In St. Louis, the range was from 11 cars of strawberries to 376 cars of potatoes. In Oklahoma City, the range was from 6 cars of sweetpotatoes to 370 cars of potatoes.

A careful study of these figures in the light of supplemental knowledge as to local conditions in the various markets may assist distributors in determining which markets are most likely to show a favorable response to advertising or sales effort.

A complete analysis of the consuming capacities of various markets requires that receipts by truck as well as by other means be taken into consideration. In an effort to obtain data on total supplies of various fruits and vegetables in some markets, table 10 was prepared showing for representative markets for 3 years beginning with 1930 the total unloads including truck receipts of 16 products per 100,000 population. This information is shown for the five cities: Boston, New York, St. Louis, Denver, and Los Angeles, and supplements the data on car-lot unloads in table 9.

In computing the total unloads per 100,000 population in table 10, the populations of the metropolitan districts for the 1930 census were used except for New York where the city population of 6,930,000 was used because the Newark market is in the New York-northeastern New Jersey metropolitan district and truck receipts at Newark were not available in the Bureau records. Records of truck receipts are

probably only 75 to 95 percent complete, and records were not available for St. Louis in 1931.

It will be noted that for Boston the total annual supply of the 16 commodities for the 3 years shows but little variation ranging from 1,648 car-load units in 1930 to 1,684 in 1931, which is a change of approximately 2 percent. Los Angeles, too, shows only a small variation from year to year in the total supply. The other cities show wider variations. The fact that the New York figures are higher than those of the other markets is probably, partly at least, due to the fact that the New York metropolitan population is not used in the computation as explained in the preceding paragraph (table 10).

TABLE 10.—*Unloads of rail, truck, and boat shipments including imports of 16 fruits and vegetables, per 100,000 population in 5 representative markets for which truck unload reports are available 1930, 1931, and 1932 calendar years* [1]

Market and year	Apples	Cabbage	Cantaloups [2]	Celery	Grapefruit [3]	Grapes	Lemons	Lettuce	Onions
Boston:	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1930	124	76	87	57	59	190	25	131	96
1931	145	83	85	53	69	143	28	125	85
1932	156	71	78	51	47	145	23	125	91
New York:									
1930	194	115	139	104	94	244	62	174	130
1931	199	109	130	71	112	171	45	144	120
1932	185	115	118	73	76	190	41	139	111
St. Louis: [4]									
1930	130	106	70	52	41	62	36	126	73
1932	106	111	64	51	46	50	33	107	75
Denver:									
1930	184	69	117	76	62	103	42	233	54
1931	217	61	140	66	88	96	40	228	48
1932	185	61	109	69	79	91	39	217	41
Los Angeles:									
1930	181	52	113	123	31	94	21	180	55
1931	169	55	114	110	50	65	20	181	62
1932	172	57	106	123	44	85	20	185	48

Market and year	Oranges [3]	Peaches	Potatoes	Strawberries	Sweetpotatoes	Tomatoes	Watermelons	Total
Boston:	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
1930	179	37	378	38	34	109	31	1,648
1931	251	65	346	44	38	94	30	1,684
1932	248	39	357	51	40	111	28	1,661
New York:								
1930	193	65	381	29	39	150	53	2,166
1931	294	100	300	36	40	124	53	2,114
1932	269	62	331	37	43	138	41	1,969
St. Louis: [4]								
1930	99	39	419	13	25	57	121	1,469
1932	141	35	377	25	24	90	81	1,416
Denver:								
1930	122	69	407	40	49	150	104	1,681
1931	184	136	455	51	49	132	122	2,114
1932	177	112	365	65	44	132	80	1,866
Los Angeles:								
1930	105	78	349	39	33	141	119	1,714
1931	168	91	358	31	36	137	118	1,771
1932	164	75	322	45	31	170	95	1,742

[1] Population figures used in computations in this table are 1930 census figures for metropolitan districts except for New York where the city population is used instead of New York-northeastern New Jersey district, because truck unloads for Newark are not available. Truck-receipt records are not complete, but probably represent 75 to 95 percent of the truck receipts on these markets.

[2] Includes Honey Dew, Honey Ball, casaba, and Persian melons.

[3] In this table car-lot unloads of mixed citrus were arbitrarily divided between grapefruit and oranges in the ratio of 1 to 3. Tangerines and satsumas are included with oranges.

[4] Information on truck receipts at St. Louis not available for 1931.

The annual supply of the 16 commodities per 100,000 population in the five markets ranged roughly from 1,500 to 2,100 cars. A figure of 1,500 cars per year at an assumed average weight per car of 28,000 pounds would amount to about 50,000,000 pounds. This is equal to approximately 1.4 pounds per capita per day of these 16 fruits and vegetables.

A comparison of the quantities of specific products unloaded in the five markets shows some wide variations. For each 100,000 inhabitants, Boston evidently consumes considerably more cabbage, grapes, and onions than Los Angeles but less cantaloups, celery, lettuce, tomatoes, and watermelons. The Los Angeles figures for supplies of oranges are surprisingly low as compared with some other cities. A possible explanation is that considerable quantities of oranges may be brought into Los Angeles in automobiles by consumers and consequently not included in the records of receipts. New York uses relatively more grapefruit and grapes than Boston but fewer strawberries.

For some commodities there are wide differences from year to year in the supply per unit of population for a certain city. This is probably chiefly due to variations in the volume and location of production.

A comparison of data for the five markets in table 10 with data for the same markets in table 9 shows that when truck receipts are inincluded the unloads per 100,000 population are changed materially for some commodities while for others which are not trucked in large quantities the figures in table 10 are approximately the same as in table 9. For example, in 1930 rail and boat unloads of apples per 100,000 population in Los Angeles were 173 cars as shown in table 9. When truck unloads were included the figure was raised only 8 cars to 181 as shown in table 10. For other commodities which are largely received by truck in Los Angeles, the figures for 1930 in table 10 are much greater than those in table 9. Most cities, however, do not receive as large a proportion of their supplies by truck as Los Angeles.

As a further aid to shippers in studying prospective markets, the populations of all metropolitan districts of 100,000 or more inhabitants as published in the 1930 Census are shown in table 11. This table includes a number of cities or metropolitan districts for which unload data are not available. Some of these districts are of much less importance as car-lot markets than would be indicated by their populations. This is because they are composed of rather densely populated industrial districts situated within easy trucking distance of other large car-lot markets. An example is the Allentown-Bethlehem-Easton district in Pennsylvania, which had a population in 1930 of about 322,000 but which is unimportant as a fruit and vegetable car-lot market except for a few commodities, as watermelons and potatoes. The reason is that this district is only about 50 miles from Philadelphia and about the same distance from the New York City metropolitan district.

Cooperative marketing associations and other shippers may find a study of the populations of metropolitan districts helpful in developing market outlets and obtaining an even distribution of their shipments.

VARIATIONS IN CAR-LOT DISTRIBUTION AMONG THE MARKETS FROM YEAR TO YEAR

The degree of regularity in the distribution of car-lot shipments of fruits and vegetables among the markets from year to year is indicated by the proportion of United States shipments of each commodity unloaded in each market annually over a period of years. The size of the United States production and its location, the quantity of local or nearby production which is marketed largely by truck, imports, competition from other crops, business conditions, and variations in the methods of marketing are factors that will influence the distribution among the various markets.

TABLE 11.—*Population of metropolitan districts of 100,000 or more population, classified by size groups, 1930*

Metropolitan district	Population	Metropolitan district	Population
Boston	2,307,897	Houston	339,216
Chicago	4,364,755	Huntington, W.Va., and Ashland, Ky.	163,367
Cleveland	1,194,989	Indianapolis	417,685
Detroit	2,104,764	Jacksonville	148,713
Los Angeles	2,318,526	Johnstown	147,611
New York-northeastern New Jersey	10,901,424	Knoxville	135,714
Philadelphia	2,847,148	Lancaster	123,156
Pittsburgh	1,953,668	Little Rock	113,137
St. Louis	1,293,516	Louisville	404,306
San Francisco	1,200,094	Lowell and Lawrence	332,028
Total	30,576,781	Memphis	276,126
		Miami	132,189
		Nashville	209,422
Baltimore	949,247	New Haven	293,724
Buffalo and Niagara, N.Y.	820,573	New Orleans	494,877
Cincinnati	759,404	Norfolk, Portsmouth, and Newport News	273,233
Kansas City, Kans., and Kansas City, Mo.	608,186	Oklahoma City	202,163
Milwaukee	743,414	Omaha, Nebr., and Council Bluffs, Iowa	273,851
Minneapolis and St. Paul	832,255	Peoria	144,732
Providence, R.I., Fall River, and New Bedford, Mass.	963,686	Portland, Oreg.	378,728
Scranton and Wilkes Barre	652,312	Racine and Kenosha	133,463
Washington	621,059	Reading, Pa.	170,483
		Richmond	220,513
Total	6,950,199	Roanoke	103,120
		Rochester	398,591
		Rockford	103,204
Akron	346,651	Sacramento	126,995
Albany, Schenectady, and Troy, N.Y.	425,259	Salt Lake City	194,451
Allentown, Bethlehem, and Easton, Pa.	322,172	San Antonio	279,271
Altoona	114,232	San Diego	181,020
Atlanta	370,920	San Jose	103,428
Atlantic City	102,024	Savannah	105,431
Binghampton	136,005	Seattle	420,663
Birmingham	382,792	South Bend	146,569
Bridgeport	203,969	Spokane	128,798
Canton	191,231	Springfield and Holyoke, Mass.	398,991
Charleston	108,160	Syracuse	245,015
Chattanooga	168,559	Tacoma	146,771
Columbus	340,460	Tampa and St. Petersburg	169,010
Dallas	309,658	Toledo	346,530
Davenport	154,491	Trenton	190,219
Dayton	251,928	Tulsa	183,207
Denver	330,761	Utica	190,918
Des Moines	160,963	Waterbury	140,575
Duluth	155,390	Wheeling	160,623
El Paso	118,461	Wichita	119,174
Erie	129,817	Wilmington	163,592
Evansville	123,130	Worcester	305,293
Flint	179,939	Youngstown	364,560
Fort Wayne	126,558	Total	17,226,665
Fort Worth	174,575		
Grand Rapids	207,154	Grand total	54,753,645
Harrisburg	161,672		
Hartford	471,185		

Bureau of the Census.

In the discussion of table 7 it was shown that the percentage of shipments of various crops to specified markets did not vary greatly during 1930 and 1931. The percentage of car-lot shipments of each of 16 commodities unloaded in Boston, Chicago, and Pittsburgh for each of the years 1925 to 1931 is shown in table 12.

The percentage of United States car-lot shipments unloaded in a market varies less from year to year than the actual number of cars unloaded. For example, during the period 1925 to 1931 the percentage of United States lettuce shipments unloaded in Boston ranged from 2.7 percent in 1925 to 3.9 percent in 1931; the number of cars unloaded, however, had increased over 90 percent—from 1,021 in 1925 to 1,942 in 1931.

In Chicago in 1926 the apple car-lot unloads amounted to 7,831 cars, representing 5.9 percent of the Nation's shipments, while in 1929 the unloads were only 5,316 cars, but they represented 5.1 percent of the shipments. In 1925 the unloads of 1,306 cars of oranges in Pittsburgh represented 2.3 percent of the shipments, and in 1929, 2,803 cars unloaded represented 2.9 percent of the shipments.

In most instances the percentages do not indicate any definite trend or change in the importance of these cities as markets for the commodities shown in table 12. On the whole, the table indicates that the car-lot distribution from year to year among the various markets is fairly regular and in proportion to the total volume of shipments.

The average relation of car-lot unloads in three markets to shipments for the 7-year period 1925–31 is also shown in table 12. This affords a means of comparing the variations in the percentages among the commodities. For the 7-year period, Boston received only 1.2 percent of the car-lot apple shipments whereas grape and strawberry unloads amounted each to 6.3 percent of the domestic shipments. In Chicago and Pittsburgh, too, there were wide variations among the commodities in the relation of unloads to shipments.

TABLE 12—*Domestic car-lot unloads and their relation to domestic car-lot shipments, 16 fruits and vegetables, in 3 markets, 1925–31*

BOSTON

Commodity	1925		1926		1927		1928		1929		1930		1931		Average	
	Cars	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*
Apples	1,110	0.9	1,621	1.2	848	0.8	1,854	1.5	1,313	1.3	1,252	1.2	1,769	1.8	1,395	1.2
Cabbage	843	2.1	794	2.0	880	2.3	1,242	3.0	1,391	3.1	1,156	3.0	1,398	3.6	1,101	2.7
Cantaloups [1]	1,694	5.0	1,695	5.1	1,749	4.8	1,927	5.0	1,959	4.9	2,003	5.5	1,967	5.4	1,856	5.1
Celery	586	2.8	487	2.5	734	3.0	876	3.4	916	3.6	945	3.6	819	3.7	766	3.2
Grapefruit	1,197	6.0	848	5.3	1,190	6.2	1,046	6.0	1,212	4.8	1,013	5.1	1,470	5.1	1,139	5.4
Grapes	5,248	6.4	4,779	6.1	5,543	6.7	4,648	5.7	4,378	6.0	4,398	6.2	3,226	6.9	4,603	6.3
Lemons	438	3.8	577	4.0	552	4.2	579	4.2	590	3.6	558	3.9	640	3.5	563	3.9
Lettuce	1,021	2.7	1,293	3.1	1,516	3.2	1,691	3.3	1,853	3.5	2,066	3.7	1,942	3.9	1,626	3.4
Onions	1,042	3.4	1,103	3.3	1,356	4.0	1,985	5.6	1,921	5.2	2,061	5.2	1,847	5.5	1,616	4.6
Oranges [2]	3,390	5.9	3,893	5.7	4,603	6.1	4,241	6.6	5,597	5.7	3,952	6.0	5,651	5.9	4,475	6.0
Peaches	925	2.3	1,328	2.3	1,036	2.5	1,316	2.3	1,013	2.9	806	2.1	1,474	3.2	1,128	2.5
Potatoes	7,949	3.3	6,869	3.0	8,145	3.2	10,243	4.0	8,847	3.5	7,760	3.1	7,101	2.9	8,131	3.3
Strawberries	825	6.7	914	6.7	1,233	6.9	1,125	6.0	1,057	5.6	703	6.0	826	6.0	955	6.3
Sweetpotatoes	680	3.7	771	3.4	914	3.6	851	4.0	920	4.2	793	4.2	879	5.4	830	4.0
Tomatoes	1,075	3.8	1,031	4.0	1,399	4.2	1,501	4.9	1,522	4.8	1,056	4.0	1,573	5.7	1,304	4.6
Watermelons	641	1.4	669	1.2	763	1.7	724	1.5	833	1.6	724	1.2	692	1.3	721	1.4

Footnotes at end of table.

TABLE 12.—*Domestic car-lot unloads and their relation to domestic car-lot shipments, 16 fruits and vegetables, in 3 markets, 1925–31*—Continued

CHICAGO

Commodity	1925		1926		1927		1928		1929		1930		1931		Average	
	Cars	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*	*Cars*	*Pct.*
Apples	7,745	6.6	7,831	5.9	6,837	6.7	7,422	6.2	5,310	5.1	5,865	5.5	6,190	6.3	6,744	6.0
Cabbage	1,871	4.7	2,068	5.1	1,877	4.9	2,228	5.4	2,264	5.1	1,849	4.8	1,903	5.1	2,016	5.0
Cantaloups [1]	2,920	8.7	2,925	8.8	3,265	8.7	3,248	8.4	3,553	8.9	3,204	8.9	2,942	8.1	3,144	8.8
Celery	2,326	11.3	2,121	10.0	2,377	9.8	2,302	9.0	2,148	8.4	1,884	7.4	1,580	6.9	2,110	9.0
Grapefruit	1,762	8.8	1,624	10.2	1,720	9.0	1,528	8.7	1,043	7.7	1,821	9.1	2,105	7.2	1,787	8.5
Grapes	6,533	8.0	5,813	7.4	7,018	8.5	5,747	7.0	4,705	7.1	4,827	6.8	3,209	6.8	5,407	7.4
Lemons	897	7.7	862	6.0	898	6.8	978	7.2	1,143	7.1	1,111	7.8	1,241	6.5	1,019	7.0
Lettuce	3,886	10.4	4,287	10.2	4,547	9.7	4,491	8.7	4,857	9.1	4,852	8.7	4,341	8.7	4,566	9.3
Onions	1,891	5.8	2,155	6.4	2,077	6.1	2,235	6.3	2,411	6.5	2,241	5.7	1,885	5.6	2,115	6.1
Oranges [2]	4,020	7.0	3,686	5.4	4,622	6.1	4,867	7.5	6,423	6.6	4,931	7.5	6,322	6.6	4,976	6.6
Peaches	1,998	4.9	2,689	4.6	2,158	5.2	2,374	4.2	1,974	5.6	1,593	4.1	2,901	6.3	2,241	4.9
Potatoes	14,754	6.1	14,777	6.4	15,630	6.2	16,289	6.3	15,817	6.2	16,295	6.5	16,492	6.8	15,709	6.1
Strawberries	942	7.7	1,526	11.2	1,701	9.5	1,590	8.5	1,862	9.0	1,644	9.9	1,306	9.5	1,424	9.0
Sweetpotatoes	1,383	7.4	1,467	6.6	1,859	7.3	1,711	8.1	1,733	7.9	1,636	8.6	1,639	10.2	1,633	7.9
Tomatoes	1,769	6.3	2,102	8.1	2,754	8.3	2,054	8.7	2,309	7.0	2,209	6.7	2,161	7.8	2,305	7.6
Watermelons	2,325	5.3	2,517	4.6	2,397	5.3	2,371	4.9	2,562	4.9	2,822	4.8	2,801	5.4	2,543	5.0

PITTSBURGH

Apples	2,570	2.2	2,628	2.0	2,127	2.1	1,032	1.0	2,595	2.5	2,706	2.6	2,060	2.1	2,387	2.1
Cabbage	1,101	2.8	1,303	3.2	1,228	3.2	1,158	2.8	1,365	3.1	1,323	3.5	1,217	3.1	1,242	3.1
Cantaloups [1]	1,382	4.1	1,222	3.7	1,302	3.5	1,397	3.6	1,643	4.1	1,411	3.9	1,540	4.2	1,415	3.9
Celery	788	3.8	758	3.9	817	3.4	791	3.1	1,016	4.0	991	3.8	882	3.0	865	3.7
Grapefruit	386	1.9	374	2.3	385	2.0	395	2.2	622	2.5	507	3.0	728	2.5	498	2.4
Grapes	2,978	3.6	3,007	3.8	2,498	3.0	3,010	3.7	2,785	4.2	2,867	4.1	1,713	3.7	2,695	3.7
Lemons	102	1.7	313	2.2	370	2.8	368	2.7	372	2.9	410	2.9	501	2.8	376	2.6
Lettuce	974	2.6	1,007	2.4	1,087	2.3	1,198	2.3	1,409	2.6	1,478	2.7	1,259	2.5	1,202	2.5
Onions	853	2.7	858	2.5	890	2.4	824	2.3	1,165	3.2	1,135	2.9	934	2.8	935	2.7
Oranges [2]	1,300	2.3	1,719	2.5	1,988	2.6	1,601	2.5	2,803	2.9	1,945	3.0	2,335	2.5	1,957	2.6
Peaches	914	2.2	1,095	1.9	769	1.9	1,037	1.8	848	2.4	735	1.9	950	2.1	907	2.0
Potatoes	3,896	1.6	3,542	1.5	3,753	1.5	3,565	1.4	4,344	1.7	4,666	1.8	3,999	1.7	3,958	1.6
Strawberries	285	2.3	360	2.6	484	2.7	520	2.8	472	2.5	303	2.9	389	2.8	402	2.7
Sweetpotatoes	909	4.4	834	3.7	1,014	4.0	973	4.6	1,135	5.2	992	5.1	984	5.6	947	4.6
Tomatoes	1,098	3.9	991	3.8	1,392	4.2	1,247	4.1	1,519	4.8	1,355	4.0	1,165	4.2	1,252	4.1
Watermelons	717	1.6	808	1.6	795	1.7	895	1.8	1,014	1.9	1,112	1.9	852	1.6	893	1.8

[1] Includes casaba, Honey Ball, Honey Dew, Persian, and mixed melons.
[2] Includes satsumas and tangerines.

The foregoing discussion indicates that the proportion of United States car-lot shipments of a product, received in a market does not change much from year to year. Whether this is true for specific crops from certain producing districts can be determined by a further examination of shipment and unload data. The percentages of Georgia peach shipments and California cantaloup shipments unloaded in each of 12 leading markets for the years 1924 to 1931 are shown in tables 13 and 14.

TABLE 13.—*Percentage of Georgia peach shipments unloaded in various cities and Georgia shipments by years, 1924–31*

City	1924	1925	1926	1927	1928	1929	1930	1931
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Baltimore	2.0	2.3	2.0	1.5	1.6	1.9	1.0	1.0
Boston	4.8	4.3	4.0	3.6	4.2	4.5	4.4	4.9
Chicago	5.8	6.9	7.4	7.4	6.9	6.9	9.4	8.3
Cincinnati	3.4	2.8	2.7	2.9	3.3	4.8	5.1	3.3
Cleveland	3.8	3.5	3.0	3.2	3.4	4.4	3.5	3.8
Detroit	3.3	4.8	4.5	4.6	4.8	5.3	4.4	6.0
Kansas City	.6	.4	.4	.5	.7	.2	.5	.2
New York	25.1	20.5	22.4	25.9	21.5	39.1	25.2	24.3
Philadelphia	5.8	5.4	4.9	5.3	5.4	8.0	5.4	6.0
Pittsburgh	3.5	3.4	3.7	3.0	3.2	4.0	3.0	3.4
St. Louis	1.9	1.5	2.2	2.0	2.2	1.6	3.1	.8
Washington	.8	.8	1.0	.9	.8	.4	.5	.5
Total	69.8	65.6	68.2	69.8	68.0	81.1	65.5	62.5
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Georgia shipments	13,611	13,513	17,963	11,882	15,926	5,298	8,623	[1] 13,591

[1] Preliminary.

TABLE 14.—*Percentage of California cantaloup and miscellaneous melon shipments unloaded in various cities and California shipments by years, 1924–31*

City	1924	1925	1926	1927	1928	1929	1930	1931
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Baltimore	1.3	1.3	1.2	1.3	1.3	1.4	1.5	1.7
Boston	4.9	5.2	5.0	4.4	5.0	4.9	5.7	5.2
Chicago	7.5	8.0	8.1	8.7	8.3	8.4	8.5	7.7
Cincinnati	2.0	1.7	1.4	1.5	1.4	1.2	1.4	1.5
Cleveland	2.4	2.5	2.4	2.3	2.1	2.5	2.8	2.5
Detroit	2.1	2.8	2.9	2.8	2.6	4.0	3.2	3.1
Kansas City	1.1	1.0	.9	.9	.9	.8	1.0	1.0
New York	18.2	20.7	23.6	22.0	25.5	29.0	30.3	27.2
Philadelphia	4.4	4.3	4.8	5.8	4.9	6.0	7.1	7.0
Pittsburgh	3.5	3.5	3.0	2.9	3.0	3.4	3.1	3.3
St. Louis	1.9	2.1	1.5	1.5	1.4	1.5	1.7	2.1
Washington	1.1	1.1	1.1	1.0	1.0	1.1	1.2	1.4
Total	50.4	54.2	55.9	55.1	57.4	64.2	67.5	63.7
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
California shipments	19,930	18,707	18,320	22,406	25,307	26,850	23,620	[1] 25,686

[1] Preliminary.

During the period 1924 to 1931 the percentage of Georgia car-lot peach shipments unloaded in 12 leading markets ranged from 58.0 percent in the large crop year of 1928 to 81.1 percent in the small crop year of 1929 (table 13). Exclusive of 1929 the range in the proportion of Georgia shipments marketed in the 12 cities was from 58 to 65.6 percent. The remainder of the shipments, usually about one third, have been marketed in the smaller cities.

The fact that in 1929 when the Georgia crop was short the proportion of the Georgia shipments sent to the 12 cities was high indicates that there is a demand in the large markets that will take a certain quantity of peaches at a higher price than can be obtained in the smaller markets.

In 1929, New York City received 39.1 percent of the Georgia peach shipments, whereas the highest percentage received in New York in any of the other 6 years was 29.5 percent in 1925.

The fact that Chicago received 9.4 percent of the Georgia shipments in 1930 and only 6.9 percent from the short crop of 1929 is explained largely by the size of the peach crop in other States from which Chicago normally draws large shipments. The peach crop in Arkansas, Illinois, and Tennessee was large in 1929 and extremely small in 1930.

In years when production in Georgia and competing States approximates the average, there are not usually wide variations from year to year in the percentage of shipments which go to any market.

In the case of California cantaloups there has been a considerable upward trend in the percentage of shipments taken by a few of the largest markets particularly New York and Philadelphia (table 14). In New York, for example, the proportion of cantaloup unloads increased from 18.2 percent of the California shipments in 1924 to 30.3 percent in 1930, then dropped slightly to 27.2 percent in 1931. Honey Dew, Honey Ball, and miscellaneous melons are included with cantaloups in these computations. These melons have increased in importance during recent years. Some significance may be attached to the fact that in both 1929 and 1930 when the percentages of California cantaloup shipments unloaded in New York were high,

there were short crops of Georgia peaches which compete to a considerable extent with cantaloups.

Although the proportion of California cantaloup shipments marketed in a few large cities has increased over a period of years, the proportion going to any market has not fluctuated sharply from year to year.

The annual car-lot shipments of a product, whether it be on the basis of total United States shipments or shipments from a certain producing district, are for the most part divided among the markets in about the same proportion from year to year.

VARIATIONS IN COMPOSITION OF THE FRUIT AND VEGETABLE SUPPLY IN CERTAIN MARKETS

There is some variation from year to year in the composition of the supply in any market. This is necessarily true because of fluctuations in production. The demand for a commodity in any market may also change somewhat from year to year for various reasons.

In table 15 the car-lot and boat unloads of 16 commodities are considered as 100 percent and the proportion of this supply on a car-lot basis represented by each of the 16 commodities is shown for the years 1925 to 1931 for certain cities. In this table imports as well as domestic car-lot unloads are included. The imports of a few commodities as grapefruit, lemons, onions, and potatoes are of considerable importance in a few cities, particularly New York.

In Boston, grapes have ranged from 17.4 percent of the supply in 1925 to 9.4 percent in 1931 showing a decidedly downward trend. Cantaloups have increased in relative importance in New York and Philadelphia but not in the other markets shown in table 15. Lettuce is a commodity which has increased in relative importance in most of the markets, as for example in Boston, where it comprised 3.4 percent of the supply of 16 commodities in 1925 and 6.2 percent in 1930. In Detroit, however, there was only a slight upward trend in the car-lot lettuce unloads.

In 1926, peaches made up 8.1 percent of the car-lot supply in Detroit and in 1930 only 2.9 percent. Such extreme variations are, of course, caused largely by variations in production from year to year, both of the crop under consideration and of competing crops.

In some instances, at least, there appears to be a correlation between a low percentage of one commodity and a high percentage of a competing commodity in the supplies on the large markets. For example, in such years as 1929 and 1930 when the percentages of peaches in the New York supply were only 2.8 and 3.0, the percentages of cantaloups, a competing commodity, were high, being 7.3 and 7.1 respectively.

The relative importance of the commodities in the car-lot and boat supply in the different markets is generally similar, although there are some pronounced variations. In New York, for example, grapes have averaged 12.5 percent of the car-lot and boat supply of 16 commodities, whereas in Detroit the corresponding figure is 7.0 percent. In Boston, apples made up only 4.1 percent of the supply compared with 10.8 in Pittsburgh. Tomatoes in Pittsburgh have frequently comprised 6 percent or more of the car-lot supply, whereas in other cities where tomatoes are produced locally in larger quantities they

have represented a considerably smaller part of the supply. In Chicago, potatoes have usually amounted to 25 to 27 percent of the supply of 16 commodities, while in New York they have usually amounted to only 16 to 19.

TABLE 15.—*Relation of car-lot unloads of each of 16 fruits and vegetables to total car-lot supply of these commodities in specified markets, 1925–31* [1]

BOSTON

Commodity	1925	1926	1927	1928	1929	1930	1931	Average
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Apples	3.7	5.3	2.4	4.0	3.6	3.8	5.1	4.1
Cabbage	2.8	2.6	2.5	3.3	3.8	3.7	4.1	3.3
Cantaloups [2]	5.6	5.6	5.0	5.1	5.3	6.1	5.7	5.5
Celery	1.9	1.8	2.1	2.3	2.5	2.0	2.4	2.3
Grapefruit	4.0	2.9	3.6	2.9	3.4	3.3	4.5	3.6
Grapes	17.4	15.7	15.9	12.3	11.9	13.2	9.4	13.6
Lemons	1.6	2.6	1.6	1.5	1.6	1.7	1.9	1.7
Lettuce	3.4	4.2	4.4	4.5	5.0	6.2	5.6	4.8
Onions	5.8	4.4	5.3	6.6	5.8	6.5	5.4	5.7
Oranges [3]	11.3	12.8	13.3	11.2	15.2	11.9	16.4	13.2
Peaches	3.1	4.4	3.0	3.5	2.8	2.4	4.3	3.3
Potatoes	28.4	27.0	27.9	30.2	26.8	25.8	22.9	27.0
Strawberries	2.8	3.1	3.6	3.0	2.9	2.1	2.5	2.9
Sweetpotatoes	2.3	2.5	2.6	2.3	2.5	2.4	2.6	2.4
Tomatoes	3.8	3.7	4.6	4.5	4.6	5.8	5.2	4.6
Watermelons	2.1	2.2	2.2	1.9	2.3	2.2	2.0	2.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

CHICAGO

Apples	13.5	13.2	11.0	11.8	8.0	9.9	10.4	11.2
Cabbage	3.2	3.5	3.0	3.6	3.7	3.2	3.3	3.3
Cantaloups [2]	5.1	5.6	5.1	5.2	5.8	5.4	4.9	5.2
Celery	4.1	3.6	3.8	3.7	3.5	3.2	2.0	3.5
Grapefruit	3.2	2.9	2.8	2.6	3.2	3.2	3.6	3.1
Grapes	11.3	9.8	11.2	9.1	7.6	8.2	5.4	9.0
Lemons	1.6	1.5	1.5	1.6	1.8	1.9	2.1	1.7
Lettuce	6.7	7.2	7.3	7.2	7.8	8.2	7.3	7.4
Onions	3.5	4.0	3.7	3.7	4.1	3.9	3.2	3.7
Oranges [3]	7.0	6.2	7.4	7.7	10.4	8.3	10.6	8.2
Peaches	3.5	4.5	3.4	3.8	3.2	2.7	4.9	3.7
Potatoes	25.6	25.0	25.0	26.0	25.6	27.6	27.7	26.1
Strawberries	1.6	2.6	2.7	2.5	3.0	1.8	2.2	2.4
Sweetpotatoes	2.4	2.5	3.0	2.7	2.8	2.8	2.8	2.7
Tomatoes	3.7	4.3	5.3	5.0	4.8	5.0	4.3	4.6
Watermelons	4.0	4.2	3.8	3.8	4.1	4.8	4.7	4.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

DETROIT

Apples	11.8	10.2	8.2	10.4	9.3	8.0	9.0	9.4
Cabbage	3.0	3.7	3.0	3.1	3.2	3.2	3.6	3.3
Cantaloups [2]	5.4	4.3	4.5	4.3	5.4	4.5	4.6	4.7
Celery	4.0	2.8	3.2	3.1	2.9	3.3	3.3	3.2
Grapefruit	3.8	3.0	3.0	2.1	3.2	2.5	4.3	3.1
Grapes	10.3	8.2	7.9	8.8	6.3	5.7	3.6	7.0
Lemons	1.9	2.1	1.6	1.8	1.7	1.8	2.0	1.9
Lettuce	6.0	5.6	6.3	6.1	6.1	6.7	6.2	6.2
Onions	5.4	5.5	5.1	4.7	5.2	5.7	3.4	5.0
Oranges [3]	7.8	9.8	9.5	8.0	11.5	8.0	11.4	9.5
Peaches	7.2	8.1	5.6	6.3	4.9	2.9	6.5	5.8
Potatoes	18.8	21.7	24.8	23.8	24.8	31.6	26.3	24.9
Strawberries	2.3	2.3	3.2	3.8	2.7	2.0	2.7	2.7
Sweetpotatoes	2.6	2.8	3.5	2.7	2.8	2.8	3.1	2.9
Tomatoes	3.7	3.7	5.3	4.9	4.0	5.3	4.0	4.5
Watermelons	6.0	6.2	5.3	6.1	6.0	6.0	5.4	5.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Footnotes at end of table.

TABLE 15.—*Relation of car-lot unloads of each of 16 fruits and vegetables to total car-lot supply of these commodities in specified markets, 1925–31* [1]—Continued

NEW YORK

Commodity	1925	1926	1927	1928	1929	1930	1931	Average
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Apples	11.4	11.7	9.9	9.9	8.6	8.3	9.1	9.8
Cabbage	3.1	3.4	3.3	3.7	4.5	4.6	4.6	3.9
Cantaloups [2]	5.7	5.9	5.7	6.8	7.3	7.1	7.3	6.6
Celery	2.7	2.6	3.4	3.8	3.4	3.6	3.3	3.3
Grapefruit	4.3	3.8	4.1	3.2	3.9	4.8	5.8	4.2
Grapes	14.2	15.0	14.3	11.[illegible]	10.7	13.0	9.2	12.5
Lemons	3.5	2.8	2.5	3.0	2.7	3.3	2.4	2.9
Lettuce	6.2	6.6	7.0	7.0	7.3	7.5	6.9	6.9
Onions	6.9	6.4	7.2	9.1	6.3	5.6	5.3	6.7
Oranges [3]	9.1	10.1	9.9	9.2	12.6	10.2	15.1	10.9
Peaches	4.1	4.8	3.7	4.5	2.8	3.0	4.4	3.9
Potatoes	19.0	16.7	17.1	16.9	18.2	17.9	16.2	17.3
Strawberries	1.7	1.3	1.7	1.6	1.4	1.0	1.4	1.4
Sweetpotatoes	1.4	1.7	2.1	1.7	1.4	1.1	.8	1.5
Tomatoes	4.1	4.1	5.5	5.7	5.7	6.2	5.3	5.3
Watermelons	2.6	3.1	2.6	2.8	3.2	2.8	2.9	2.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

PHILADELPHIA

Apples	7.1	7.4	4.6	6.6	5.6	6.1	6.2	6.2
Cabbage	6.4	5.8	5.8	6.6	6.9	6.2	7.7	6.5
Cantaloups [2]	4.1	4.8	5.5	5.8	6.1	6.1	6.1	5.5
Celery	3.8	3.6	4.3	5.1	4.4	4.5	4.3	4.3
Grapefruit	2.9	2.6	3.0	2.7	3.2	3.3	4.3	3.2
Grapes	14.1	13.1	12.5	12.1	8.7	9.4	7.0	10.9
Lemons	1.9	2.1	1.9	2.0	2.1	2.1	2.2	2.1
Lettuce	7.0	7.7	8.4	8.3	8.5	9.5	8.3	8.1
Onions	6.0	5.7	5.8	5.9	5.6	5.1	5.7	5.8
Oranges [3]	8.8	10.2	11.7	10.7	15.5	10.4	14.6	11.7
Peaches	2.8	3.7	2.8	4.4	2.0	2.5	3.2	3.0
Potatoes	24.6	23.0	22.4	19.9	20.4	22.4	19.6	21.8
Strawberries	1.3	1.0	1.3	1.1	1.1	.9	1.1	1.1
Sweetpotatoes	1.2	1.2	1.2	.8	.8	.8	.5	.9
Tomatoes	4.2	3.2	5.0	4.0	4.8	5.6	4.9	4.5
Watermelons	3.8	4.9	3.8	4.0	4.3	5.1	4.3	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

PITTSBURGH

Apples	12.6	12.4	10.1	9.2	10.3	11.5	9.5	10.8
Cabbage	5.4	6.2	5.8	5.5	5.4	5.9	5.0	5.7
Cantaloups [2]	6.8	5.8	6.2	6.7	6.5	5.8	7.2	6.4
Celery	3.9	3.6	3.9	3.8	4.0	4.1	4.1	3.9
Grapefruit	2.0	1.8	1.8	1.9	2.4	2.4	3.4	2.3
Grapes	14.6	14.2	11.9	14.3	11.0	11.8	8.0	12.2
Lemons	1.1	1.5	1.8	1.8	1.9	1.7	2.3	1.7
Lettuce	4.8	4.8	5.2	5.7	5.6	6.1	5.8	5.4
Onions	4.5	4.3	4.1	4.0	4.7	4.7	4.3	4.4
Oranges [3]	6.4	8.2	9.5	7.6	11.1	8.0	10.8	8.8
Peaches	4.5	5.2	3.7	4.9	3.3	3.0	4.4	4.1
Potatoes	19.0	17.1	18.0	16.9	17.1	18.9	18.5	18.0
Strawberries	1.4	1.7	2.3	2.5	1.9	1.2	1.8	1.8
Sweetpotatoes	4.0	4.0	4.8	4.0	4.5	3.9	4.2	4.3
Tomatoes	5.5	5.1	7.1	6.4	6.3	6.4	6.2	6.2
Watermelons	3.5	4.1	3.8	4.2	4.0	4.6	3.9	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[1] Imports as well as domestic boat receipts are included in this table.
[2] Includes casaba, Honey Ball, Honey Dew, Persian, and mixed melons.
[3] Includes satsumas and tangerines.

These variations in the relative importance of the commodities in the supply received by rail or boat in the different cities may be accounted for partly by variations in local production marketed by truck, and possibly to some extent by differences in food habits of the

populations and differences in trade practices and control of shipments.

On the whole, it appears that the fluctuations in the composition of a market's supply from year to year are not large. In the case of some commodities and some markets, there are pronounced trends in one direction or the other. There are considerable differences in the composition of the supply among different markets in any year.

SUMMARY AND CONCLUSIONS

Competition in marketing is keen and growers and shippers of fruits and vegetables are canvassing all means of increasing market outlets and improving distribution methods. The tables and discussion in this study are intended to supply basic information that will assist growers, cooperative marketing associations, and other shippers in the market distribution of these products.

The distribution among the markets of 800,000 to 1,000,000 cars of fruits and vegetables shipped annually in the United States involves many difficult problems. Speed in handling is necessary because of the perishable nature of most of these commodities. Many of the important producing areas are situated long distances (1,000 miles or more) from the large markets, which are mostly in the northern and eastern part of the United States. Conditions on the markets may change materially during the time a shipment is on the way.

Motor-truck shipments are an important item in the fruit and vegetable supply, but rail and boat shipments still account for a large part of the commercial fruit and vegetable movement. Motor-truck shipments in 1931 probably amounted to roughly 25 percent of the United States shipments moving a distance of 20 miles or more to market, which excludes most of the strictly market-garden supplies. Statistics on motor-truck shipments for most producing areas and data on motor-truck receipts in many markets are not available. Therefore, the analysis in this bulletin is based largely on statistics of car-lot shipments and unloads, and such information as is available on motor-truck movement is used in a supplementary way.

Although market-news reports by public agencies are available on market prices, car-lot shipments, and market receipts, there are practical difficulties in obtaining the most efficient use of this information because the control of shipments of a commodity is usually divided among a number of shippers.

A study of the day-to-day price fluctuations for selected commodities, markets, and periods, indicates some sharp fluctuations in supply which is the chief factor influencing price. On the whole, however, the irregularities in day-to-day distribution are not so great as might be expected. The average wholesale-price change from day to day in 1931 for certain highly perishable commodities, in certain markets, averaged about 8 percent. This does not indicate extremely wide daily fluctuations in supply. When different markets in the same general area are compared, it is usually though not always the case that price changes from day to day are in the same direction, indicating fairly even distribution on the average. The average seasonal wholesale prices on different markets for a certain commodity from a certain producing area usually do not show a wide range. Such variations as occur can frequently be explained by differences in transportation charges.

About two-thirds of the car-lot shipments of 16 fruits and vegetables in both 1930 and 1931 were unloaded in 61 market districts with a total metropolitan population of about 40 percent of the United States population, or 72 percent of the urban population in places of 2,500 or more.

For some commodities the largest cities appear to be better markets than the smaller cities. Some commodities have a wider distribution among the small markets than others. On a basis of car-lot unloads per unit of population there are pronounced differences among markets and groups of markets and among different commodities. These differences can be explained only by a study of each case, taking into consideration local market conditions, motor-truck movement, and other influencing factors. A study of total supplies, including truck receipts for a few cities where records are available, shows relatively small variations from year to year in the total supply of 16 fruits and vegetables per unit of population. For specific commodities, however, the variation from year to year is quite large.

The proportion of total United States car-lot shipments of a commodity unloaded in a market has usually shown only small variations from year to year, although in some instances there were rather wide fluctuations and trends over a period of years. There are wide variations in the percentages of car-lot shipments of different commodities unloaded in any market. Some of these differences can be explained by such factors as distance from producing districts which influences motor-truck receipts, motor-truck distribution from the market, and imports.

On the whole, the distribution of car-lot shipments of fruits and vegetables, either on a basis of shipments for the entire United States or for a specific producing district, is fairly even among the markets from year to year and is proportionate to the volume of shipments.

The composition of the fruit and vegetable supply received by rail and boat differs considerably among the markets, and in any market it varies considerably from year to year, being influenced by the volume and location of production.

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