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LIQUID PETROLEUM FUEL USED BY FARMERS IN 1959 AND RELATED DATA
STRICKLER, P. E.; HARRINGTON, L. B. J. 1 OF 1

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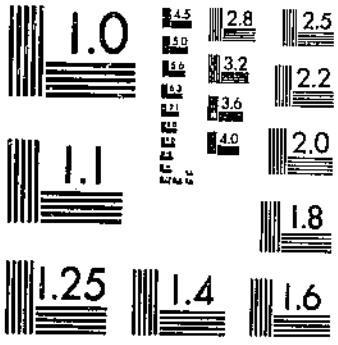

MICROCOPY RESOLUTION TEST CHART
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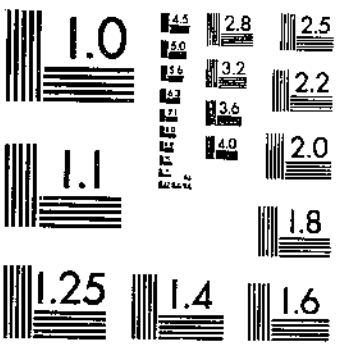

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LIQUID PETROLEUM FUEL USED BY FARMERS IN 1959 AND RELATED DATA

STATISTICAL BULLETIN NO. 344

UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service
Farm Production Economics Division

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Washington, D. C. May 1964

SUMMARY

The amount of liquid petroleum fuel purchased per farm in 1959 was larger than ever before. However, the total quantity purchased declined mainly because of the decrease in number of farms and in crop acreage; also because less tillage was required owing to use of herbicides.

Within a relatively static total, some shifts in types of fuel occurred, mainly in tractor fuel. The quantity of gasoline and low octane fuels declined, but this was more than offset by increased usage of diesel fuel and LP-gas in tractors. In addition, an increasing number of houses were heated with LP-gas in place of the old chunk stove which consumed wood and coal.

Farmers spent over $1.5 billion for the fuel and oil used in their business in 1959, or about 6 percent of total production expenses. But type of farm, size of farm, and management of resources caused this ratio to vary widely from farm to farm.

Machines used for field work on farms are now powered almost entirely by gasoline or other liquid petroleum fuel. Farmers also use petroleum products for drying crops, brooding chicks, killing weeds, and for a variety of household purposes.

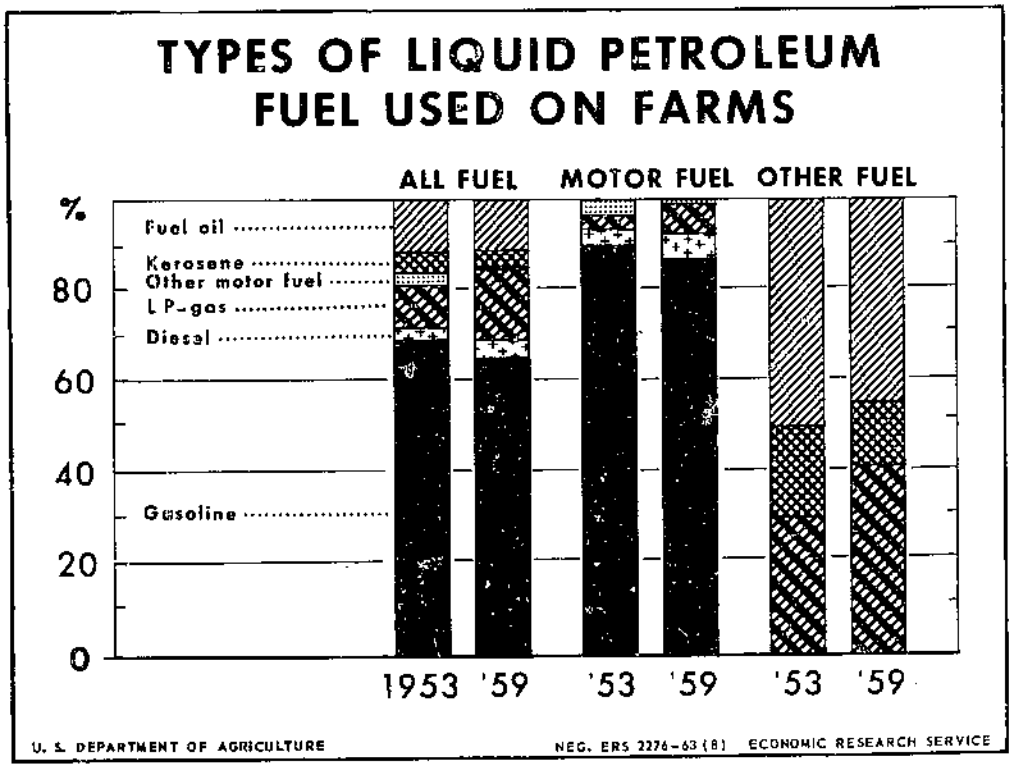

Figure 1

LIQUID PETROLEUM FUEL USED BY FARMERS IN 1959 - AND RELATED DATA

by

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BACKGROUND

Estimates in this report are based on about 23,000 usable replies to questionnaires mailed to crop reporters of the Statistical Reporting Service in February 1960. Similar information was obtained for 1953 and published in Statistical Bulletin 188.

Farmers reported the amount of liquid petroleum fuel they used in 1959 and the purpose for which they used it. The amount of fuel used by custom operators other than farmers was not obtained.

Estimates were supplied on the number of hours tractors were used in 1959 and the percentage of use for each month. Tractors were classified by the principal fuel used during the year and by the number with hydraulic lifts.

The quantity of fuel used in farm households for all purposes and the principal fuels used for heating were reported. Principal fuels used for heating, cooking, and water heating were given in the 1960 Census of Housing. Fuels included in the principal fuel category are those used primarily or exclusively for these purposes. Census data for each category are summarized in this report.

TOTAL FARM USE

Farmers used about 8,610 million gallons of liquid petroleum fuel in 1959 for farm production, for pleasure driving, and in the household. About 70 percent was for farm business, 20 percent for household consumption, and over 10 percent for automobile use other than for farm business.

Changes in the types of fuel used by farmers between 1953 and 1959 are shown in figure 1 (p. iv). Gasoline was the principal fuel used in both years, but the increase in use of LP-gas and diesel fuel was substantial. Both of these fuels increased in importance as motor fuel and LP-gas made gains in heating, drying, and weed-burning categories.

Important changes took place on farms between 1953 and 1959. The long-time downward trend in the number of farms continued and was accompanied by a sudden

decline in the number of automobiles on farms (table 1). This was due in part to a change in the definition of a farm which eliminated 230,000 places previously classified as farms. There were perhaps around 150,000 automobiles on these eliminated farms. Another change involved the acreage of crops, which was less in 1959 than it was in 1953. These changes along with an increase in the size of farms--which contributes to efficient fuel use per unit of production--help account for slight reduction in the quantity of fuel used annually by farmers between 1953 and 1959 (table 2). However, the average amount of fuel used per farm increased from 1,209 gallons in 1947 to 1,767 gallons in 1953 and was over 2,100 gallons in 1959. Among the power machines for which comparison is available, only tractors showed an increase in fuel use between 1953 and 1959. Quantities and types of fuel used in tractors over the years are shown in table 3.

Fuel use by States ranged from 11 million gallons in Nevada to 746 million gallons in Texas (table 4). Three factors influenced the quantities of motor fuel used in the different States: (1) The number of power machines; (2) the average size of these machines; and (3) the average annual use of them. For household use, the number of farms, climate, and alternative fuels caused wide variations among the States in the quantities of liquid petroleum fuel used. For example, in Pennsylvania and West Virginia the ratio of household use to total use was relatively low because coal was an important heating fuel. This ratio was also low in most of the South because of climate.

Regional use of fuel by kind is shown in table 5. Price, kind of use, and machines used in the regions were largely responsible for the importance of different types of fuel. Gasoline and fuel oil are used more extensively in areas distant from oil fields. Use of LP-gas, because of transportation costs, fades out somewhat as distance from the oil fields increases. As pipeline distribution of LP-gas expands, the regional differences should tend to smooth out. Diesel fuel is important in the Western States because it is used extensively in crawler tractors. In the Northern Plains larger-than-average wheel tractors are in demand, many of which are powered with diesel fuel.

MOTOR FUEL

In recent years tractors have accounted for over 50 percent of the motor fuel used by farmers for all purposes. Only about 40 percent of the fuel used in farm automobiles should be considered for farm business, the remainder being used for pleasure.

An increase of about 3 percent occurred in the amount of fuel used in farm tractors from 1953 to 1959. Gasoline was the principal fuel used in both periods but had declined in importance by 1959 (table 3). Increasing acceptance of larger tractors, especially those designed for diesel fuel and LP-gas, has been accompanied by declining use of both gasoline and low-octane fuels such as kerosene, distillate, and power fuel.

The rapid acceptance of diesel wheel tractors for farm use is well illustrated by annual production. In 1953, diesel tractors accounted for only 6 percent of production; in 1959, 30 percent; and in 1963, over 45 percent. Factory production of LP-gas tractors was relatively low and stable over this period. However, sales of kits to convert gasoline tractors to LP-gas increased.

Table 1.--Number and size of farms, number of motor vehicles, tractor horsepower, and horses and mules on farms, 48 States, specified years

Item	1920 census January 1	1930 census April 1	1940 census April 1	1945 census January 1	1950 census April 1	1954 census November	1959 census November	1963 estimates
	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands
Number of farms	6,448	6,289	6,097	5,859	5,382	4,782	3,708	1/ 3,580
Acres harvested	348,497	362,103	324,397	353,355	351,069	338,027	316,262	2/ 287,567
Number on farms:								
Tractors 3/	246	920	1,567	2,354	3,399	4,345	4,684	4,670
Automobiles	2,146	4,135	4,144	4,148	4,207	4,258	3,629	---
Motortrucks	139	900	1,047	1,490	2,207	2,703	2,825	2,900
Horses and mules	25,200	18,886	13,932	11,629	7,604	4,141	2,948	---
Farms reporting:								
Tractors 3/	229	851	1,410	---	2,433	2,773	2,585	---
Automobiles	1,980	3,650	3,542	3,630	3,390	3,392	2,952	---
Motortrucks	132	845	944	1,299	1,840	2,213	2,173	---
Horses and mules	---	5,025	4,362	---	2,905	1,800	1,138	---
Number per 100 farms:	Number	Number	Number	Number	Number	Number	Number	Number
Tractors 3/	4	15	26	40	63	91	126	130
Automobiles	33	66	68	71	78	89	98	---
Motortrucks	2	14	17	25	41	56	76	81
Horses and mules	399	304	238	204	145	87	80	---
Number per 100 acres of crops harvested:								
Tractors	.07	.25	.48	.67	.97	1.29	1.48	1.62
Automobiles	.62	1.14	1.28	1.17	1.20	1.26	1.15	---
Motortrucks	.04	.25	.32	.42	.63	.80	.89	1.01
Horses and mules	7.23	5.22	4.29	3.29	2.17	1.22	.93	---
Tractor horsepower	1.41	6.10	13.0	17.99	26.14	37.28	48.87	58.40
Average maximum belt horsepower of tractors 4/	20	24	27	27	27	29	33	36
Average acres in farm	148	157	174	195	216	242	303	316

1/ From "Number of Farms and Land in Farms, United States, 1950-63, by States, 1961-62." U. S. Dept. Agr., Statis. Rptg. Serv. Sp Sy 3 (2-63), Feb. 1963.

2/ Acreage of principal crops harvested in 1962.

3/ Excludes garden tractors.

4/ Estimates for 1920-54 are from Bureau of the Census "Facts for Industry." 1959 and 1963 estimates are from "Current Industrial Reports" (formerly "Facts for Industry").

Table 2.--Farm consumption of liquid petroleum fuel, by use, 48 States, specified years 1/

Year	Motor fuel consumed by--					Other fuels 2/	Household use	All uses	
	Tractors	Automobiles	Motortrucks	Other power units	All power machines			Total	Average per farm 3/
	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Gallons
1920----	271	514	53	4/	4/	4/	4/	4/	4/
1930----	748	1,388	341	4/	4/	4/	4/	4/	4/
1940----	1,399	1,538	397	4/	4/	4/	4/	4/	4/
1947----	2,820	1,695	845	278	5,638	5/	1,459	7,097	1,209
1953----	3,271	2,073	1,069	362	6,775	456	1,577	8,808	1,767
1959----	3,370	1,639	1,064	379	6,452	421	1,737	8,610	2,101

1/ Does not include motor oil or other lubricants, natural and utility gas.
2/ Used for drying crops; brooding, killing weeds; heating water, buildings, and orchards; and miscellaneous other uses.
3/ Based on "Number of Farms, 1910-1959, Land in Farms, 1950-1959, by States." U. S. Dept. Agr. Statis. Bul. 316, June 1962.
4/ Not available.
5/ Included in household use.

Table 3.--Consumption of motor fuel by farm tractors, 48 States, specified years

Year	Gasoline	Diesel	Kerosene	LP-gas	All other	Total fuel	Percentage gasoline is of total
	Million gallons	Million gallons	Million gallons	Million gallons	Millon gallons	Million gallons	Percent
1920------	108	0	1/	0	163	271	40
1930------	314	0	1/	0	434	748	42
1940------	965	1/	84	1/	350	1,399	69
1947------	2,245	121	79	1/	375	2,820	80
1953------	2,738	216	1/	85	232	3,271	84
1959------	2,669	337	1/	300	64	3,370	79

1/ Included with all other fuels.

Table 4.--Farm consumption of liquid petroleum fuel by States and regions, 1959

State and region	Motor fuel consumption					Other fuels used for production	Total fuels used for production 1/	Household use	Total, all uses
	Total	Quantity used by--							
		Tractors	Motor-trucks	Automobiles	Other motors				
	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons	Million gallons
New England	77.8	27.2	21.1	26.4	3.1	6.3	84.1	42.0	126.1
New York	152.7	78.8	23.7	42.4	8.8	6.8	159.5	66.0	225.5
New Jersey	29.3	12.6	7.0	8.6	1.1	1.6	30.9	13.0	43.9
Pennsylvania	155.4	72.5	26.4	51.9	4.6	6.2	161.6	38.0	199.6
Delaware	9.4	4.6	1.9	2.7	.2	.8	10.2	4.0	14.2
Maryland	43.1	21.7	7.3	12.8	1.4	2.4	45.5	24.0	69.5
Northeast	467.7	216.6	87.3	144.8	19.0	24.1	491.8	187.0	678.8
Michigan	170.6	97.4	19.2	49.1	4.9	3.7	174.3	50.0	224.3
Wisconsin	218.8	131.4	24.1	56.5	6.8	9.3	228.1	58.0	286.1
Minnesota	319.9	199.0	31.4	77.0	12.5	18.0	337.9	88.0	425.9
Lake States	709.3	427.8	74.7	182.6	24.2	31.0	740.3	196.0	936.3
Ohio	269.4	120.1	19.0	63.0	7.3	4.8	274.2	66.0	280.2
Indiana	211.4	125.5	24.8	55.0	6.1	7.4	218.8	72.0	290.8
Illinois	344.6	233.1	33.9	68.0	9.6	14.5	359.1	93.0	452.1
Iowa	365.0	232.6	36.6	86.6	9.2	14.0	379.0	118.0	497.0
Missouri	242.7	142.7	35.1	57.8	7.1	9.2	251.9	83.0	334.9
Corn Belt	1,373.1	854.0	149.4	330.4	39.3	49.9	1,423.0	432.0	1,855.0
North Dakota	178.0	109.9	24.9	30.9	12.3	1.1	179.1	24.0	213.1
South Dakota	159.4	99.2	16.4	35.6	8.2	1.7	161.1	41.0	202.1
Nebraska	231.8	126.8	29.0	58.1	17.9	8.0	239.8	63.0	302.8
Kansas	310.9	172.4	45.5	64.1	28.9	4.4	315.3	79.0	394.3
Northern Plains	880.1	508.3	115.8	188.7	67.3	15.2	895.3	217.0	1,112.3
Virginia	100.2	39.8	22.7	34.1	3.6	12.1	112.3	32.0	144.3
West Virginia	30.2	8.3	8.6	12.4	.9	1.4	31.6	4.0	35.6
North Carolina	177.1	69.7	36.2	66.5	4.7	111.8	288.9	56.0	344.9
Kentucky	124.0	46.3	25.5	49.2	3.0	1.5	125.5	48.0	173.5
Tennessee	132.0	51.3	29.7	48.4	2.6	.8	132.8	20.0	152.8
Appalachian	563.5	215.4	122.7	210.6	14.8	127.6	691.1	160.0	851.1
South Carolina	80.8	33.8	15.8	29.3	1.9	31.8	112.6	27.0	139.6
Georgia	130.5	60.3	30.0	35.8	4.4	17.3	147.8	29.0	176.8
Florida	65.5	23.5	17.2	18.8	6.0	7.4	72.9	16.0	88.9
Alabama	98.9	38.6	25.4	34.1	1.8	11.0	110.9	26.0	136.9
Southeast	376.7	156.2	88.4	118.0	14.1	67.5	444.2	98.0	542.2
Mississippi	125.8	54.6	29.7	37.5	4.0	1.7	127.5	26.0	153.5
Arkansas	142.2	70.9	32.3	26.7	12.3	9.2	151.4	32.0	183.4
Louisiana	99.3	41.8	21.9	28.9	6.7	1.5	100.8	29.0	129.8
Delta States	367.3	167.3	83.9	93.1	23.0	12.4	379.7	87.0	466.7
Oklahoma	198.3	102.3	40.8	43.9	11.3	2.3	200.6	62.0	262.6
Texas	611.0	285.5	110.8	123.7	91.0	6.7	617.7	128.0	745.7
Southern Plains	809.3	387.8	151.6	167.6	102.3	9.0	818.3	190.0	1,008.3
Montana	100.9	56.8	20.8	16.1	7.2	.8	101.7	20.0	121.7
Idaho	83.2	42.8	15.0	19.1	6.3	1.2	84.4	13.0	97.4
Wyoming	29.7	15.1	7.7	5.9	1.0	.4	30.1	8.0	38.1
Colorado	102.1	50.6	20.2	18.5	6.8	4.5	106.6	25.0	131.6
New Mexico	37.9	17.5	10.3	7.5	2.6	1.4	39.3	11.0	50.3
Arizona	34.6	15.7	11.6	4.8	2.5	2.0	36.6	4.0	40.6
Utah	36.1	14.9	9.5	9.6	2.1	.6	36.7	7.0	43.7
Nevada	8.9	3.7	2.3	1.6	1.3	.3	9.2	2.0	11.2
Mountain	433.4	223.1	97.4	83.1	29.8	11.2	444.6	90.0	534.6
Washington	183.9	41.4	21.3	31.4	9.8	7.9	111.8	19.0	130.8
Oregon	84.5	36.1	17.1	23.3	8.0	4.8	89.3	16.0	105.3
California	283.4	136.5	54.0	65.3	27.6	60.2	343.6	45.0	388.6
Pacific	471.8	214.0	92.4	120.0	45.4	72.9	544.7	80.0	624.7
48 States	6,452.2	3,370.5	1,063.6	1,638.9	379.2	420.8	6,873.0	1,737.0	8,610.0

1/ Includes all fuel used in automobiles.

Table 5.--Farm consumption of liquid petroleum fuel and percentage distribution by type of fuel, States and regions, 1959

State and region	Total	Percentage distribution of--					
		Gasoline	Diesel	LP-gas	Other motor fuel	Fuel oil 1/	Kerosene
	Million gallons	Percent	Percent	Percent	Percent	Percent	Percent
New England	126.1	---	---	---	---	---	---
New York	225.5	---	---	---	---	---	---
New Jersey	43.9	---	---	---	---	---	---
Pennsylvania	199.6	---	---	---	---	---	---
Delaware	14.2	---	---	---	---	---	---
Maryland	69.5	---	---	---	---	---	---
Northeast	678.8	67.6	1.2	2.4	0.1	23.0	5.7
Michigan	224.3	---	---	---	---	---	---
Wisconsin	286.1	---	---	---	---	---	---
Minnesota	425.9	---	---	---	---	---	---
Lake States	936.3	72.4	2.4	6.5	.5	17.5	.7
Ohio	280.2	---	---	---	---	---	---
Indiana	290.8	---	---	---	---	---	---
Illinois	452.1	---	---	---	---	---	---
Iowa	497.0	---	---	---	---	---	---
Missouri	334.9	---	---	---	---	---	---
Corn Belt	1,855.0	70.3	2.6	9.8	.1	16.3	.9
North Dakota	213.1	---	---	---	---	---	---
South Dakota	202.1	---	---	---	---	---	---
Nebraska	302.8	---	---	---	---	---	---
Kansas	394.3	---	---	---	---	---	---
Northern Plains	1,112.3	65.4	6.1	17.0	2.0	8.9	.6
Virginia	144.3	---	---	---	---	---	---
West Virginia	35.6	---	---	---	---	---	---
North Carolina	344.9	---	---	---	---	---	---
Kentucky	173.5	---	---	---	---	---	---
Tennessee	152.8	---	---	---	---	---	---
Appalachian	851.1	64.2	1.2	6.8	.6	8.9	18.3
South Carolina	139.6	---	---	---	---	---	---
Georgia	176.8	---	---	---	---	---	---
Florida	88.9	---	---	---	---	---	---
Alabama	136.9	---	---	---	---	---	---
Southeast	542.2	63.6	2.2	16.7	1.9	4.0	11.6
Mississippi	153.5	---	---	---	---	---	---
Arkansas	183.4	---	---	---	---	---	---
Louisiana	129.8	---	---	---	---	---	---
Delta States	466.7	61.6	3.0	31.3	2.5	.8	.8
Oklahoma	262.6	---	---	---	---	---	---
Texas	745.7	---	---	---	---	---	---
Southern Plains	1,008.3	53.5	2.7	42.7	.2	.1	8
Montana	121.7	---	---	---	---	---	---
Idaho	97.4	---	---	---	---	---	---
Wyoming	38.1	---	---	---	---	---	---
Colorado	131.6	---	---	---	---	---	---
New Mexico	50.3	---	---	---	---	---	---
Arizona	40.6	---	---	---	---	---	---
Utah	43.7	---	---	---	---	---	---
Nevada	11.2	---	---	---	---	---	---
Mountain	534.6	67.6	8.4	15.4	.5	7.6	.5
Washington	130.9	---	---	---	---	---	---
Oregon	105.3	---	---	---	---	---	---
California	388.6	---	---	---	---	---	---
Pacific	624.7	58.0	15.6	10.2	.1	16.0	.1
48 States	8,610.0	65.2	4.1	15.3	.7	11.2	3.5

1/ Includes other fuels and products such as distillates and weed oils.

The use of diesel fuel and LP-gas as tractor fuel is continuing to increase because (1) the number of tractors on farms designed or converted to use these fuels is increasing faster than those designed for gasoline; (2) these newer tractors are larger and get above-average use. LP-gas consumption as motor fuel is particularly heavy in the Southern Plains (table 6). This is due not only to extensive use in tractors, but also to use in stationary engines used for pumping irrigation water.

Generally, large tractors use more fuel per hour than small ones. Average hourly rates of fuel use then is a fair indicator of tractor size. Rates by regions are shown in table 7.

The average amount of fuel used per tractor varied widely among the States. Size of farm, size of tractor, and type of fuel had some relationship to average fuel use. In Texas, Arizona, and Oklahoma, average fuel use was high because of large farms in these States and the correspondingly large tractors used. Tractors burned a high percentage of LP-gas, which has a lower BTU content per gallon than any of the other fuels used in tractors. In the Northeast and Appalachian States, smaller units and use of gasoline contributed to a lower average fuel use per tractor.

Use of fuel in motortrucks increased rapidly until 1953, due mainly to the increasing number of trucks on farms. Between 1953 and 1959, little change occurred in the quantity of fuel used (table 2). During this period, the number of trucks on farms increased around 8 percent, whereas in the 6 years preceding 1953 the increase amounted to 33 percent.

Average fuel use per truck declined from 410 gallons in 1953 to 376 gallons in 1959. There is some indication that farmers hired trucks for heavy hauling more frequently during this period, thus reducing the amount of fuel used in their own trucks. Also, the number of pickup trucks on farms increased at a faster rate than that of heavy trucks. Since pickups use less fuel per mile, this helped lower fuel consumption of trucks.

The quantity of fuel used in other power units, such as self-propelled machines and mounted and stationary engines, showed only a slight increase between 1953 and 1959 (table 2). Self-propelled units displaced many of those with mounted engines. Also, in the case of combines, many small units for power take-off operation were sold to farmers. This shifted some fuel use from mounted engines to tractors.

Self-propelled machines used over 100 million gallons of fuel in 1959, largely gasoline (table 8). This was about 30 percent of the fuel used by power units other than tractors, trucks, and automobiles. Self-propelled machines were used extensively for picking cotton, field shelling corn, and harvesting numerous grain crops.

OTHER LIQUID PETROLEUM FUELS

Petroleum fuel is used on farms for a wide variety of heating purposes, but its primary use is to heat households (table 2). While not included as a farm production expense, this fuel is largely purchased with farm-derived income.

Table 6.--Farm consumption of motor fuel and percentage distribution by type of fuel, States and regions, 1959

State and region	Total	Percentage distribution of--			
		Gasoline	Diesel	LP-gas	Other motor fuel
	Million gallons	Percent	Percent	Percent	Percent
New England	77.8	---	---	---	---
New York	152.7	---	---	---	---
New Jersey	29.3	---	---	---	---
Pennsylvania	155.4	---	---	---	---
Delaware	9.4	---	---	---	---
Maryland	43.1	---	---	---	---
Northeast	467.7	98.1	1.7	1/	0.2
Michigan	170.6	---	---	---	---
Wisconsin	218.8	---	---	---	---
Minnesota	319.9	---	---	---	---
Lake States	709.3	95.6	3.1	0.6	.7
Ohio	209.4	---	---	---	---
Indiana	211.4	---	---	---	---
Illinois	344.6	---	---	---	---
Iowa	365.0	---	---	---	---
Missouri	242.7	---	---	---	---
Corn Belt	1,373.1	94.9	3.6	1.3	.2
North Dakota	178.0	---	---	---	---
South Dakota	150.4	---	---	---	---
Nebraska	231.8	---	---	---	---
Kansas	310.9	---	---	---	---
Northern Plains	880.1	82.6	7.7	7.1	2.6
Virginia	100.2	---	---	---	---
West Virginia	30.2	---	---	---	---
North Carolina	177.1	---	---	---	---
Kentucky	124.0	---	---	---	---
Tennessee	132.0	---	---	---	---
Appalachian	563.5	97.0	1.9	.3	.8
South Carolina	80.8	---	---	---	---
Georgia	130.5	---	---	---	---
Florida	65.5	---	---	---	---
Alabama	99.9	---	---	---	---
Southeast	376.7	91.5	3.2	2.6	2.7
Mississippi	125.8	---	---	---	---
Arkansas	142.2	---	---	---	---
Louisiana	99.3	---	---	---	---
Delta States	367.3	78.3	3.8	14.7	3.2
Oklahoma	198.3	---	---	---	---
Texas	611.0	---	---	---	---
Southern Plains	809.3	66.6	3.4	29.7	.3
Montana	100.9	---	---	---	---
Idaho	83.2	---	---	---	---
Wyoming	29.7	---	---	---	---
Colorado	102.1	---	---	---	---
New Mexico	37.9	---	---	---	---
Arizona	34.6	---	---	---	---
Utah	36.1	---	---	---	---
Nevada	8.9	---	---	---	---
Mountain	433.4	83.3	10.3	5.7	.7
Washington	103.9	---	---	---	---
Oregon	84.5	---	---	---	---
California	283.4	---	---	---	---
Pacific	471.8	76.8	20.6	2.5	.1
48 States	6,452.2	86.9	5.5	6.6	1.0

1/ Less than 0.05 percent.

Table 7.--Number of tractors (excl. garden), quantity of fuel used and distribution by type, average hours of use, States and regions, 1959

State and region	Number of tractors 1/	Fuel used						Average use per tractor	Fuel per hour of use
		Average per tractor	Total	Gasoline	Diesel	LP-gas	Other		
	Thousands	Gallons	Million gallons	Percent	Percent	Percent	Percent	Hours	Gallons
New England	66.0	412	27.2	---	---	---	---	---	---
New York	138.7	562	78.0	---	---	---	---	---	---
New Jersey	24.7	510	12.6	---	---	---	---	---	---
Pennsylvania	144.8	501	72.5	---	---	---	---	---	---
Delaware	8.3	554	4.6	---	---	---	---	---	---
Maryland	37.3	582	21.7	---	---	---	---	---	---
Northeast	419.8	516.0	216.6	95.9	3.7	2/	0.4	380	1.36
Michigan	169.8	574	97.4	---	---	---	---	---	---
Wisconsin	234.4	561	131.4	---	---	---	---	---	---
Minnesota	275.8	722	199.0	---	---	---	---	---	---
Lake States	680.0	629.5	427.8	92.6	5.2	1.0	1.2	405	1.55
Ohio	204.7	587	120.1	---	---	---	---	---	---
Indiana	186.9	671	125.5	---	---	---	---	---	---
Illinois	280.0	804	233.1	---	---	---	---	---	---
Iowa	327.9	709	232.6	---	---	---	---	---	---
Missouri	191.5	745	142.7	---	---	---	---	---	---
Corn Belt	1,201.0	711.0	854.0	91.9	5.7	2.1	.3	435	1.63
North Dakota	121.0	908	109.9	---	---	---	---	---	---
South Dakota	115.6	858	99.2	---	---	---	---	---	---
Nebraska	175.3	723	126.8	---	---	---	---	---	---
Kansas	173.7	993	172.4	---	---	---	---	---	---
Northern Plains	585.6	868.0	508.3	75.6	12.9	7.1	4.4	480	1.81
Virginia	75.1	530	39.8	---	---	---	---	---	---
West Virginia	22.0	377	8.3	---	---	---	---	---	---
North Carolina	140.6	496	69.7	---	---	---	---	---	---
Kentucky	103.4	448	46.3	---	---	---	---	---	---
Tennessee	97.8	525	51.3	---	---	---	---	---	---
Appalachian	438.9	491.0	215.4	92.3	4.7	.8	2.2	395	1.24
South Carolina	48.6	695	33.8	---	---	---	---	---	---
Georgia	80.4	674	60.3	---	---	---	---	---	---
Florida	35.8	656	23.5	---	---	---	---	---	---
Alabama	67.6	571	38.6	---	---	---	---	---	---
Southeast	241.4	646.7	156.2	80.3	7.2	6.1	6.4	520	1.24
Mississippi	84.4	647	54.6	---	---	---	---	---	---
Arkansas	83.9	845	70.9	---	---	---	---	---	---
Louisiana	53.2	786	41.8	---	---	---	---	---	---
Delta States	221.5	755.4	167.3	59.6	7.3	26.3	6.8	525	1.44
Oklahoma	102.3	1,000	102.3	---	---	---	---	---	---
Texas	268.2	1,064	285.5	---	---	---	---	---	---
Southern Plains	370.5	1,046.3	387.8	52.4	6.9	40.1	.6	555	1.89
Montana	59.5	955	56.8	---	---	---	---	---	---
Idaho	57.0	751	42.8	---	---	---	---	---	---
Wyoming	20.7	729	15.1	---	---	---	---	---	---
Colorado	64.1	883	56.6	---	---	---	---	---	---
New Mexico	17.1	1,023	17.5	---	---	---	---	---	---
Arizona	13.4	1,172	15.7	---	---	---	---	---	---
Utah	21.8	683	14.9	---	---	---	---	---	---
Nevada	5.3	698	3.7	---	---	---	---	---	---
Mountain	258.9	861.7	223.1	69.5	19.4	9.8	1.3	470	1.83
Washington	63.1	656	41.4	---	---	---	---	---	---
Oregon	56.7	637	36.1	---	---	---	---	---	---
California	147.4	926	136.5	---	---	---	---	---	---
Pacific	267.2	809.9	214.0	53.2	42.4	4.1	.3	475	1.69
48 States	4,684.8	719.5	3,370.5	79.2	10.0	8.9	1.9	450	1.60

1/ U. S. Census of Agriculture, 1959.
2/ Less than 0.05 percent.

Table 8.--Number of motortrucks and automobiles on farms, quantity of motor fuels used by specified machines, States and regions, 1959

State and region	Motortrucks			Automobiles			Self-propelled machines	Other power machines 1/			
	Number 2/	Fuel used		Number 2/	Fuel used		Fuel used 4/	Fuel used	Percentage distribution of--		
		Average per truck 3/	Total		Average per automobile 3/	Total			Gasoline 5/	Diesel	LP-gas
	Thousands	Gallons	Million gallons	Thousands	Gallons	Million gallons	Million gallons	Million gallons	Percent	Percent	Percent
New England	59.4	355	21.1	61.5	429	26.4	6/	3.1	---	---	---
New York	66.5	356	23.7	93.1	455	42.4	0.4	5.2	---	---	---
New Jersey	20.9	335	7.0	18.6	462	8.6	.1	1.0	---	---	---
Pennsylvania	71.4	370	26.4	113.2	458	51.9	.9	3.7	---	---	---
Delaware	5.3	358	1.9	6.0	450	2.7	6/	.2	---	---	---
Maryland	21.2	340	7.2	28.4	451	12.8	.4	1.0	---	---	---
Northeast	244.7	356.8	87.3	320.8	451.4	144.8	1.8	17.2	100.0	7/	---
Michigan	75.7	254	19.2	130.7	376	49.1	1.2	3.7	---	---	---
Wisconsin	90.6	266	24.1	153.3	369	56.5	1.5	5.3	---	---	---
Minnesota	103.4	304	31.4	171.6	450	77.0	4.8	7.7	---	---	---
Lake States	269.7	277.0	74.7	455.6	401.3	182.6	7.5	16.7	100.0	7/	7/
Ohio	81.5	233	19.0	161.6	398	63.0	2.2	5.1	---	---	---
Indiana	88.2	281	24.8	140.4	392	55.0	1.8	4.3	---	---	---
Illinois	113.7	298	33.9	172.6	394	68.0	4.5	5.1	---	---	---
Iowa	99.7	367	36.6	205.3	422	86.6	2.2	7.0	---	---	---
Missouri	109.7	320	35.1	151.0	383	57.8	2.9	4.2	---	---	---
Corn Belt	492.8	303.2	149.4	830.9	397.6	330.4	13.6	25.7	99.5	7/	0.5
North Dakota	75.5	330	24.9	66.6	464	30.9	8.0	4.3	---	---	---
South Dakota	52.3	314	16.4	66.5	535	35.6	3.3	4.9	---	---	---
Nebraska	83.4	348	29.0	110.3	527	58.1	4.3	13.6	---	---	---
Kansas	122.3	372	45.5	118.6	540	64.1	12.8	16.1	---	---	---
Northern Plains	333.5	347.2	115.8	362.0	521.3	188.7	28.4	38.9	46.4	5.6	48.0
Virginia	58.0	392	22.7	78.0	437	34.1	.4	3.2	---	---	---
West Virginia	24.7	348	8.6	30.7	404	12.4	.1	.8	---	---	---
North Carolina	91.9	397	36.2	153.9	432	66.5	.9	3.8	---	---	---
Kentucky	75.0	340	25.5	116.6	422	49.2	.3	2.7	---	---	---
Tennessee	76.8	387	29.7	114.5	423	48.4	.5	2.1	---	---	---
Appalachian	326.6	376.8	122.7	493.7	426.6	210.6	2.2	12.6	97.4	2.3	.3
South Carolina	39.1	404	15.8	65.6	447	29.3	.5	1.4	---	---	---
Georgia	72.8	412	30.0	88.3	405	35.8	1.0	3.4	---	---	---
Florida	36.4	472	17.2	41.9	449	18.8	6/	6.0	---	---	---
Alabama	63.4	401	25.4	75.9	449	34.1	.6	1.2	---	---	---
Southeast	211.7	417.6	88.4	271.7	434.3	118.0	2.1	12.0	90.1	5.9	4.0
Mississippi	71.5	415	29.7	81.8	458	37.5	2.1	1.9	---	---	---
Arkansas	73.1	442	32.3	58.2	459	26.7	6.8	5.5	---	---	---
Louisiana	47.2	464	21.9	54.7	528	28.9	2.0	4.7	---	---	---
Delta States	191.8	437.4	83.9	194.7	478.2	93.1	10.9	12.1	40.6	14.0	45.4
Oklahoma	82.7	440	40.8	82.6	532	43.9	4.2	7.1	---	---	---
Texas	187.8	560	110.8	210.7	587	123.7	13.5	77.5	---	---	---
Southern Plains	290.5	521.9	151.6	293.3	571.4	167.6	17.7	84.6	11.8	7/	88.2
Montana	52.8	394	20.8	34.9	461	16.1	4.2	3.0	---	---	---
Idaho	44.0	341	15.0	38.3	499	19.1	3.6	2.7	---	---	---
Wyoming	16.2	475	7.7	11.5	513	5.9	.4	.6	---	---	---
Colorado	51.7	391	20.2	38.9	464	18.5	2.6	4.2	---	---	---
New Mexico	20.3	507	10.3	13.9	540	7.5	.8	1.8	---	---	---
Arizona	16.8	691	11.6	9.7	495	4.8	1.6	.9	---	---	---
Utah	18.8	505	9.5	19.9	482	9.6	.7	1.4	---	---	---
Nevada	4.5	511	2.3	2.9	552	1.6	.1	1.2	---	---	---
Mountain	225.1	432.7	97.4	171.0	486.0	83.1	14.0	15.8	78.6	8.9	11.5
Washington	60.2	354	21.3	61.1	514	31.4	3.6	6.2	---	---	---
Oregon	48.9	350	17.1	47.4	491	23.3	3.0	5.0	---	---	---
California	131.0	412	54.0	127.1	514	65.3	8.8	18.8	---	---	---
Pacific	240.1	384.8	92.4	235.6	509.3	120.0	15.4	30.0	80.2	17.1	2.7
48 States	2,825.5	376.4	1,063.6	3,628.7	451.6	1,638.9	113.6	265.6	57.3	4.3	38.4

1/ Includes all power machines not elsewhere classified: Mounted and stationary engines, saws, lawn mowers, airplanes, etc.
2/ U. S. Census of Agriculture, 1959.
3/ Because of rounding, State averages will not always agree with region and 48-States data.
4/ Principally gasoline. Some LP-gas and diesel fuel was reported, amounting to about 2 percent of the total.
5/ Includes less than 0.5 percent of other fuels such as tractor fuel.
6/ Less than 0.05 million.
7/ Less than 0.5 percent.

Petroleum products are used for drying and curing crops, brooding, killing weeds, heating water and many types of farm buildings, and for frost protection in orchards. Extensive use of these petroleum products was concentrated in a few States (table 4). Drying and curing crops accounted for over half of the total use. In North Carolina, South Carolina, and Georgia, fuel other than motor fuel was used principally for curing tobacco. In California, large quantities of fuel were used for drying fruits and for protection against frost. Special oils to control weeds were used more extensively there than in other parts of the country.

The consumption of these petroleum products was rather evenly distributed between kerosene, LP-gas, and fuel oil (table 9). Special oils for weed control are included in the fuel oil category.

Kerosene was particularly important in the Appalachian and Southeastern States because it was the principal fuel used for curing tobacco. LP-gas was used more generally over the country for heating and drying than it was for motor fuel. Fuel oil shows unusually heavy use in the Pacific States partly because of the extensive use of weed-control oils in California.

FACTORS RELATING TO PETROLEUM USE

Expenditures for petroleum products for the farm business reported in the U. S. Census of Agriculture are included here to indicate change in usage by States from 1954 to 1959 (table 10). Planted and harvested acreage of crops, insect infestations, weed growth, and numerous other factors have some influence on fuel requirements from year to year.

Neither the census data on expenditures nor the survey data point to any material change in the total quantity of fuel used on farms in the last 10 years. This is understandable in view of the factors and changes previously enumerated.

The distribution of wheel tractors by type of fuel used in 1959 shows that a high percentage of those on farms used gasoline (table 11). However, the proportion using diesel fuel increased from 2.4 percent in 1953 to 5.3 percent in 1959 and those using LP-gas increased from 1.3 percent to 3.8 percent of the total number of wheel tractors. About 3 percent of the tractors still used distillate, kerosene, and power fuel compared with 7 percent in 1953. The increasing acceptance of diesel and LP-gas tractors will be reflected in a faster increase in the numbers of these tractors on farms after 1959 than occurred between 1953 and 1959.

A very small amount of motor fuel is used to power hydraulic pumps on most of the tractors farmers now use. This small amount energizes controls on the tractor and its equipment, enabling amazingly precise operation. About 72 percent of the tractors used in 1959 were equipped with hydraulic lifts (table 11). In the South, where tractors may have a lower average age and there are probably fewer standy or special-use tractors, 76 to 83 percent were equipped with lifts. Only 62 percent were so equipped in the West. Here, a relatively high proportion of the tractors are crawlers and they are less likely to have hydraulic lifts than wheel tractors.

Table 9.--Consumption of liquid petroleum fuel (excl. motor fuel), and distribution by type, States and regions, 1959

State and region	Total	Percentage distribution of--		
		Fuel oil 1/	Kerosene	LP-gas
	Million gallons	Percent	Percent	Percent
New England	6.3	---	---	---
New York	6.8	---	---	---
New Jersey	1.6	---	---	---
Pennsylvania	8.2	---	---	---
Delaware	.8	---	---	---
Maryland	2.4	---	---	---
Northeast	24.1	63.4	18.4	17.2
Michigan	3.7	---	---	---
Wisconsin	9.3	---	---	---
Minnesota	18.0	---	---	---
Lake States	31.0	34.8	9.0	56.2
Ohio	4.8	---	---	---
Indiana	7.4	---	---	---
Illinois	14.5	---	---	---
Iowa	14.0	---	---	---
Missouri	9.2	---	---	---
Corn Belt	49.9	30.6	13.1	56.3
North Dakota	1.1	---	---	---
South Dakota	1.7	---	---	---
Nebraska	8.0	---	---	---
Kansas	4.4	---	---	---
Northern Plains	15.2	20.9	12.2	66.9
Virginia	12.1	---	---	---
West Virginia	1.4	---	---	---
North Carolina	111.8	---	---	---
Kentucky	1.5	---	---	---
Tennessee	.8	---	---	---
Appalachian	127.6	10.6	77.1	12.3
South Carolina	31.8	---	---	---
Georgia	17.3	---	---	---
Florida	7.4	---	---	---
Alabama	11.0	---	---	---
Southeast	67.5	9.5	54.1	36.4
Mississippi	1.7	---	---	---
Arkansas	8.2	---	---	---
Louisiana	1.5	---	---	---
Delta States	12.4	9.5	10.7	79.8
Oklahoma	2.3	---	---	---
Texas	6.7	---	---	---
Southern Plains	9.0	8.8	28.8	62.4
Montana	.8	---	---	---
Idaho	1.2	---	---	---
Wyoming	.4	---	---	---
Colorado	4.5	---	---	---
New Mexico	1.4	---	---	---
Arizona	2.0	---	---	---
Utah	.6	---	---	---
Nevada	.3	---	---	---
Mountain	11.2	41.6	5.3	53.1
Washington	7.0	---	---	---
Oregon	11.8	---	---	---
California	60.2	---	---	---
Pacific	72.9	79.2	1.0	19.8
48 States	420.8	30.6	37.1	32.3

1/ Includes weed oils and small quantities of miscellaneous fuels.

Table 10.--Expenditures for gasoline and other petroleum fuel and oil for farm business, and percentage change in volume, States and regions, 1954-1959

State and region	Expenditures 1/		Percentage change in volume 2/
	1954	1959	
	Thousand dollars	Thousand dollars	Percent
New England	19,354	20,740	100
New York	31,995	36,904	108
New Jersey	8,841	9,184	97
Pennsylvania	31,412	34,037	101
Delaware	2,560	2,442	89
Maryland	10,022	10,688	100
Northeast	104,184	113,995	102
Michigan	36,601	39,948	102
Wisconsin	49,895	55,287	104
Minnesota	73,707	78,599	100
Lake States	160,203	173,834	102
Ohio	47,226	50,538	100
Indiana	47,251	53,152	105
Illinois	86,455	98,693	107
Iowa	84,263	97,190	108
Missouri	44,825	53,886	113
Corn Belt	310,020	353,459	107
North Dakota	48,927	53,017	99
South Dakota	40,893	43,807	100
Nebraska	55,384	63,549	107
Kansas	58,286	65,801	105
Northern Plains	204,490	226,174	104
Virginia	17,110	20,563	113
West Virginia	3,639	4,738	122
North Carolina	39,742	46,167	109
Kentucky	19,128	23,238	114
Tennessee	18,749	22,827	114
Appalachian	98,368	117,533	112
South Carolina	15,948	19,253	113
Georgia	27,520	31,647	108
Florida	15,073	18,013	117
Alabama	15,783	19,412	115
Southeast	74,324	89,225	112
Mississippi	23,511	29,651	118
Arkansas	27,131	33,595	116
Louisiana	17,762	19,544	103
Delta States	68,404	82,790	113
Oklahoma	27,776	30,138	102
Texas	105,823	116,560	103
Southern Plains	133,599	146,698	103
Montana	24,880	27,379	103
Idaho	19,087	23,342	114
Wyoming	7,739	8,522	103
Colorado	23,807	26,664	104
New Mexico	8,950	9,753	102
Arizona	10,684	13,413	118
Utah	7,539	8,407	104
Nevada	2,091	2,765	124
Mountain	104,867	120,245	107
Washington	20,619	24,490	111
Oregon	17,704	19,976	106
California	69,462	80,666	109
Pacific	107,785	125,132	109
48 States	1,366,244	1,549,085	106

1/ U. S. Census of Agriculture, 1959.
2/ Calculated volume from expenditures adjusted by the 48-States Index of Prices Paid by Farmers for Motor Supplies, "Agricultural Prices, 1962 Annual Summary." U. S. Dept. Agr., SRS. June 1963.

Table 11.--Number of wheel tractors on farms, distribution by principal fuel used, and tractors (excl. garden), with hydraulic lift equipment, by States and regions, 1959

State and region	Wheel tractors	Percentage distribution of those using--				Tractors (excl. garden)	
		Gasoline	Diesel	LP-gas	Other fuels	Number	Equipped with lift
	Thousands	Percent	Percent	Percent	Percent	Thousands	Percent
New England	61.2	---	---	---	---	---	---
New York	131.2	---	---	---	---	---	---
New Jersey	23.6	---	---	---	---	---	---
Pennsylvania	138.7	---	---	---	---	---	---
Delaware	6.1	---	---	---	---	---	---
Maryland	36.3	---	---	---	---	---	---
Northeast	399.1	96.4	2.7	1/	0.9	419.8	68.7
Michigan	165.6	---	---	---	---	---	---
Wisconsin	230.3	---	---	---	---	---	---
Minnesota	266.8	---	---	---	---	---	---
Lake States	662.7	94.2	3.3	0.4	2.1	680.0	65.6
Ohio	199.8	---	---	---	---	---	---
Indiana	182.6	---	---	---	---	---	---
Illinois	285.2	---	---	---	---	---	---
Iowa	322.9	---	---	---	---	---	---
Missouri	186.9	---	---	---	---	---	---
Corn Belt	1,177.5	94.0	4.3	1.0	.7	1,201.0	73.4
North Dakota	118.1	---	---	---	---	---	---
South Dakota	113.7	---	---	---	---	---	---
Nebraska	172.1	---	---	---	---	---	---
Kansas	170.1	---	---	---	---	---	---
Northern Plains	574.0	78.4	9.8	3.8	8.0	585.6	65.1
Virginia	72.9	---	---	---	---	---	---
West Virginia	21.0	---	---	---	---	---	---
North Carolina	137.3	---	---	---	---	---	---
Kentucky	100.9	---	---	---	---	---	---
Tennessee	95.0	---	---	---	---	---	---
Appalachian	427.1	94.4	2.9	.4	2.3	438.9	81.3
South Carolina	47.5	---	---	---	---	---	---
Georgia	87.7	---	---	---	---	---	---
Florida	33.5	---	---	---	---	---	---
Alabama	66.3	---	---	---	---	---	---
Southeast	235.1	80.2	5.6	3.8	10.4	241.4	82.8
Mississippi	82.7	---	---	---	---	---	---
Arkansas	81.9	---	---	---	---	---	---
Louisiana	52.0	---	---	---	---	---	---
Delta States	216.6	73.2	5.5	12.1	9.2	221.5	81.1
Oklahoma	99.5	---	---	---	---	---	---
Texas	262.4	---	---	---	---	---	---
Southern Plains	361.9	71.3	5.2	22.5	1.0	370.5	76.3
Montana	53.6	---	---	---	---	---	---
Idaho	48.9	---	---	---	---	---	---
Wyoming	19.3	---	---	---	---	---	---
Colorado	60.2	---	---	---	---	---	---
New Mexico	15.3	---	---	---	---	---	---
Arizona	11.4	---	---	---	---	---	---
Utah	20.3	---	---	---	---	---	---
Nevada	4.6	---	---	---	---	---	---
Mountain	234.6	82.5	11.0	4.7	1.8	258.9	58.7
Washington	40.0	---	---	---	---	---	---
Oregon	45.3	---	---	---	---	---	---
California	104.6	---	---	---	---	---	---
Pacific	198.9	80.7	7.1	2.4	.8	267.2	62.0
48 States	4,487.5	87.9	5.3	3.8	3.0	4,084.8	71.7

1/ Less than 0.05 percent.

Average tractor use in terms of hours has declined from a high of 634 in 1947 to about 450 in 1959. By regions, average use in 1959 ranged from 380 in the Northeast to 555 in the Southern Plains (table 7). As the number of tractors on farms has increased, more and more have been kept for standby or for special jobs, thus reducing the number of hours they are used. A few of the "real workhorses" get over 2,000 hours of use in a year. On some of the larger farms where 10 to 15 tractors were used, the average was over 1,500 hours per tractor.

Motor fuel requirements may be approximated rather closely by distributing the annual hours of use for tractors by months. Four months, April through July, accounted for about 50 percent of the annual hours of use in the country in 1959 (table 12). In May and June, about 30 percent of the annual time was used. The coldest winter months accounted for 2 to 6 percent of the total hours of use. Regional differences were relatively small except during March, when use in most of the Southern States was above average.

HOUSEHOLD USE OF FUEL

Despite the declining number of farms since 1953, farmers used 1,737 million gallons of liquid petroleum fuel and other petroleum products for household purposes in 1959 (tables 2 and 13). This was 10 percent more than they used in 1953. The fuel was used principally for household heating, cooking, and water heating; the other products for cleaning and miscellaneous uses.

Consumption by States varied widely depending on number of households, proximity to alternative fuels, and climate. The five Corn Belt States accounted for 25 percent of the consumption.

Fuel oil, LP-gas, and kerosene were the three main types of fuel reported. In addition, small quantities of gasoline, distillates, and cleaning fluid were used in the farm household.

Fuel oil was still the leading petroleum fuel in 1959 although LP-gas was popular and widely distributed. Use of kerosene is concentrated in the Appalachian, Southeast, and Northeast States.

Most of the liquid petroleum used in farm households is for heating. Data are provided by the U. S. Census of Housing on the number of dwellings on farms and the principal fuel used for heating (table 14). Fuel oil and kerosene were the principal fuels used in 29 percent of all occupied farm dwellings, and LP-gas was used in 18 percent. Over half of the farm dwellings in the Northeast and Lake States reported fuel oil or kerosene as the principal fuel. In Oklahoma and Texas, two-thirds of the dwellings were heated with LP-gas and in Kansas about one-half of them.

LP-gas was the principal fuel used for cooking in over one-third of the dwellings (table 15). Regionally, it was used as the principal fuel in 63 percent of the dwellings in the Southern Plains, and in only 14 percent of those in the Southeast. In Oklahoma, two-thirds of the farm households used this fuel as the principal one for cooking. Fuel oil and kerosene were used very little for cooking.

Heating water was reported in 65 percent of all occupied dwellings. Petroleum fuel was the principal means of heating the water in only about 20 percent of these dwellings (table 16). LP-gas as a principal fuel accounted for 16 percent of the dwellings. The regional pattern of use of principal fuels for heating water was similar to that of cooking fuels, except in the Northeast where fuel oil and kerosene were more important for cooking.

Table 12.--Hours of tractor use and percentage distribution by months, States, and regions, 1959

State and region	Hours of use	Percentage distribution											
		January	February	March	April	May	June	July	August	September	October	November	December
	Millions	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
New England	25.4	3	3	4	8	13	15	15	12	12	8	4	3
New York	54.1	3	3	4	9	15	15	13	11	11	8	5	3
New Jersey	8.9	2	3	6	13	15	15	11	10	10	8	5	2
Pennsylvania	53.6	3	3	5	12	14	15	12	10	9	10	4	3
Delaware	3.2	3	3	6	13	17	15	9	7	8	10	5	4
Maryland	14.3	3	3	5	12	15	15	11	8	9	10	5	3
Northeast	159.5	3.0	3.0	4.6	10.4	14.4	15.0	12.6	10.4	10.2	8.4	4.5	3.0
Michigan	63.7	2	2	3	10	16	15	13	11	11	9	5	3
Wisconsin	90.2	3	3	4	10	14	13	12	11	11	10	6	3
Minnesota	121.4	2	2	3	10	15	13	12	11	11	11	7	3
Lake States	275.3	2.3	2.3	3.4	10.0	14.9	13.5	12.2	11.0	11.0	10.2	6.2	3.0
Ohio	78.8	3	3	5	11	16	15	11	8	9	10	6	3
Indiana	74.8	2	3	5	12	17	15	10	7	8	11	7	3
Illinois	129.0	2	2	4	13	18	15	10	7	8	11	7	3
Iowa	144.3	2	3	4	11	14	15	11	9	9	11	8	3
Missouri	95.8	2	3	6	11	15	15	12	10	9	8	6	3
Corn Belt	522.7	2.1	2.8	4.7	11.6	15.8	15.0	10.8	8.3	8.6	10.3	6.9	3.0
North Dakota	55.7	2	2	3	13	17	13	12	14	12	7	3	2
South Dakota	52.6	3	3	5	12	14	14	13	11	10	8	5	2
Nebraska	86.8	2	2	4	11	16	17	14	10	8	7	6	3
Kansas	85.9	2	2	6	9	13	17	15	12	10	7	5	2
Northern Plains	281.0	2.2	2.2	4.6	11.0	14.8	15.6	13.7	11.6	9.8	7.2	4.9	2.3
Virginia	31.5	3	4	8	12	13	13	10	12	9	8	5	3
West Virginia	7.8	3	3	5	10	14	16	15	11	9	7	4	3
North Carolina	59.1	3	4	9	14	14	12	9	8	8	8	7	4
Kentucky	37.2	2	3	6	13	18	16	10	9	9	8	4	2
Tennessee	37.7	2	3	5	15	18	16	11	8	8	7	4	2
Appalachian	173.3	2.6	3.5	7.1	13.5	15.5	14.1	10.1	9.1	8.7	7.7	5.2	2.9
South Carolina	26.0	4	6	13	16	15	14	8	6	5	6	5	3
Georgia	49.2	6	8	12	14	14	12	7	7	6	6	5	3
Florida	20.9	7	9	12	12	11	9	7	7	7	7	7	5
Alabama	29.4	3	5	9	16	16	15	9	6	7	6	5	3
Southeast	125.5	5.0	7.0	11.7	14.5	14.2	12.6	7.7	6.3	6.2	6.2	5.3	3.3
Mississippi	38.0	3	4	11	16	17	15	9	7	6	6	4	2
Arkansas	45.3	3	3	10	14	18	16	10	8	6	6	4	2
Louisiana	33.0	3	3	10	15	16	13	8	8	8	7	5	4
Delta States	116.3	3.0	3.3	10.4	14.9	16.8	14.8	9.4	7.7	6.6	6.3	4.3	2.5
Oklahoma	54.2	2	3	7	10	12	16	16	11	8	7	4	2
Texas	151.5	5	5	9	11	14	13	10	8	8	7	6	4
Southern Plains	205.7	4.2	4.5	8.5	10.7	13.4	14.3	11.5	8.8	8.0	7.0	5.5	3.6
Montana	27.4	2	2	4	13	16	15	16	12	9	6	3	2
Idaho	26.2	2	2	7	13	14	13	11	10	11	10	5	2
Wyoming	8.6	2	2	5	11	15	15	15	14	9	7	3	2
Colorado	28.8	2	3	7	12	14	13	12	12	10	8	4	3
New Mexico	8.3	5	7	8	10	11	13	12	10	9	7	5	3
Arizona	9.0	6	6	8	10	12	12	11	8	8	7	6	6
Utah	10.4	2	2	6	12	11	12	12	12	11	10	7	3
Nevada	3.0	3	4	8	10	11	14	14	12	10	7	4	3
Mountain	121.7	2.5	2.9	6.3	12.0	13.8	13.5	12.9	11.3	9.8	7.9	4.4	2.7
Washington	26.2	1	2	7	13	13	12	12	12	12	10	4	2
Oregon	22.7	1	3	7	12	13	13	13	11	11	9	5	2
California	78.1	4	5	9	12	12	11	10	8	8	8	7	5
Pacific	127.0	2.9	4.0	8.2	12.2	12.4	11.6	10.9	9.4	9.4	9.2	6.0	3.8
48 States	2,108.0	2.7	3.2	6.1	11.7	14.9	14.3	11.4	9.5	9.0	8.6	5.6	3.0

Table 13.--Consumption of liquid petroleum fuels in farm households by type of fuel, States and regions, 1959

State and region	Total	Percentage distribution of--		
		Fuel oil 1/	LP-gas	Kerosene
	Million gallons	Percent	Percent	Percent
New England	42	---	---	---
New York	66	---	---	---
New Jersey	13	---	---	---
Pennsylvania	38	---	---	---
Delaware	4	---	---	---
Maryland	24	---	---	---
Northeast	187	75	7	18
Michigan	50	---	---	---
Wisconsin	59	---	---	---
Minnesota	86	---	---	---
Lake States	196	78	20	2
Ohio	66	---	---	---
Indiana	72	---	---	---
Illinois	93	---	---	---
Iowa	118	---	---	---
Missouri	83	---	---	---
Corn Belt	432	67	31	2
North Dakota	34	---	---	---
South Dakota	41	---	---	---
Nebraska	63	---	---	---
Kansas	79	---	---	---
Northern Plains	217	44	54	2
Virginia	32	---	---	---
West Virginia	4	---	---	---
North Carolina	56	---	---	---
Kentucky	48	---	---	---
Tennessee	20	---	---	---
Appalachian	160	39	25	36
South Carolina	27	---	---	---
Georgia	29	---	---	---
Florida	16	---	---	---
Alabama	26	---	---	---
Southeast	98	16	57	27
Mississippi	26	---	---	---
Arkansas	32	---	---	---
Louisiana	29	---	---	---
Delta States	87	3	94	3
Oklahoma	62	---	---	---
Texas	128	---	---	---
Southern Plains	190	2/	97	3
Montana	20	---	---	---
Idaho	13	---	---	---
Wyoming	8	---	---	---
Colorado	25	---	---	---
New Mexico	11	---	---	---
Arizona	4	---	---	---
Utah	7	---	---	---
Nevada	2	---	---	---
Mountain	90	40	58	2
Washington	19	---	---	---
Oregon	16	---	---	---
California	45	---	---	---
Pacific	80	53	46	1
48 States	1,737	48	44	8

1/ Includes other fuels and products, amounting to about 0.5 percent of all fuel.
2/ Less than 0.05 percent.

Table 14.--Percentage distribution of occupied farm dwellings by principal fuel used for heating, by States and regions, 1960 1/

State and region	Dwellings	Utility gas	Fuel oil and kerosene	Coal and coke	Wood	Electricity	LP-gas	Other	None
	Number	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
New England	48,277	0.6	66.3	12.7	18.3	0.1	1.7	0.2	0.1
New York	87,080	7.1	53.6	28.2	9.3	.3	1.1	.3	.1
New Jersey	14,278	1.4	74.2	17.8	3.4	.4	2.1	.7	---
Pennsylvania	92,710	7.6	28.3	56.7	5.9	.3	.6	.3	.3
Delaware	6,626	---	72.2	12.2	11.8	.3	3.1	.3	---
Maryland	28,080	.4	62.3	14.3	20.2	.7	1.0	.5	.6
Northeast	277,051	5.0	48.8	32.7	10.6	.3	1.1	.3	.2
Michigan	123,867	2.8	48.8	36.1	8.9	.2	2.8	.3	.1
Wisconsin	138,045	.7	48.1	25.8	16.8	.2	8.2	.2	2/
Minnesota	148,106	2.0	61.7	13.0	12.6	.2	10.1	.3	.1
Lake States	410,018	1.8	53.2	24.3	12.9	.2	7.2	.3	.1
Ohio	144,685	7.6	37.3	47.7	3.6	.5	2.5	.7	.1
Indiana	141,558	1.9	41.2	39.5	7.4	1.0	8.3	.5	.2
Illinois	164,200	1.7	39.6	40.0	4.6	.5	13.1	.4	.1
Iowa	179,312	1.3	57.2	25.3	4.4	.6	10.9	.3	2/
Missouri	163,727	1.8	21.9	16.6	35.2	.8	21.2	.4	.1
Corn Belt	793,472	2.7	30.8	33.2	11.2	.7	11.9	.4	.1
North Dakota	50,100	1.0	48.5	41.3	1.0	.2	7.7	.3	2/
South Dakota	53,899	1.4	61.4	16.2	3.2	1.1	16.3	.2	.2
Nebraska	85,513	7.0	43.8	13.1	6.3	.5	28.7	.5	.1
Kansas	95,102	12.8	15.8	8.0	12.7	.5	49.2	.8	.2
Northern Plains	284,614	6.8	38.6	16.9	6.9	.6	29.5	.5	.2
Virginia	101,794	.3	27.7	27.2	43.4	.6	.4	.2	.2
West Virginia	32,363	29.0	5.0	51.2	12.1	.4	.9	.3	.2
North Carolina	190,596	.2	33.6	11.2	51.9	.4	2.2	.3	.2
Kentucky	146,600	3.7	9.4	58.0	18.8	2.3	7.4	.2	.2
Tennessee	153,860	1.7	5.6	40.6	35.3	9.1	7.4	.1	.2
Appalachian	625,213	2.9	18.7	34.1	36.6	3.0	4.3	.2	.2
South Carolina	75,320	.7	25.1	9.8	57.7	.4	5.6	.2	.5
Georgia	98,499	7.4	6.8	9.1	52.1	1.6	21.3	.6	1.1
Florida	29,565	4.9	32.2	.6	30.8	3.7	24.2	.9	2.7
Alabama	96,140	5.4	2.2	25.8	39.6	3.3	22.0	.6	1.1
Southeast	299,524	4.8	12.4	13.8	47.4	2.1	17.9	.5	1.1
Mississippi	122,932	7.4	.4	6.4	54.8	1.4	28.3	.7	.6
Arkansas	87,788	8.5	1.4	4.4	53.7	.5	30.3	1.0	.2
Louisiana	55,265	21.3	.8	.1	30.6	.9	44.8	1.0	.5
Delta	265,985	10.7	.8	4.4	49.4	1.0	32.4	.9	.4
Oklahoma	77,467	13.3	1.9	3.7	16.4	.4	63.1	.6	.6
Texas	202,339	11.1	2.4	.2	16.0	1.1	67.5	.6	1.1
Southern Plains	279,806	11.7	2.3	1.2	16.1	.8	66.3	.6	1.0
Montana	28,611	8.8	38.0	22.3	12.1	2.3	16.0	.4	.1
Idaho	35,885	.0	49.7	31.0	12.9	1.4	3.8	.2	.1
Wyoming	12,292	11.2	15.3	31.3	6.2	.5	35.1	.4	---
Colorado	35,215	6.8	17.5	30.5	4.0	.9	39.7	.5	.1
New Mexico	14,739	13.6	7.3	3.6	19.2	1.5	52.9	.5	1.4
Arizona	11,453	22.0	5.2	.2	26.0	6.3	32.3	1.8	6.2
Utah	10,596	14.5	29.0	47.1	4.0	.2	4.6	.2	.4
Nevada	2,780	5.3	38.0	9.1	12.0	6.3	23.2	1.5	4.6
Mountain	151,571	8.4	28.1	25.0	11.1	1.8	24.3	.5	.8
Washington	45,233	.3	51.3	5.0	28.2	10.5	2.2	1.3	.2
Oregon	40,461	1.1	44.1	2.4	37.7	9.5	3.0	2.0	.2
California	99,391	19.1	10.7	.2	13.6	15.8	37.6	1.3	1.7
Pacific	185,085	10.6	27.9	2.1	22.4	13.1	21.4	1.5	1.0
48 States	3,572,339	5.3	29.1	22.8	22.2	1.8	17.9	.5	.4

1/ U. S. Census of Housing, 1960.
2/ Less than 0.05 percent.

Table 15.--Percentage distribution of occupied farm dwellings by principal fuel used for cooking, by States and regions, 1960 1/

State and region	Utility gas	Fuel oil and kerosene	Coal and coke	Wood	Electricity	LP-gas	Other	None
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
New England	3.7	5.4	0.7	18.4	37.2	34.4	0.1	0.1
New York	6.5	1.2	1.8	8.0	45.0	37.3	.2	2/
New Jersey	4.4	.8	.5	2.8	45.2	46.3	---	---
Pennsylvania	9.1	.9	6.3	5.7	53.7	23.9	.4	2/
Delaware	.9	2.4	.6	9.7	31.8	53.7	---	.9
Maryland	2.0	1.2	1.5	14.7	37.4	42.8	.1	.3
Northeast	6.2	1.8	3.0	9.5	45.5	33.7	.2	.1
Michigan	2.6	.8	1.2	5.6	61.8	27.7	.2	.1
Wisconsin	1.0	.9	.5	10.4	43.2	43.9	2/	.1
Minnesota	3.1	.8	.5	7.4	44.7	43.1	.3	.1
Lake States	2.3	.8	.7	7.9	49.4	38.7	.1	.1
Ohio	6.5	1.5	3.1	2.4	61.7	24.1	.6	.1
Indiana	2.0	1.5	1.5	2.9	52.2	39.5	.4	2/
Illinois	2.1	.7	1.8	1.9	45.9	47.3	.3	2/
Iowa	1.2	.9	.8	2.6	40.6	53.5	.3	.1
Missouri	1.9	2.4	.8	8.9	30.3	55.6	.1	2/
Corn Belt	2.6	1.4	1.6	3.7	45.5	44.8	.3	.1
North Dakota	1.4	1.0	4.0	1.2	57.2	35.1	.1	2/
South Dakota	2.2	1.0	1.7	3.3	40.2	51.1	.4	.1
Nebraska	6.0	.9	1.4	4.3	48.3	38.5	.5	.1
Kansas	10.4	2.6	.5	2.2	33.4	50.1	.7	.1
Northern Plains	5.9	1.5	1.6	2.8	43.4	44.2	.5	.1
Virginia	1.2	.8	7.1	38.4	39.2	12.0	.2	.1
West Virginia	29.8	.6	9.3	22.7	27.3	10.1	.2	---
North Carolina	1.0	2.6	.9	28.2	51.3	15.7	.1	.2
Kentucky	3.8	1.4	7.0	14.0	48.4	25.3	.1	2/
Tennessee	.6	.6	2.3	20.0	71.2	5.2	.1	2/
Appalachian	3.1	1.4	4.1	24.4	52.3	14.5	.1	.1
South Carolina	1.1	3.0	1.0	36.0	45.9	12.9	.1	2/
Georgia	3.7	1.2	.5	23.6	58.8	12.0	.1	.1
Florida	4.9	3.6	2/	7.2	51.5	32.0	.1	.7
Alabama	2.5	.5	1.2	26.1	57.9	11.4	.2	.1
Southeast	2.8	1.5	.8	25.9	54.6	14.1	.1	.2
Mississippi	7.9	.4	1.1	36.7	22.6	30.9	.3	.1
Arkansas	9.8	1.3	.5	24.2	15.3	48.3	.5	.1
Louisiana	21.2	2.3	.2	15.1	8.5	51.9	.8	2/
Delta States	11.3	1.1	.7	28.1	17.2	41.0	.5	.1
Oklahoma	12.9	1.4	.2	5.1	13.2	66.7	.5	---
Texas	10.0	3.4	.1	5.6	18.5	61.8	.5	.1
Southern Plains	10.8	2.8	.1	5.5	17.0	63.2	.5	.1
Montana	4.9	.7	5.1	7.2	64.3	17.4	.2	.2
Idaho	.7	.3	2.5	5.2	85.1	6.0	.1	.1
Wyoming	11.9	.2	9.1	4.8	34.9	38.6	.2	.3
Colorado	5.7	.5	9.4	3.7	39.0	41.6	.1	---
New Mexico	12.2	2.1	1.4	17.8	17.8	48.3	.1	.3
Arizona	18.2	2.0	.4	23.4	21.4	32.6	.9	1.1
Utah	5.2	.4	11.3	4.5	71.6	7.0	---	---
Nevada	2.9	1.5	5.6	8.5	41.8	39.7	---	---
Mountain	6.4	.7	5.5	7.8	53.3	25.9	.2	.2
Washington	.5	1.3	.7	11.3	82.4	3.7	---	.1
Oregon	1.3	.4	.2	9.9	80.8	7.0	2/	.4
California	13.7	1.0	2/	2.5	49.4	32.5	.5	.4
Pacific	7.8	.9	.2	6.3	64.3	19.9	.3	.3
48 States	4.9	1.4	1.9	12.3	44.7	34.4	.3	.1

1/ U. S. Census of Housing, 1960.
2/ Less than 0.05 percent.

Table 16.--Percentage distribution of occupied farm dwellings by principal fuel used for water heating, by States and regions, 1960 1/

State and region	Utility gas	Fuel oil and kerosene	Coal and coke	Wood	Electricity	LP-gas	Other	None
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
New England	1.9	23.9	1.7	10.1	29.7	16.2	0.3	16.2
New York	6.4	9.3	2.4	2.8	53.7	13.5	.2	11.7
New Jersey	2.6	29.7	2.8	1.1	41.0	13.6	.4	8.8
Pennsylvania	8.2	9.5	11.5	1.6	48.4	6.2	.5	14.1
Delaware	.6	13.4	.0	1.2	32.6	25.8	---	25.6
Maryland	1.1	16.3	2.0	2.7	34.6	19.9	.3	23.1
Northeast	5.3	13.8	5.3	3.3	44.7	12.5	.3	14.6
Michigan	2.5	6.2	1.8	1.8	59.9	12.4	.2	15.2
Wisconsin	.4	4.7	.6	2.3	52.4	16.3	.1	23.2
Minnesota	1.3	2.5	.2	.7	50.7	13.8	.1	30.7
Lake States	1.4	4.4	.8	1.6	54.0	14.2	.1	23.5
Ohio	6.5	3.4	1.3	.2	59.3	7.3	.6	21.4
Indiana	1.7	3.0	1.2	.3	58.8	14.9	.5	19.6
Illinois	1.9	2.2	1.9	.1	51.0	20.9	.3	21.7
Iowa	.9	4.2	.7	.4	53.4	20.8	.3	19.3
Missouri	1.6	1.2	.3	.6	26.5	23.8	.1	45.9
Corn Belt	2.4	2.8	1.1	.3	49.4	17.9	.4	25.7
North Dakota	.5	2.7	.8	.1	48.1	9.1	2/	38.7
South Dakota	.8	2.8	.2	.2	45.2	14.5	.1	36.1
Nebraska	5.1	3.2	.2	.3	47.5	23.6	2/	20.1
Kansas	10.0	1.1	.1	.2	21.9	38.3	.4	28.0
Northern Plains	5.1	2.3	.3	.2	38.6	24.2	.2	29.1
Virginia	.7	3.6	3.5	5.3	34.8	2.9	.2	49.0
West Virginia	19.3	.8	3.7	3.3	19.1	2.5	.2	51.1
North Carolina	.1	2.1	.5	2.5	37.7	2.9	2/	54.2
Kentucky	2.2	.4	.9	.3	29.9	5.0	.1	61.2
Tennessee	.5	.2	.3	.5	40.2	1.1	.1	57.1
Appalachian	1.8	1.4	1.2	2.0	35.1	2.9	.1	55.5
South Carolina	.3	1.6	.6	1.0	32.8	3.4	.1	60.2
Georgia	2.4	.3	.1	.5	38.4	5.8	.1	52.4
Florida	2.8	1.2	---	.4	46.4	15.2	.4	33.6
Alabama	2.3	.1	.3	.4	30.1	8.1	2/	58.7
Southeast	1.9	.6	.3	.6	35.1	6.9	.1	54.5
Mississippi	4.3	.1	.1	.3	10.7	15.3	.1	69.1
Arkansas	6.4	.2	.1	.6	6.9	24.1	.2	61.5
Louisiana	14.1	2/	.1	.1	4.9	26.9	.1	53.8
Delta States	7.0	.1	.1	.4	8.3	20.6	.1	63.4
Oklahoma	10.5	.2	.1	.1	5.3	46.4	.3	36.1
Texas	9.1	.1	.1	.2	8.9	46.3	.2	35.1
Southern Plains	9.5	.1	.1	.2	8.2	46.3	.2	35.4
Montana	5.1	2.2	1.8	2.4	58.7	8.7	.3	20.8
Idaho	.4	.6	1.2	1.5	85.6	3.0	.2	7.5
Wyoming	10.0	1.6	4.8	.7	28.9	32.4	.2	21.4
Colorado	5.8	2.4	5.6	.7	35.3	32.3	2/	17.9
New Mexico	11.8	.8	.2	2.2	16.2	37.9	.3	30.6
Arizona	15.3	.2	---	.8	18.8	26.1	.2	38.6
Utah	11.7	1.4	8.6	.6	62.9	5.7	.4	8.7
Nevada	2.3	3.7	1.8	4.4	36.9	32.3	---	18.6
Mountain	6.4	1.5	3.0	1.4	50.0	19.1	.2	18.4
Washington	.1	1.1	.5	5.1	84.3	2.1	---	6.8
Oregon	1.4	.4	.2	4.0	84.3	3.3	.1	6.3
California	16.5	.7	2/	1.4	44.1	30.6	.6	6.1
Pacific	9.2	.7	.2	2.9	62.7	17.7	.3	6.3
48 States	4.0	2.8	1.2	1.2	39.4	16.5	.2	34.7

1/ U. S. Census of Housing, 1960.
2/ Less than 0.05 percent.

END