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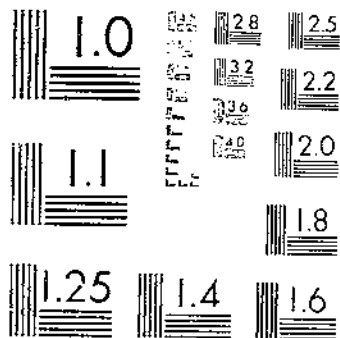
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ORIGIN AND DISTRIBUTION OF THE COMMERCIAL POTATO CROP

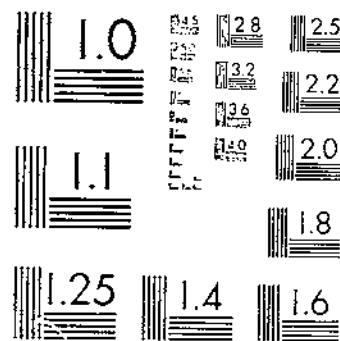
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UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

ORIGIN AND DISTRIBUTION OF THE
COMMERCIAL POTATO CROP

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CONTENTS

	Page		Page
Introduction.....	1	Estimated disposition of seven commercial	
Areas of production.....	2	potato crops.....	53
Acreage.....	4	United States.....	54
Yield per acre.....	7	New York.....	55
Production.....	9	Michigan.....	57
Potato harvest season.....	13	Wisconsin.....	58
Crop movement.....	14	Pennsylvania.....	58
Crop distribution.....	22	Virginia and Maryland.....	60
Ten potato-market districts.....	22	New Jersey.....	60
Supply statistics of 12 large markets.....	37	Conclusions.....	61
Other large markets.....	48		

INTRODUCTION

The potato is the leading vegetable in the United States. The total potato crop averaged annually about 358,000,000 bushels during 1921-30 and had an average farm value slightly under \$320,000,000. The average production was increased to about 380,000,000 bushels during 1931-35 and the average farm value dropped to about \$207,000,000.

The potato is adaptable to all latitudes in the United States and is grown in practically all tillable sections of the country. More than 3,000,000 acres of potatoes are harvested annually on farms and this does not include the small patches and gardens for they are not included in the official estimates.

The shift in location of supplies, changes in method of transportation, increasing competition from other vegetables and cereals, a longer shipping season, and other changes in recent years have combined to create new marketing problems in the potato industry.

The graphic and statistical analyses here given are based on records and estimates of the United States Department of Agriculture, and are intended to assist in a clearer understanding of trends that have taken place in the industry, with a view to helping in the solution of the industry's problems. The discussion relates largely to trends and comparisons during the period 1921-35. It is limited to data that were available in June 1936.

¹ Retired August 31, 1938.

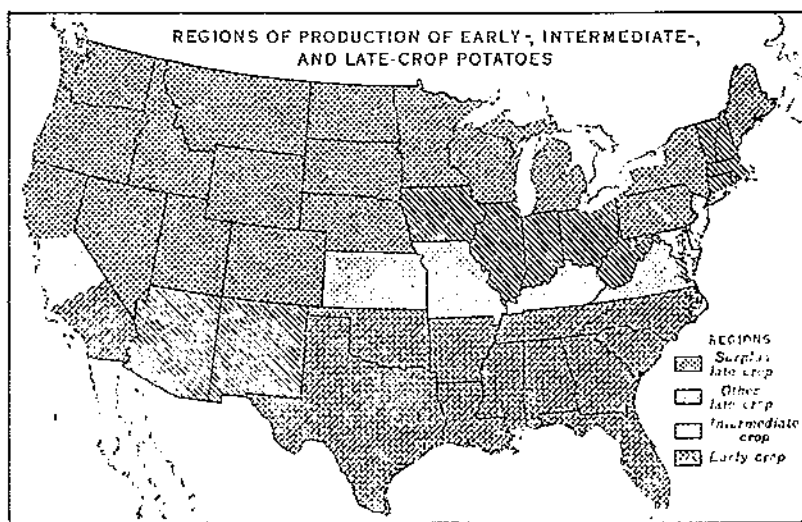
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Considerable quantities of potatoes are now moved to market by motortruck, but as statistics on this type of movement are very limited, most of the tabular and graphic material necessarily relates to rail and boat shipments only but such information as is available on truck movement has been used in the analyses and discussion.

The production and marketing of the crop is affected by climatic, financial, competitive, and other conditions. Averages of these conditions over a period of years form about the best indication of future trends in the industry, although an exact repetition of past performances is not to be expected. In analyzing and discussing acreage, yield, production, shipments, and other factors, averages of a number of years are generally used rather than any one year.

AREAS OF PRODUCTION

A rather distinct classification of potato-producing States has developed, based on the earliness or lateness of the bulk of production in each State and the period during which the crop is marketed. The greater part of the late- or main-crop potatoes is grown in the region lying north of the thirty-ninth parallel of latitude and extending from Maine, New York, and Pennsylvania to the Pacific coast. The late crop can be stored and sold or used during the winter and spring. Although potatoes are produced during nearly all seasons of the year in some sections of the country, the late or main crop supplies the greater part of the consumptive requirements and constitutes the principal source of supply from September to May.



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FIGURE 1.—Climatic conditions as influenced by latitude are the principal factors that determine the location of the production of each of the three crops, but altitude produces the required conditions of climate in several localities.

There are 30 late- or main-crop potato States. Of these, 18 are designated as "surplus" late-potato States (fig. 1). Each of the so-called surplus States has within its borders one or more commercial

potato districts of considerable importance (fig. 2). Those districts produce potatoes in excess of local requirements and have surpluses

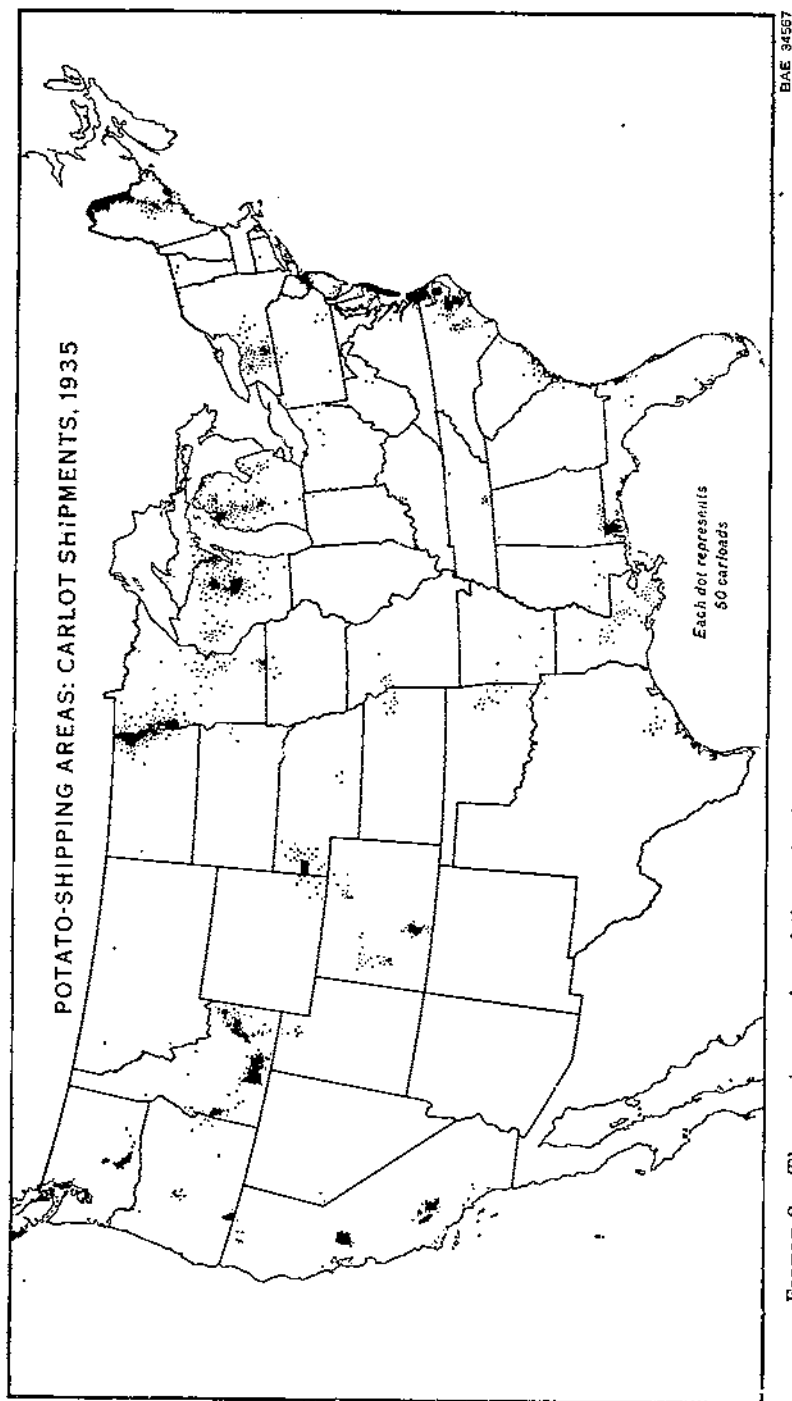


FIGURE 2.—The greater number of the carload shipments of potatoes each year originate in the sections shown.

available for market outside the area where grown. That part of the crop not sold from the fields is held on the farm or in other storage and is moved when needed during the months from harvest to the end of the following June.

The 12 other late-crop States usually do not have extensive commercial producing districts and are largely dependent on the surplus States for the bulk of their winter and spring needs of late-crop potatoes. The production in the 12 other late-crop States, sometimes called the deficit area, is more widely scattered than in the surplus States and, although shipments are made from some districts of concentrated production, the crop is chiefly grown for local use.

The States bordering on the Atlantic Ocean from North Carolina south to Florida, the Gulf Coast States, Tennessee, Arkansas, and Oklahoma comprise the 11 early-crop States. The commercial crop in those States is grown primarily to meet the demand for new potatoes. The early crop is more perishable than the late crop and is marketed as soon as harvested during the winter and spring.

Between the late- and early-crop regions are located Kansas, Missouri, Kentucky, Virginia, Maryland, Delaware, and New Jersey—the seven intermediate-crop States. The crop from these States has been the main source of supply during the period of reduced shipments from the early-crop sections and before the late crop appears on the markets in quantities; but increased shipments from early-crop sections have reduced the demand for potatoes from this source during recent years.

New York and California are generally classed as late-crop States, but Long Island, N. Y., and central California produce large quantities of intermediate-crop potatoes and some early crop stock is grown in southern California. Other late-crop States produce limited quantities of intermediate-crop potatoes and small acreages of late-crop potatoes are grown in the intermediate and early States but these items are considered as incidental in this analysis and discussion.

ACREAGE

Acreage, the basis of potato production, is practically the only factor of the industry that is under the complete control of the operator. Ordinarily each grower plants the number of acres that, in his opinion, will prove advantageous to his interests. His decisions may be based on his knowledge of the potato industry in general, or his familiarity with local conditions of supply and demand, or both.

An increase or decrease in the potato acreage of the United States represents the aggregate changes made by individual growers. Records indicate that changes in acreage for any season are influenced considerably by market conditions during the preceding season. If it were possible to obtain collective action of all growers in regard to acreage planted, a considerable part of the year-to-year changes in acreage could be avoided.

Growers of early- and intermediate-crop potatoes are influenced considerably by the estimated volume of old-crop stock to be marketed in competition with their crops, as well as by the reports showing the intended acreage to be planted in the early- and intermediate-crop districts. Although records have indicated the downward trend

in the industry, the early States have increased their acreage during recent years which has been one cause of reduced farm prices.

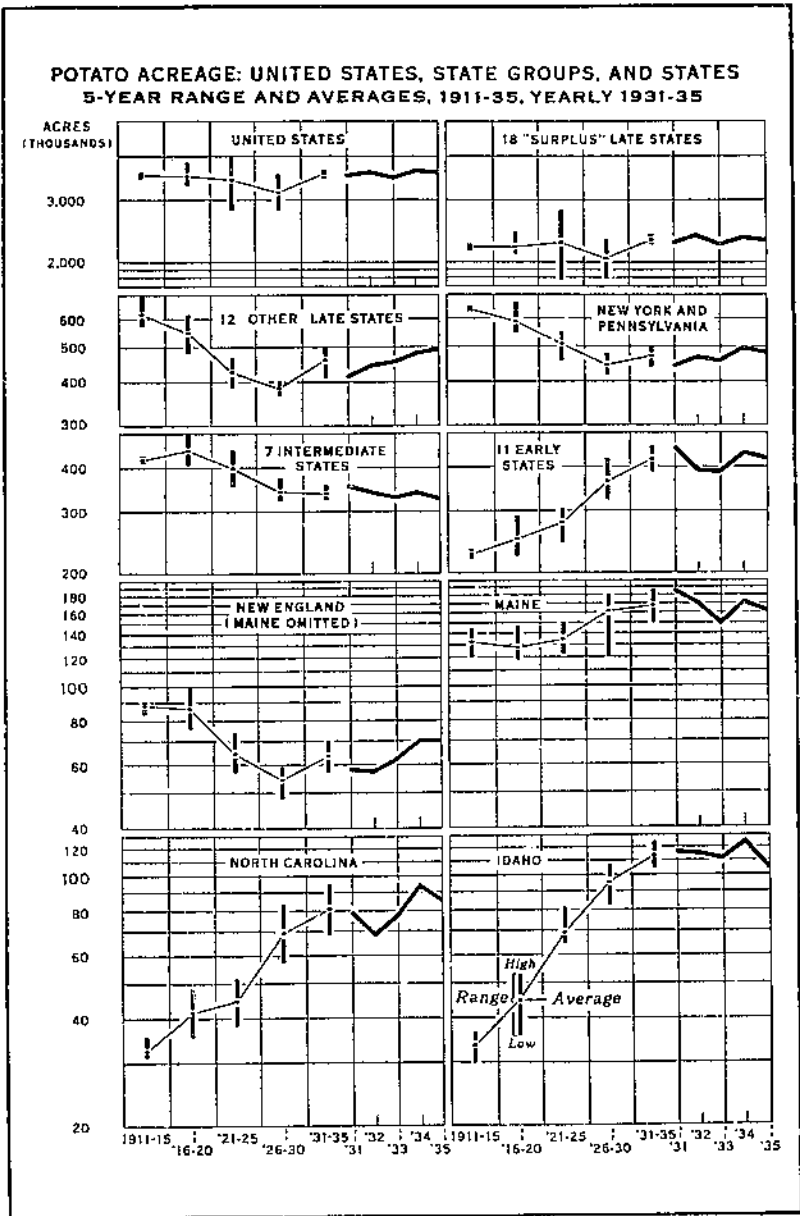
Records indicate a tendency for growers in general to expand acreage unduly after a year of moderate or low production and satisfactory prices; this has often resulted in overproduction and low returns. Reductions in acreage following seasons of low financial returns have not always been to the best interest of the growers because of the unbalanced conditions that resulted. The return from a uniform yearly acreage has proven to be the most satisfactory over a period of years.

A tendency toward reduction of potato acreage in the United States began in 1911. The 1911-15 yearly average acreage was reported to be 3,473,000 acres. Each 5-year average following that period shows a reduction in acreage from the preceding 5-year average until the low point of 3,123,000 acres was reached during 1926-30. The yearly average for 1931-35 was reported to be 3,515,000 acres, an increase of 392,000 acres above the 1926-30 average (fig. 3 and table 1). This large acreage accounts in part for the unfavorable conditions in the potato industry during the period 1931-35. The shift in acreage among the States has also contributed to unsatisfactory conditions.

TABLE 1.—Estimated acreage of potatoes by seasonal groups and States, averages 1921-35, annual 1931-35¹

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Surplus late-potato States:	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>	<i>1,000 acres</i>
Maine.....	133.8	160.6	167.8	186.0	170.0	160.0	171.0	162.0
New York.....	291.6	229.4	245.0	223.0	245.0	238.0	260.0	233.0
Pennsylvania.....	215.4	207.6	217.6	212.0	215.0	211.0	226.0	224.0
Michigan.....	286.0	240.6	302.0	267.0	291.0	311.0	323.0	323.0
Wisconsin.....	270.2	244.2	283.0	283.0	281.0	266.0	296.0	287.0
Minnesota.....	357.6	320.0	357.6	361.0	379.0	350.0	380.0	350.0
North Dakota.....	141.4	102.6	113.2	122.0	167.0	151.0	138.0	135.0
South Dakota.....	75.0	52.8	52.4	50.0	68.0	54.0	40.0	50.0
Nebraska.....	105.0	100.4	120.4	131.0	135.0	115.0	95.0	126.0
Montana.....	21.0	21.2	22.4	21.0	22.0	23.0	23.0	23.0
Idaho.....	69.2	65.4	113.8	116.0	114.0	111.0	124.0	164.0
Wyoming.....	13.6	10.2	31.2	32.0	34.0	33.0	28.0	29.0
Colorado.....	95.8	94.0	102.4	106.0	115.0	88.0	93.0	100.0
Utah.....	12.6	12.8	14.1	15.0	15.0	14.0	13.0	13.6
Nevada.....	4.4	4.6	2.6	3.0	2.4	2.3	2.3	2.6
Washington.....	54.2	53.4	51.8	61.0	61.0	52.0	57.0	48.0
Oregon.....	36.0	36.8	46.8	46.0	48.0	46.0	52.0	42.0
California.....	56.8	43.4	41.2	40.0	36.0	30.0	46.0	48.0
Average.....	2,272.6	2,048.6	2,316.8	2,265.0	2,390.4	2,253.3	2,355.3	2,320.2
Other late-potato States:								
New Hampshire.....	11.3	9.1	9.6	9.5	9.1	8.3	10.3	10.0
Vermont.....	20.6	16.7	17.6	17.4	16.5	17.2	18.5	18.5
Massachusetts.....	15.4	12.8	16.3	13.5	14.0	16.5	18.7	18.7
Rhode Island.....	2.4	2.2	3.4	2.9	3.0	3.2	3.8	4.1
Connecticut.....	14.0	13.4	16.3	14.3	14.3	16.0	18.4	18.6
West Virginia.....	36.8	36.4	39.6	41.0	37.0	40.0	43.0	37.0
Ohio.....	108.2	102.4	137.6	120.0	136.0	130.0	140.0	153.0
Indiana.....	52.6	50.2	60.8	61.0	68.0	67.0	74.0	73.0
Illinois.....	66.0	48.6	50.8	50.0	64.0	48.0	52.0	50.0
Iowa.....	85.2	74.6	82.4	71.0	76.0	82.0	92.0	96.0
New Mexico.....	2.4	3.8	5.8	5.0	6.0	7.0	5.0	6.0
Arizona.....	3.8	3.2	2.0	3.0	3.0	3.0	2.0	2.0
Average.....	420.4	380.6	452.7	408.6	436.0	448.2	477.7	491.0
30 late States.....	2,692.8	2,429.0	2,769.5	2,673.6	2,827.3	2,701.5	2,833.0	2,811.1

¹ Representing entire acreage of potatoes on farms, including both early and late crops. Revisions have been made on basis of census records and supplementary data to conform with revisions of estimates of recent years.



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FIGURE 3.—During the period 1911-15 to 1931-35 notable increases in potato acreage occurred in the 11 early States as a group, and in Maine, Idaho, and North Carolina. Acreage in the 12 other late-crop States was reduced during the 20-year period but increased considerably during 1931-35.

TABLE 1.—Estimated acreage of potatoes by seasonal groups and States averages 1921-35, annual 1931-35—Continued

Group and State	Average 1922-25	Average 1926-30	Average 1931-35	1931	1932	1933	1931	1935
	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres	1,000 acres
Intermediate-potato States:								
New Jersey.....	72.4	40.2	47.4	42.0	46.0	45.0	52.0	52.0
Delaware.....	6.6	4.6	6.0	5.0	6.0	6.0	7.0	6.0
Maryland.....	39.0	32.2	32.0	32.0	31.0	30.0	34.0	33.0
Virginia.....	122.4	112.0	98.8	118.0	93.0	95.0	103.0	90.0
Kentucky.....	46.6	48.8	59.6	52.0	51.0	49.0	49.0	52.0
Missouri.....	57.0	53.4	59.2	60.0	62.0	60.0	55.0	58.0
Kansas.....	53.4	44.0	33.2	44.0	44.0	39.0	33.0	31.0
Average.....	398.0	335.8	332.0	348.0	333.0	324.0	333.0	322.0
Early-potato States:								
North Carolina.....	43.6	60.2	80.6	79.0	68.0	77.0	94.0	85.0
South Carolina.....	21.8	23.4	19.2	25.0	17.0	16.0	29.0	18.0
Georgia.....	13.0	12.6	16.4	16.0	15.0	16.0	17.0	18.0
Florida.....	23.4	28.0	25.0	29.0	24.0	19.0	26.0	27.0
Tennessee.....	33.6	39.2	44.8	48.0	41.0	43.0	47.0	48.0
Alabama.....	21.6	26.2	33.6	37.0	32.0	32.0	34.0	33.0
Mississippi.....	8.0	8.8	15.0	14.0	14.0	14.0	17.0	16.0
Arkansas.....	25.2	31.4	44.0	46.0	40.0	42.0	44.0	48.0
Louisiana.....	24.6	34.0	41.4	48.0	40.0	38.0	42.0	39.0
Oklahoma.....	31.6	41.4	38.2	43.0	40.0	35.0	39.0	39.0
Texas.....	28.8	43.4	54.4	60.0	58.0	54.0	51.0	49.0
Average.....	276.6	357.6	413.6	445.0	389.0	386.0	431.0	417.0
Average United States	3,367.6	3,122.6	3,515.1	3,466.6	3,519.3	3,411.5	3,597.0	3,551.1

From 1911-15 to 1931-35 a considerable reduction in acreage was made in both the 12 other late-crop States and in the 7 intermediate-crop States. Pennsylvania and New York considered together also reduced their acreage during that period. Maine, Idaho, and the 11 early-crop States with North Carolina leading made notable increases in acreage during the 20-year period (fig. 3).

Trends in the 12 other late-crop States and the 5 New England States show a tendency to increase acreage during the recent 5-year period (1931-35) regardless of the increased competition from other sources.

YIELD PER ACRE

Yield per acre and acreage are the two factors that determine production. Yields per acre are largely influenced by the weather, but other factors like quality of seed, cultural methods, variety, and fertility of the soil affect the yield.

Each year there are wide variations in average yields per acre among the States. In 1931-35 the average yield in Maine, the State with highest average yields, was about 268 bushels per acre compared with the low yields of about 62 bushels in Texas and Louisiana. The early States during the 5-year period averaged about 81 bushels per acre compared with about 100 bushels in the intermediate States, 117 bushels in the late surplus States, and 92 bushels in the other late States (table 2).

TABLE 2.—Estimated yield per acre of potatoes by seasonal groups and States, averages 1921-35, annual 1931-35

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Surplus late-potato States:								
Maine	249.3	253.0	267.9	258	235	280	324	240
New York	112.2	112.0	120.0	130	135	123	143	110
Pennsylvania	101.6	109.5	123.5	135	110	113	145	114
Michigan	102.6	91.2	94.0	92	104	75	112	87
Wisconsin	102.5	58.1	88.4	93	87	70	108	82
Minnesota	92.3	91.8	72.0	50	78	65	67	91
North Dakota	84.3	78.7	66.6	71	53	62	45	98
South Dakota	76.6	81.6	50.8	40	67	40	30	68
Nebraska	78.8	91.8	68.7	69	70	80	50	80
Montana	111.0	104.6	87.5	85	100	90	78	85
Idaho	186.1	208.8	211.1	220	206	230	193	215
Wyoming	169.4	118.8	78.0	95	50	100	42	90
Colorado	142.6	164.0	123.5	95	110	150	84	180
Utah	135.0	154.0	139.5	130	150	150	115	150
Nevada	153.2	145.7	136.4	87	150	140	151	160
Washington	158.5	189.7	164.6	55	160	180	163	165
Oregon	101.5	121.2	137.9	130	120	160	144	135
California	161.3	182.4	224.2	195	103	240	240	245
Average	115.0	122.6	117.1	119.5	112.2	112.5	123.9	117.5
Other late-potato States:								
New Hampshire	120.5	136.2	156.8	160	160	175	172	115
Vermont	120.3	130.2	136.0	142	140	122	169	115
Massachusetts	116.9	112.2	131.6	125	145	148	140	104
Rhode Island	122.5	137.7	171.2	150	160	180	185	175
Connecticut	115.0	124.8	158.3	160	165	160	176	132
West Virginia	90.4	98.2	76.3	80	85	63	70	85
Ohio	85.2	94.7	97.3	102	90	72	105	108
Indiana	78.3	91.9	81.6	85	90	56	96	80
Illinois	72.6	87.7	70.3	85	90	33	59	82
Iowa	84.4	92.9	78.9	55	110	68	63	75
New Mexico	50.4	75.5	68.1	60	72	80	53	70
Arizona	76.8	77.8	78.0	70	55	80	65	70
Average	87.4	97.5	91.0	92.4	103.6	74.8	95.0	93.9
30 late States	110.7	118.6	113.0	115.3	110.0	106.2	119.0	113.4
Intermediate-potato States:								
New Jersey	122.4	151.3	160.9	177	150	152	160	166
Delaware	75.5	87.6	89.7	96	80	71	98	94
Maryland	92.9	111.6	97.9	105	92	96	102	95
Virginia	113.3	138.1	115.3	122	103	92	131	126
Kentucky	76.6	80.0	74.3	72	77	66	70	86
Missouri	73.2	91.6	65.9	75	95	46	32	78
Kansas	75.4	112.3	70.9	70	115	50	34	75
Average	97.1	119.4	90.5	104.6	104.3	82.8	96.9	108.7
Early-potato States:								
North Carolina	93.3	100.1	105.1	108	97	95	115	107
South Carolina	120.1	124.1	116.0	140	90	108	124	105
Georgia	62.8	66.9	67.4	66	64	62	74	70
Florida	102.1	108.2	113.7	132	70	170	139	97
Tennessee	66.4	77.8	68.4	50	60	66	77	71
Alabama	79.5	74.8	83.1	94	89	72	93	85
Mississippi	70.7	72.5	71.5	79	70	62	75	77
Arkansas	60.4	77.2	72.1	90	65	64	68	81
Louisiana	60.8	58.4	61.6	75	51	51	60	65
Oklahoma	68.0	75.9	68.4	70	80	62	59	70
Texas	61.8	73.0	61.8	72	63	58	60	54
Average	78.1	81.1	80.6	88.5	72.7	74.0	85.0	81.1
Average United States	106.4	114.7	107.9	110.8	106.1	100.3	112.9	109.2

It is notable that in practically all the important potato States except Minnesota and Michigan there was a general upward trend in yield per acre during the period 1911-35 (fig. 4). This upward trend over a long period is probably due chiefly to the use of better seed and better cultural methods. Year-to-year variations are of course attributable largely to variations in weather.

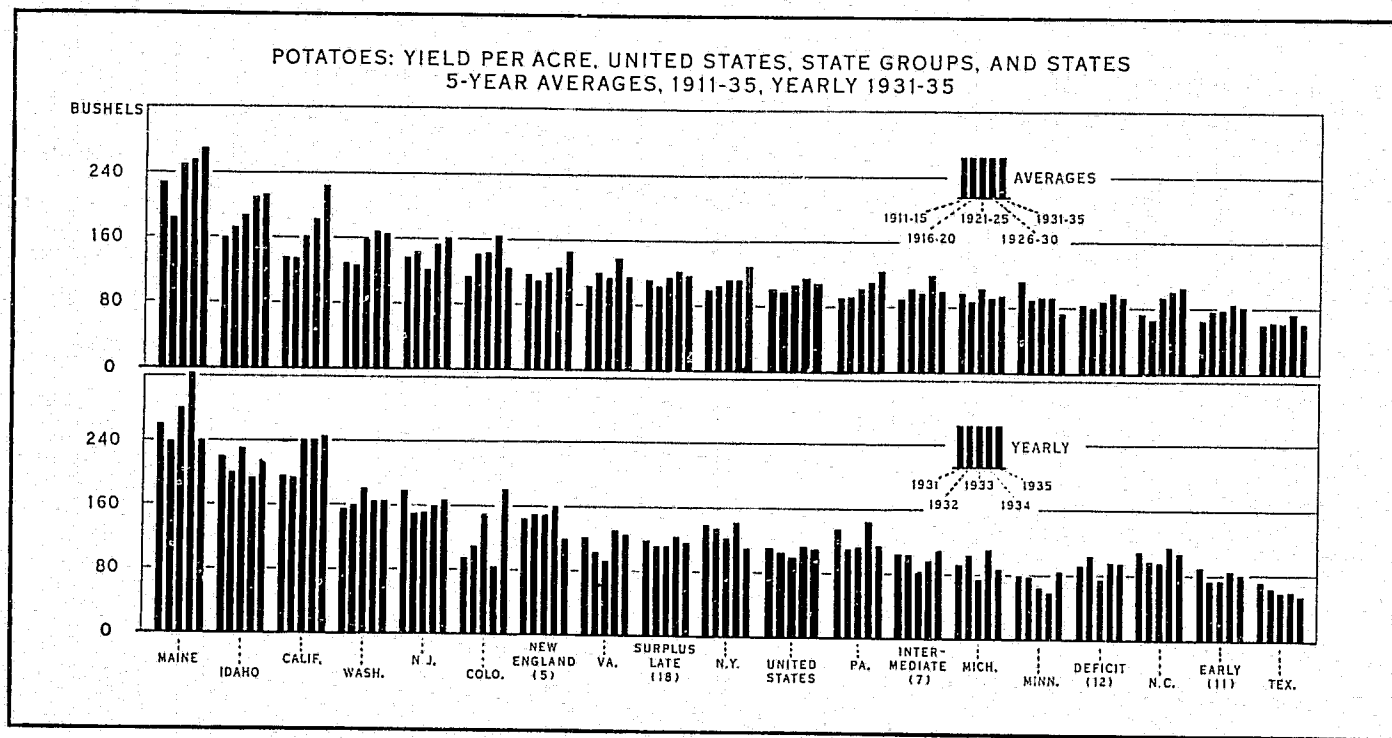


FIGURE 4.—Yields per acre, influenced by weather, vary considerably from year to year. In most States there has been an upward trend in yield during 1911-35. Yields per acre in Maine have been highest and have averaged roughly four times those in Texas.

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The average yield per acre in the United States from 1911-20 was 96.2 bushels. During the following 15 years (1921-35) the average yield was 109.5 bushels. The increase in yield per acre between the two periods applied to the average acreage from 1921-35 indicates an increase in yearly average production of 44,000,000 bushels.

The lowest yield per acre for the United States for the period 1911-35 was 82.6 bushels in 1916, and the highest, 123.7, in 1924.

As the yields per acre vary so greatly among the States and groups, it is important to know where reported changes in acreages have been made in order to evaluate its effect on production. For example, using the 1931-35 average yield per acre, an increase of 1 acre in Maine, because of the high yields, would have been equal to an increase of 3.67 acres in Minnesota in regard to the quantity of potatoes produced (table 2).

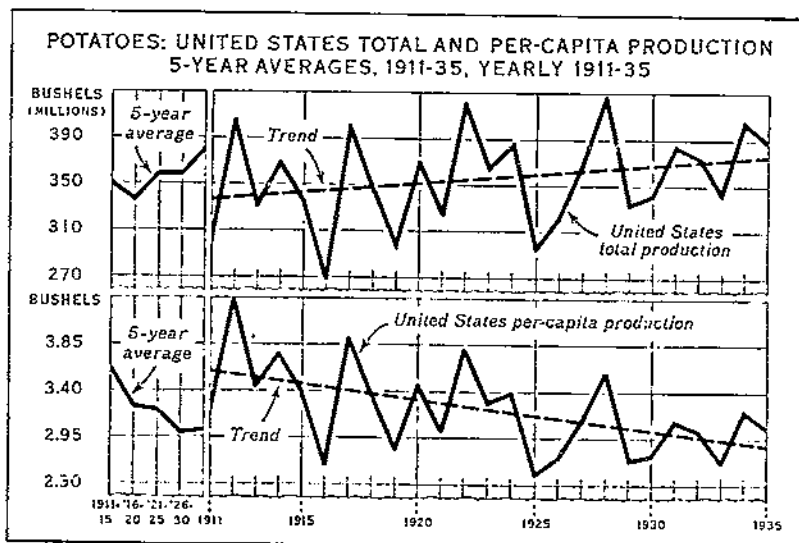
PRODUCTION

The production of a crop that will be fair to both consumers and producers should be the primary object of the potato industry. The utilization of the minimum in acreage that will grow such a production under normal climatic conditions at a cost consistent with the general market situation is desirable.

Although acreage (fig. 3) tended to decline from 1911 to 1930, the increased plantings during 1931-35, together with larger average yields per acre (fig. 4), were sufficient to cause an upward trend in production for the 1911-35 period as a whole (fig. 5). On a per-capita basis, production varied during the period. During 1911-15 production was 3.62 bushels per capita, but dropped to 3.02 during 1931-35, a decrease of 0.6 bushel per capita for the period.

The average production during the 5 years 1931-35 was 379,000,000 bushels compared with 358,000,000 in each of the two preceding 5-year periods. The greater part of that production was grown in the late-crop States which produced approximately a yearly average of 300,000,000 bushels during the 15 years 1921-35. Intermediate-crop production averaged about 37,000,000 bushels and early-crop production slightly over 28,000,000 during that period (table 3).

Slightly more than 82 percent of the production, divided roughly as 71 percent among the surplus and 11 among the other late States, was grown in the 30 late-crop States as a whole from 1921 to 1935. The remaining 18 percent of the production was grown in the early- and intermediate-crop States. Those two groups of States produced approximately equal quantities of potatoes during the 1931-35 period. Maine was the most important State in quantity of production for the greater part of the 1921-35 period, and during 1931-35 about 12 percent of the total production was in this State (table 4).



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FIGURE 5.—The upward trend in total production was caused in general by increased yields per acre with a slight downward trend in acreage. The downward trend in per-capita production indicates that the increase in population of the United States has been greater in proportion than the increase in total production.

TABLE 3.—Estimated production of potatoes by seasonal groups and States, averages 1921-35, annual 1931-35¹

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Surplus late-potato States:								
Maine.....	33,362	40,735	44,046	47,958	40,440	42,000	55,404	38,880
New York.....	32,723	25,692	31,929	30,997	33,075	20,274	38,467	27,830
Pennsylvania.....	21,878	22,731	26,884	28,626	23,659	23,843	32,770	25,636
Michigan.....	29,346	21,954	28,466	21,564	30,264	23,325	36,176	28,101
Wisconsin.....	27,693	23,945	25,012	26,319	24,621	18,620	31,978	23,534
Minnesota.....	35,758	30,191	20,098	28,580	29,582	22,035	20,463	29,460
North Dakota.....	11,923	8,078	9,510	9,028	9,686	9,518	6,210	13,230
South Dakota.....	5,743	4,469	2,663	2,690	4,556	2,160	1,200	3,400
Nebraska.....	8,263	9,212	8,268	7,860	9,450	9,200	4,730	10,080
Montana.....	3,664	2,318	1,061	1,785	2,200	2,070	1,734	1,955
Idaho.....	12,879	19,923	24,028	25,529	22,500	25,530	23,632	22,360
Wyoming.....	1,369	2,224	2,371	3,040	1,700	3,300	1,204	2,610
Colorado.....	13,659	15,511	12,646	10,670	12,850	14,760	7,812	18,000
Utah.....	1,063	1,997	1,067	1,050	2,230	2,460	1,405	2,040
Nevada.....	674	670	341	204	360	322	317	416
Washington.....	8,580	0,000	8,527	7,005	8,160	0,360	0,201	7,200
Oregon.....	3,655	4,459	6,452	5,950	5,760	7,300	7,488	5,670
California.....	9,161	7,918	0,208	7,809	6,948	5,640	11,040	11,700
Average.....	201,320	250,908	271,328	279,567	268,182	253,387	291,811	272,722
Other late-potato States:								
New Hampshire.....	1,362	1,230	1,505	1,520	1,455	1,628	1,772	1,150
Vermont.....	2,378	2,175	2,303	2,471	2,310	2,094	2,060	2,128
Massachusetts.....	1,801	1,436	2,045	1,688	2,030	2,442	2,618	1,915
Rhode Island.....	294	203	582	458	450	570	703	718
Connecticut.....	1,714	1,672	2,580	2,288	2,360	2,560	3,238	2,455
West Virginia.....	3,326	3,575	3,020	3,280	3,145	2,520	3,010	3,148
Ohio.....	9,223	10,350	13,387	12,240	13,464	10,008	14,780	16,524
Indiana.....	4,120	4,614	5,680	5,185	6,120	3,752	7,301	6,240

¹ Representing entire production of potatoes on farms, including both early and late crops. Revisions have been made on basis of census records and supplementary data to conform with revisions of estimates of recent years.

TABLE 3.—Estimated production of potatoes by seasonal groups and States, averages 1921-35, annual 1931-35—Continued

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Other late-potato States—Con.	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>	<i>1,000 bushels</i>
Illinois.....	4,826	4,264	3,572	4,250	4,869	4,554	3,698	4,100
Iowa.....	7,190	6,928	6,167	3,595	5,360	5,576	5,790	7,200
New Mexico.....	121	287	395	300	432	550	265	420
Arizona.....	292	249	195	210	255	240	130	140
Average.....	36,746	37,099	41,623	37,772	45,272	33,544	45,361	46,165
30 late States.....	298,066	288,087	312,951	308,339	312,424	286,931	337,175	318,887
Intermediate-potato States:								
New Jersey.....	5,861	6,202	7,625	7,434	6,900	6,840	8,320	8,632
Delaware.....	498	403	538	480	516	444	656	564
Maryland.....	3,624	3,595	3,133	3,360	2,862	2,850	3,468	3,135
Virginia.....	13,674	15,464	11,888	13,784	9,578	8,740	13,403	11,340
Kentucky.....	3,560	4,374	3,761	3,741	3,927	3,234	3,130	4,472
Missouri.....	4,214	5,049	3,887	4,570	5,860	2,700	1,760	4,324
Kansas.....	4,025	5,008	2,707	3,080	5,066	1,960	1,122	2,325
Average.....	48,606	40,094	33,030	36,384	34,724	26,818	32,279	34,092
Early-potato States:								
North Carolina.....	4,069	6,928	8,470	8,532	6,594	7,315	10,810	9,095
South Carolina.....	2,619	2,903	2,227	3,800	1,530	1,728	2,480	1,880
Georgia.....	817	843	1,106	1,056	960	902	1,288	1,260
Florida.....	2,388	3,030	2,812	3,328	1,680	2,470	3,614	2,610
Tennessee.....	2,230	3,049	3,063	2,832	2,329	2,838	3,610	3,105
Alabama.....	1,653	1,961	2,791	2,478	2,208	2,301	3,162	2,956
Mississippi.....	608	638	1,073	1,106	980	868	1,275	1,136
Arkansas.....	1,750	2,425	3,174	4,140	2,600	2,688	2,562	3,888
Louisiana.....	1,496	1,985	2,549	3,609	2,040	2,052	2,520	2,535
Oklahoma.....	2,178	3,141	2,682	3,010	3,200	2,170	2,801	2,730
Texas.....	1,781	3,170	3,362	4,320	3,654	3,132	3,060	2,646
Average.....	21,589	30,073	33,337	39,402	28,277	28,557	36,651	33,799
Average United States.....	358,348	358,255	370,328	384,126	376,425	312,306	406,105	387,678

TABLE 4.—Percentage distribution of potato production on farms by seasonal groups and States, averages 1921-35, annual 1931-35

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Surplus late-potato States:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Maine.....	9.31	11.37	11.85	12.49	10.75	12.27	13.64	10.03
New York.....	9.13	7.17	8.42	8.07	8.79	8.55	9.47	7.18
Pennsylvania.....	6.11	6.34	7.08	7.45	6.28	6.97	8.07	6.59
Michigan.....	8.19	6.13	7.51	6.39	8.04	6.81	8.91	7.25
Wisconsin.....	7.73	6.98	6.59	6.85	6.51	5.44	7.87	6.07
Minnesota.....	9.99	8.43	6.87	7.52	7.85	6.44	5.91	7.58
North Dakota.....	3.33	2.25	2.52	2.35	2.57	2.79	1.53	3.41
South Dakota.....	1.60	1.25	.70	.52	1.21	.63	.30	.28
Nebraska.....	2.31	2.57	2.18	2.05	2.51	2.69	1.17	2.60
Montana.....	.71	.62	.82	.40	.68	.61	.44	.50
Idaho.....	3.59	5.56	6.33	6.64	6.06	7.46	5.89	5.77
Wyoming.....	.38	.62	.82	.79	.45	.96	.30	.67
Colorado.....	3.81	4.33	3.33	2.02	3.36	4.29	1.92	4.64
Utah.....	.51	.56	.52	.51	.60	.61	.37	.53
Nevada.....	.19	.19	.69	.07	.10	.09	.09	.11
Washington.....	2.40	2.53	2.28	2.06	2.17	2.73	2.20	2.04
Oregon.....	1.62	1.24	1.70	1.56	1.53	2.15	1.81	1.46
California.....	2.80	2.21	2.44	2.03	1.85	2.82	2.72	3.02
Average.....	72.93	70.05	71.52	70.43	71.21	71.01	71.86	70.34
Other late-potato States:								
New Hampshire.....	.38	.35	.40	.40	.30	.48	.41	.30
Vermont.....	.60	.61	.63	.64	.61	.61	.73	.55
Massachusetts.....	.50	.40	.57	.44	.51	.71	.64	.50
Rhode Island.....	.08	.08	.15	.11	.13	.17	.17	.19
Connecticut.....	.48	.47	.68	.60	.63	.75	.80	.63
West Virginia.....	.93	1.00	.80	.85	.84	.74	.74	.81
Ohio.....	2.57	2.89	3.59	3.10	3.58	2.92	3.62	4.26

TABLE 4.—Percentage distribution of potato production on farms by seasonal groups and States, averages 1921-25, annual 1931-35—Continued

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Other late-potato States—Con.	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Indiana.....	1.15	1.29	1.50	1.35	1.63	1.10	1.75	1.61
Illinois.....	1.35	1.19	.94	1.11	1.29	.46	.76	1.06
Iowa.....	2.01	1.93	1.63	1.02	2.22	1.63	1.43	1.80
New Mexico.....	.03	.05	.10	.08	.11	.16	.07	.11
Arizona.....	.05	.07	.05	.05	.07	.07	.03	.04
Average.....	10.25	10.36	10.95	9.54	12.04	9.80	11.15	11.92
30 late States.....	83.18	80.41	82.69	80.27	83.28	83.81	83.01	82.26
Intermediate-potato States:								
New Jersey.....	2.47	1.73	2.01	1.94	1.83	2.00	2.05	2.23
Delaware.....	.14	.11	.14	.12	.14	.13	.17	.15
Maryland.....	1.01	1.00	.83	.87	.76	.83	.85	.81
Virginia.....	3.57	4.32	3.00	3.50	2.34	2.55	3.32	2.93
Kentucky.....	1.00	1.22	.99	.97	1.04	.95	.84	1.15
Missouri.....	1.18	1.44	1.02	1.17	1.35	.81	.43	1.17
Kansas.....	1.12	1.40	.71	.50	1.34	.57	.23	.60
Average.....	10.79	11.19	8.70	9.46	9.21	7.84	7.94	9.04
Early-potato States:								
North Carolina.....	1.13	1.03	2.23	2.22	1.75	2.14	2.08	2.35
South Carolina.....	.73	.81	.89	.91	.41	.61	.61	.49
Georgia.....	.23	.24	.29	.28	.26	.29	.31	.32
Florida.....	.67	.85	.75	1.00	.45	.72	.89	.85
Tennessee.....	.62	.85	.81	.74	.75	.83	.80	.82
Alabama.....	.46	.55	.74	.91	.59	.67	.78	.72
Mississippi.....	.17	.18	.25	.20	.26	.25	.31	.29
Arkansas.....	.49	.68	.84	1.08	.69	.79	.63	1.00
Louisiana.....	.42	.58	.67	.94	.51	.60	.62	.65
Oklahoma.....	.61	.85	.71	.78	.85	.63	.57	.70
Texas.....	.59	.88	.80	1.12	.97	.92	.75	.86
Average.....	6.03	8.40	8.80	10.27	7.51	8.35	9.02	8.70
Average United States.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

An average per-capita production of about 2.9 bushels, which means a total production of from 365,000,000 to 370,000,000 bushels, is approximately the quantity desirable from a marketing standpoint under present conditions.

POTATO HARVEST SEASON

The harvest season for potatoes begins in December in the early-crop sections and continues through the succeeding months to end about November 1 in the late-crop area. The December crop is really from fall plantings of the current season but is classed as the first production of the new shipping season.

The first of the harvest usually begins in southern Florida and is followed closely by harvesting in the lower Rio Grande Valley of Texas. Following this early harvest, the Hastings section of northern Florida comes into production in March and continues until June. This is the main supply that is marketed from that State.

During the last of April, or in early May, Louisiana and Alabama usually start harvesting and continue through June. The South Carolina and Georgia harvest follows closely that of Louisiana and Alabama and usually the main harvest in these four States is in full operation at about the same time.

North Carolina usually starts its harvest during the last of May and the larger part of the operation has been completed by July 15.

Arkansas and Oklahoma are the last to begin the early-crop harvest. These States usually begin harvesting the last of May, reach their peak by the middle of June, and are practically finished by July 20.

The Eastern Shore section of Virginia and Maryland is first in the intermediate-crop region to begin harvesting. Digging usually begins early in June. The peak of the harvest season is reached about July 10, and the bulk of the crop has been shipped by August 20.

The Kaw Valley of Kansas and Orrick section of Missouri, both of the intermediate-crop region, begin harvesting somewhat later than the Eastern Shore and reach the peak about July 20.

The Kentucky harvest peak is reached about August 15.

New Jersey starts harvesting soon after Kentucky and reaches its peak about August 20.

The Long Island, N. Y., crop is harvested at about the same time as that of New Jersey but should be considered as both an intermediate- and late-crop production because marketing of the crop starts at harvesttime and continues to the following June.

The late-crop harvest usually begins early in August with the digging in the early crop of the late-crop regions. From this beginning the operations are continuous until the late-crop harvest is completed about November 1.

California produces an early, intermediate, and late crop, but is classed as a surplus late-crop State in the records of the United States Department of Agriculture. The harvest in this State is continuous from the beginning of the early-crop season to the completion of the late-crop harvest.

CROP MOVEMENT

It is estimated that practically 36 percent of the total potato production from 1929 to 1935 was retained on farms where grown for food, feed, and seed, or became a loss through poor quality or other causes. About 33 percent of that production was moved by rail to markets outside the area where grown and the remainder, about 31 percent, was moved to local markets by motortrucks, or means other than rail, or was unsold. This local movement was usually kept within a radius of 150 miles of the point where grown.

Over 39 percent of the production was moved by rail during the 1921-25 period but changes in methods of transportation following that period reduced the rail shipments to about 33 percent of the production from 1931 to 1935. The early- and intermediate-crop States ship a larger percentage of their production by rail than do the late-crop States. The 12 other late-crop States as a group ship the least of their production by rail. The principal motortruck movement is within the late-crop area (table 5).

TABLE 5.—Percentage of potatoes produced on farms marketed in carloads by seasonal groups and States, shipping-seasons, averages 1921-35, annual 1931-35¹

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Surplus late-potato States:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Maine.....	72.0	78.8	72.7	74.3	72.9	77.8	65.3	72.5
New York.....	33.6	29.6	14.6	20.8	15.1	15.1	12.4	9.7
Pennsylvania.....	13.7	8.2	1.1	1.4	.5	1.5	1.1	1.0
Michigan.....	31.8	26.1	17.6	21.1	19.2	12.9	19.3	14.5
Wisconsin.....	35.5	37.4	24.8	30.4	23.5	16.8	22.9	15.1
Minnesota.....	47.6	45.4	31.8	38.6	28.2	45.1	27.3	24.9
North Dakota.....	40.5	44.3	45.3	48.4	28.0	52.7	48.7	49.0
South Dakota.....	26.2	19.2	9.9	2.3	17.1	15.0	.6	4.9
Nebraska.....	33.4	39.6	50.4	63.4	27.3	69.5	44.5	55.3
Montana.....	29.9	23.8	8.5	14.7	6.8	11.9	6.4	2.9
Idaho.....	71.8	70.1	64.4	60.9	53.3	70.7	66.8	63.7
Wyoming.....	38.1	46.8	37.8	42.3	29.0	44.3	34.0	31.9
Colorado.....	63.6	58.8	39.4	43.4	33.3	48.9	24.2	40.3
Utah.....	31.5	25.1	20.2	27.4	15.2	19.3	31.2	11.9
Nevada.....	57.7	63.0	33.1	59.8	38.9	32.4	19.9	18.0
Washington.....	43.7	54.8	36.0	59.4	34.9	36.6	36.9	21.6
Oregon.....	21.8	27.5	33.3	28.2	24.0	30.7	44.6	36.7
California.....	44.0	55.3	55.0	50.9	47.1	57.8	56.6	59.0
Average.....	43.3	45.5	36.1	39.9	32.4	40.5	34.5	33.6
Other late-potato States:								
New Hampshire.....	3.9	7.7	1.0	2.8	.8	.8	.4	.1
Vermont.....	4.9	7.3	3.1	5.6	2.6	2.0	3.3	1.7
Massachusetts.....	.1	.6	.7	.4	1.1	.5	1.1	.2
Rhode Island.....	4.1	1.7						
Connecticut.....		.1	.9		1.3	.7	1.9	.3
West Virginia.....	1.0	3.2	1.2	2.5	2.2	.5	.4	.2
Ohio.....	1.2	1.9	.6	.7	.4	.2	.6	.8
Indiana.....	1.2	1.3	.2	1.1	.1		.3	.3
Illinois.....	2.1	.9	.6	1.1	.7	.3	.7	.7
Iowa.....	3.3	2.9	3.1	2.6	2.6	7.0	1.6	2.0
New Mexico.....	3.3	4.2	1.3	2.6	.9		3.0	1.4
Arizona.....	25.7	13.3	15.9	21.0	14.9	16.7	21.5	2.1
Average.....	2.2	2.5	1.2	1.5	1.2	1.6	1.0	.8
30 late States	38.2	40.0	31.5	35.2	27.9	35.9	30.0	28.9
Intermediate-potato States:								
New Jersey.....	53.1	43.9	33.9	34.8	23.6	46.5	35.1	35.3
Delaware.....	14.3	9.2	3.5	2.5	1.4	7.7	3.4	3.0
Maryland.....	36.8	28.7	24.0	27.1	20.5	20.9	17.7	25.4
Virginia.....	69.7	75.0	65.3	71.6	70.3	59.6	62.6	62.3
Kentucky.....	12.2	8.6	4.1	6.0	6.4	5.2	.9	2.1
Missouri.....	8.6	16.4	10.6	16.4	20.1	29.0	4.8	9.5
Kansas.....	39.5	39.6	31.2	44.9	30.9	42.5	15.9	12.8
Average.....	47.1	47.2	37.6	42.9	35.0	38.6	38.1	33.6
Early-potato States:								
North Carolina.....	57.2	58.8	52.2	55.5	48.5	52.5	51.2	49.2
South Carolina.....	83.7	84.2	69.4	79.0	59.9	63.9	75.4	58.3
Georgia.....	23.3	34.6	17.2	30.0	13.1	12.3	17.2	5.7
Florida.....	84.8	91.0	80.0	89.1	76.1	80.0	78.1	74.3
Tennessee.....	2.6	4.6	4.4	2.6	1.9	5.5	5.1	7.1
Alabama.....	38.1	47.8	47.0	51.2	34.0	37.4	57.3	44.8
Mississippi.....	8.7	6.4	11.3	14.0	8.1	6.3	16.0	10.0
Arkansas.....	8.1	9.6	7.8	8.5	7.8	10.7	10.7	3.3
Louisiana.....	35.8	34.2	46.3	52.7	34.9	44.1	50.6	43.6
Oklahoma.....	23.3	31.0	26.1	31.0	25.4	27.1	35.1	13.3
Texas.....	30.6	46.9	36.0	50.8	41.7	32.7	34.1	15.7
Average.....	42.5	46.3	40.2	47.7	34.2	38.3	44.7	33.0
Average United States	39.4	41.3	32.8	37.2	29.0	36.3	32.0	29.7

¹ Compiled from State production and carload shipments converted to bushels on basis of estimated average quantities loaded per car.

Most of the carload shipments each year are from points of concentrated production scattered over the country. The principal points are located in Maine, along the Atlantic coast, in western New York,

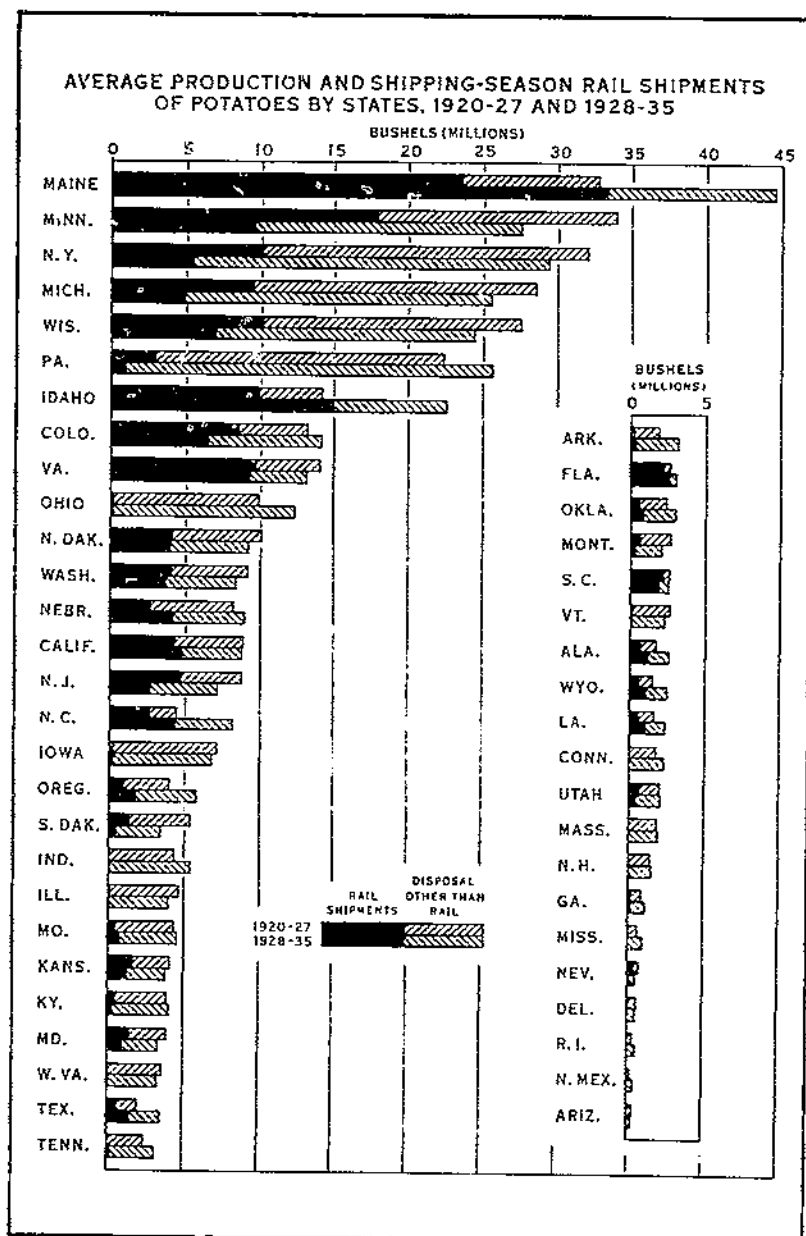
from Michigan west to the Red River Valley, and in an area extending northwest from Louisiana to Washington (fig. 2).

Practically all States have made carload shipments of potatoes each year from 1920 to 1935, inclusive. The yearly average carload shipments for the 1928-35 period show increases in number from some States and decreases from others as compared with shipments from the same States during 1920-27. The greater part of those changes occurred in the States that increased production and other States that have shifted from rail to motortruck transportation. For example, the yearly average production of Maine was increased about 12,000,000 bushels from 1920-27 to 1928-35 which increased its average carload shipments about 10,000 cars per year. Pennsylvania shifted toward motortruck transportation during 1928-35 which reduced its average rail shipments about 2,000 cars (fig. 6).

Maine is the leading State in rail shipments of potatoes. Its average shipments were only about 3,000 cars less than the average of the combined shipments from the early- and intermediate-crop States from 1931 to 1935. Virginia is the leading State in carload shipments among the intermediate-crop group but reduced its shipments more than 4,000 cars during 1931-35 as compared with 1921-25. North Carolina is the leading State in shipments of early-crop potatoes and has increased its average shipments during each 5-year period from 1921-25 to 1931-35 (table 6).

TABLE 6.—Carload shipments of potatoes by seasonal groups and States, shipping seasons, averages 1921-35, annual 1931-35

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Surplus late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
Maine	35,836	47,590	48,421	53,223	44,043	48,756	53,696	42,056
New York	17,727	12,288	7,533	10,409	8,058	7,153	7,689	4,354
Pennsylvania	4,673	2,913	473	634	194	573	573	392
Michigan	17,455	9,756	8,568	8,566	9,946	5,129	11,944	6,967
Wisconsin	16,368	14,930	10,322	13,351	9,630	5,218	17,567	5,905
Minnesota	29,584	23,651	11,305	19,209	14,362	17,123	8,237	12,603
North Dakota	8,040	5,379	7,209	7,277	9,526	8,390	5,045	10,808
South Dakota	2,572	1,470	452	79	1,330	552	12	280
Nebraska	4,686	6,083	6,947	8,307	4,294	9,310	3,525	9,295
Montana	1,189	787	248	303	222	369	171	54
Idaho	15,267	23,287	25,778	25,916	22,526	30,066	26,637	23,745
Wyoming	866	1,736	1,493	2,142	821	2,436	681	1,387
Colorado	14,968	15,738	8,592	7,529	7,266	12,395	3,265	12,505
Utah	1,201	891	711	954	613	723	832	432
Nevada	617	670	180	248	223	201	110	119
Washington	6,587	8,717	5,385	6,966	4,066	5,020	6,013	3,003
Oregon	1,449	2,230	3,911	3,098	2,515	4,110	6,077	3,783
California	7,069	7,682	8,920	6,979	5,742	8,737	10,971	12,171
Average	186,025	186,082	169,459	175,548	141,907	167,187	163,285	149,925
Other late-potato States:								
New Hampshire	89	160	25	71	19	22	12	1
Vermont	195	256	121	221	97	70	166	58
Massachusetts	3	13	21	11	36	21	47	5
Rhode Island	20	9						
Connecticut		1	39		51	29	100	13
West Virginia	65	231	72	105	138	23	24	10
Ohio	197	331	130	144	91	36	161	225
Indiana	106	130	22	12	21	1	39	39
Illinois	165	61	36	76	55	9	39	3
Iowa	397	337	321	171	267	659	161	248
New Mexico	7	22	8	10	8		14	10
Arizona	137	60	56	80	70	71	50	5
Average	1,381	1,611	851	964	955	943	793	617
30 late States	187,406	188,293	169,305	176,512	142,262	168,130	164,078	150,542



BAE 34298

FIGURE 6.—In recent years, an average of near one-third of the potato production was shipped in carloads. Maine is the leading State in both production and carlot shipments.

TABLE 6.—*Carload shipments of potatoes by seasonal groups and States, shipping seasons, averages 1921-35, annual 1931-35—Continued*

Group and State	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Intermediate-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
New Jersey.....	9,409	5,441	5,187	5,170	3,171	5,640	5,844	5,101
Delaware.....	137	71	36	24	13	66	45	33
Maryland.....	2,563	2,672	1,445	1,752	1,010	1,147	1,178	1,533
Virginia.....	18,427	22,104	14,168	18,614	12,823	9,820	16,084	13,464
Kentucky.....	942	751	306	447	501	435	61	184
Missouri.....	727	1,654	1,293	1,473	2,365	1,590	168	858
Kansas.....	3,179	3,900	1,680	2,710	3,121	1,657	397	598
Average.....	35,384	36,603	24,193	30,229	23,613	20,170	23,737	22,768
Early-potato States:								
North Carolina.....	4,274	7,472	8,113	8,681	5,876	7,044	10,753	8,210
South Carolina.....	3,988	4,445	2,809	5,036	1,666	2,009	3,402	1,936
Georgia.....	372	406	372	568	247	230	423	141
Florida.....	4,090	5,567	4,630	6,892	2,584	4,035	5,705	3,932
Tennessee.....	130	313	301	128	119	344	409	506
Alabama.....	1,574	2,345	3,282	4,712	1,874	2,154	4,528	3,143
Mississippi.....	126	97	289	368	188	131	498	271
Arkansas.....	339	520	503	837	483	683	683	307
Louisiana.....	1,165	1,577	2,741	4,410	1,656	2,162	2,566	2,571
Oklahoma.....	1,180	2,263	1,630	2,171	1,893	1,366	1,878	844
Texas.....	1,254	3,352	2,851	5,045	3,504	2,354	2,308	956
Average.....	18,492	28,357	27,610	39,082	20,090	22,461	32,601	22,817
Average United States.....	241,282	253,253	212,018	245,823	185,905	210,761	221,416	195,127

The rail movement of potatoes is usually reported in carloads. The range in the loads is from 400 to 670 bushels with an average of about 585 bushels. The average varies considerably among the States. A shipment of 100 cars of Maine potatoes carries approximately 10,000 bushels more than 100 cars of Washington potatoes owing to the variations in the loadings of the two States.

The cars from the early- and intermediate-crop sections carry a smaller quantity than those from the late-crop sections chiefly because of the perishable nature of the stock and climatic conditions at point of origin (table 7).

TABLE 7.—*Carload shipments of potatoes by seasonal groups and States, converted to bushels, shipping-seasons, averages 1921-35, annual 1931-35*

Group and State	Estimated bushels per average carload	Average 1921-25	Average 1926-30	Average 1931-35	1931	1932	1933	1934	1935
Surplus late-potato States:	<i>Bushels</i>	<i>bushels</i>	<i>bushels</i>	<i>bushels</i>	<i>bushels</i>	<i>bushels</i>	<i>bushels</i>	<i>bushels</i>	<i>bushels</i>
Maine.....	670	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
New York.....	620	24,010	32,086	32,442	35,660	29,509	32,667	36,177	28,198
Pennsylvania.....	610	2,091	7,600	4,670	6,454	4,998	4,435	4,767	2,699
Michigan.....	585	2,091	1,804	303	406	124	367	367	251
Wisconsin.....	600	9,544	5,725	5,012	5,181	5,818	3,060	6,057	4,076
Minnesota.....	580	17,049	8,058	6,123	8,011	5,778	8,131	10,504	3,543
North Dakota.....	600	12,749	12,718	8,298	11,141	8,330	9,031	4,777	7,310
South Dakota.....	600	4,824	3,575	4,326	4,369	2,716	5,034	3,027	6,485
Nebraska.....	585	1,505	800	264	46	778	923	7	167
Montana.....	600	2,764	3,051	4,168	4,981	2,578	5,590	2,115	5,572
Idaho.....	670	797	527	166	263	140	247	115	56
Wyoming.....	600	9,220	13,972	15,467	15,550	13,516	18,040	15,982	14,247
Colorado.....	600	520	1,041	890	1,285	493	1,462	499	832
Utah.....	580	8,681	9,128	4,983	4,367	4,214	7,180	1,891	7,263
Nevada.....	590	674	601	398	534	343	495	966	242
Washington.....	630	389	422	113	150	140	127	69	75
Oregon.....	570	3,755	4,069	3,069	3,950	2,848	3,374	3,427	1,712
California.....	550	797	1,226	2,151	1,687	1,883	2,260	3,342	2,081
Average.....	570	4,029	4,370	5,084	3,967	3,273	4,091	6,253	6,937
Average.....		113,051	114,202	98,006	108,014	86,981	102,577	100,085	91,741

TABLE 7.—Carload shipments of potatoes by seasonal groups and States, converted to bushels, shipping seasons, averages 1921-35, annual 1931-35—Continued

Group and State	Estimated bushels per average carload	Average	Average	Average	1931	1932	1933	1934	1935
		1921-25	1926-30	1931-35					
	Bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
Other late-potato States:									
New Hampshire.....	600	53	96	15	43	11	13	7	1
Vermont.....	620	121	150	75	139	60	43	97	36
Massachusetts.....	600	2	8	15	7	22	13	28	3
Rhode Island.....	600	12	5						
Connecticut.....	600	1		23		31			
West Virginia.....	500	32	116	36	82	69	17	60	8
Ohio.....	580	114	192	76	84	55	12	12	5
Indiana.....	450	48	58	10	5	9	21	88	130
Illinois.....	600	99	37	22	46	35	5	18	18
Iowa.....	500	234	169	190	101	217	389	23	2
New Mexico.....	550	4	12	5	6	4		95	140
Arizona.....	550	75	33	31	44	38	40	8	6
Average.....		794	916	490	557	549	553	464	358
30 late States.....									
		113,845	165,118	98,502	108,691	87,533	103,126	101,140	92,099
Intermediate-potato States:									
New Jersey.....	500	4,704	2,720	2,684	2,600	1,686	2,770	2,922	3,050
Delaware.....	520	71	37	19	12	7	34	23	17
Maryland.....	520	1,333	1,390	751	911	840	596	613	797
Virginia.....	525	9,674	11,605	7,438	9,788	6,732	5,159	8,444	7,009
Kentucky.....	500	471	376	163	221	250	168	30	92
Missouri.....	500	364	527	646	736	1,182	690	84	429
Kansas.....	500	1,590	1,954	844	1,355	1,562	828	178	298
Average.....		18,207	18,969	12,435	15,610	12,159	10,355	12,294	11,752
Early-potato States:									
North Carolina.....	545	2,329	4,072	4,421	4,731	3,202	3,839	5,560	4,474
South Carolina.....	550	2,193	2,445	1,545	2,766	916	1,105	1,871	1,065
Georgia.....	510	190	207	190	412	126	122	216	72
Florida.....	495	2,025	2,766	2,292	3,412	1,979	1,997	2,524	1,946
Tennessee.....	450	58	141	135	58	51	155	154	228
Alabama.....	400	630	938	1,313	1,885	750	862	1,811	1,257
Mississippi.....	420	53	41	121	155	79	55	204	114
Arkansas.....	420	142	218	249	352	203	287	274	129
Louisiana.....	430	501	678	1,179	1,596	712	904	1,275	1,108
Oklahoma.....	430	507	673	701	934	814	587	808	363
Texas.....	435	545	1,458	1,240	2,195	1,524	1,024	1,043	410
Average.....		9,173	13,027	13,386	18,796	9,659	10,937	16,370	11,170
Average United States.....		141,225	147,954	124,324	143,013	109,351	124,418	129,813	115,021

December is the beginning of the new-crop shipping season and all potatoes carried over from the late crop of the preceding season are designated as old stock after that date. This stock is marketed in competition with the new crop during the period from December until an early date of the following July. From December of the new shipping season to July of the following shipping season, a period of 20 months, is required to market the production of each year. During each shipping season one complete crop and parts of two other crops are moved. The movement from the early States overlaps the movement of old stock from the preceding late crop and, in turn, the movement from the late States is overlapped by the movement from the succeeding early crop (fig. 7).

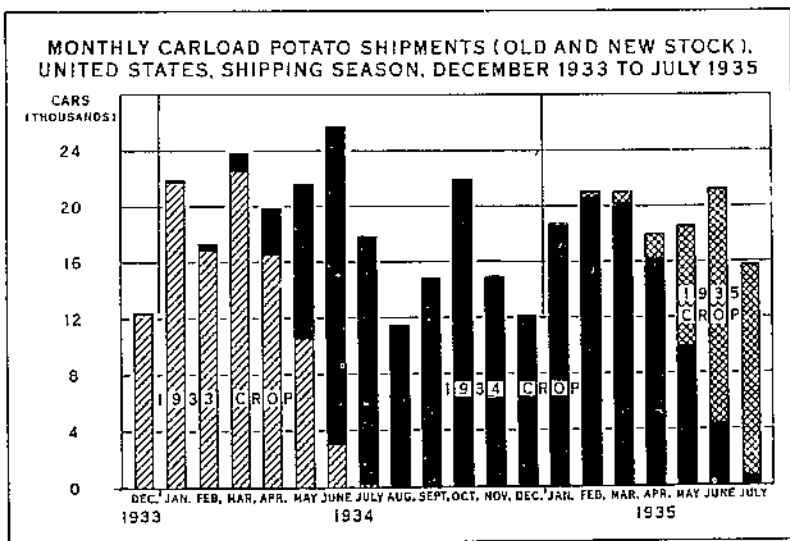


FIGURE 7.—The potato shipping season begins in December and continues for 20 months. The whole of 1 year's crop and parts of two other crops are moved during the period. Only current-season stock moves during August to November.

During December, January, and February of each season about 99 percent of the commercial carload movement is from old late-crop stock. The proportion of new-crop shipments increases with each month following December until over 80 percent of the commercial carload movement during June is from the new crop. New-crop potatoes from the intermediate States predominate on the markets during July as only a few scattered shipments of old stock are received on the markets at this time. New-crop potatoes from the intermediate and late States only are moved during August, September, October, and November (fig. 7).

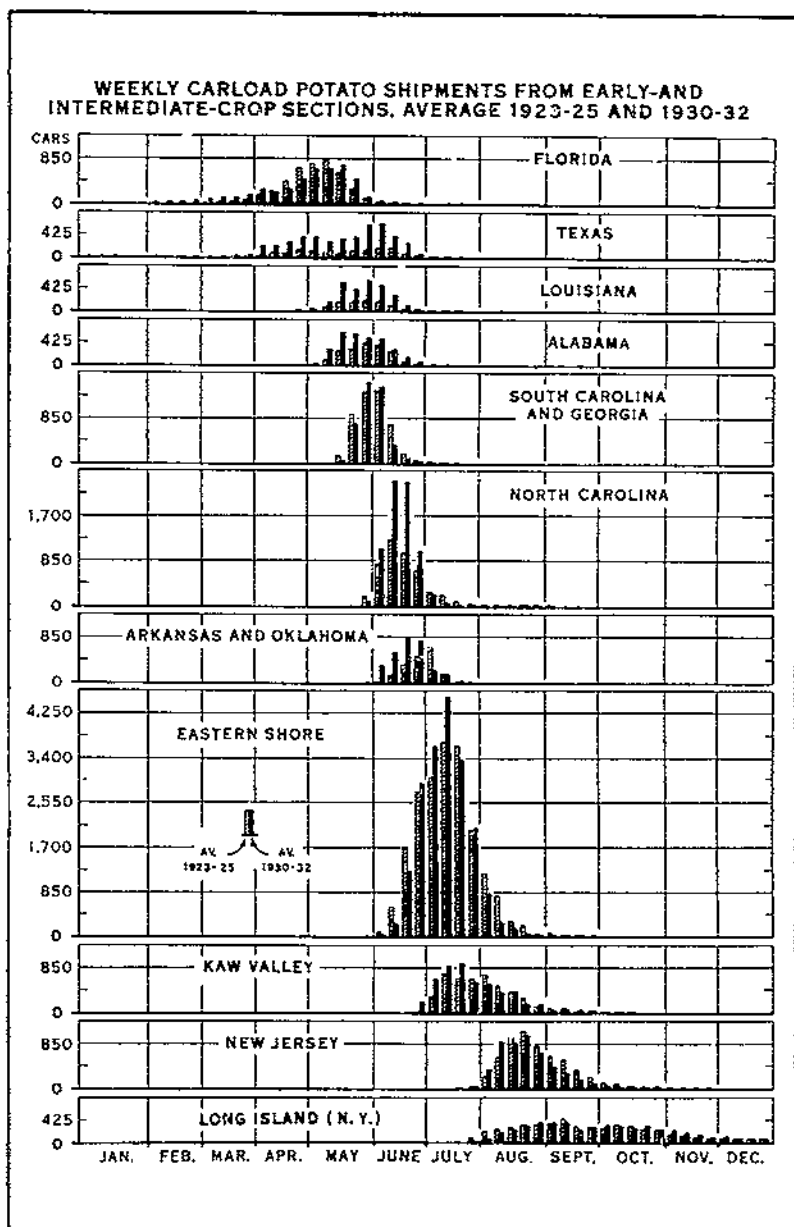
Increases in the production of Maine, Idaho, North Carolina, and other sections, and decreases in the production of other States, especially Minnesota and the Dakotas, have tended to change the number of carload shipments moved weekly from several potato sections during the 1930-32 period as compared with 1923-25. The shift from rail to motortruck transportation in Pennsylvania, New York, Michigan, and other States has reduced the weekly carload shipments from those sections materially.

Earlier shipments from Florida and Texas have lengthened the shipping season during 1930-32 as compared to 1923-25.

The weekly movement of the early and intermediate crops has a regular order of succession that is controlled by the usual advance northward of the harvest season. The shipments from those sections are few in number at the beginning of the season, increase from day to day to a peak, and decrease gradually to the end of the season.

The southern sections of Florida and Texas usually begin the new-crop movement each season. Those early movements are followed and the supply of new potatoes increased by shipments from the northern part of Florida that overlap and continue the earlier movement from that State. The movement from those sections is followed

in turn and overlapped by shipments from sections farther north until the total number of early-crop shipments moving to market reach a peak in June (fig. 8).



BAE 34298

FIGURE 8.—The order of the succession of movement from the early- and intermediate-crop States is rather constant from year to year. A comparison indicates the increase in early-crop stock that has been marketed by rail at harvesttime.

The movement from the intermediate-crop districts follows the early crop in order with the advance of the season northward and reaches its peak during July. This group of States supplies nearly 80 percent of the total carload movement during its marketing period (fig. 8).

The principal movement from August to November, inclusive, is from harvesttime shipments of the late-crop sections.

Late-crop stock can be held in storage and shipped as needed for market purposes. For that reason the movement of the late crop as illustrated in figure 9 presents a decidedly different picture from that of the early and intermediate crops (fig. 8) which must be moved when harvested because of their perishable nature. The movement from the late-crop sections usually develops two peaks, one at harvesttime, and another sometime during the last 6 months of the shipping season (fig. 9).

CROP DISTRIBUTION

New marketing problems arise each year because of changes in quantity and location of production.

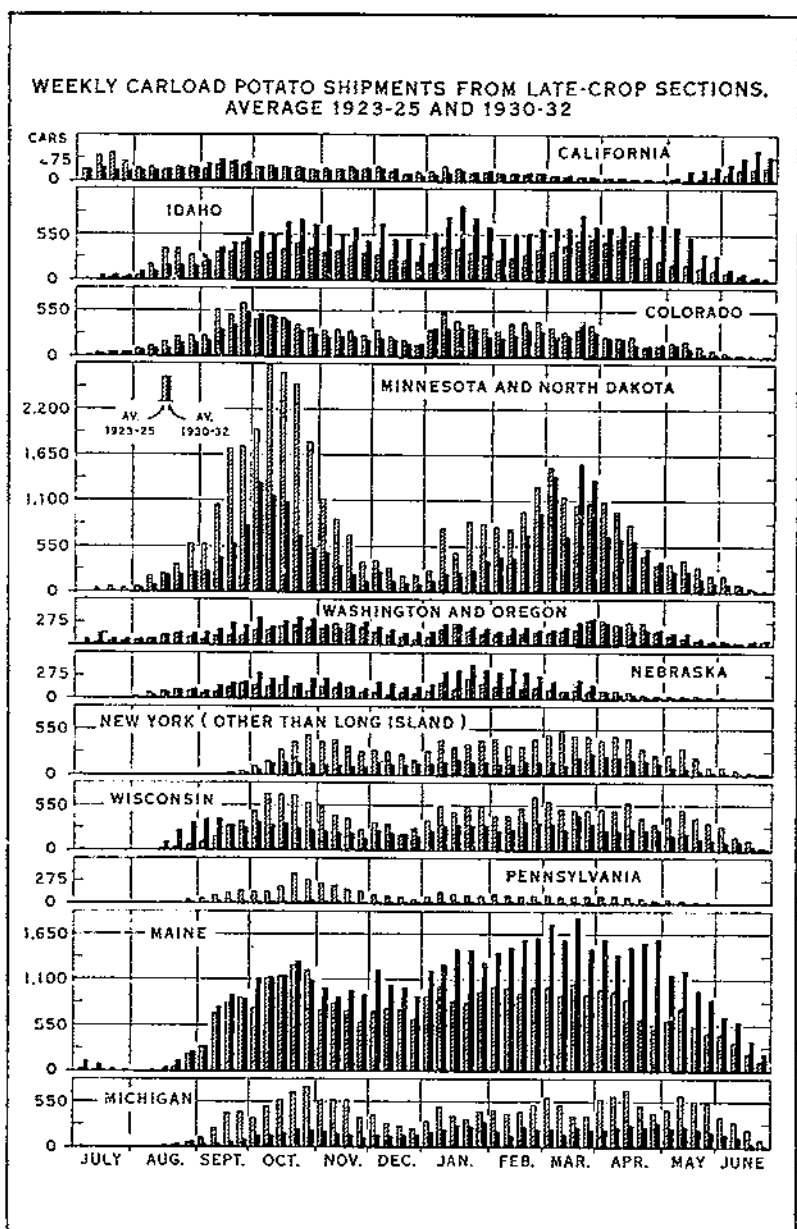
To know that a large, average, or small crop has been produced for the season is not enough information on which to base marketing activities. The reported quantity of the estimated crop may be distributed as is usual when growing conditions are normal in all potato sections, and, for that reason, entail only the usual difficulties of distribution as was the case in 1928; or, as in 1934, the estimates may include increased production in certain sections and shortages in others that will cause marketing readjustments along all lines of distribution.

Each commercial section, under normal conditions, has certain markets that it supplies with the whole or a part of their needs during the marketing period of the section. The markets have been selected because they have proved to be most advantageous from the shipper's viewpoint of price, convenience of access, time, and distance of delivery. For the purpose of locating the market outlets thus selected by the several sections of the country, a study was made of the unload, destination, and diversion reports furnished by the railroads to the market news service of the Department.

TEN POTATO-MARKET DISTRICTS

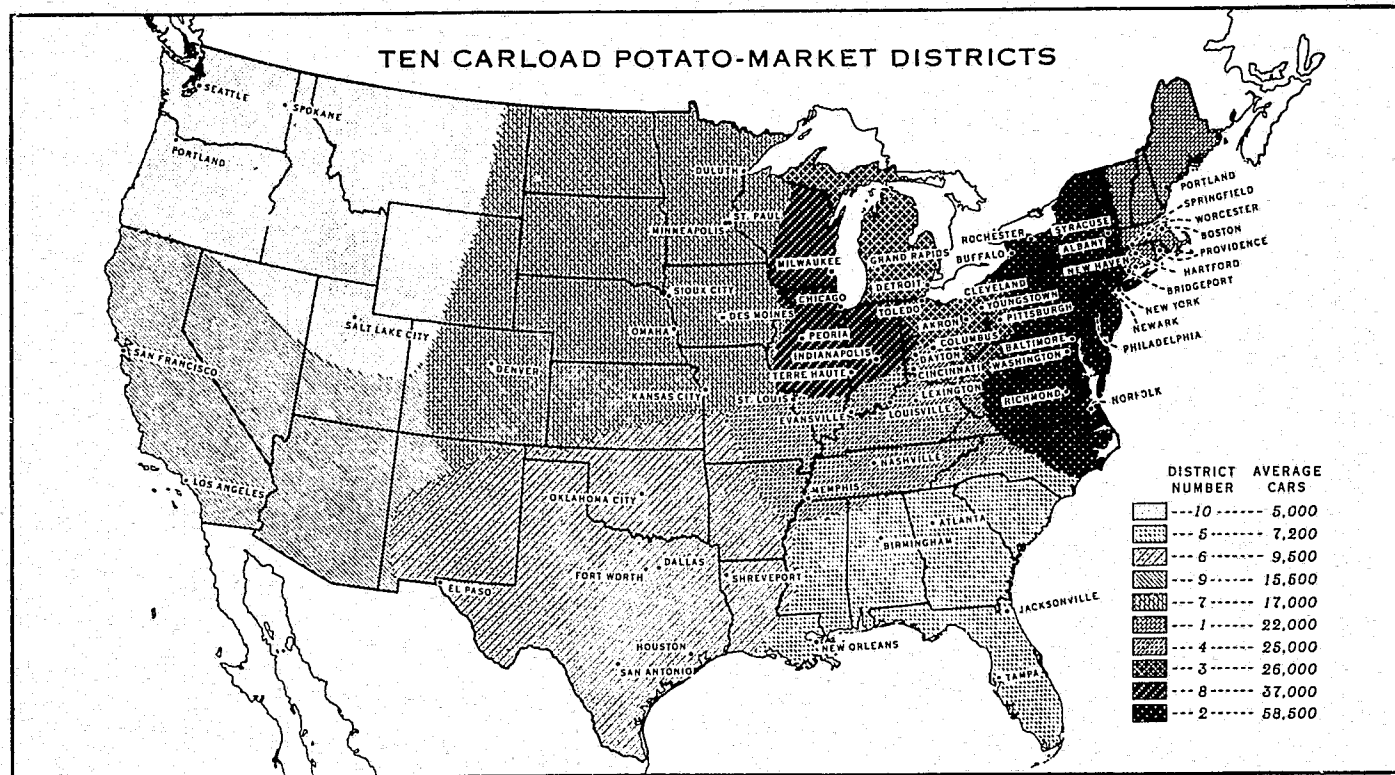
Records of the potato unloads reported by 66 large markets for the 6-year period (1927-32) show that the principal sources of supplies for certain groups of those markets are the same from year to year. For example, Maine, New Jersey, Maryland, Virginia, North Carolina, and South Carolina were the principal shippers to Boston, Bridgeport, Hartford, New Haven, Portland, Maine, Providence, Springfield, and Worcester during that period. Because of the constant close relation of those markets to the same sources of supply they have been grouped as a potato-market district for the purpose of this study.

Others of the 66 large markets, for the same reason, have been segregated into similar groups and, including the marketing territory adjacent to each group, have been designated as separate potato-market districts and numbered from 1 to 10 for identification (fig. 10).



BAE 34299

FIGURE 9.—Most of the late-crop movement is subject to storage control. There is usually a peak movement in each district at harvest and another in the last half of the shipping season. In most States there were notable differences in volume of carload movement in 1930-32 compared with 1923-25.



BAE 34300

FIGURE 10.—Practically all carload markets located in any one of these potato-market districts receive the principal part of their supplies from the same sources each year.

In each of those districts there are located 1 or more of the 66 large markets and other smaller carload markets that do not report unloads.

The receipt of the shipments to the 66 large markets is a matter of record. Those known receipts represent about 59 percent of the total shipments from 1931 to 1935, inclusive. The remainder of the shipments (41 percent) were destined to markets not included in the 66 large-market group. The destinations of those shipments have been located as near as possible from the unload reports of the 66 large markets used in conjunction with reported destinations (table 8) furnished by the railroads.

TABLE 8.—Distribution of 49,107 carload shipments of potatoes from Maine as indicated by primary destination, diversion, and unload reports by railroads, September 12, 1934, to May 5, 1935

State and market	Cars	State and market	Cars	State and market	Cars
Alabama:		Louisiana:		New York:	
Birmingham	33	New Orleans	355	Albany	457
24 other markets	353	Shreveport	8	Buffalo	21
Total	386	3 other markets	132	New York	10,472
Arizona:		Total	495	Syracuse	2
Phoenix	1	Maine:		91 other markets	1,625
Connecticut:		Portland	98	Total	12,577
Bridgeport	413	34 other markets	233	North Carolina:	
Hartford	326	Total	331	50 markets	468
New Haven	440	Maryland:		Ohio:	
72 other markets	692	Baltimore	1,331	Akron	36
Total	1,871	22 other markets	108	Cincinnati	73
Delaware:		Total	1,439	Cleveland	465
11 markets	22	Massachusetts:		Columbus	125
Florida:		Boston	5,503	Dayton	10
Jacksonville	530	Springfield	430	Toledo	71
Tampa	797	Worcester	786	Youstown	79
22 other markets	750	114 other markets	2,022	76 other markets	363
Total	2,077	Total	9,041	Total	1,153
Georgia:		Michigan:		Oklahoma:	
Atlanta	328	Detroit	210	12 markets	21
40 other markets	1,157	1 other market	1	Pennsylvania:	
Total	1,485	Total	211	Philadelphia	2,656
Illinois:		Minnesota:		Pittsburgh	1,337
Chicago	36	Hollandale	1	146 other markets	687
3 other markets	6	Mississippi:		Total	4,680
Total	42	6 markets	16	Rhode Island:	
Indiana:		Missouri:		Providence	1,034
Indianapolis	31	St. Louis	68	21 other markets	607
Terre Haute	1	4 other markets	4	Total	1,641
7 other markets	19	Total	72	South Carolina:	
Total	51	Nebraska:		31 markets	659
Iowa:		2 markets	10	Tennessee:	
2 markets	2	New Hampshire:		Memphis	1
Kansas:		22 markets	160	Nashville	7
4 markets	5	New Jersey:		41 other markets	244
Kentucky:		Newark	1,862	Total	262
Lexington	5	54 other markets	2,302	Texas:	
Louisville	13	Total	4,164	Dallas	31
27 other markets	71			El Paso	11
Total	89			Fort Worth	59
				Houston	344
				San Antonio	107
				103 other markets	1,485
				Total	2,007

TABLE 8.—Distribution of 49,107 carload shipments of potatoes from Maine as indicated by primary destination, diversion, and unload reports by railroads, September 12, 1934, to May 5, 1935—Continued

State and market	Cars	State and market	Cars	State and market	Cars
Vermont: 8 markets.....	8	West Virginia: 86 markets.....	561	Cuba: Havana.....	208
Virginia: Norfolk.....	1,254	Wisconsin: Delevan.....	1	Canada: Centerville, Nova.....	1
Richmond.....	171	District of Columbia: Washington.....	503	Scotland.....	279
68 other markets.....	586	Puerto Rico: San Juan.....	63	Unknown.....	.....
Total.....	1,991	Virgin Islands: St. Thomas.....	2	Grand total.....	49,107

The distribution of Maine carload shipments for the 6-year period 1927-32 can be used as a criterion in studying the distribution of shipments from the several States.

Maine shipped an average of 49,017 cars of potatoes during the 6-year (1927-32) period. Unload reports indicate that 29,946 cars of these were received on the 66 large markets. The 8 large markets located in potato-market district No. 1 (fig. 10) reported the receipt of 9,984 cars of those potatoes. Therefore, one-third of the carload shipments from Maine to the 66 large markets were received on the 8 large markets located in district No. 1.

The remainder (19,071 cars) of the shipments from Maine during the 6-year period were delivered to markets not included in the 66 large-market group. Destination and diversion reports indicate that 6,357 cars of those potatoes were shipped to markets in district No. 1. Therefore, one-third of the total carload shipments from Maine to markets not included in the 66 large-market group were to markets located in district No. 1.

As one-third of the carload shipments from Maine to the 66 large markets were received in district No. 1, and one-third of its shipments to markets not included in the 66 large-market group went to that district, it can be assumed that the percentage of Maine's 66 large-market shipments received in district No. 1 represented the percentage of Maine's total shipments delivered in that district. Destination and diversion records verify that assumption. Practically the same results were found from shipments from Maine to other potato-market districts (fig. 10).

As the shipments of other States that furnish destination and diversion reports show a similar relation between shipments to all markets and shipments to the 66 large markets as that shown for Maine, it is assumed that the total shipments from each of the States have been distributed among the 10 districts in the same proportion as each State's shipments to the 66 large markets have been distributed among the large markets of the 10 districts.

The crops of 1928 and 1934 have been selected for this study of distribution because of the contrast in marketing of the two crops. Each of those crops was large enough to meet all consumptive needs of the country but there was a considerable difference in their distribution. The 1928 crop was scattered over the country, as is usual under normal growing conditions in all potato sections, and was distributed among the markets usually supplied by the several producing sections; but the estimates for 1934 indicated considerable increase in

production of certain late-crop sections and shortages in sections of the Middle West drought area.

When the usual market supply from any commercial section is moved to market earlier than usual, is delayed by seasonal or other causes, is increased or decreased in quantity, the whole routine of the markets affected is disarranged. It is considered that the 1928 crop was distributed under normal conditions, therefore it is concluded that the distribution of the 1934 crop used in comparison will show many of the changes in routine marketing that occur when abnormal conditions arise.

The marketing period of the late crop of each season includes parts of 2 years (August to July following) and, as unload records are for calendar years, the calendar-year average of both shipments and unloads for 1928-29 and 1934-35 have been used for this study.

Potato-market district No. 1 includes all carload markets in the New England States. Eight of the 66 large markets are situated in this territory (fig. 10). A yearly average of over 26,000 cars of potatoes was shipped into district No. 1 during 1928 and 1929. The yearly average production in the New England States, other than Maine, during that period was about 10,000 cars. During 1934 and 1935 the average production of the same area was increased to nearly 17,000 cars and the average carload receipts in the district were reduced to less than 18,000 cars. This reduction in receipts indicates the effect of local production on the demand for supplies from outside sources by markets situated in deficit areas.

Maine is the principal source of supply in district No. 1 and during its shipping season has very little competition from other sources. New potatoes from the early crop of the Carolinas reach this district during May and June as Maine reduces the number of its shipments from the old late crop. During July and August, the end of the old and beginning of the new-crop season in Maine, the intermediate-crop sections supply the greater part of the needs of this district. Compared with the 1928 and 1929 averages, all sources that furnished supplies to this district during 1934 and 1935 (except North Carolina) show reduced shipments as the result of the increase in local production (fig. 11).

District No. 2 has a centralized urban population that consumes a large quantity of potatoes. Eleven of the large markets and several other carload-receiving markets of various sizes scattered over New York, Pennsylvania, New Jersey, Delaware, Maryland, and Virginia are included in this district (fig. 10).

The greater part of the supplies of this district during May is furnished from the early crops of Florida and South Carolina together with old-stock shipments from Maine. During June and July, shipments from the Carolinas and the Eastern Shore (Virginia, Maryland, and Delaware) sections, together with some old late-crop shipments (the clean-up) from Maine, supply the greater part of the market needs. The local production of New York, Pennsylvania, and New Jersey together with increasing new-crop shipments from Maine supply the principal needs during August, September, October, and November. Maine is the principal source of the late-crop supply for the remainder of the season (fig. 12).

Potato-market district No. 3 centers in Ohio. Eight of the large markets and other carload-receiving markets situated in Michigan, Ohio, West Virginia, and western Pennsylvania are included (fig. 10). Those markets, being centrally situated, received carload shipments from 41 of the States during the seasons of 1928-29 and 1934-35. The commercial potato sections of Michigan are the principal sources of the local late-crop supply of the district.

The principal sources of the market supply of district No. 3 from May to August inclusive are situated in North Carolina, Virginia, and New Jersey. This new-crop supply is supplemented by clean-up shipments of old stock from several late-crop States. Shipments from late-crop States dominate the markets of this district for the

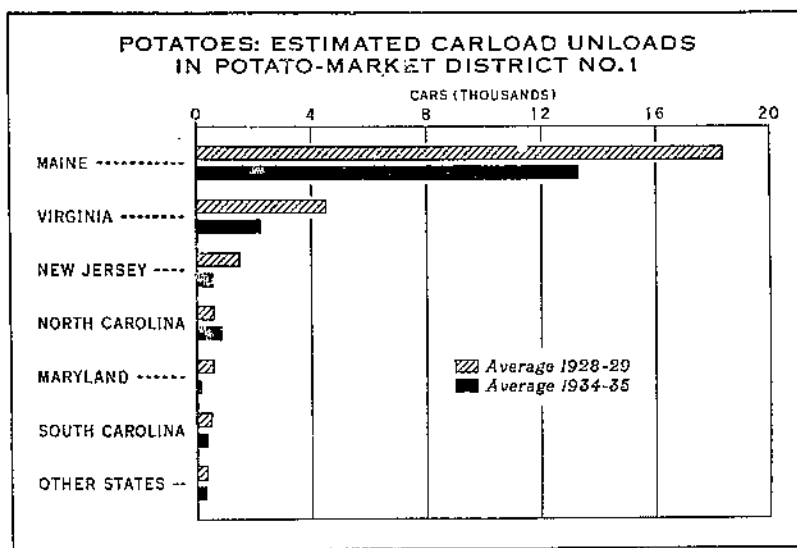


FIGURE 11.—Maine is the principal source of supply for potato-market district No. 1 for 9 months of each year. Virginia and New Jersey furnish the greater part of the supply during June, July, and August.

remainder of the season. Maine and Idaho increased their shipments to this district during 1934-35, but carload shipments from other late-crop States were eliminated or greatly reduced in number. The market deficit indicated by the reduced carload shipments of 1934-35 was supplied from increased motortruck deliveries from available local supplies (fig. 13).

Potato-market district No. 4 centers along the Ohio and Mississippi Rivers in the east-central part of the United States. Eight of the large markets and several smaller carload-receiving markets scattered over parts of eight States bordering those rivers are included in this district (fig. 10).

The carload receipts indicate rather accurately the market supplies as the volume of local production available for marketing by motortruck is too small in the greater part of the area to affect the market situation. Forty-one States made shipments to this district during the 1928-29 and 1934-35 seasons.

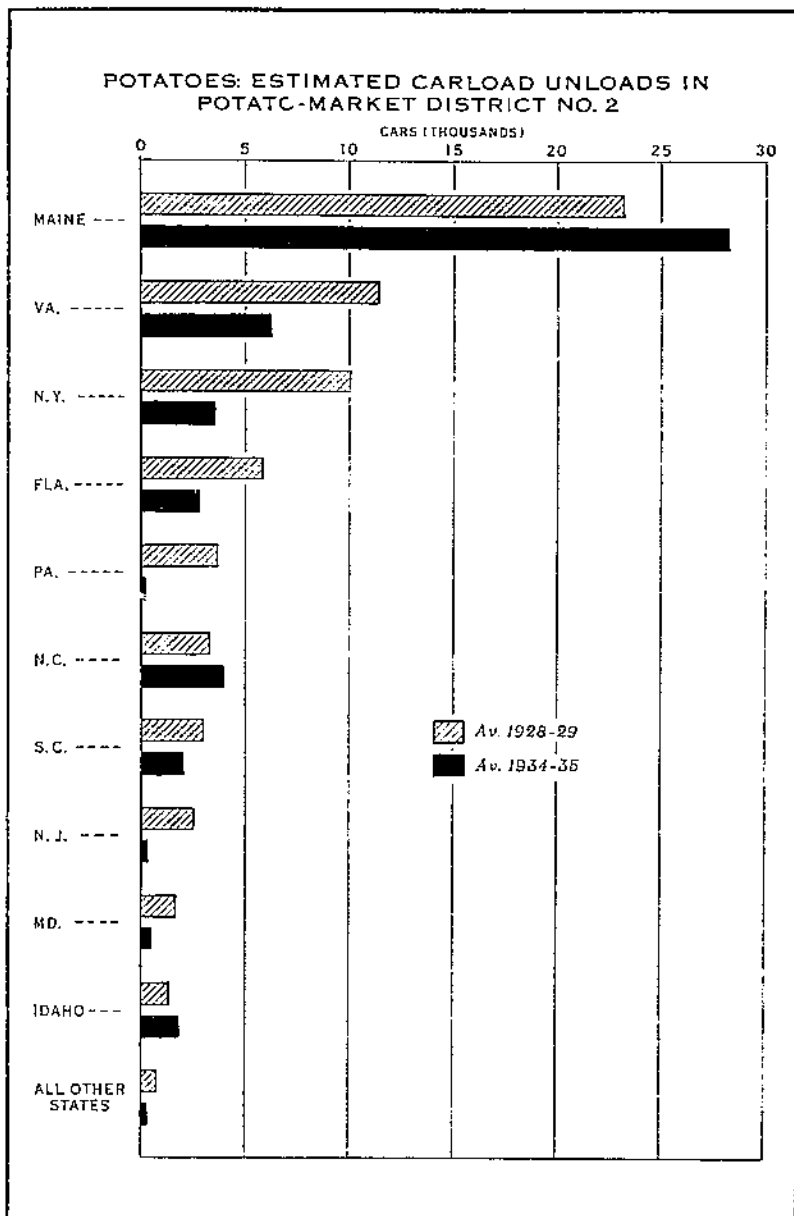
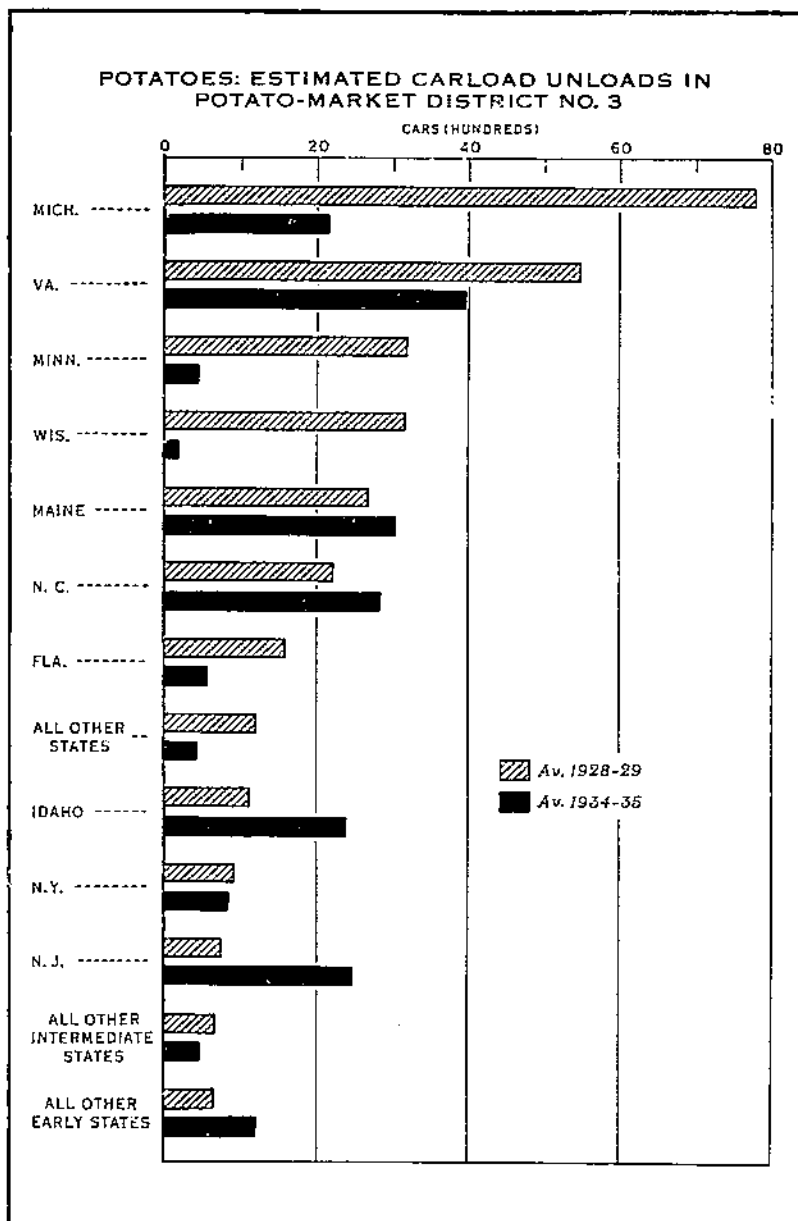


FIGURE 12.—The carload unloads in potato-market district No. 2 were reduced about 17,000 during 1934-35 as compared with 1928-29. Maine, North Carolina, and Idaho, sections outside the district, increased shipments but carload shipments from sections within were reduced because of shift to motor-truck transportation.



BAE 34423

FIGURE 13.—Markets in potato-market district No. 3 are good outlets for early and intermediate crops. The principal source of supply during May and June is the early and for July and August the intermediate-crop States. Michigan supplies most of the deficit of late-crop potatoes during the rest of the season. Michigan carload deliveries were reduced during 1934-35 owing to the shift to motortruck transportation.

Louisiana and Alabama, together with nine other early-crop States, supply the greater part of the market needs during May and June. Old-crop shipments from Idaho and other late-crop States supply the remainder of the needs for those months. Seven intermediate-crop States supply those markets during July and August. The seven States shown in figure 14 were the sources of the late-crop supply of the district for the remainder of the season. During the seasons of 1928 and 1929 the Red River section (Minnesota and North Dakota) was the principal source of supply for these markets and Idaho and Wisconsin were second and third. The Middle West drought of 1934 reduced the supplies of this district from the Red River and Idaho became the leading source of supply during 1934-35 with Michigan second and Minnesota third (fig. 14).

Potato-market district No. 5 is situated in the southeastern part of the United States. Five of the large markets and a number of smaller carload receiving markets are included in this district (fig. 10).

The carload market receipts range from 4 to 5 million bushels per year, but a considerable part of those receipts are from late-crop stock which is used for both food and seed. The estimated per-capita consumption in this district is considerably less than that of the districts farther north.

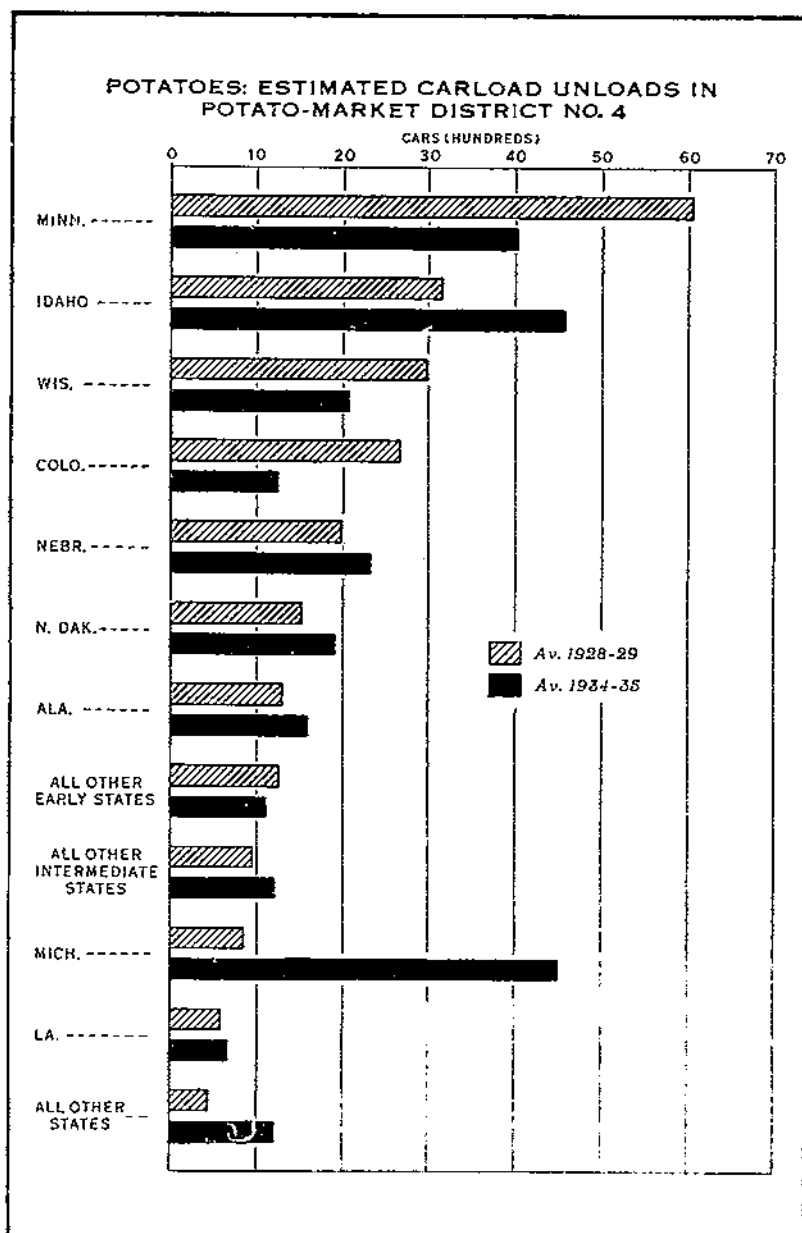
The early-crop States are the principal sources of supply from April to June and they share these markets with the intermediate-crop States from July to September. New Jersey supplied part of the deficit caused by reduced shipments from the early- and intermediate-crop States during 1934-35. Colorado and Minnesota furnished the greater part of the late-crop supply during 1928-29, but the drought in the Middle West during 1934 reduced the usual supplies from Colorado and Minnesota for 1934-35. This allowed Maine to increase its shipments to the district during those years (fig. 15).

Potato-market district No. 6 is situated in the south-central part of the United States. Seven of the large markets and several other carload receiving markets situated in Texas, Oklahoma, and Louisiana are included (fig. 10).

The carload receipts of these markets average between 5 and 6 million bushels each year. Twenty-eight States including Maine have made shipments to this district, but the Midwestern States are the principal sources of supply. The commercial potato sections of Kansas and Missouri are situated in the same locality (fig. 2), but the principal outlet for Kansas rail shipments is district No. 6 and for Missouri, district No. 8. The markets of district No. 6 are situated in the early-crop area but receive comparatively few carload shipments from that source.

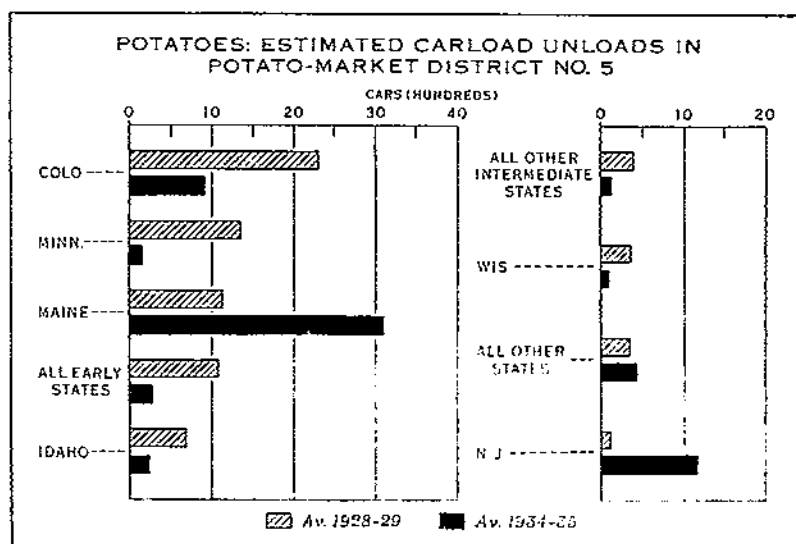
Colorado, Idaho, California, and Kansas were the principal outside sources of supply for the markets of this district during 1928-29 but the drought of 1934 caused a reduction in Kansas and Colorado shipments for 1934-35. This meant for Idaho and California a comparatively nearby outlet for a part of the larger production of those States for that period (fig. 16).

Potato-market district No. 7 is situated in the north-central part of the United States. Eight of the large markets and several smaller carload markets are included in this district (fig. 10).



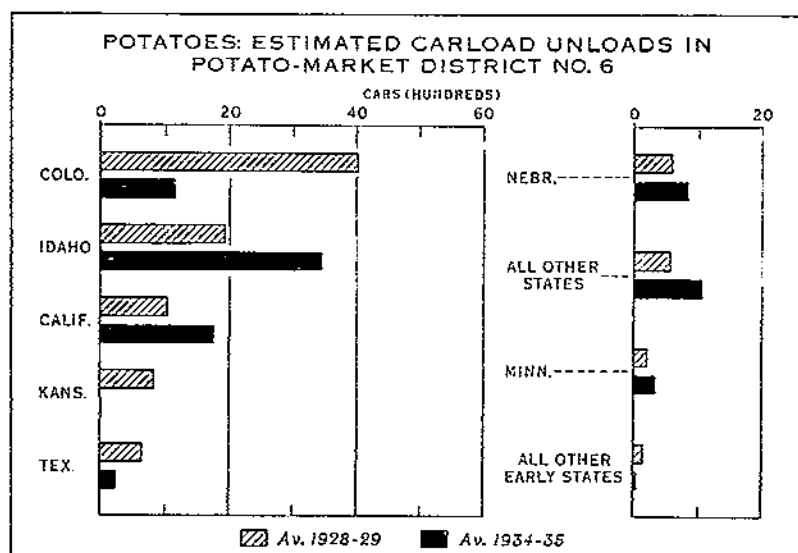
BAE 34424

FIGURE 14.—Minnesota, Idaho, Wisconsin, Colorado, and Nebraska are usually the main sources of the late-crop supply of potato-market district No. 4. Michigan, North Dakota, Idaho, and "other" late-crop States increased shipments to this district in 1934-35 to supply the shortage caused by the Midwest drought. All early and intermediate-crop States compete in this district. Alabama and Louisiana are the main sources of early supplies.



BAE 34425

FIGURE 15.—Reports indicate that the division of shipments to potato-market district No. 5 among the potato-growing sections for 1928-29 was about normal. Shortage of supplies from the Midwest drought area in 1934-35 was partially filled by shipments from Maine's large 1934 crop. The carload shipments to this district in 1934-35 was about 1.1 percent less than in 1928-29.



BAE 34426

FIGURE 16.—Increase in potato receipts from Idaho, California, Nebraska, and "all other" States about equaled the decrease in Colorado receipts in potato-market district No. 6 during 1934-35 as compared with 1928-29. Irregular shipments from 17 States located over the country from Maine to Washington were received during 1934-35.

The supply of this district usually originates in those States named in figure 17 that show carload shipments for the so-called normal season of 1928-29. The usual routine in the carload marketing of this district was disarranged during the 1934-35 seasons because of a reduction in normal production of the area that supplies this district.

Increased shipments from Idaho and Nebraska together with increases from California, Washington, and Wisconsin (practically new sources of shipments to this district) supplied the deficit caused by reduced shipments from Colorado, Minnesota, and other sources (fig. 17).

Potato-market district No. 8 is situated in the Chicago area. Five of the large markets, the metropolitan area surrounding Chicago, and other smaller carload markets are included (fig. 10).

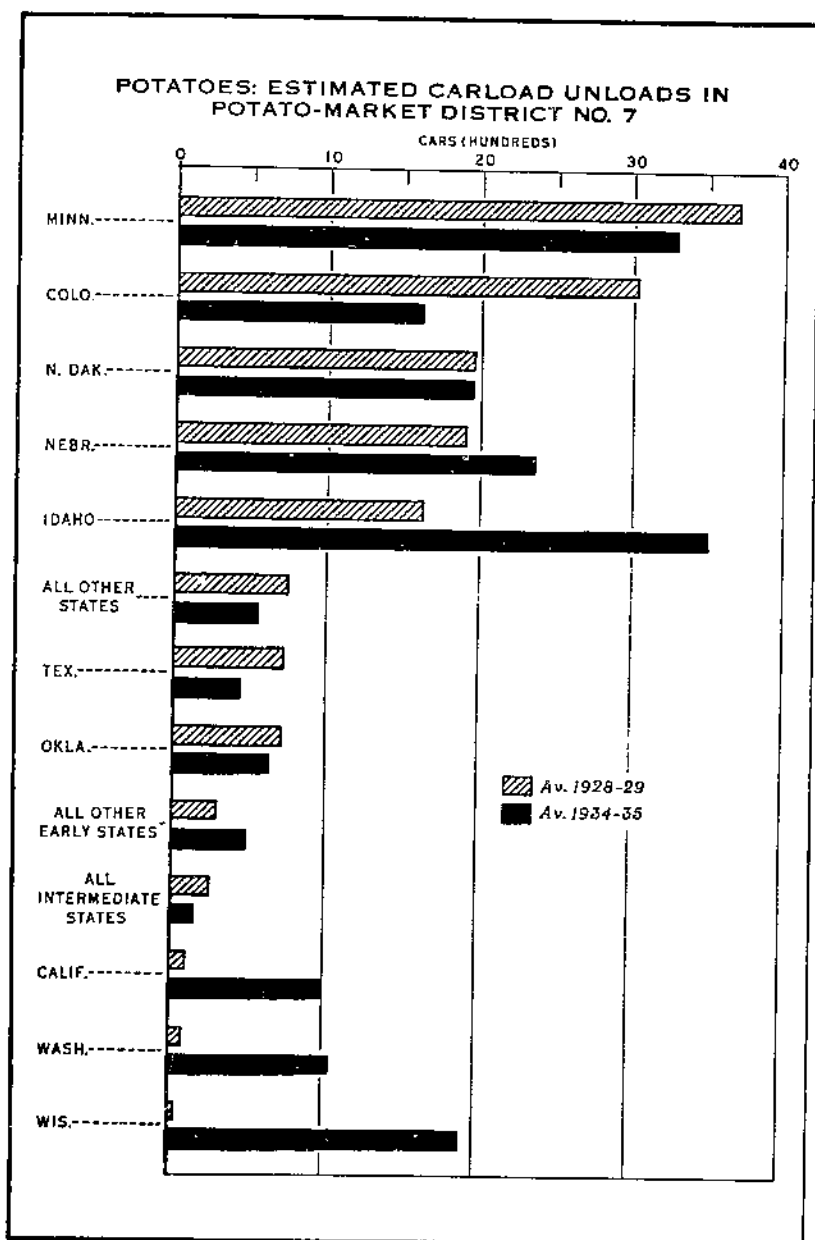
This is the second largest potato-market district in the United States. An average of over 39,000 carloads were unloaded on these markets during 1928 and 1929. The carload receipts indicate the consumptive needs in this district to a large extent because, in addition to the southern field crops of Wisconsin, only scattered local production is available for delivery by motortruck. Thirty-seven States have made carload shipments to this district.

All early-crop States compete for sales on the markets of this district with old-crop potatoes from Idaho, Wisconsin, Minnesota, and other late-crop States during May. Carload supplies from the 11 early-crop States, North Carolina leading, and Virginia, supplemented with clean-up shipments from late-crop sections are received on these markets during June. The intermediate-crop States of Virginia, Kansas, and Missouri with some additional shipments from the early crop furnish the greater part of the July supply. This is the principal outlet for Missouri potatoes, but Kansas shipments, produced in the same area, are divided between the markets of this district and those of district No. 6. Wisconsin, Idaho, Minnesota, Colorado, North Dakota, Michigan, and other States supply these markets for the remainder of the season. Idaho and Wisconsin are the chief competitors for sales of potatoes in this district.

The changes from 1928-29 to 1934-35 in the average number of carload unloads from the several sources of supply of this district were caused by drought conditions, shift to motortruck transportation, and increased production in certain areas, such as Idaho and North Carolina, and decreases in others as—Virginia, for example (fig. 18).

Potato-market district No. 9 includes Los Angeles and San Francisco of the large markets and other smaller carload potato markets situated in southwestern California (fig. 10).

About 16,000 carloads of potatoes were unloaded on the markets of this district yearly during 1928 and 1929. About 44 percent of the carload market supply is from California. Each of the seasonal potato crops are grown in California from which a regular monthly supply of home-grown stock is available for most of the season. California has increased its production of early-crop potatoes during recent years and competes with other early-crop sections on markets as far east as New York. The decrease in Idaho and Washington shipments during 1934 and 1935 were about offset by increased shipments from Oregon and California (fig. 19).



DAE 34427

FIGURE 17.—Drought during 1934 caused an increase of about 3,800 cars in the receipts of the markets of potato-market district No. 7 during 1934-35 as compared with 1928-29. Idaho, California, Washington, and Wisconsin were the principal sources of the increased supplies.

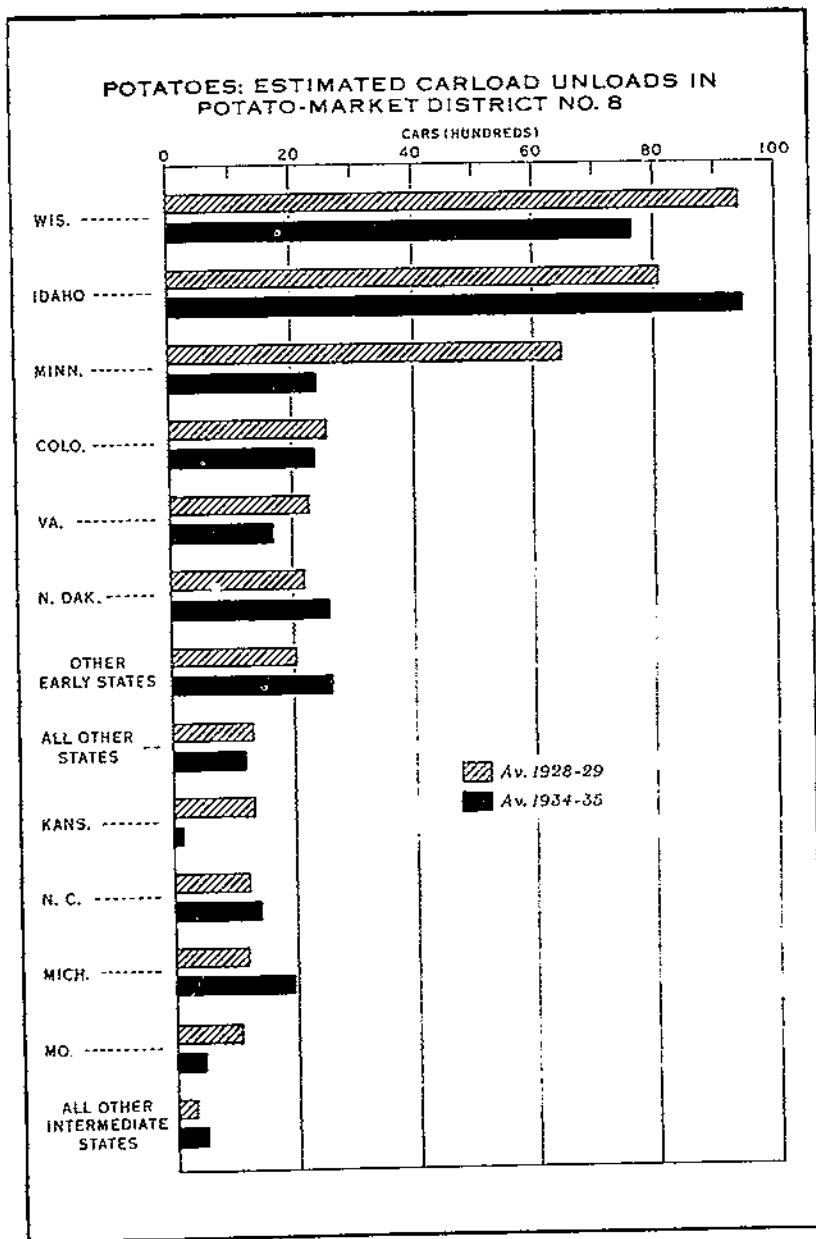
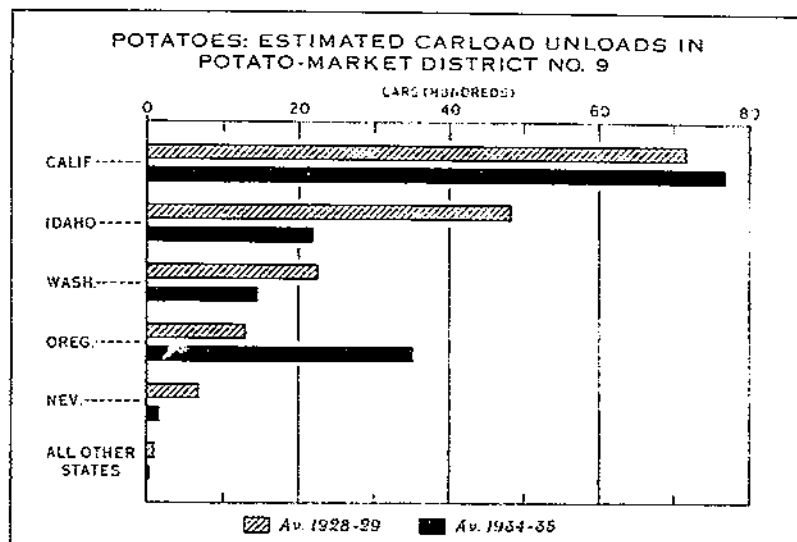


FIGURE 18.—Receipts on the markets of potato-market district No. 8 represent the second largest concentration of carload potato shipments in this country. Carload receipts from 37 States were unloaded on these markets during 1934-35. Wisconsin and Idaho are the principal sources of the late-crop supply. Minnesota usually markets considerable stock here.

Potato-market district No. 10 is situated in the northwestern part of the United States. Portland, Seattle, and Spokane of the large markets and other carload potato markets, including Salt Lake City, are situated in this district (fig. 10).

California is the principal source of the early-crop supply. Washington is the main source of supply for the remainder of the season. Although the average production of Washington was about 9 percent larger in 1934-35 than in 1928-29, its rail shipments to markets of this



BAE 34429

FIGURE 19.—About 47 percent of the carload supplies of potato-market district No. 9 are from home-grown stock. Idaho is the principal source of outside supply. The markets of this district are the outlets for the greater part of the carload shipments from Nevada.

district were 62 percent less than during 1928-29. This reduction in rail supplies was presumably replaced by motortruck deliveries from the large quantities remaining after deducting the farm retentions and all rail shipments by the State.

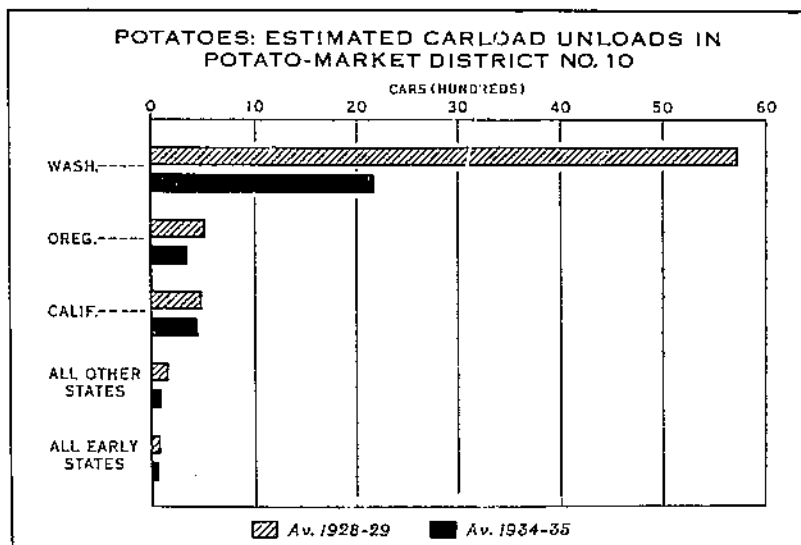
As no complete records of the movement of potatoes by motortruck are available at present, it is understood that all references regarding that movement in this or other districts are based solely on estimates made from production, carload-shipment, and farm-utilization records on file in the Department (fig. 20).

SUPPLY STATISTICS OF 12 LARGE MARKETS

About 33 percent of the total carload shipments of the United States during the 1920-34 period were unloaded on the 12 large markets included in this report.

From 1920-26 to 1927-34 Maine increased its yearly average carload shipments 47 percent, Idaho 77 percent, and the early-crop States 50 percent. Those increases represented 15 percent of the carload shipments of the country from 1927 to 1934, inclusive, or

36,000 cars annually. Forty-four percent of the increase in shipments from those sections was sold on the 12 large markets, so the outlet for potatoes from competing sections was reduced considerably. The foregoing indicates to some extent the changes in the market distribution of the potato crop that have occurred in recent years.



BAE 34430

FIGURE 20.- Washington is the principal source of supply for markets of potato-market district No. 10. Motortruck transportation accounts in part for the reduction from 1928-29 to 1934-35 in shipments by this State.

NEW YORK CITY

New York is the largest potato market in the United States. The data in table 9 indicate the detail by months of the sources of supply, the quantity received from each of those sources, the method of delivery and class of stock (old or new) consumed on this market during the shipping season of the 1931 crop. The annual receipts of potatoes by rail and truck total about 15 million bushels. This volume indicates unloads of about 2.1 bushels per capita for the city exclusive of the outlying metropolitan area. This market imports some late-crop potatoes from Canada and early potatoes from Bermuda, Cuba, and Puerto Rico. Truck transportation from New Jersey and Long Island at present supersedes, practically, the rail movement of former years from those sections to this market.

TABLE 9.—Receipts of potatoes at New York City by months and by States, shipping season December 1930–July 1932¹

Place of origin	1930			1931										1932							
	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	
Shipments from—	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	
California.....		15																			
Florida.....	5	8	10	46	398	1,257	142					2	4	7	40	195	242	315	1	8	
Georgia.....							15												1		
Idaho.....	46	26	42	73	43	3	6												5	1	
Louisiana.....										5	48	51	37	37	44	58	38		1		
Long Island (N. Y.).....	409	209	118	84	13	2		16	512	859	887	561	230	148	73	11					9
Maine.....	1,190	1,487	1,413	1,718	1,408	888	190			19	213	514	1,020	1,126	1,314	1,564	1,650	1,517	728		203
Maryland.....								77	4												180
New Jersey.....								13	6	1											
New York (other than Long Island).....	23	15	20	29	14	2			1	2	1	3	1	2	6	5	8				
North Carolina.....						1	1,448	121											4	1,227	84
Pennsylvania.....			1												2	5	3				
South Carolina.....						174	840												184	333	3
Texas.....		1																			
Vermont.....		2	3		2										1	2					
Virginia.....			1																		
Washington.....		8						386	1,681	48	1		1								272
Imports from—																					
Bermuda.....	13	19	2	12	13	7	6						2	17	7	1	8	11	1		
Canada.....	40	67	73	134	164	80						6	85	38		45	72	10			
Cuba.....	1	40	46	63	14										32	9	12	9			
Puerto Rico.....			1	1											10	1					
Truck receipts from ² —																					
Long Island (N. Y.).....	9	139	117	156	86	41		153	615	710	928	598	450	302	235	128	92	39	16	168	
Maryland.....								1												12	
New Jersey.....				1				102	265	146	51	10	4	2		2	1			79	
New York.....								1	1					3	1	1	2	3			
Pennsylvania.....											1	1	1		1	0	4				
Virginia.....																					16
Total.....	1,717	1,948	1,788	2,175	1,728	1,016	195					2	6	25	91	206	280	325	1,841	1,853	
	19	68	53	122	425	1,440	2,843	2,165	1,482	1,743	2,135	1,824	1,787	1,928	1,670	1,826	1,873	1,574	745	203	
Total imports.....	54	126	116	210	191	87	6					6	85	20	40	56	90	30	1		
Total truck receipts.....	9	139	117	157	86	41		257	881	856	980	609	455	307	237	140	99	42	16	275	
Boat receipts at Port Newark, N. J., from ³ —																					
Maine.....											233	152	364								
Canada.....		42		387	430	88						376	222								
Total.....		42		387	430	88					233	528	586								

¹ Bold-faced type indicates 1930-crop stock from December 1930 through June 1931, and 1932-crop stock from November 1931 to July 1932.

² Truck receipts at the Harlem Farmers' Market, chain stores, and large retail stores not included.

³ Some of these were distributed through the New York City markets.

The carload receipts at New York City averaged 20,244 cars per year during the 1927-34 period. Maine shipped nearly 51 percent of that rail supply, New York about 15 percent, other late-crop States about 2 percent, the intermediate-crop States nearly 14 percent, and the early-crop States about 18 percent. Those figures indicate that about 68 percent of the rail supply of New York was from late-crop stock. The greater part of the increase in supplies of this market from 1920-26 to 1927-34 was delivered by motortruck (table 10).

Maine, North Carolina, and Florida increased their yearly average shipments to this market during 1927-34 which accounts for the disposal of a part of their increased production. The increased use of motortruck transportation by New York and New Jersey decreased their carload shipments to all markets. Virginia decreased production and met increased competition from North Carolina which decreased its shipments to this market. There was an increase of about 600 cars in the average carload unloads on this market from 1920-26 to 1927-34 as a result of changes in the number of shipments from all sources (fig. 21).

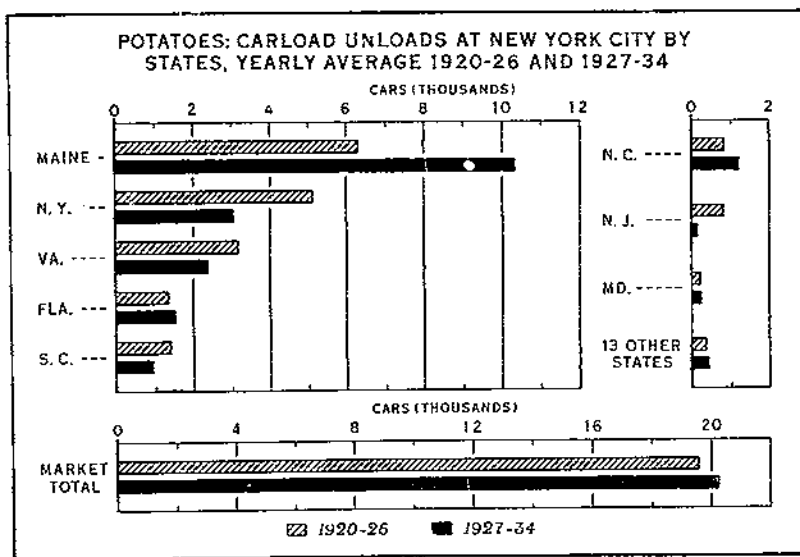


FIGURE 21.—The increase from 1920-26 to 1927-34 in average annual carload shipments from Maine to New York City caused a 25-percent decrease in average shipments from other States that use that market.

CHICAGO

Chicago is the second largest potato market in this country. Its annual carload unloads indicate a per-capita consumption of 2.7 bushels exclusive of motortruck supplies. This market is centrally located in regard to the several producing sections and has drawn carload shipments from 39 of the States during recent years (table 10).

TABLE 10.—Comparison of carlot unloads of potatoes at 12 specified markets, by seasonal groups and States, averages 1920-26 and 1927-34

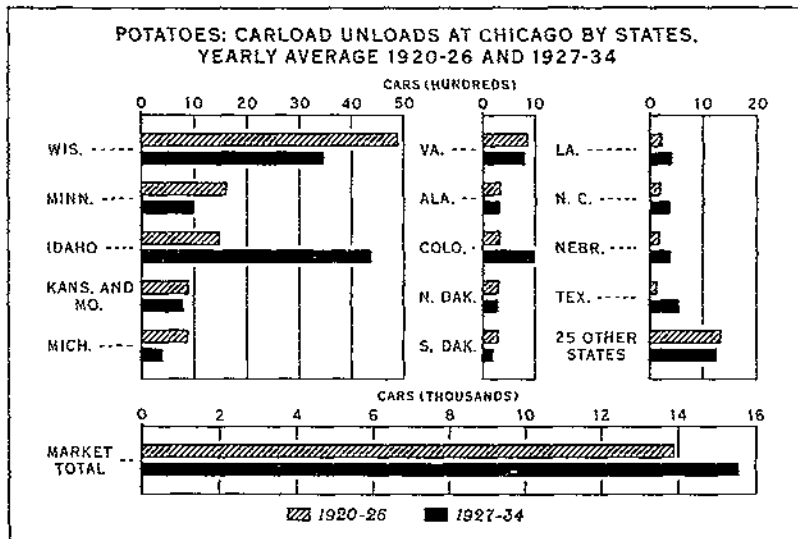
Group and State of origin and shipments	New York		Chicago		Boston		Phila- delphia		Los Angeles		Detroit	
	1920- 26	1927- 34	1920- 26	1927- 34	1920- 26	1927- 34	1920- 26	1927- 34	1920- 26	1927- 34	1920- 26	1927- 34
Surplus late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
Maine.....	6,309	10,321	79	12	6,573	5,042	1,292	2,595			10	400
New York.....	5,124	3,062	17	10	63	34	968	231			1	36
Pennsylvania.....	98	57	2	5			1,903	752				2
Michigan.....	30	3	578	394	6		64	14	1		1,559	1,559
Wisconsin.....	57	3	4,901	3,464	15		44	13	2		26	283
Minnesota.....	11	1	1,615	992	3		11	6	17		26	310
North Dakota.....			300	281	3		1	1				30
South Dakota.....			258	195				2				
Nebraska.....			180	353				2			8	7
Montana.....	1		100	49					16			2
Idaho.....	76	336	1,483	4,371	8	18	60	262	2,262	2,141	30	247
Wyoming.....			37	65							1	
Colorado.....	1	2	327	980			1	3	16	7	2	4
Utah.....			39	21					31	76	1	
Nevada.....									80	128		
Washington.....	1	1	80	124			1		94	169	2	13
Oregon.....			39	26					170	283	1	
California.....		2	50	34					2,661	3,362		23
Total.....	11,701	13,788	10,415	11,408	6,665	5,994	4,345	3,929	5,350	6,106	1,697	2,910
Other late-potato States:												
New Hampshire.....					1	18						
Vermont.....		1				18		2				
Massachusetts.....					1	6						
Rhode Island.....					8	2						
Connecticut.....												3
West Virginia.....												
Ohio.....			7								1	2
Indiana.....	1		9								1	14
Illinois.....			62	11								
Iowa.....			23	36								1
New Mexico.....												
Arizona.....				2								
Total.....	1	1	101	50	11	44	1	2			3	20
36 late States.....	11,702	13,789	10,516	11,456	6,679	6,038	4,346	3,931	5,350	6,106	1,700	2,936
Intermediate-potato States:												
New Jersey.....	817	136	139	137	295	290	714	235			131	295
Delaware.....	5	4	1		3	1	35	5				3
Maryland.....	201	214	35	50	71	153	182	81			18	103
Virginia.....	3,175	2,355	848	793	840	1,077	1,077	780			640	734
Kentucky.....			34	44							15	37
Missouri.....			315	539							29	40
Kansas.....			575	240							25	23
Total.....	4,201	2,739	1,947	1,800	1,212	1,521	2,015	1,101			858	1,274
Early-potato States:												
North Carolina.....	832	1,235	205	372	162	284	299	472			25	500
South Carolina.....	1,417	941	58	52	139	165	681	497			54	62
Georgia.....	8	11	7	13	11	3	19	23			3	11
Florida.....	1,345	1,528	227	164	55	94	613	892			97	211
Tennessee.....			2	3							2	3
Alabama.....			328	312			3	6			32	160
Mississippi.....			16	47								3
Arkansas.....			58	113								3
Louisiana.....	1		216	410							16	65
Oklahoma.....			214	212			1	1			1	12
Texas.....	1	1	121	545				7			5	53
Total.....	3,604	3,710	1,452	2,276	367	546	1,614	1,807			229	1,433
From unknown source.....	16			1		22	3				1	31
Total from the United States.....	19,583	20,244	13,015	15,542	8,258	8,127	7,078	6,932	5,350	6,106	2,788	5,374

TABLE 10.—Comparison of carlot unloads of potatoes at 12 specified markets, by seasonal groups and States, averages 1920-26 and 1927-34—Continued

Group and State of origin of shipments	St. Louis		Pittsburgh		Cleveland		Cincinnati		Kansas City		Birmingham	
	1920-26	1927-34	1920-26	1927-34	1920-26	1927-34	1920-26	1927-34	1920-26	1927-34	1920-26	1927-34
Surplus late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
Maine.....	7	12	339	1,209	198	747	39	71	.....	.....	17	28
New York.....	1	1	615	285	580	254	15	17	.....	.....	3	4
Pennsylvania.....	.....	.....	371	110	32	15	.....	6	.....	.....	.....	.....
Michigan.....	67	105	1,142	271	717	192	714	348	3	.....	3	5
Wisconsin.....	519	412	228	95	74	142	269	181	47	31	57	60
Minnesota.....	720	645	65	72	64	76	677	538	762	527	195	127
North Dakota.....	148	96	.....	9	5	16	243	187	385	334	.....	6
South Dakota.....	15	7	.....	.....	.....	2	2	2	39	7	.....	.....
Nebraska.....	71	477	.....	2	1	2	2	48	145	409	19	21
Montana.....	22	6	.....	2	2	4	1	2	31	28	.....	.....
Idaho.....	384	1,132	13	94	82	292	48	707	246	531	32	23
Wyoming.....	26	55	.....	.....	.....	.....	.....	15	40	193	2	5
Colorado.....	539	488	.....	15	50	68	14	52	290	270	90	165
Utah.....	13	25	.....	2	2	1	.....	2	32	27	10	.....
Nevada.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Washington.....	8	25	1	2	2	5	3	3	22	35	3	5
Oregon.....	2	8	.....	.....	.....	.....	.....	2	3	9	.....	.....
California.....	3	29	.....	3	1	3	.....	.....	8	6	.....	.....
Total.....	2,545	3,524	2,774	2,169	1,792	1,818	2,028	2,190	2,053	2,317	432	449
Other late-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	.....	.....	21	34	1	18	.....	.....	.....	.....	.....	.....
Ohio.....	.....	.....	30	19	51	29	14	9	.....	.....	1	.....
Indiana.....	.....	.....	.....	.....	3	1	6	.....	.....	.....	.....	2
Illinois.....	10	10	.....	.....	4	.....	.....	.....	2	.....	10	.....
Iowa.....	9	21	.....	1	.....	.....	.....	3	11	5	2	.....
Total.....	25	31	51	54	59	48	25	12	13	5	13	2
30 late States.....	2,570	3,555	2,825	2,223	1,851	1,866	2,053	2,202	2,066	2,322	445	451
Intermediate-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey.....	17	41	471	351	285	231	59	46	.....	.....	11	24
Delaware.....	.....	.....	5	4	2	2	.....	.....	.....	.....	.....	.....
Maryland.....	4	2	147	80	129	70	2	7	.....	.....	1	2
Virginia.....	32	34	530	503	554	549	76	62	.....	.....	8	9
Kentucky.....	2	.....	16	2	46	29	89	82	.....	.....	4	35
Missouri.....	45	110	.....	3	2	5	6	5	18	10	1	.....
Kansas.....	119	71	.....	3	8	14	8	8	123	97	33	20
Total.....	219	297	1,169	943	1,021	894	248	210	142	111	89	68
Early potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Carolina.....	2	8	295	250	129	297	68	51	1	.....	3	5
South Carolina.....	1	.....	138	138	53	60	14	2	.....	.....	.....	.....
Georgia.....	.....	.....	8	1	5	8	23	24	.....	.....	5	.....
Florida.....	26	16	175	153	132	173	135	72	11	0	23	18
Tennessee.....	1	.....	27	90	28	57	27	45	.....	.....	26	21
Alabama.....	144	141	.....	.....	.....	.....	.....	.....	.....	.....	81	59
Mississippi.....	23	12	.....	4	3	3	10	27	2	.....	8	3
Arkansas.....	61	137	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana.....	131	235	7	383	18	35	8	23	25	18	1	.....
Oklahoma.....	133	166	.....	.....	.....	4	23	71	110	105	67	6
Texas.....	95	293	5	41	1	27	21	85	106	219	3	.....
Total.....	617	1,008	585	1,094	369	602	601	803	359	423	158	112
From unknown source.....	3	3	.....	2	.....	4	.....	.....	.....	.....	2	4
Total from the United States.....	3,409	4,833	4,579	4,259	3,241	3,426	2,902	3,215	2,547	2,856	694	625

During 1920-26, Wisconsin, Minnesota, and Idaho, in the order named, were the leading sources of the late-crop carload supply of Chicago, but during 1927-34 the receipts from Idaho nearly equaled the combined receipts from the two other States named. Virginia of the eastern part, and Missouri and Kansas of the western part of the intermediate-crop area compete for sales on this market. Comparatively few Florida potatoes reach Chicago, because of competition

from Texas, Louisiana, and Alabama. Complete official records of the truck movement of potatoes to Chicago are not available at present (fig. 22).



BAE 34431

FIGURE 22.—About one-fourth of the increase of nearly 11,000 cars in Idaho shipments from 1920-26 to 1927-34 were unloaded in Chicago. The decrease in Chicago carload receipts from Michigan and Wisconsin during that period was largely due to reduced production and changes to motortruck transportation.

BOSTON

Boston is third in rank among the large markets in number of reported carload unloads of potatoes. The carload receipts at Boston are distributed over the metropolitan area which has been estimated to include 2 million people. Based on that population the carload receipts represent a per-capita consumption of 2.7 bushels exclusive of motortruck receipts (table 10).

There has been a considerable increase in local production of New England, other than Maine, during 1927-34. It is probable that the reduction at Boston in carload receipts from Maine during that period was caused by increased motortruck deliveries from the larger New England production to the metropolitan area of Boston. Maine has been practically the sole source of the late-crop carload supply of this market and any increase in late-crop supplies from other sources probably would affect the demand for Maine potatoes. Boston is the only 1 of the 12 markets to reduce its supply of Maine potatoes during 1927-34 (fig. 23).

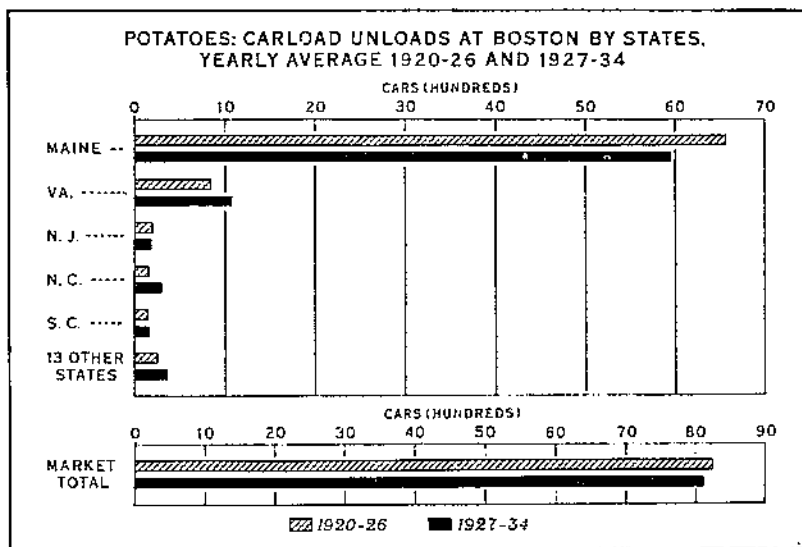


FIGURE 23.—Reduced carload receipts at Boston during 1927-34 compared with 1920-26 was due in part to motortruck deliveries of increased local production. Boston is the only 1 of the 12 markets included in this series to show smaller receipts from Maine during 1927-34 than during 1920-26. Carload receipts from other States indicate an increase in the consumption of early- and intermediate-crop potatoes at Boston.

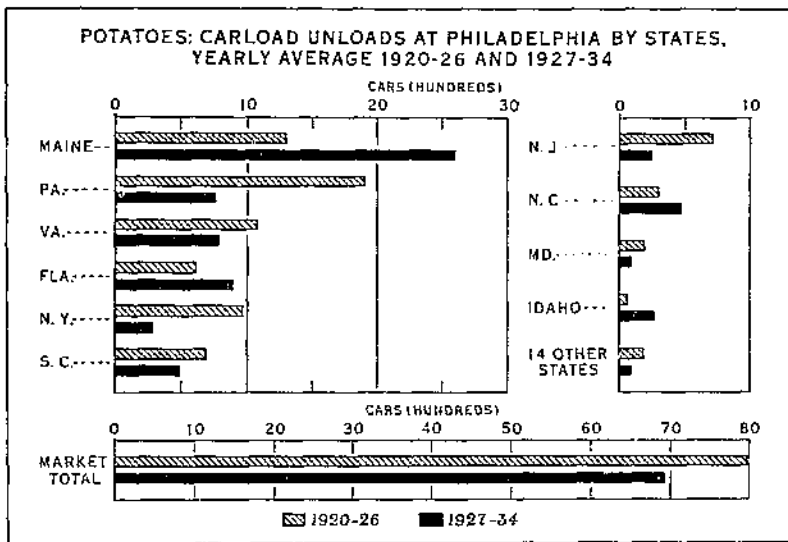
PHILADELPHIA

Philadelphia is fourth in rank among the large markets in number of carload unloads of potatoes. Pennsylvania was the principal source of the Philadelphia carload supply during the 1920-26 period. The shift to motortruck transportation in that State reduced its carload shipments and Maine became the leading source of supply during 1927-34. Owing to the same cause the intermediate-crop shipments to this market decreased about 45 percent at the same time (table 10).

Maine increased its shipments to this market nearly 100 percent during 1927-34 and Florida, North Carolina, and Idaho increased their shipments considerably, but the decrease in shipments from other States that supply this market reduced the total carload receipts to a point below the 1920-26 average. The reduction in carload receipts presumably was caused by the change from rail to truck transportation by nearby States and does not necessarily indicate decreased consumption. The truck receipts on this market should be given as careful consideration during future years as is given to the rail receipts (fig. 24).

LOS ANGELES

Los Angeles is fifth in rank among the large markets in number of carload unloads of potatoes. The increase in population of this city from 1920-26 to 1927-34 increased the demand for potatoes. The Pacific Coast States are the main sources of supply. Idaho is the



DAE 34359

FIGURE 24.—Decrease in the total carload receipts of Philadelphia during 1927-34 was probably offset by increased motortruck deliveries of local production. Maine's increase in carload shipments to this market in 1927-34 represents about 8 percent of the State's increase in total shipments. Changes indicated for other States except Florida, the Carolinas, and Idaho represent the effect of motortruck transportation.

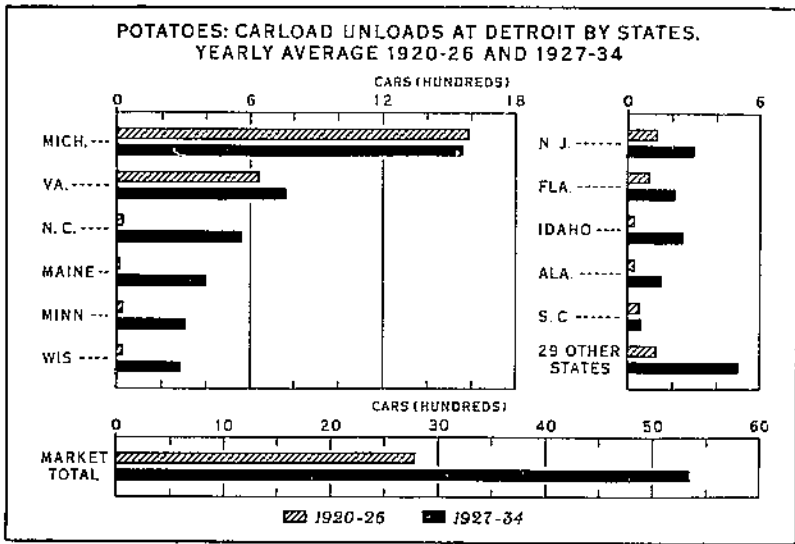
leading source from outside that group. This market furnishes an outlet for most of the carload shipments from Nevada (table 10). A considerable volume is received on this market by motortruck.

DETROIT

Detroit was sixth in rank among the large markets in the average number of carlot unloads of potatoes from 1927 to 1934, but that average was reduced 47 percent during the 1932-35 period. The greater part of this reduction in carload receipts was caused by the change from rail to truck transportation and does not necessarily indicate a reduction in supplies of the market. This change in transportation methods reduces the rank of Detroit as a carload market.

The illustrations in figure 25 showing the carload receipts at Detroit for the two periods 1920-26 and 1927-34 are true for those years. At present, however, they serve only to show the increase in demands for supplies at this market which was caused by the rapid increase in population of the city.

All States named in figure 25 except Idaho, Alabama, and 29 other States made reductions ranging from 28 to 98 percent in their average carload shipments to Detroit during the period 1932-35 as compared with 1927-31. Idaho and Alabama increased their yearly average shipments about 800 cars during 1932-35 as compared with the 1927-31 period.



BAE 34360

FIGURE 25.—Detroit had a greater percentage increase in total carload receipts of potatoes from 1920-26 to 1927-34 than any other of the large markets. This increase was caused chiefly by the greater demands of an increased population. All States using this market, except Michigan, increased their carload shipments during the late period. The increase in supplies from Michigan was delivered by motortruck.

ST. LOUIS

St. Louis is seventh in rank among the large markets in number of carload unloads of potatoes. The unloads come nearer to indicating the quantity consumed at St. Louis than is usually indicated by the carload unloads on other markets because there are comparatively few receipts by motortruck at that point. Idaho has become the leading source of supply for this market, and its increased shipments, together with increased shipments from Nebraska, have reduced the demand for other late-crop supplies. All early-crop States using this market except Alabama increased their shipments to this city during the 1927-34 period. The combined carload receipts from the intermediate-crop sections of Kansas and Missouri show a small increase from 1920-26 to 1927-34 (table 10).

PITTSBURGH

Pittsburgh is eighth in rank among the large markets in the average number of its potato carload unloads. Maine supplanted Michigan as the principal source of this market's late-crop supply during 1927-34. The reductions in carload shipments to this market from New York, New Jersey, and Pennsylvania were probably largely caused by the change in their method of transportation to this and other markets. A considerable quantity of intermediate-crop stock from Virginia and New Jersey is consumed on this market (table 10).

CLEVELAND

Cleveland is ninth among the large markets in number of potato carload unloads. The number of carload receipts from Virginia, one of the main sources of supply for this market, changed very little from 1920-26 to 1927-34. Increased shipments from Maine, Idaho, and North Carolina—the three points of large increased production for the period—supplanted the greater part of the usual carload shipments from Michigan and New York. The reduction in shipments from Michigan may have been partly replaced by motortruck shipments. The total receipts from the 28 other States represent the aggregate of small shipments from States scattered over the country from the Atlantic to the Pacific and from the Gulf to the Canadian line (table 10).

CINCINNATI

Cincinnati is tenth among the large markets in the average number of its carload unloads of potatoes. This market is situated at a considerable distance from the commercial producing sections which limits its motortruck receipts to local production. The carload receipts represent the greater part of the consumptive demands of the city and the surrounding area supplied from this market.

Idaho so increased its shipments during 1927-34 as to supplant both Minnesota and Michigan as the principal source of the carload supply of this market. Other late-crop States also reduced their carload shipments to this market during that period. Those changes indicate the effect of the expansion in Idaho production on other late-crop sections.

Increased shipments from Alabama, the principal source of the early-crop supply, together with increases from Oklahoma and Texas, reduced the demand for shipments from North Carolina during 1927-34. The increased receipts from 24 other States were about equally divided between late- and early-crop stock (table 10).

KANSAS CITY

Kansas City is eleventh among the large markets in number of potato carload unloads. This market is situated within trucking distance of the intermediate-crop sections of Kansas and Missouri and receives more than 400 cars annually of local production by motortruck. Minnesota, North Dakota, and Colorado decreased and Idaho, Nebraska, and Wyoming increased their rail shipments to this market during 1927-34 as compared with 1920-26. The early-crop supply of this market is furnished by Texas and Oklahoma. The carload receipts from those sources indicate an increased consumption of early-crop stock on this market during 1927-34 (table 10).

BIRMINGHAM

Birmingham is the smallest in rank among the markets included in this group in number of carload unloads of potatoes. Carload shipments from widely scattered sources reach this market in addition to the supply from regular shippers. Changes in the number of carload receipts from the several sources that supply this market are similar to the changes on other markets from 1920-26 to 1927-34. During

1927-34 Colorado increased its shipments to this market 83 percent over those of 1920-26. Alabama is the principal source of the early-crop supply (table 10).

OTHER LARGE MARKETS

There are 54 large markets, other than the 12 previously mentioned, that reported the unloading of a yearly average of 51,579 cars of potatoes during the 6-year period 1927-32. San Francisco was first among those markets in the total number of carload unloads. Newark was the leading early-crop market, and Baltimore received the largest number of intermediate-crop shipments. The average yearly carload unloads and sources of supply of those 54 markets are shown in table 11.

TABLE 11.—Comparison of carlot unloads of potatoes at 54 specified markets by seasonal groups and States, average 1927-32

Group and State of origin of shipments	Akron	Albany	Albany	Baltimore	Bridgeport	Buffalo	Columbus	Dallas	Dayton	Denver	Des Moines
Surplus late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
Maine.....	148.3	440.5	142.8	916.8	476.7	83.3	152.7	1.0	10.7	.....	.....
New York.....	50.2	141.5	49.3	165.0	2.0	52.7	49.5	.....	3.5	.....	.....
Pennsylvania.....	1.5	8.3	3.8	103.8	.....	1.8	2.3	.....	.....	.....	.....
Michigan.....	106.7	11.8	2.7	3.5	.....	70.2	248.6	.....	135.7	.....	.....
Wisconsin.....	91.5	.....	86.0	.....	.....	8.8	159.7	.....	7	155.7	0.3
Minnesota.....	22.2	.....	89.3	.....	.....	3.7	216.7	9.2	144.3	.....	7.2
North Dakota.....	2.2	.....	4.3	.....	.....	.....	69.1	11.0	33.7	.....	.....
South Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	1.3	.....	95.0
Nebraska.....	.....	.....	13.0	.....	.....	.....	.....	.....	45.3	.....	11.5
Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	1.0	.....	.....
Idaho.....	18.2	1.0	91.3	7.5	1.0	14.3	60.2	315.3	82.7	.....	51.8
Wyoming.....	.....	.....	2.7	.....	.....	.....	2.8	21.7	.....	.....	3.8
Colorado.....	1.5	.....	69.8	.....	.....	.....	1.7	148.2	.....	.....	749.7
Utah.....	.....	.....	.....	.....	.....	.....	.....	47.0	.....	.....	26.7
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	2.3	.....	2.0	.....	.....	.....	2.0	17.5	1.7	.....	3.7
Oregon.....	.....	.....	.....	.....	.....	.....	.....	4.2	.....	.....	2.2
California.....	.....	.....	1.5	.....	.....	.....	.....	160.3	.....	.....	38.2
Total.....	410.2	606.4	549.9	1,228.2	479.7	235.8	937.6	812.4	631.2	898.7	603.4
Other late-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vermont.....	.....	1.8	.....	.....	5.3	.....	.....	.....	.....	.....	.....
Massachusetts.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Connecticut.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	4.8	.....	.....	.....	.....	.....	6.7	.....	1.0	.....	.....
Ohio.....	15.3	.....	.....	.....	.....	1.0	42.3	.....	8.3	.....	.....
Indiana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	20.6	2.1	.....	.....	5.6	2.9	54.0	.....	12.3	.....	84.0
30 late States.....	460.8	608.5	549.9	1,228.0	485.2	238.7	1,011.6	812.4	633.5	898.7	777.4
Intermediate-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey.....	35.0	51.2	18.7	67.2	38.8	48.3	38.3	.....	5.7	.....	.....
Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	12.2	37.3	2.8	98.0	10.5	46.3	22.3	.....	8.7	.....	.....
Virginia.....	175.8	175.2	41.8	598.0	99.0	481.3	140.0	.....	92.7	.....	9.7
Kentucky.....	10.8	.....	0.0	.....	.....	1.0	5.7	.....	11.5	.....	.....
Tennessee.....	2.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Missouri.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas.....	1.8	.....	15.5	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	238.1	263.7	88.3	751.4	118.6	580.9	215.9	28.2	134.8	16.5	113.4

TABLE 11.—Comparison of carlot unloads of potatoes at 54 specified markets by seasonal groups and States, average 1927-32—Continued

Group and State of origin of shipments	Akron	Albany	Atlanta	Baltimore	Bridgeport	Buffalo	Columbus	Dallas	Dayton	Denver	Des Moines
Early-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
North Carolina.....	48.8	27.4	68.3	117.2	19.0	82.2	134.8	.....	36.3	.....	0.7
South Carolina.....	10.5	20.8	6.8	112.2	11.7	91.2	8.3	.....	2.2	.....	.....
Georgia.....	1.2	8.2	37.5	4.8	.....	3.7	2.0	.....	3.3	.....	2
Florida.....	21.8	23.8	60.8	214.8	5.8	85.7	24.8	0.2	2.2	.....	2
Tennessee.....	.....	.....	20.5	.....	.....	.....	.....	.....	2.3	.....	8
Alabama.....	4.7	.....	83.5	.....	.....	3.2	74.0	.....	73.3	.....	4.3
Mississippi.....	1.5	.....	4.3	.....	.....	.....	2.7	.....	2.5	.....	2
Arkansas.....	.....	.....	4.0	.....	.....	.....	3.0	2.8	4.2	3.8	12.0
Louisiana.....	8.0	.....	8.5	.....	.....	8.8	25.2	4.7	10.5	5.3	36.7
Oklahoma.....	.....	.....	3.8	.....	.....	.....	6.7	34.5	7.7	53.0	60.0
Texas.....	.....	2	20.0	.....	.....	6.8	21.0	135.2	16.7	87.7	63.0
Total.....	95.7	80.4	323.3	449.5	37.0	282.1	303.0	177.4	158.2	149.8	178.1
From unknown source.....	1.8	.....	.....	.....	8	3.8	2.5	.....	9.2	.....	5.0
United States total.....	797.4	952.5	961.5	2,432.8	671.0	1,105.6	1,593.0	1,018.0	895.7	1,065.0	1,073.0
Surplus late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
Maine.....	.....	.....	0.8	0.7	9.7	324.0	5.2	38.0	277.3	31.2	28.2
New York.....	.....	.....	2	.....	2	2.5	1.3	1.0	29.3	36.0	5.7
Pennsylvania.....	.....	.....	.....	.....	.....	.....	.....	3	2	8	3
Michigan.....	.....	.....	86.9	.....	52.8	.....	.....	263.8	2	36.3	122.7
Wisconsin.....	1.0	.....	149.7	1.2	19.7	8.3	1.2	629.7	21.0	101.8	373.8
Minnesota.....	25.7	0.3	181.2	15.8	2.0	.....	5.2	291.3	82.8	93.2	166.2
North Dakota.....	3	.....	23.5	4.0	3	.....	4.5	48.0	3	5.8	17.2
South Dakota.....	.....	.....	2	5	.....	.....	2	2.8	3	5	3
Nebraska.....	3	1.2	9.0	57.3	.....	.....	78.8	4.5	5.5	7	3
Montana.....	5	.....	2.2	.....	.....	.....	3	1.8	.....	.....	2
Idaho.....	7	29.7	35.5	222.2	44.5	4.8	199.3	109.8	17.2	23.7	73.5
Wyoming.....	.....	1.0	5	16.5	.....	.....	11.2	.....	3.5	.....	2
Colorado.....	.....	175.5	54.5	126.7	3	.....	211.7	5.2	22.5	4.8	39.8
Utah.....	.....	1.5	3	20.2	.....	.....	11.5	8	.....	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	4.0	.....	.....	.....	.....
Washington.....	2.0	3.8	2	10.0	.....	.....	56.3	1.5	1.8	10.8	8
Oregon.....	.....	3	2	1.0	.....	.....	6.3	7	.....	.....	5
California.....	8.5	28.7	3	77.7	3	2	329.0	1.3	2	.....	3
Total.....	42.0	212.0	557.3	563.3	129.8	310.0	935.0	397.5	467.3	318.8	830.0
Other late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
New Hampshire.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Vermont.....	.....	.....	.....	.....	.....	9.3	.....	.....	.....	.....	.....
Massachusetts.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Connecticut.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....
Ohio.....	.....	.....	5	.....	2	.....	.....	5	.....	5.2	1.9
Indiana.....	.....	.....	8	.....	2	.....	.....	6.2	.....	1.0	3.2
Illinois.....	3	.....	7	.....	2	.....	.....	3.8	1.0	.....	3
Iowa.....	.....	.....	1.2	.....	.....	.....	.....	1.7	.....	.....	8
New Mexico.....	.....	6.7	.....	.....	.....	.....	3	1.7	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	3	8.7	3.2	.....	1.1	10.2	3	12.4	2.2	6.2	6.5
30 late States	42.3	217.7	590.5	563.3	130.9	350.2	935.3	1,009.9	467.5	335.0	845.5
Intermed late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
New Jersey.....	.....	.....	.....	.....	3.0	30.8	.....	14.0	18.2	8.8	6
Delaware.....	.....	.....	.....	.....	7	8	.....	2	.....	.....	.....
Maryland.....	3	.....	.....	.....	7.0	9.2	.....	6.5	3.2	.....	.....
Virginia.....	15.3	.....	2.2	.....	144.5	110.2	.....	106.0	53.7	11.5	5.0
Kentucky.....	.....	.....	12.3	.....	4.0	.....	.....	72.8	4.7	16.5	2.2
Missouri.....	3.2	.....	11.7	.....	10.2	.....	.....	20.3	3	3	3.0
Kansas.....	26.5	1.8	12.3	35.2	1.0	.....	61.2	24.2	2.5	7	4.7
Total.....	46.3	1.8	38.5	35.0	170.4	151.0	62.0	350.0	82.0	38.0	15.4

TABLE 11.--Comparison of carlot unloads of potatoes at 54 specified markets by seasonal groups and States, average 1927-32--Continued

Group and State of origin of shipments	Du-luth	El Paso	Evans-ville	Fort Worth	Grand Rapids	Hart-ford	Hous-ton	Indi-anapolis	Jack-sonville	Lex-ington	Louis-ville
Early-potato States:	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars
North Carolina.....	1.5	.....	1.5	.....	01.2	30.7	.....	87.3	36.2	8.5	14.3
South Carolina.....	2	.....	4.0	.....	18.5	11.8	.....	6.3	13.3	4.2	4.7
Georgia.....	.....	.....	2.0	.....	3.7	.....	.....	2.0	19.5	4.0	2.5
Florida.....	.....	.....	1.7	7	13.7	6.7	.....	12.5	22.8	5.8	10.0
Tennessee.....	.....	.....	7.5	.....	.....	.....	.....	2.3	.....	3.5	21.8
Alabama.....	2	.....	51.2	.....	2.3	.....	.....	71.5	6.0	29.3	130.3
Mississippi.....	.....	.....	4.0	.....	1.0	.....	.....	4.7	.....	1.0	7.2
Arkansas.....	1.0	.....	2.0	1.3	3	.....	2.3	5.7	.....	.....	1.2
Louisiana.....	1.0	.....	13.2	8	3.5	.....	.....	42.2	.....	4.7	10.8
Oklahoma.....	5.2	7	3.2	23.5	2.5	.....	1.5	26.5	.....	1.2	2.8
Texas.....	8	22.7	10.7	109.5	1.8	.....	74.0	77.4	.....	3.5	29.2
Total.....	9.9	25.1	101.0	135.8	111.5	48.7	78.0	332.5	88.6	65.7	252.8
From unknown source	.....	1.3	7.3	.....	.....	1.2	.....	3.5	0	11.3	10.0
United States total	98.5	275.0	710.3	734.7	412.8	552.1	1,082.6	1,995.9	647.7	470.0	1,113.7

Group and State of origin of shipments	Mem-phis	Mil-wau-kee	Min-neap-olis	Nash-ville	New-ark	New Haven	New Or-leans	Nor-folk	Okla-homa City	Oma-ha	Pe-ria
Surplus late-potato States:	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars
Maine.....	1.7	1.2	.....	15.0	1,148.7	503.2	120.7	207.5	0.3	.....	.....
New York.....	.....	2	.....	.....	495.3	5.8	21.3	39.7	.....	.....	0.2
Pennsylvania.....	.....	7	.....	3	26.7	.....	2	2.7	.....	.....	.....
Michigan.....	3.0	4.5	.....	16.2	3	.....	2.5	61.2	3	.....	0.5
Wisconsin.....	45.7	627.0	0.8	124.3	1.0	.....	20.2	10.0	3.2	4.2	76.3
Minnesota.....	58.0	05.8	257.0	242.3	.....	.....	50.3	11.3	31.3	189.8	374.2
North Dakota.....	8.2	10.3	28.0	8.3	.....	.....	1.3	.....	11.2	61.0	153.2
South Dakota.....	.....	1.5	6.8	2	.....	.....	.....	.....	.....	2.2	46.7
Nebraska.....	331.8	17.7	.....	5	.....	.....	15.5	.....	20.8	356.3	5.5
Montana.....	3.0	5.0	40.0	.....	.....	.....	8	.....	3	3.0	2
Idaho.....	72.7	405.5	37.5	28.5	24.8	1.8	05.8	300.0	148.5	70.8	70.8
Wyoming.....	124.5	7	5	3	.....	.....	3.5	50.7	23.5	7	.....
Colorado.....	103.0	37.0	3.7	101.0	.....	.....	426.7	120.3	41.2	13.3	.....
Utah.....	22.7	2.0	8	3	.....	.....	1.3	.....	15.0	8.5	.....
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	2.2	4.0	14.7	1.5	.....	.....	7.0	2	2.3	8.0	8
Oregon.....	2.8	7	.....	.....	.....	.....	5.5	1.7	.....	7	2
California.....	1.2	3.2	25.7	3	.....	.....	17.5	.....	5	2.0	5
Total.....	780.5	1,218.0	415.5	629.0	1,600.8	570.8	790.4	335.4	563.0	848.0	752.0
Other late-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	.....	.....	.....	.....	.....	2	.....	2	.....	.....	.....
Vermont.....	.....	.....	.....	.....	1.2	2.0	.....	.....	.....	.....	.....
Massachusetts.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Connecticut.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio.....	2	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indiana.....	5	.....	.....	2	.....	.....	.....	.....	.....	.....	3
Illinois.....	5	8	.....	8	.....	.....	.....	.....	.....	.....	2.3
Iowa.....	3	3	.....	7	.....	.....	1.5	3	.....	10.2	4.8
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	1.5	1.8	.....	1.7	1.4	2.4	1.5	1.1	4	10.2	7.4
30 late States.....	782.0	1,219.8	415.5	630.7	1,602.2	573.2	791.9	336.5	564.3	850.1	760.3
Intermediate-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey.....	.....	9.0	.....	.....	164.3	30.7	25.7	1.8	.....	.....	.....
Delaware.....	.....	.....	.....	.....	5.3	.....	.....	.....	.....	.....	.....
Maryland.....	.....	9.8	5	.....	50.0	15.2	2	2	.....	.....	5
Virginia.....	2	242.5	18.5	.....	308.2	120.7	16.3	23.7	.....	3	7.8
Kentucky.....	1.8	8.0	.....	.....	36.5	.....	.....	.....	.....	.....	8
Missouri.....	4.0	145.0	8.3	.....	2.7	.....	7.3	.....	1.8	4.8	14.8
Kansas.....	15.8	87.8	44.2	.....	.....	.....	43.3	.....	47.3	44.0	37.2
Total.....	21.8	502.1	71.5	.....	538.5	166.6	129.3	26.7	49.1	49.1	61.1

TABLE 11.—Comparison of carlot unloads of potatoes at 54 specified markets by seasonal groups and States, average 1927-32—Continued

Group and State of origin of shipments	Memphis	Milwaukee	Minneapolis	Nashville	Newark	New Haven	New Orleans	Norfolk	Oklahoma City	Omnaha	Pecoria
Early-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
North Carolina.....	110.7	4.0	.....	.....	198.5	35.0	0.0	7.2	.....	.....	3.3
South Carolina.....	15.2	.3	.....	.....	136.7	16.3	5.0	4.7	.....	.....	.....
Georgia.....	.....	.3	.....	.....	6.2	4.5	1.3	.....	.....	.....	.6
Florida.....	2.7	17.2	3.0	20.0	267.3	16.2	.....	.....	.....	.....	.7
Tennessee.....	.....	.2	.....	.....	.....	.....	2.2	11.7	.....	.....	.....
Alabama.....	3.3	31.5	8.0	23.3	.....	.....	27.7	.5	.....	.....	.8
Mississippi.....	10.0	.....	.....	70.8	.....	.....	4.8	.3	.....	2.0	16.8
Arkansas.....	13.2	5.0	2.7	.3	.....	.....	4.3	.....	.....	.....	.8
Louisiana.....	31.3	7.7	15.0	.....	.....	.....	1.3	.....	.....	12.0	16.7
Oklahoma.....	130.3	40.0	22.7	12.5	.....	.....	60.0	.....	7.0	29.2	26.3
Texas.....	30.5	31.7	88.3	.2	.....	.....	6.7	.....	15.2	56.7	36.0
.....	27.5	60.8	83.5	8.7	.....	.....	15.5	.....	52.7	95.3	45.3
Total.....	266.3	320.8	220.0	142.3	607.5	68.8	132.5	24.0	76.4	196.0	150.2
From unknown source.....	10.0	.8	.2	.....	4.8	1.8	.....	.8	2.2	.....	3.0
United States total.....	1,080.1	2,043.5	716.2	773.0	2,846.0	810.4	1,063.7	387.6	682.0	1,104.2	974.6

Group and State of origin of shipments	Portland, Maine	Portland, Oreg.	Providence	Richmond	Rochester	St. Paul	Salt Lake City	San Antonio	San Francisco	Seattle	Shreveport
Surplus late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
Maine.....	269.5	.....	801.5	116.2	5.7	.....	.....	19.3	.....	.....	.....
New York.....	.....	.....	1.3	140.2	11.0	.....	.....	9.7	.....	.....	.....
Pennsylvania.....	.....	.....	.....	10.7	.3	.....	.....	.....	.....	.....	.....
Michigan.....	.....	.....	.3	24.2	.....	.....	.....	.....	.....	.....	.....
Wisconsin.....	.....	.....	.....	2.0	.....	.....	.....	.3	.....	.....	.....
Minnesota.....	.....	.....	.....	.....	5	0.8	.....	.....	0.2	.....	7.5
North Dakota.....	.....	.....	.....	2.7	.....	52.2	0.8	2.5	4.8	.....	16.0
South Dakota.....	.....	.....	.....	.....	.....	7.7	.5	6.3	.5	.....	2.0
Nebraska.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Idaho.....	.....	4.7	2.5	3.7	2.2	12.3	.....	8.0	.....	0.3	20.5
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	.....	583.5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon.....	.....	128.2	.....	.....	.....	.....	.....	.....	.....	.....	.....
California.....	.....	106.3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	269.5	822.7	895.6	300.4	20.0	140.0	143.3	677.5	3,563.0	2,144.0	238.9
Other late-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	.....	.....	7.7	.....	.....	.....	.....	.....	.....	.....	.....
Vermont.....	.....	.....	.3	.....	.....	.....	.....	.....	.....	.....	.....
Massachusetts.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Connecticut.....	.....	.....	1.5	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indiana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	.4	.....	10.4	1.0	.....	.....	.....	.9	.....	.....	.8
30 late States.....	269.9	822.7	906.0	302.0	20.0	140.0	143.3	678.4	3,563.0	2,144.0	239.7
Intermediate-potato States:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Jersey.....	21.7	.....	12.6	15.3	18.5	.....	.....	.....	.....	.....	.....
Delaware.....	.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	22.7	.....	12.2	.2	16.2	.....	.....	.....	.....	.....	.....
Virginia.....	115.5	.....	168.6	31.3	262.7	9.0	.....	.....	.....	.....	.....
Kentucky.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Missouri.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	160.4	.....	103.8	46.5	296.9	40.2	.....	50.0	.....	.....	37.2

TABLE 11.—Comparison of carlot unloads of potatoes at 54 specified markets by seasonal groups and States, average 1927-32—Continued

Group and State of origin of shipments	Portland, Maine	Portland, Oreg.	Providence	Richmond	Rochester	St. Paul	Salt Lake City	San Antonio	San Francisco	Seattle	Shreveport
Early-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
North Carolina	9.5		35.3	21.0	23.8	4.0					
South Carolina	9.7		32.8	23.8	67.0	.5					
Georgia			7	1.8	2.3						
Florida	1.3	1.5	12.7	21.3	20.5	.2		.2	2.0	1.7	
Tennessee				.3							
Alabama				.2	.7	2.0					
Mississippi											
Arkansas						9.5	.3	.2			2.0
Louisiana		.2			.3	10.3	1.0			.2	4.7
Oklahoma						37.7	.2	2.7			.7
Texas		15.7	.3			37.2	10.5	11.3	5.5	30.2	4.3
Total	20.3	17.4	81.8	68.4	123.6	102.1	12.0	14.4	7.8	32.1	11.7
From unknown source	4.3		.3	3.2	.2	.3		4.8		.2	2.3
United States total	458.1	810.1	1,181.9	420.4	411.6	292.5	155.3	747.6	370.8	276.3	290.9

Group and State of origin of shipments	Sioux City	Spokane	Springfield, Mass.	Syracuse	Tampa	Terre Haute	Toledo	Washington	Worcester	Youngstown
Surplus late-potato States:	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
Maine			759.8	20.0	311.7	3.2	104.5	489.3	728.5	183.2
New York			6.7	15.5	31.0		3.8	295.3	1.2	44.3
Pennsylvania				.8	1.2		.3	111.0		10.0
Michigan				.3		42.0	337.0	116.7		91.3
Wisconsin	3.2			4.2	13.3	138.0	51.0	4.0		88.8
Minnesota	91.2			3.2	27.7	141.0	37.3	11.2		9.8
North Dakota	47.5				.2	13.3	7.7	.3		1.2
South Dakota	11.2					.2	.5			
Nebraska	27.2				.7	10.2	.2			.3
Montana	3.0	4.3		.5		.2	.3			
Idaho	69.3	4.0	2.0	5.2	39.2	24.2	22.7	95.2		7.0
Wyoming	4.5				3.3	.7	.2			
Colorado	15.5				9.0	6.0	1.3			.3
Utah	1.8				.2					
Nevada										
Washington	3.2	277.0		.2	18.5	.3	.3			
Oregon		2.0			.2					
California	7	21.5		.5		.2	1.3	.3		
Total	281.3	308.8	768.5	50.4	456.2	309.5	670.4	1,233.3	729.7	436.2
Other late-potato States:										
New Hampshire			4.2						2.8	
Vermont			5.7				.2	1.2	21.8	
Massachusetts			.2	.2					1.2	.3
Rhode Island									.2	
Connecticut										
West Virginia							.8			3.0
Ohio					.3		5.5	.2		3.8
Indiana						.5	1.0			.2
Illinois						.3	.2			
Iowa	3.5					.2	.2			
New Mexico										
Arizona										
Total	3.5		10.1	.2	.3	1.0	7.9	1.4	26.0	7.3
30 late States	284.8	308.8	778.6	50.6	456.5	370.5	678.3	1,234.7	755.7	443.5
Intermediate-potato States:										
New Jersey			61.7	18.0	50.0	2.7	41.0	92.8	30.5	62.5
Delaware										
Maryland			21.8	38.2	3.0	1.2	30.5	48.3	10.5	21.2
Virginia			213.3	158.7	30.3	15.7	218.8	270.5	85.3	191.8
Kentucky					3.2	2.7	9.0			6.2
Missouri	8.3					8.2	6.5			1.5
Kansas	35.2				1.0	3.5	1.0			.5
Total	43.5		296.8	214.9	87.7	35.0	296.8	411.6	126.3	283.7

TABLE 11.—Comparison of carlot unloads of potatoes at 54 specified markets by seasonal groups and States, average 1927-32—Continued

Group and State of origin of shipments	Sioux City	Spokane	Springfield, Mass.	Syracuse	Tampa	Terre Haute	Toledo	Washington	Worcester	Yonkers-town
Early-potato States:	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars	Cars
North Carolina			25.2	23.5	34.2	8.6	113.0	92.7	11.0	50.8
South Carolina			26.7	35.2	16.3	1.0	13.7	57.8	3.2	14.0
Georgia			1.3	8.0	12.0	.3	1.8	4.2		.3
Florida			10.2	20.7	18.2	.2	19.8	107.5	.8	22.7
Tennessee					2.7	.5				
Alabama	1.2			.2	.5	11.0	19.8	.3		10.3
Mississippi				.5						2.2
Arkansas	11.2					1.7	.3			
Louisiana	8.0					12.5	6.7			1.3
Oklahoma	36.0					6.8	.2			
Texas	39.2	4.2	1.3			9.8	2.3	4.0		1.2
Total	98.6	4.2	65.5	88.1	84.1	52.6	178.1	266.7	18.7	102.8
From unknown source	.7	.2	1.0	2.2	3.8	1.7	2.3	4.0	.7	7.0
United States total	99.3	4.4	66.5	90.3	87.9	54.3	180.4	270.7	19.4	109.8

ESTIMATED DISPOSITION OF SEVEN COMMERCIAL POTATO CROPS

The potato crops disappear through about the same channels each season. The greater part of the crop is sold and delivered to markets by rail or other means; a part is retained on farms, where grown, for food, seed, feed, or as unfit for use; and a part is represented by shrinkage in quantity from loss in weight, rot, or other causes. The quantity that disappears through those different channels each season and the quantity transported by each method used in the movement of the crops are of interest in a study of marketing the potato crop.

For the purpose of this study the data of estimated production, stocks on hand January 1, retentions on farms where grown, and rail movements shown in tables 12 to 18 were compiled from records on file in the United States Department of Agriculture. Most items used in those tables are general estimates based on samples and it is quite probable that their use in comparison with an actual count in a specific case will disclose some error; nevertheless, those items based on the same sampling methods each season afford a fair index of the changes that occur in the different items from season to season.

The production of potatoes in the United States was estimated at 332,204,000 bushels for 1929. It was estimated that 82,999,000 bushels of that production remained in the hands of dealers and growers on January 1, 1930. This indicates a disappearance of 249,205,000 bushels of the 1929 crop before January 1, 1930. It was estimated that 118,319,000 bushels of that disappearance were retained on farms where grown, 91,866,000 bushels were transported to markets by rail, but no record of the disposal of the remainder of that disappearance, 39,020,000 bushels, is available. During the remainder of 1929-30 season the railroads reported the movement to markets of 51,625,000 bushels of January 1 stocks which leaves 31,374,000 bushels of those stocks without available records of disposal.

The foregoing indicates that 70,394,000 bushels of the 1929 crop disappeared without any available record of their disposition. Two assumptions regarding the disposal of that volume have been employed in this analysis: (1) It is assumed that those potatoes were grown and sold for market purposes. (2) It is assumed that they

were moved to local markets by means other than rail. It is probable that a small volume was lost through shrinkage, or remained unsold. During the 1929-35 period a large part of the hauling of potatoes from the farm to markets, either to dealers for reshipment by rail or to dealers for retail, was done by motortruck, therefore it is assumed that the greater part of the disappearance for which no records are available was moved to local markets by that method. This local movement is handled by farm trucks, merchant truckmen, or freight truckers and is usually held within 100- to 150-mile radius of the point of production (table 12).

TABLE 12.—Estimated disposition of the United States commercial potato crop, 7 seasons, 1929-35

Year	Esti- mated produc- tion	Retained on farms where grown			Movement before Jan. 1 by—		Stocks on hand Jan. 1	Clearance of Jan. 1 stocks by—	
		Food	Seed	Unfit for food or seed	Rail	Truck, or means other than rail		Rail	Truck, or means other than rail, or unsold
	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
1929.....	332,201	69,512	33,077	15,730	91,566	39,020	82,459	51,025	31,374
1930.....	316,572	65,449	36,968	19,051	95,991	34,874	88,236	54,688	33,548
1931.....	384,125	71,908	38,089	21,421	80,319	50,821	112,064	57,467	54,577
1932.....	376,425	78,384	38,074	39,232	59,148	61,557	108,736	49,641	59,089
1933.....	312,306	63,807	37,886	17,013	69,724	54,542	99,334	53,570	45,764
1934.....	466,105	70,432	38,127	28,045	77,235	65,581	126,715	52,292	74,423
1935.....	357,678	78,364	34,433	27,813	66,085	75,554	105,669	48,793	56,966

It is well recognized that the introduction of the motortruck as a major factor in competition with the railroad for transportation of the potato crops has added new marketing problems. From 1921 to 1930, inclusive, over 40 percent of the total production was moved by rail. This percentage was reduced to less than 33 percent from 1931 to 1935, inclusive.

UNITED STATES

It is considered that the total production in the United States exclusive of the quantity retained on farms and the usual seasonal shrinkage represents the available market supply of the country each season. A variable quantity of this available supply is moved to markets by rail and the remainder by motortruck or means other than rail. During 1929-30 about one-third of the market supply of the country moved by truck or means other than rail. Since then there has been an increased use of the motortruck for hauling potatoes. In 1935-36 about 53 percent of the United States commercial movement was hauled by truck, or means other than rail.

The greater part of the increase in truck movement during recent years has been made in the potato sections adjacent to the so-called deficit States situated in the territory extending east of the Mississippi River and north of the thirty-seventh parallel. This territory has many markets that are situated within reasonable trucking distances of the potato-producing sections which has been an inducement to increase the use of trucks for marketing potatoes in this area (fig. 26 and table 14).

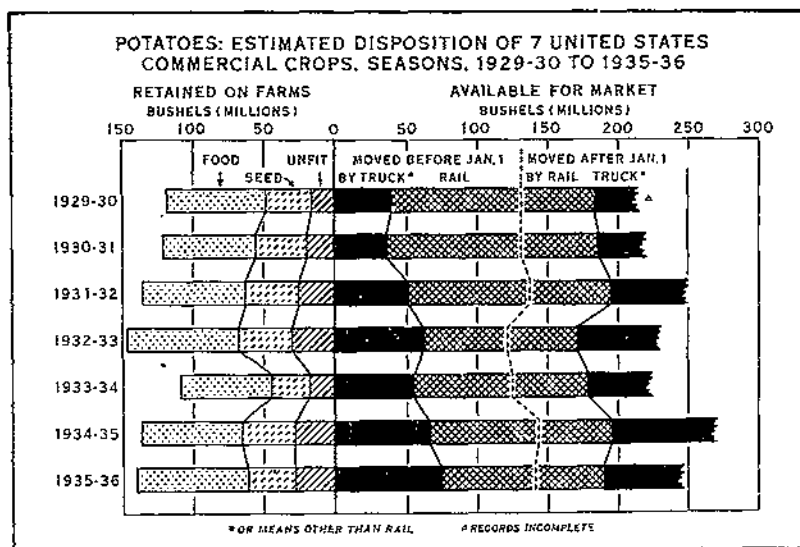


FIGURE 26.—The percentage of the quantity that disappears through the different channels varies with each season. From 1929-30 to 1935-36 there was a gradual decrease in rail shipments and an increase in the quantity moved by motortruck or means other than rail.

NEW YORK

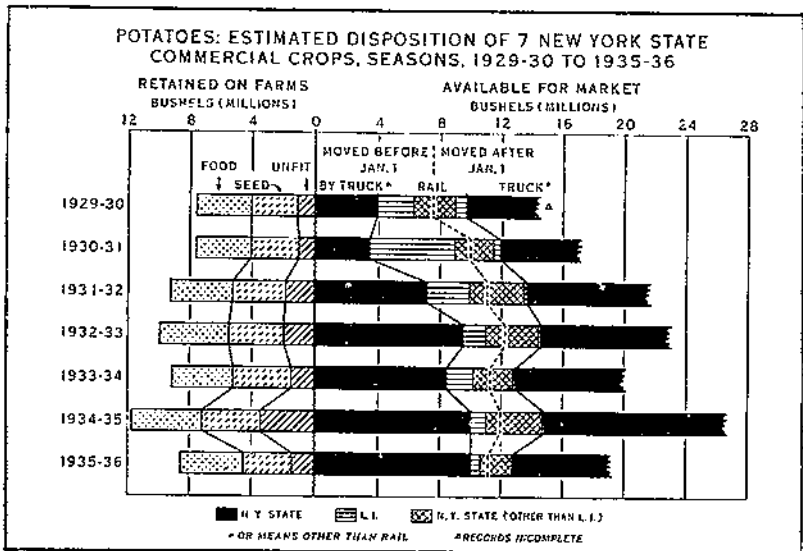
Long Island, N. Y., is practically an intermediate-crop section and upstate (other) New York is a late-crop section, for that reason the production of New York State should be considered as from two separate potato sections. The records of the industry of this State separate the carload shipments of the two sections, but records of all other data regarding the crop include the State as a whole.

The quantity retained on the farms for food, seed, feed, or as unfit for use has ranged from 8,000,000 to 12,000,000 bushels annually from 1929 to 1935, inclusive. The "unfit" ranged from 4 to 9 percent of the annual production for that period. The percentage of the production available for market has varied from year to year but has averaged about 36 percent for the period (table 13).

TABLE 13.—Estimated disposition of the New York State commercial potato crop, 7 seasons, 1929-35

Year	Estimated production	Retained on farms where grown			Movement before Jan. 1, by—			Stocks on hand Jan. 1	Clearance of Jan. 1, stocks, by—		
		Food	Seed	Unfit for food or seed	Rail		Truck, or means other than rail		Rail		Truck, or means other than rail, or unsold
					Long Island	New York (other than Long Island)			Long Island	New York (other than Long Island)	
1929	22,050	3,538	2,935	1,102	2,309	1,275	3,917	9,924	715	1,410	4,799
1930	24,804	3,540	3,139	992	5,483	1,039	3,415	7,196	399	1,582	5,215
1931	30,987	4,026	3,450	1,800	2,714	1,149	7,154	10,614	140	2,429	8,054
1932	33,075	4,488	3,561	1,985	1,400	1,235	9,565	10,829	165	2,153	8,479
1933	29,274	3,937	3,787	1,464	1,085	1,099	8,464	8,838	102	1,540	7,187
1934	38,467	4,585	3,765	3,462	968	968	10,652	11,649	121	2,710	11,815
1935	27,830	4,032	3,168	1,392	567	516	10,075	8,980	35	1,577	6,468

Rail shipments were reduced from 33.6 percent of its production during 1921-25 to 14.6 percent during 1931-35 (table 5). Only a little more than one-fourth of the stock available for market was moved by rail during the period of 1929-35. Forty-five percent of those shipments were made from the Long Island section. Beginning with 1930-31 there was a decline in rail shipments during each year following to include 1935-36 (fig. 27).



BAE 34420

FIGURE 27.—Most of the decrease in carload shipments from New York State has been caused by the shift to motortruck transportation by Long Island. The largest reduction in carload shipments from other New York occurred during 1935-36.

The potato sections of New York are situated within reasonable trucking distances of a large consuming population. This has promoted the use of motortrucks for transporting the crop and there was a steady increase in their use through the years from 1929 to 1935.

From 1920 to 1924 New York was among the leading States in the production of potatoes. During the next 6 years (1925-30) its production was decreased about one-third as a result of increased shipments from competing sources, but its production took an upward turn during the increased trucking period of 1931-35 that continued until its average production was increased to 88 percent of its 1920-24 average (table 3).

MICHIGAN

It has been estimated that an average of about 41 percent, ranging from 35 to 57 percent annually, of the potato production of Michigan has been retained on the farms where grown during the 1929-35 period. About 17 percent of the crops has been used for food, 15 percent for seed, and about 9 percent was in the form of culls. The remainder of the crop, about 59 percent, has been available for marketing purposes.

Michigan uses both rail and trucks for shipping its commercial crop to markets. Most of the rail movement originates in the northern part of the Lower Peninsula. During the seven seasons ended with 1935-36 about 30 percent of the available market supply was moved by rail and 70 percent by truck or means other than rail. In terms of total production, the rail movement of 34.8 percent during 1921-25 was reduced to 17.6 percent of the crops during 1931-35 (table 5). Contrary to the United States potato movement in general, the greater part of each crop marketed by Michigan from 1929 to 1935 was moved after January 1 (table 14).

TABLE 14.—Estimated disposition of the Michigan commercial potato crop, 7 seasons, 1929-35

Year	Estimated production	Retained on farms where grown			Movement before Jan. 1 by—			Clearance of Jan. 1, stocks, by—	
		Food	Seed	Cull for food or seed	Rail	Truck, or means other than rail	Stocks on hand Jan. 1	Rail	Truck, or means other than rail, or unsold
	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
1929.....	15,075	3,525	2,785	789	977	2,856	5,227	2,730	2,407
1930.....	14,016	3,510	3,200	1,608	492	2,027	5,779	1,485	2,291
1931.....	24,554	4,350	3,595	2,210	1,775	3,009	8,374	3,405	5,529
1932.....	30,261	4,800	3,880	2,723	2,006	4,595	12,230	3,812	8,448
1933.....	23,325	4,195	3,582	1,400	1,037	4,498	7,093	1,943	6,050
1934.....	30,176	5,088	4,264	3,256	2,523	6,147	14,848	4,414	10,434
1935.....	28,101	5,056	3,523	2,810	1,430	5,422	9,860	2,670	7,100

From 1920 to 1924 production in Michigan averaged about 32 million bushels per year. Because of increased carload competition, or other reasons, the State reduced its average production to about 22 million bushels during the 6 years following. From 1931 to 1935, the period of increasing truck movements, Michigan increased its average production to something over 28 million bushels (table 3).

WISCONSIN

It is estimated that about 6 million bushels of potatoes are consumed on the farms where grown in Wisconsin each year. About 3 million bushels are used for seed, and 2 million bushels are culls. Deducting those items that represent about 48 percent of the average annual production of the State leaves a yearly remainder of about 12 million bushels available for market.

The rail movement in Wisconsin from 1929 to 1935 has exceeded the truck movement by about 7 percent of the available market supply. There has been a tendency to increase the truck movement during that period, but the movement has not reached the proportion attained by other trucking States.

Chicago was the principal outlet for Wisconsin potatoes from 1920 to 1926. The increase in carload receipts from Idaho on the Chicago market from 1927 to 1934 reduced the demand on that market for carload shipments from Wisconsin. The truck receipts from the southern fields of Wisconsin reduced to some extent the loss in quantity of consumption from that State indicated by the smaller carload shipments (table 15).

TABLE 15.—Estimated disposition of the Wisconsin commercial potato crop, 7 seasons, 1929-35

Year	Estimated production	Retained on farms where grown			Movement before Jan. 1 by—		Stocks on hand Jan. 1	Clearance of Jan. 1 stocks, by—	
		Food	Seed	Unfit for food or seed	Rail	Truck, or means other than rail		Rail	Truck, or means other than rail, or unsold
	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
1929	21,120	5,270	2,925	1,076	4,581	1,472	5,816	4,235	1,581
1930	18,696	5,120	3,367	1,122	2,921	1,678	5,080	3,859	1,721
1931	26,319	6,200	3,511	2,360	3,704	2,715	5,641	4,217	3,453
1932	21,621	6,120	3,325	2,708	2,613	2,589	7,226	3,135	4,091
1933	18,620	5,280	3,415	1,303	1,431	2,175	4,983	1,637	3,256
1934	31,968	6,825	3,637	3,197	4,706	2,068	11,593	5,798	5,737
1935	23,531	5,882	3,105	2,580	1,857	3,285	6,816	4,706	5,110

PENNSYLVANIA

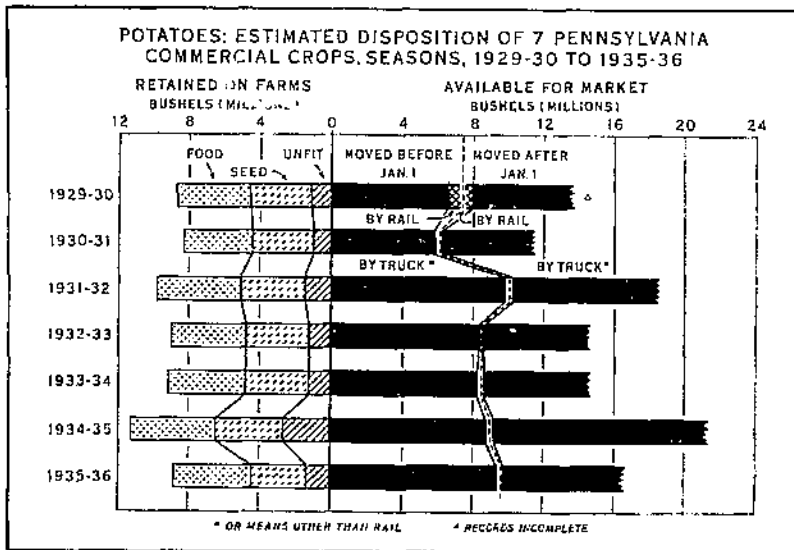
The motorization of the potato movement of Pennsylvania apparently is about completed at the present time. There has been a steady increase in the use of trucks for the delivery of potatoes grown in this State until the movement included 97 percent of the available market supply during 1929-35 (table 16).

TABLE 16.—Estimated disposition of the Pennsylvania commercial potato crop, 7 seasons, 1929-35

Year	Estimated production	Retained on farms where grown			Movement before Jan. 1 by—		Stocks on hand Jan. 1	Clearance of Jan. 1, stocks, by—	
		Food	Seed	Unfit for food or seed	Rail	Truck, or means other than rail		Rail	Truck, or means other than rail, or unsold
	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
1929	22,470	4,200	3,436	1,124	814	6,589	6,307	550	5,757
1930	19,950	3,920	3,469	998	290	5,838	5,435	94	5,341
1931	28,620	4,828	3,619	1,431	213	9,878	8,621	163	8,458
1932	23,650	4,260	3,551	1,182	88	8,133	6,156	56	6,100
1933	23,843	4,433	3,579	1,192	232	8,259	6,148	135	6,013
1934	32,770	4,896	3,770	2,022	117	8,875	12,160	220	12,240
1935	25,536	4,461	3,121	1,277	200	9,471	7,608	52	6,951

Pennsylvania has been one of the leading States in the production of late-crop potatoes during 1921-35. The greater part of the production from 1929 to 1935 was sold on local markets and delivered by trucks, or means other than rail. Under this method of marketing Pennsylvania has increased its production during the period as a whole and has met practically the same competition from outside sources as other States that reduced their production.

It has been estimated that 37 percent of the total production of Pennsylvania from 1929 to 1935 was retained on farms where grown. Seventeen percent was consumed as food, 14 percent was used for seed, and about 6 percent was cull stock. The remainder, about 63 percent, was available for marketing. The marketing period of this State includes all months of the year, however, the greater part of the crop is moved before January 1 (fig. 28).



BAE 34421

FIGURE 28.—Pennsylvania has practically ceased to be a surplus late-crop State in the sense that rail shipments are made to points outside the State. This State tends toward the complete motorization of its potato movement.

VIRGINIA AND MARYLAND

Virginia and Maryland which includes the Eastern Shore section produced a yearly average of about 18.5 million bushels of intermediate-crop potatoes from 1920 to 1924. The production of this section was reduced somewhat during the 6 years following and reached its low average of 14.5 million bushels during 1931-35 (table 3).

The greater part of this production is grown for market purposes, as only about 22 percent of the crop is retained on farms where grown. The requirements for food on these farms represent about 16 percent of the production. Much of the seed in this section is purchased from outside sources and only a small quantity (about 3.5 percent of the crop) of home-grown seed is used. The "unfit" ranges from 2 to 4 percent of the annual production. A little less than 78 percent of the crop is available for marketing.

Truck deliveries from this section have increased somewhat since 1929, nevertheless, the rail movement accounts for about 79 percent of the volume available for marketing. About 97 percent of the market supply is moved before January 1 (table 17).

TABLE 17.—*Estimated disposition of the Virginia and Maryland commercial potato crop, 7 seasons, 1929-35*

Year	Esti- mated produc- tion	Retained on farms where grown			Movement before Jan. 1 by—		Stocks on hand Jan. 1	Clearance of Jan. 1, stocks, by—	
		Food	Seed	Unfit for food or seed	Rail	Truck, or means other than rail		Rail	Truck, or means other than rail, or unsold
	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>	<i>1,000</i> <i>bushels</i>
1929	18,634	2,590	643	475	12,397	1,809	699	21	675
1930	16,677	1,760	574	384	12,581	1,409	269	4	266
1931	17,146	2,756	494	685	10,701	2,018	189	4	485
1932	12,431	2,191	418	373	7,578	1,500	261	3	258
1933	11,590	2,296	620	232	5,756	2,169	217	6	211
1934	16,961	2,640	513	511	9,062	3,697	505	1	504
1935	13,475	2,772	502	611	7,965	2,419	276	1	275

NEW JERSEY

New Jersey has produced a yearly average of about 7 million bushels of potatoes since 1929. A considerable reduction in New Jersey production, in comparison with prior years, was made during 1926-30, but a part of that loss was regained during the years from 1931 to 1935. About 91 percent of the State production from 1929 to 1935 was shipped to markets, 4 percent was retained on farms where grown for food, 2 percent was used for seed, and 3 percent was lost as unfit (table 18). This 9-percent retention on farms was small in comparison with the quantity retained on farms of other States.

TABLE 18.—*Estimated disposition of the New Jersey commercial potato crop, 7 seasons, 1929-35*

Year	Estimated production	Retained on farms where grown			Movement before Jan. 1 by—		Stocks on hand Jan. 1	Clearance of Jan. 1, stocks, by—	
		Food	Seed	Wast for food or seed	Rail	Truck, or means other than rail		Rail	Truck, or means other than rail, or unsold
	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels	1,000 bushels
1929	4,902	229	113	117	1,093	2,121	398	3	395
1930	7,144	250	124	143	3,306	2,664	693	—	693
1931	7,431	201	157	223	2,589	3,263	648	1	647
1932	6,600	281	154	138	1,586	4,296	413	1	412
1933	6,840	281	177	274	2,770	2,786	519	—	519
1934	8,320	308	177	333	2,922	3,980	600	—	600
1935	8,632	308	172	259	3,651	4,289	553	—	553

CONCLUSIONS

The potato is the leading vegetable in the United States. It is the principal cash crop in many sections of concentrated production and is a cash side line on thousands of farms where local markets are available.

The use of other vegetables and cereals as substitutes for potatoes, and other causes have tended to hold down consumption. The increase in the volume of potatoes that has disappeared into consumptive channels has not kept pace with the increases in population. Disappearance increased 8 percent and population 33 percent from 1910-14 to 1931-35. Annual per-capita disappearance during 1910-14 was about 2.6 bushels, during 1921-25 about 2.3 bushels, and during 1931-35 about 2.1 bushels.

There has been very little shifting in the location of the producing areas of the country, but a considerable change has occurred in the extent of the acreage of those areas.

There has been a general endeavor to advance the harvesting dates of the early-crop areas. The extension southward of the producing territory of Florida and Texas has lengthened the shipping season to about 20 months.

The extent of the acreage planted each season is important to the industry. Average conditions in the industry for a term of years provide a better basis for planning future acreages than does the results of any one year. This study indicates that increases in acreage should be made only when the consumptive demands of 2 or more years show the need of an increased production. Collective action of all potato growers in regard to acreages planted to supply each potato-market district would avoid to some extent the year-to-year changes in acreages which are the principal cause of the seasonal troubles of the industry.

The increase in yields per acre during recent years has been beneficial to the industry. To increase the average yields per acre by the abandonment of low-yielding lands, use of selected seed, better cultural methods, or other means that will not increase the cost of production unduly is desirable.

A per-capita production of about 2.9 bushels, or a total of 365,000,000 to 370,000,000 bushels, is approximately the quantity desirable to supply the requirements of present conditions.

Several sections (New York, Michigan, Wisconsin, New Jersey, and others) adjacent to the deficit potato area reduced their production during the 1926-30 period chiefly as a result of increased competition from outside sources. Those sections increased their production during 1931-35 and delivered a large part of the output to markets by motortruck at higher farm prices per bushel than was paid in the larger producing sections.

The continuous use of the markets grouped in a given area as an outlet for the production from the same States, year after year, has segregated the markets of the country into 10 potato-market districts. Each of those districts is the logical outlet for the crops of several producing sections. The quantity of potatoes necessary to supply the consumptive needs of a district, the location of those supplies, the volume available to supply those needs that can be expected from each producing section, the period of time during which the supplies from each section are available each season should be considered, in conjunction with a study of general market conditions, as a means of localizing the market problems of each producing section.

Changes in the location of a large quantity of the available market supply of potatoes have modified competition in the several potato-market districts. The distribution of the increased production of Maine among the potato-market districts increased competition. The wide distribution of the Idaho increased production, except the concentration of shipments in the Chicago market district, did not affect the general market situation to any great extent. The increased early-crop production increased competition on the northern market districts with intermediate and old late-crop stock.

The 66 large markets here considered are the principal outlets for carload shipments of potatoes. Twelve of those markets increased their average carload receipts about 6,300 cars from 1920-26 to 1927-34. Carload receipts are inadequate as a measure of the requirements of those markets at the present time owing to the uncertainty of the volume of potatoes delivered by motortruck each season.

An average of about one-third of the potato production of each year is retained on farms where grown. The remainder is available for marketing and usually passes through two channels en route to destination—that is, a little less than one-half of the market stock is moved by rail and the remainder by motortruck, or means other than rail. Those proportions vary considerably in the several States.

There has been a reduction in the total carload shipments of potatoes. The principal reductions have occurred in sections adjacent to the deficit areas. There has been some increase in carload shipments from those sections that have increased production in locations remote from available markets.

There has been an increase in the use of the motortruck to transport potatoes from the farm to markets, chiefly within a radius of 100 to 150 miles of the point of production.

It is not probable that exact repetitions of the performances in the potato industry during the 1921-35 period will occur in future years, but the effect of the relations of supply and demand on prices, and the

influence of the factors that are involved in the production and marketing of the potato crops, will probably apply to future operations as they have in the past.

The presentations in this bulletin, although not complete in all details, furnish a fairly accurate picture of the potato industry of the United States during the 1921-35 period. With this information as a background, the reader will be better equipped to interpret the current seasonal information on present-day conditions as they affect his individual problems.

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