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KETING SERVICE

TRANSPORTATION of APPLES
in the Appalachian Belt, 1952-53

PENNSYVANIA

MARYLAND

WEST VIRGINIA

VIRGINIA
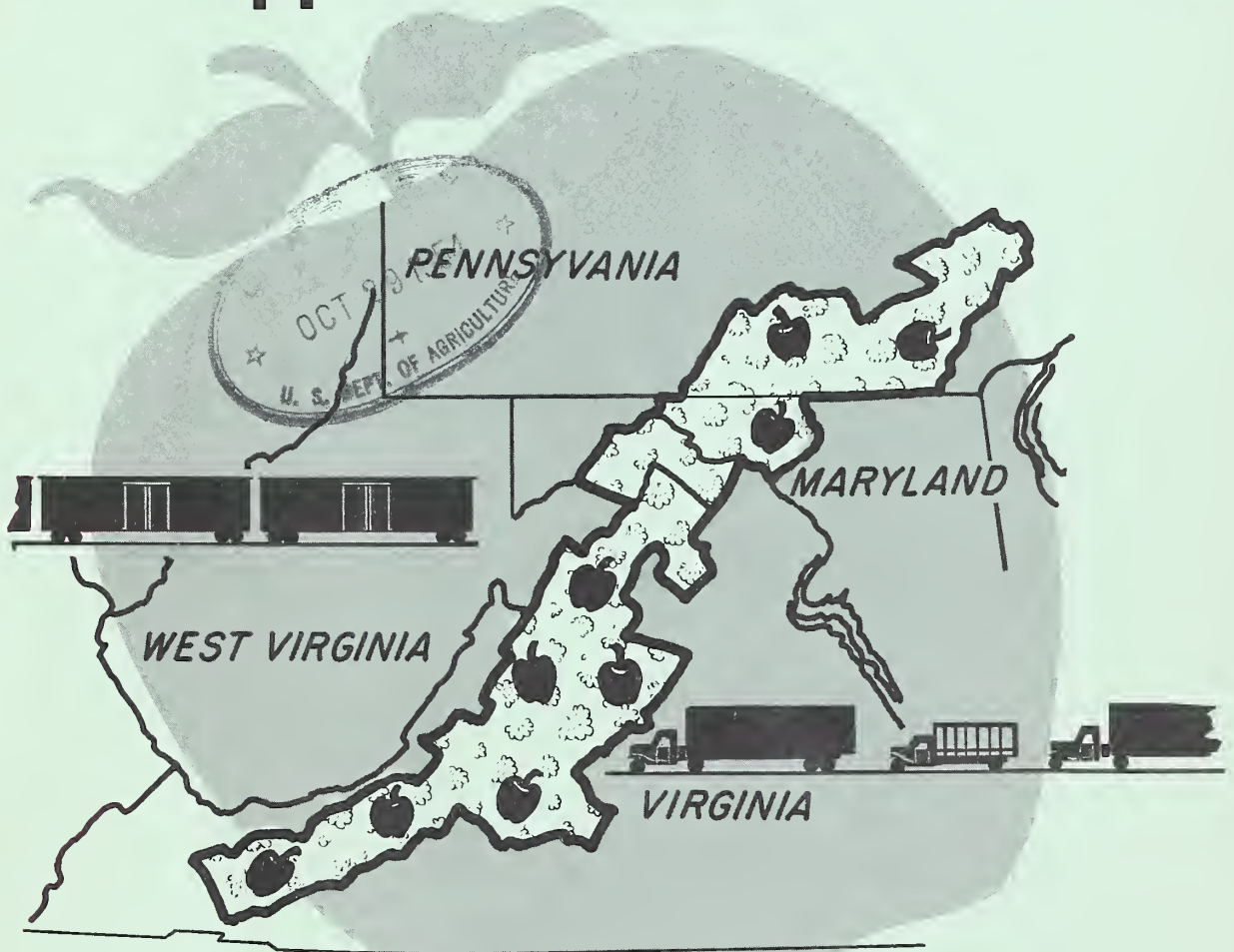
U.S. DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
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ACKNOWLEDGMENTS

SUMMARY

Data on the movements and charges for transportation of apples in the Appalachian belt were obtained by interviews with 78 shippers, 38 motor carriers, and 6 rail carriers in Pennsylvania, Maryland, West Virginia, and Virginia.

Approximately 55 percent of the 1952 crop for fresh use and processing in the 4-State area was handled by the shippers interviewed. The volume hauled by the 38 motor carriers approximated 14 percent. In the sample, sales for fresh use in the 1952-53 season were about double the sales for processing. The volume of packed apples was about $1\frac{1}{2}$ times that of bulk apples. About 90 percent of the packed apples were put in boxes or baskets. Another 5 percent were placed in consumer packages, and about 4 percent were packed in barrels, lined field crates, wirebound crates, or other containers.

The principal markets for Appalachian apples are in the States east of the Mississippi River. In addition to local fresh markets and processing plants within the 4-State production area, major market outlets for Appalachian apples are found in Florida, Georgia, the Carolinas, Tennessee, Texas, Louisiana, New York, Ohio, Illinois, Alabama, and Massachusetts. Nearly 30 percent of the apples from the Appalachian belt were marketed within a radius of 100 miles from the principal shipping points, 28 percent between 100 and 299 miles, 19 percent from 300 to 499 miles, and 24 percent 500 miles and over.

During the 1952-53 season, shipments from the Appalachian belt were mainly by truck. These shipments approximated 92 percent of the total sales and 87 percent of the fresh apple sales reported in the sample. In contrast, rail shipments were only 8 percent and 13 percent, respectively. The very large shippers made the greatest use of rail transportation, while the small shippers relied heavily upon truck transportation. Rail shipments were concentrated in hauls beyond 300 miles.

Approximately twice the volume of apples was hauled by for-hire trucks as compared to private trucks. Exempt haulers dominated the for-hire group, although a sizeable volume was hauled by common carriers regulated by the Interstate Commerce Commission.

Ranked in order of importance, the major advantages of truck transportation were considered by shippers to be: Better and faster service, lower rates, less handling, flexibility in size of shipment, less loss and damage, flexible stopoff service, profit from trucking operations, and prompter payment of claims. Eighty-three percent of the shippers stated the first advantage and 56 percent the second; between 24 and 35 percent of the shippers considered the next 4 advantages to be important. The last 2 advantages listed above were mentioned by 14 percent and 10 percent of the shippers, respectively.

The principal disadvantages of truck transportation mentioned by the shippers were as follows: Less reliability, more loss and damage, inadequate service on exports, and lack of uniform rates. From 5 to 14 percent of the shippers stated one or more disadvantages. Nearly two-thirds of the shippers stated they were not aware of any disadvantages in shipping by truck.

The level of truck rates tends to fluctuate with the supply of trucks and the volume of apple traffic. During the early part of the shipping season the rates, especially into the Southeast, are at a relatively high level. Throughout much of the season, however, truck rates are generally lower than the corresponding rail rates. The greatest differential between rail and truck rates is on short hauls and on those long hauls where apples serve as back-haul traffic for truckers.

The type of transportation service offered by agricultural haulers in the form of (a) availability of equipment--usually on a few hours' notice, (b) fast in-transit time, and (c) direct delivery from shipper to receiver, is widely recognized by shippers of the Appalachian area. Approximately 80 percent of the shippers interviewed mentioned the better and faster service by truck compared to rail.

Although the railroads offer a few exceptionally fast services on perishables between some of their main-line connections, the terminal delays and delay in placement of ordered cars tend to offset this otherwise excellent service.

Nearly one-third of the shippers had experienced greater loss and damage by rail than by truck as a result of rough handling or shifting of the load while in transit, temperature failures due to improper refrigeration or ventilation, defective or unfit equipment, and excessive delay. In contrast, about one-twelfth of the shippers had experienced greater loss and damage by truck.

A substantial proportion of the shippers expressed a willingness to increase their use of rail transportation if rates were reduced. One-third of the shippers said they would be willing to do so if rail rates were at the same level as truck rates, three-fifths if rail rates were 10 percent lower than truck rates, and nine-tenths if rail rates were 25 percent lower than truck rates.

Slightly over half of the shippers expressed a willingness to increase their use of rail transportation if the services were improved rather than the rates lowered.

Finally, approximately 90 percent of the shippers who now use some rail transportation planned to increase their use of truck transportation unless the rail freight rates were reduced or the quality of the service was improved.

TRANSPORTATION OF APPLES IN THE APPALACHIAN BELT, 1952-1953

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INTRODUCTION

In recent years a substantial volume of agricultural traffic has shifted from railroads to trucks. Insufficient information is available as to the specific causes of the shift and their effects upon producers, consumers, carriers, and marketing agencies, particularly in the case of individual commodities.

The marketing of fresh apples from the Appalachian area is typical of this situation. For example, although it is generally recognized that truck shipments of apples in this area increased substantially in the postwar period, the extent and the causes of the actual increases are not known. The relative proximity of such large consuming markets as New York City, Baltimore, Philadelphia, Pittsburgh, and Washington, D. C., would appear to favor this increase, since the advantages of truck transportation are greatest on short hauls. However, the complete answer does not lie here, as Appalachian apples move by truck to markets as far distant as Miami, Fla., Houston, Tex., and St. Louis, Mo.

This study was designed to provide shippers and carriers with information on the extent and type of truck transportation in the area, and the relative importance of factors affecting the choice of carriers. Comparisons were made between truck and rail transportation as a means of pointing up possible changes in transportation charges and services which would improve marketing efficiency. It is believed that more effective competition between carriers will be encouraged by such information.

The major points of discussion in the study are as follows:

1. The disposition of the Appalachian area's 1952 apple crop.
2. The type and extent of shippers' operations.
3. The volume of apples hauled to market by rail and by truck.
4. The nature and extent of truck organization and operation.
5. The chief advantages or disadvantages in shipping by truck rather than by rail.
6. The evaluation of back-haul traffic as a factor affecting the level of truck rates.
7. The nature and extent of, and charges for, refrigeration service for apples trucked to market.
8. A comparison of charges made and services rendered for apples hauled by rail and truck.

RESEARCH PROCEDURE

The Appalachian apple area includes the entire 4-State region--
Pennsylvania, Maryland, West Virginia, and Virginia--but the bulk of
the apple industry in the 4-State area is limited to approximately 48
counties, extending southwestward about 500 miles from Lehigh County,
Pa., to Wise County, Va., near the Virginia-Kentucky border. Within
these 48 counties, known as the Appalachian apple district, apples are
grown on the steep Appalachian ridges, on the slopes of the Blue Ridge
Mountains, in the foothills of the Piedmont, and in the Cumberland,
Shenandoah, and Great Appalachian valleys (fig. 1).

In connection with this study, the apple industry assisted in com-
piling a master list of 183 shippers who handled approximately 90 percent
of the total 1952 apple crop 1/ in the 4-State area. All of these 183
shippers were situated in the Appalachian apple district. From this
master list of shippers, the sample used in this study was selected. The
sample contained 78 shippers, stratified by size and chosen at random.
They happened to be located in 32 counties, which, solely for the purpose
of convenience, are here referred to as the Appalachian apple belt. The
sample design was constructed as shown in table 1.

Table 1.-- Number of shippers in master list and in sample, by
classification of shipper, Appalachian Belt, 1952

Classification of shipper 1/	Master list	Sampling rate	Sample
	Number	Number	Number
Small	43	1/6	7
Medium	67	1/3	22
Large	48	1/2	24
Very large	25	All	25
Total	183		78

1/ Classification: Small, 1,000 - 11,999 bushels; medium 12,000 -
49,999 bushels; large, 50,000 - 149,999 bushels; very large, 150,000
bushels and over.

The 78 shippers in the sample sold approximately 55 percent of the
Appalachian area's 1952 apple crop. The coverage of the sample by States
was as follows: Pennsylvania, 53 percent; Maryland, 49 percent; West
Virginia, 54 percent; and Virginia, 60 percent.

A preliminary survey of shippers in the Martinsburg-Winchester area
was made in October 1953, to test the adequacy of the questionnaire.

1/ "Total crop" excludes that portion of the crop used on farms, not
harvested, and excess cullage of harvested fruit--estimated at 1,000,000
bushels.

APPALACHIAN APPLE DISTRICT

OHIO

PENNSYLVANIA

KENTUCKY

WEST VIRGINIA

MARYLAND

DEL.

VIRGINIA

LEHIGH

BERKS

LANCASTER

YORK

CUMB.

ADAMS

CARR.

FRANK.

FRED.

WASH.

ALLEG.

MO.

BERK.

JEF.

FRED.

CL.

HAMP.

LOU.

WAR.

FAUQUIER

MIN.

SHEN.

PAGE

RAPP.

CULP.

MAD.

ORANGE

ROCKINGHAM

ALBE.

AUGUSTA

ROCK.

NEL.

AMHER.

BOTE.

ROAN.

BEDFORD

CAMP.

MONT.

FRANKLIN

GILES

PUL.

FLOYD

HENRY

SMYTH

WYTHE

CARR.

PATRICK

WISE

Counties studied in
this report

Counties not studied

Shippers generally considered the questionnaire to be satisfactory. The actual survey was made during November and December 1953.

Information on trucking operations was obtained from shippers, truck brokers, and truck operators. Because truck haulers of apples are exempt from regulation of rates and operating authority by the Interstate Commerce Commission, adequate information was not available to indicate the number of these firms operating in the Appalachian area. As a result, it was not possible to compile a master list of such operators or choose a random sample. However, through the cooperation of shippers, truck brokers, and the truck operators themselves, interviews were obtained with 38 of these truckers. The total apple tonnage hauled by these 38 carriers approximated 14 percent of the 1952-53 commercial crop and 25 percent of the fresh market sales for the 4-State area.

THE 1952 CROP

The 1952 commercial apple crop for the Appalachian area was slightly over 19 million bushels. 2/ This represents a decline of 13 percent from 1951 and 6 percent from the average for the 5 years 1947-51.

Practically all of the decrease was due to a very short crop in Pennsylvania. The 1952 crop in this State was approximately 40 percent less than in 1951, and 34 percent less than the 5-year average for 1947-51.

In the other 3 States--Maryland, West Virginia, and Virginia--the 1952 crop, as compared to 1951, ranged from a slight decline for West Virginia to a 6-percent increase for Maryland. Compared to the previous 5-year average, the 1952 crop in these 3 States was from 8 to 9 percent larger.

The f.o.b. prices for Appalachian apples in 1952-53 were roughly $1 a bushel higher than in the previous season. 3/ The smaller total crop in the 4-State area was the principal reason for this higher price. In addition, production from 2 of the 3 chief sources of competition for Appalachian apples was also lighter than usual. 4/ As a result, there was less downward pressure on apple prices in several markets served by the Appalachian area.

2/ The commercial crop refers to the total production of apples in the commercial areas of each of the 4 States.

3/ Stiles, H. S. Marketing Appalachian Apples, Season of 1952, Martinsburg, W. Va., U. S. Prod. & Mktg. Admin., 1953.

4/ Production in New York was 34 percent and in Michigan 39 percent less than in 1951. However, in Washington, production was 19 percent greater than in 1951.

UTILIZATION OF THE 1952 APPLE CROP

Fresh and Processed Sales

Approximately 18 million bushels of the Appalachian area's 1952 crop were sold, whereas the remaining 1 million bushels or so represents fruit used on the farm, not harvested, or excess cullage of harvested fruit. Of the total sales, some 10,000,000 bushels, or 56 percent, were sold as fresh, whereas 8,000,000 bushels, or 44 percent, were sold to processors.

The volume of apple sales, including fresh and processed, in the basic sample totaled 10,255,000 bushels, or 55 percent of the sales for the entire area. Fresh sales amounted to 6,664,000 bushels or 65 percent of the sample. An additional 3,591,000 bushels, or 35 percent of the sample, were sold to processors.

The larger percentage of sales for fresh use reported by the sample (65 percent compared to 56 percent of the total sales for the 4-State area) is due to the nature of the marketing process. Included within the basic sample of 78 shippers, and accounting for a substantial percentage of the sales, are brokers and sales agents, who largely handle sales for fresh use. Typically, a substantial portion of the crop destined for processing is sold by the growers themselves. Thus, in a sample of shippers, the ratio of fresh sales to processed sales would tend to run higher than in a sample of growers.

Except where otherwise noted, percentages in this report are based on the sample described above. The distribution of fresh and processed sales by States for the 78 shippers is shown in table 2.

Table 2.--Distribution of sales of fresh and processed apples, in sample, by States, 1952

| State | | Crop movement season | | | | Percentage distribution | | |
		Fresh	Processed	Total		Fresh	Processed	Total
		1000 bushels	1000 bushels	1000 bushels		Percent	Percent	Percent
Pennsylvania	:	1,323	860	2,183		61	39	100
Maryland	:	357	139	496		72	28	100
West Virginia	:	1,350	636	1,986		68	32	100
Virginia	:	3,634	1,956	5,590		65	35	100
Total		6,664	3,591	10,255		65	35	100

The ratio of fresh sales to processed sales tends to fluctuate from year to year, generally because of changes in price and production. In periods of relatively high prices and short crops, sales for fresh use tend to increase, whereas sales to processors decline. But when prices are low, growers tend to sell a greater proportion of their crop to processors. These statements are borne out by market behavior in previous years. For

example, in 1947 and 1948, a period of very short crops and relatively high prices in the Appalachian area, the ratio of sales of fresh to sales of processed apples increased. However, in 1949 and 1950, a period of large crops and relatively low prices, the ratio of fresh to processed sales declined.

The quantity of apples that processors will buy depends on the carryover of processed stock from the previous year, as well as on the size of the oncoming crop. Prices of fresh apples, in turn, are usually influenced by processors' prices, which are announced early in the season.

In 1950, largely as a result of the Korean War, processors bid up the prices they paid to growers to somewhat above the 1949 level. In 1951, prices paid by processors to growers were disastrously low because of the large carryover of processed stock.

Transportation costs have a significant effect on the proportion of apples sold for fresh use and the proportion sold to processors. When prices are low, transportation charges may prohibit the movement of fresh apples to the more distant markets. But, with a large number of processors located within the Appalachian area, the cost of transporting apples to processors is relatively small. 5/

Bulk and Packed Apples

Approximately 62 percent of the total fresh sales reported in the sample was sold as packed, whereas the remaining 38 percent was bulk sales. Sales of packed apples totaled 4,143,000 bushels, and sales in bulk totaled 2,521,000 bushels.

Nearly half of the packed apples, approximately 2 million bushels, were shipped in boxes. (No attempt was made to break this figure down as to type of container.)

An additional 1.8 million bushels, or 43 percent, were packed in baskets. Consumer packages were used for 5 percent of the pack--approximately 193,000 bushels. Barrels, lined field crates, wirebound crates, and other containers were used for the balance--approximately 185,000 bushels, or 4 percent of the pack.

Although a few shippers marketed their entire volume in one type of container, such as baskets or boxes, the general practice was to use a combination of containers.

5/ During the fall of 1953, local processors gave an allowance for transportation to growers who shipped to their plants. This allowance was made primarily because of 2 factors: (1) A very short crop--the result of drought and late frost conditions, and (2) intelligent, informed selling by the larger growers, who balanced their apple sales between fresh and processed. Several processors found it necessary to bring in apples from Michigan and New York State.

TYPE OF SHIPPER OPERATION

Approximately 20 percent of the shippers classified themselves as brokers or sales agents. These 16 brokers or sales agents sold more than $3\frac{1}{2}$ million bushels. As indicated by the previous statement, nearly all of these agents handled a substantial volume of apples. For example, none of the 16 were in the "small" shipper category (1,000 - 11,999 bushels). Only 2 were in the "medium" category (12,000 - 49,999 bushels). Four were in the "large" category (50,000 - 149,999 bushels), whereas the 10 remaining agents each handled 150,000 bushels or more, which is the "very large" category. Eight additional shippers, who indicated they were growers as well as brokers or sales agents, sold another 1 million bushels. These 24 shippers (16 brokers or sales agents and 8 brokers or sales agents who are also growers) handled 48 percent of the total sales reported in the survey.

An additional 31 shippers stated they were primarily growers. Approximately two-thirds of this group indicated they also did some packing. Total sales for this group of 31 were slightly over $2\frac{1}{2}$ million bushels, or approximately 25 percent of the total volume. The grower-packers tended to handle a larger volume than the nonpackers. However, the largest shipper in this group of 31 operated exclusively as a grower.

In the sample, one class consisting of 13 chain store and wholesale buyers, shipped approximately 2,068,000 bushels, or 20 percent of the total sales volume for the 78 shippers. All but 2 in this group indicated they were also growers. By size of shipper the group was fairly evenly distributed throughout the four categories. Six of the 13 buyers were in the small and medium classifications, whereas seven were in the large and the very large groupings.

The ten remaining shippers in the sample checked several functions in classifying their type of operation. The functions ranged from broker and shipping point distributor to wholesale buyer, cold storage operator, processor, packer, and grower; and it was not possible to determine their primary operation. Shippers indicating this mixed type of operation accounted for approximately 1,187,000 bushels, or 12 percent of the total.

MARKET AREA

Though a limited number of shippers market Appalachian apples in a few States immediately west of the Mississippi River, the primary market area is in the Eastern States. Throughout the entire area, however, Appalachian apples meet stiff competition from apples from other producing areas. Some indication of the extent of this competition in the 1952-53 season is shown in table 3. It should be noted, however, that table 3 understates the competitive positions of the Appalachian area, New York State, and the Central States as compared to the State of Washington. This understatement is due to the incompleteness of truck unload data for these areas. Although apples from Washington moved almost 100 percent by rail to the markets listed below, it is generally recognized that apples from the other three major producing areas moved

largely by truck. As a result, as stated above, lack of complete truck data for these three producing areas understates their competitive positions.

Table 3.--Unloads of fresh apples at selected markets by origin.

Markets	:	Crop-movement season 1/			
	:	Appalachian : area :	Washington : State :	New York : State :	Central States 2/
	:	Carlots 3/	Carlots 3/	Carlots 3/	Carlots 3/
	:				
Atlanta, Ga.	:	422	383	-	29
Boston, Mass.	:	59	284	110	2
Baltimore, Md.	:	416	274	28	1
Chicago, Ill.	:	16	1,796	26	874
New Orleans, La.	:	54	485	1	6
Cleveland, O.	:	71	321	142	372
New York, N. Y.	:	852	1,636	2,579	-
Philadelphia, Pa.	:	810	540	231	4
Washington, D. C.	:	406	145	13	-

1/ Unloads for 1953 preliminary.
2/ Includes Michigan, Ohio, Wisconsin, Illinois, and Indiana.
3/ Includes rail and truck unloads converted to carlot equivalents.

New York State apples dominate the markets within that State and supply a substantial proportion of the New England market. In large crop years the market area for apples from New York State extends well into Pennsylvania and Maryland, with some shipments as far south as Florida. In the Central States, Michigan is the largest local supplier, although Illinois, Ohio, Indiana, and Wisconsin also produce a fairly substantial quantity of apples.6/ The other major source of competition for Appalachian apples is the Pacific Northwest, primarily Washington State. Despite the remoteness of the area to the large eastern markets, Washington apples are distributed to nearly every State in the Union. 7/ Washington supplies apples to most of the markets which are also served by the Appalachian area. In some of the markets in the South, Appalachian apples cannot be sold successfully after supplies of Washington apples begin to arrive. The extensive blanketing of rail rates from Washington State, as illustrated in table 4, tends to reduce the geographic advantage of the Appalachian area although in most instances the rail rates from Winchester are lower.

6/ Total production for the 5 States in 1952 totaled approximately $12\frac{1}{2}$ million bushels. Michigan produced 44 percent of the total.
7/ During the last 12 marketing seasons, ending with 1951-52, Washington apples were shipped to all but two States--Delaware and New Hampshire. Washington State Apple Advertising Commission, Where Washington Apples are Marketed, Supplement No. 6, including 1951-52 Marketing Season.

Table 4.--Rail mileage and rate per 100 pounds, Yakima, Wash., and Winchester, Va., to selected markets, 1953

Market		Yakima, Wash.			Winchester, Va.	
	:	Mileage :	Rate per 100 pounds	: :	Mileage :	Rate per 100 pounds
	:	Miles	Dollars		Miles	Dollars
Minneapolis, Minn.	:	1,690	1.69		1,080	1.29
Peoria, Ill.	:	2,018	1.69		773	.98
Davenport, Iowa	:	2,030	1.69		842	1.06
St. Louis, Mo.	:	2,101	1.69		815	1.03
Dallas, Texas	:	2,196	1.69		1,392	1.70
Milwaukee, Wis.	:	2,201	1.69		755	.97
Little Rock, Ark.	:	2,225	1.69		1,041	1.52
Memphis, Tenn.	:	2,276	1.69		908	1/ .84
Jackson, Miss.	:	2,481	1.69		987	1/ .90
New Orleans, La.	:	2,622	1.69		1,092	1/ .94

1/ Rates lowered to meet truck competition.

For example, the rail rates on fresh apples from Yakima, Wash., to Minneapolis, Minn., and to New Orleans, La., are the same even though New Orleans is more than 900 miles farther from the point of origin than Minneapolis is.

In contrast, the rail rates from Winchester to the several selected markets generally reflect mileage differences with the exception of the three cities whose rail rates were reduced to meet truck competition.

Dealer preference and perhaps consumer preference are important factors in the dominant position occupied by Washington apples in some of the southern markets. For example, because of the long distances to most of their markets, Washington apple growers have generally adopted the following practices: First, to ship only the better grades of fruit and, second, to use refrigeration or heater service extensively for such shipments. As a result, the fruit generally arrives in the market in excellent condition.

In contrast a fairly substantial quantity of cull and perhaps field-run or ungraded apples from the Appalachian area moves through regular distribution channels. These culls are purchased by truckers who in turn resell a large proportion of them to wholesalers and retailers, as well as to ultimate consumers. Spokesmen for the Appalachian apple industry recognized that this cull competition tends to drive many buyers to Northwest apples. 8/

Condition, as well as color, size and shape, are factors which influence consumer preference. These factors, in the order previously listed, were

8/ Appalachian Apple Service, Annual Report for the 15th Season, 1950-51, p. 11.

considered by homemakers to be the most desirable external characteristics of apples, whether for eating, baking, cooking, or general purpose. 9/ Climatic conditions in the Pacific Northwest, that is warm days and cold nights in the fall, tend to result in apples that are somewhat more highly colored than those from the Appalachian area. In addition, because of irrigation, and perhaps more vigorous thinning of apple blossoms to promote size, Northwest apples tend to run larger than those in the Appalachian area, especially when the latter area experiences a season of less than average rainfall.

The market area for Appalachian apples, defined in terms of mileage blocks, shows that approximately three-fourths of the volume reported by the 78 shippers was sold in a radius of less than 500 miles from the shipping point (table 5). Within this 500-mile radius the largest volume, nearly 3 million bushels, went to destinations of less than 100 miles. Approximately 2,851,000 bushels went to destinations from 100 to 299 miles from shipping point, whereas approximately 2 million bushels were marketed in the 300 to 499 mileage block. The remaining one-fourth of the volume of shipments, approximately $2\frac{1}{2}$ million bushels, was shipped to markets at distances of 500 miles and over.

Some indication of the market destinations is given on the map in figure 2. In addition to the fresh markets of Baltimore, Md., and Washington, D. C., nearly all of the processors in the 4-State area are located within a 100-mile radius of Winchester, Va. Since the producing area is approximately 500 miles in length, the market destinations for other shipping points vary somewhat from those shown in figure 2. However, this variation does not appear to be serious, because the largest segment of the apple crop is produced in and shipped from the area within a 75-mile radius of Winchester, Va.

In three of the four States--Pennsylvania, Maryland and West Virginia--shipments of apples generally decline as distance to market increases. Despite this downward trend, however, the quantities moving to markets beyond 300 miles are still substantial, ranging from 33 to 40 percent of the total for the respective States. This downward trend is reversed in shipments of Virginia apples. Of the four mileage blocks designated, the greatest percentage of apple shipments in Virginia is made to markets at distances of 500 miles and over. Of the four States, Virginia has the smallest percentage of apples going to markets within 100 miles.

Table 5 also shows that the large and the very large shippers tend to ship to the more distant markets. Approximately one-fourth of their total volume moved to markets over 500 miles from the shipping point. Only one-sixth of the apples sold by the small and medium shippers moved that distance.

Some general knowledge of the market area beyond the 500-mile radius was obtained by asking shippers to state the most distant point to which

9/ See U. S. Bureau of Agricultural Economics, Consumer Preferences Regarding Apples and Winter Pears, 1950, p. 38.

Table 5.--Distribution of shipments of apples, by specified mileage and classification of shippers by States, Appalachian belt, 1952. 1/

Shipper and State 2/	Apples shipped during season									
	Less than 100 miles		100-299 miles		300-499 miles		500 miles and over		Total	
	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent
Small										
Pennsylvania	11,384	64	3,734	21	2,766	15	---	--	17,884	100
Virginia	9,930	23	7,850	18	15,310	35	10,310	24	43,400	100
Total	21,314	35	11,584	19	18,076	29	10,310	17	61,284	100
Medium										
Pennsylvania	69,700	33	84,625	40	16,113	7	42,562	20	213,000	100
Maryland	7,250	50	7,250	50	---	--	---	--	14,500	100
Virginia	113,881	47	39,987	16	50,668	21	37,953	16	242,489	100
West Virginia	51,348	52	13,817	14	19,373	19	15,045	15	99,583	100
Total	242,179	42	145,679	26	86,154	15	95,560	17	569,572	100
Large										
Pennsylvania	163,650	37	134,100	30	43,100	10	105,150	23	446,000	100
Maryland	88,760	32	89,460	32	59,262	21	41,760	15	279,242	100
Virginia	211,175	19	397,863	35	223,997	20	300,737	26	1,133,772	100
West Virginia	106,114	22	176,940	37	112,487	24	81,180	17	476,721	100
Total	569,699	24	798,363	34	438,846	19	528,827	23	2,335,735	100
Very large										
Pennsylvania	652,070	43	351,125	23	180,700	12	322,605	22	1,506,500	100
Maryland	53,421	26	50,118	25	44,585	22	53,770	27	201,894	100
Virginia	954,848	23	1,071,552	26	838,310	20	1,305,640	31	4,170,350	100
West Virginia	480,733	34	422,475	30	325,850	23	180,275	13	1,409,333	100
Total	2,141,072	29	1,895,270	26	1,389,445	19	1,862,290	26	7,288,077	100
Grand total										
Pennsylvania	896,804	41	573,584	26	242,679	11	470,317	22	2,183,384	100
Maryland	149,431	30	146,828	30	103,847	21	95,530	19	495,636	100
Virginia	1,289,834	23	1,517,252	27	1,128,285	20	1,654,640	30	5,590,011	100
West Virginia	638,195	32	613,232	31	457,710	23	276,500	14	1,985,637	100
Total	2,974,264	29	2,850,896	28	1,932,521	19	2,496,987	24	10,254,668	100

1/ Includes data for 78 shippers whose total shipments equaled 55 percent of the 1952 commercial crop for the Appalachian area--excludes approximately 1,000,000 bushels used on farms or waste.
2/ Classification: Small 1,000-11,999 bushels; medium 12,000-49,999 bushels; large 50,000-149,999 bushels; very large 150,000 bushels and over.

PRINCIPAL MARKET AREA FOR APPALACHIAN APPLES

Milwaukee

Detroit

Buffalo

Boston

Chicago

Cleveland

Pittsburgh

New York

Indianapolis

Baltimore

St. Louis

WINCHESTER

Louisville

Memphis

Knoxville

Charlotte

Columbia

Atlanta

Birmingham

Jackson

Baton Rouge

DISTANCE* FROM WINCHESTER

O CITY LESS THAN 100 MILES
▲ CITY 100-299 MILES
▦ CITY 300-499 MILES
◆ CITY 500 MILES AND OVER

Miami

*MILEAGE FIGURES ARE HIGHWAY DISTANCES

U. S. DEPARTMENT OF AGRICULTURE   NEG. 892-54(7)   AGRICULTURAL MARKETING SERVICE
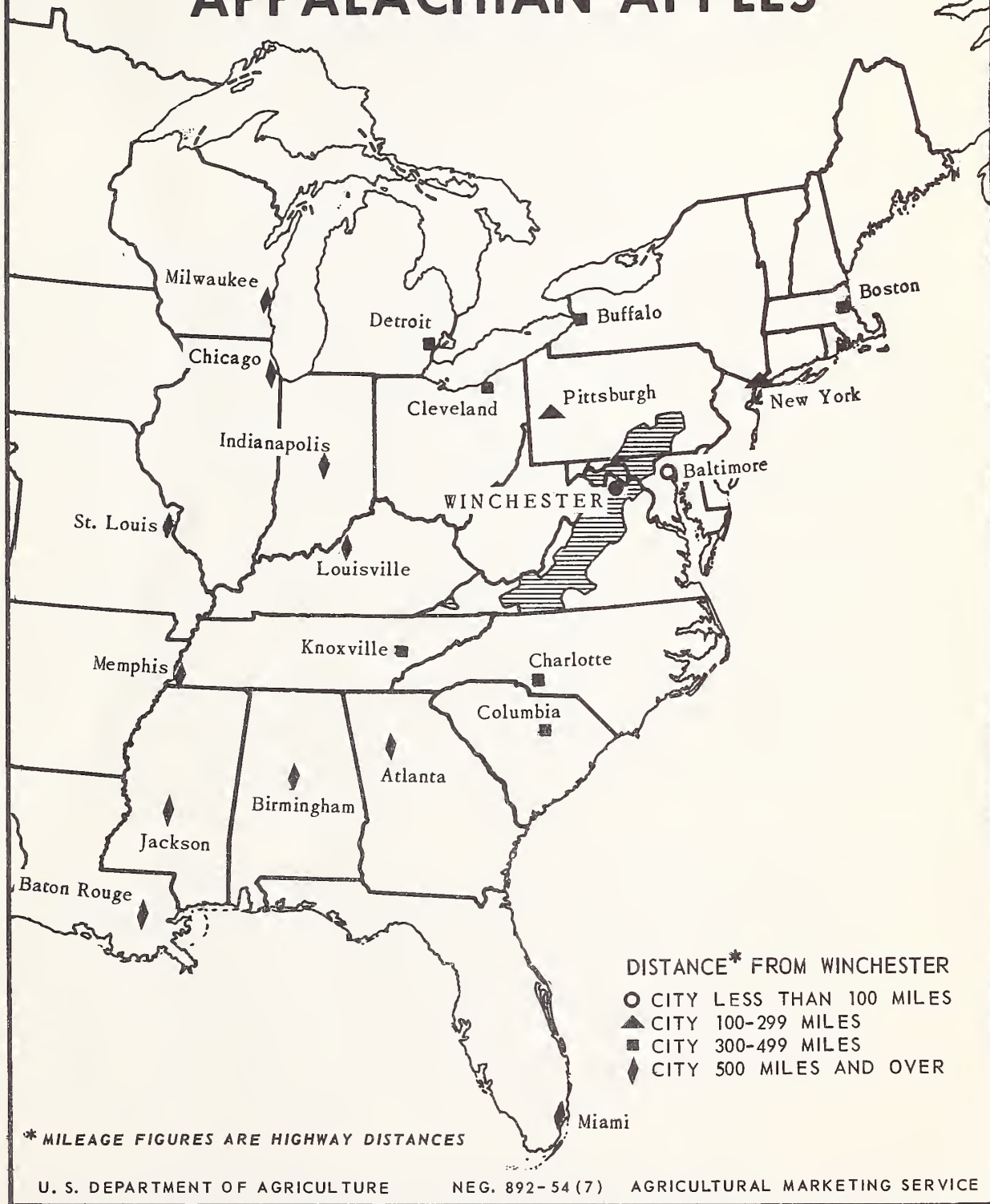
Figure 2.-The 1952-53 shipments of Appalachian apples went largely to markets within
500 miles of Winchester, Va.   Twenty-nine percent of the crop was marketed within
less than 100 miles of Winchester; 28 percent between 100 and 299 miles; 19 percent
between 300 and 499 miles; and 24 percent went to markets 500 miles or more away.
These are highway distances.

they make regular shipments. Destinations in the top 10 states, ranked on the basis of number of times mentioned, were as follows: Florida, Georgia, Tennessee, Texas, Louisiana, New York, Ohio, Illinois, Alabama, and Massachusetts. 10/ Approximately 40 percent of the shippers stated they made regular shipments to Florida, whereas from 16 to 14 percent made regular shipments to Georgia, Tennessee, and Texas.

RAIL AND TRUCK SHIPMENTS

By Size of Shipper and by States

Approximately 92 percent of the total volume of apples sold by the 78 shippers moved to market by truck (table 6). Only 8 percent were shipped by railroad. However, when based only upon fresh sales (excluding sales to processors) the railroads' share of the traffic increases to 13 percent, whereas the percentage hauled by trucks declines to 87 percent. As the sample somewhat over-represents fresh sales, it probably exaggerates slightly the percentage of the total crop that moves by rail. All shippers used truck transportation to some degree, and more than 40 percent of the shippers used trucks for their entire volume. In no instance did a shipper report exclusive use of railroads, although 45 shippers made some rail shipments ranging from a single car (650 bushels) to 212 cars (137,800 bushels).

The breakdown of shipments by size of shipper reveals that the very large shippers used the railroads most. Greater use of the railroads is to be expected by the very large shippers as this group ships a fairly high percentage of its fruit to the more distant markets, and the railroads tend to be more competitive with trucks on long distances. Within each of the shipper size-groups, however, there are rather widespread fluctuations in the rail and truck percentages. The two classes with the greatest percentage of rail shipments are the medium-size shippers of West Virginia and the large shippers of Maryland. Both of these small classes, however, contained one or two shippers, who, because of buyer considerations, shipped a substantial proportion of their volume by railroad.

It is interesting to note that in the distribution of rail and truck shipments by States, 3 of the 4 States, that is, Maryland, Virginia, and West Virginia, have approximately the same percentage distribution. The small percentage of rail shipments made by the Pennsylvania shippers reflects the high percentage of Pennsylvania apples which are processed. Movement to processors is almost exclusively by truck. In addition, the nearness of production areas in Pennsylvania to large markets such as Pittsburgh, Philadelphia, Baltimore, and New York City favors truck transportation. These facts are borne out by table 5, which shows that more than 40 percent of the apples shipped from Pennsylvania were marketed within a radius of 100 miles.

10/ Not all of the above States necessarily fall in the 500-mile and over category. Markets in Tennessee, New York, Ohio, and Massachusetts are less than 500 miles from certain production localities in the Appalachian Belt. Both North and South Carolina are important markets for Appalachian apples, but because of their nearness to the area they were not included in the above category.

Table 6.—Shipments of apples by rail and truck, by classification of shipper and by States, Appalachian Belt 1952 1/

Classification of shipper and State 2/	Shipment during season					
	Rail		Truck		Total	
	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent
Small						
Pennsylvania	-	-	17,884	100	17,884	100
Virginia	1,950	4	41,450	96	43,400	100
Total	1,950	3	59,334	97	61,284	100
Medium						
Pennsylvania	2,850	1	210,150	99	213,000	100
Maryland	-	-	14,500	100	14,500	100
Virginia	18,480	8	224,009	92	242,489	100
West Virginia	16,179	16	83,404	84	99,583	100
Total	37,509	7	532,063	93	569,572	100
Large						
Pennsylvania	1,300	3/ --	444,700	99+	446,000	100
Maryland	44,303	16	234,939	84	279,242	100
Virginia	61,427	5	1,072,345	95	1,133,772	100
West Virginia	38,108	8	438,613	92	476,721	100
Total	145,138	6	2,190,597	94	2,335,735	100
Very large						
Pennsylvania	20,175	1	1,486,325	99	1,506,500	100
Maryland	8,076	4	193,818	96	201,894	100
Virginia	499,300	12	3,671,050	88	4,170,350	100
West Virginia	153,905	11	1,255,428	89	1,409,333	100
Total	681,456	9	6,606,621	91	7,288,077	100
Grand total						
Pennsylvania	24,325	1	2,159,059	99	2,183,384	100
Maryland	52,379	11	443,257	89	495,636	100
Virginia	581,157	10	5,008,854	90	5,590,011	100
West Virginia	208,192	10	1,777,445	90	1,985,637	100
Total	866,053	8	9,388,615	92	10,254,668	100

1/ Includes data for 78 shippers whose total shipments equaled 55 percent of the 1952 commercial crop for the Appalachian area—excludes approximately 1,000,000 bushels used on farms or waste.
2/ Classification: Small 1,000-11,999 bushels; medium 12,000-49,999 bushels; large 50,000-149,999 bushels; very large 150,000 bushels and over.
3/ less than 0.5 percent.

By Mileage Blocks

Truck operation occurred most often in hauls up to 300 miles (table 7). Nearly 3 million bushels of apples were moved by truck to fresh markets or to processors within 100 miles of the shippers' establishments. An additional 2,800,000 bushels were shipped by truck to destinations in the 100 to 299 mileage block. In all, more than $5\frac{1}{2}$ million bushels of apples were hauled by trucks to destinations of less than 300 miles. In contrast, rail shipments totaled approximately 9,300 bushels, or less than half of 1 percent in these first two mileage blocks.

Table 7.--Shipments of apples by rail and truck and by specified mileage, Appalachian belt.

Mileage	Rail		Truck		Total	
	Quantity	Percentage	Quantity	Percentage	Quantity	Percentage
	Bushels	Percent	Bushels	Percent	Bushels	Percent
Less than 100 miles	0	0	2,974,264	100	2,974,264	100
100 - 299 "	9,302	1/	2,841,594	99+	2,850,896	100
300 - 499 "	317,662	16	1,614,859	84	1,932,521	100
500 and over	539,089	22	1,957,898	78	2,496,987	100
Total	866,053	8	9,388,615	92	10,254,668	100

1/ Less than 0.5 percent.

Because of the nearness of processing plants and of several large fresh markets, it is not surprising that truck shipments are heavily concentrated in hauls of less than 300 miles. Although, as indicated above, Pennsylvania is especially favored in this respect, the entire Appalachian apple belt is able to market a substantial proportion of its crop within a 300-mile radius.

The highest percentage of rail shipments occurred in hauls of 500 miles and over. Approximately 62 percent of the total rail shipments are in this mileage block. An additional 318,000 bushels, or 37 percent of the total rail shipments, were shipped to destinations between 300 and 499 miles from the shipping points.

This pattern of rail and truck shipments bears out the generally known principle that truck transportation tends to decline as length of haul increases. On the other hand, this decline is probably not as great for the Appalachian apple belt as it is for other sections of the country. 11/ Because of the opportunity for a return haul of Florida citrus or produce, it is commonplace for truckers in the Appalachian belt to haul apples 750 to 1100 miles--the approximate distances to Jacksonville and Miami, Florida.

11/ For example, a recent study of the movement of 10 selected fruits and vegetables to 8 major markets found that for apples, 499 miles appears to be the critical distance for truck shipments. "When sources were 500 miles and more from market, relatively few markets received any substantial part of the total supply by truck in either year, (1941 and 1950)." Purcell, Margaret R., Length of Haul to Leading Markets by Motortruck, 1941 and 1950. U. S. Bur. Agr. Econ., June 1953.

TRUCK SHIPMENTS BY TYPE OF CARRIER 12/

For-hire trucks dominate the apple traffic. Approximately two-thirds of the total volume of apples reported shipped by truck were hauled by for-hire motor carriers. The remaining one-third was hauled by shippers' trucks and buyers' trucks, with approximately a 2 to 1 ratio between them.

Table 8 indicates that the large and the very large shippers make the greatest use of for-hire trucks, whereas the small and medium shippers use a greater percentage of private trucking. There appears to be a positive relationship between the size of shipper and the percentage of traffic hauled by for-hire trucks. For-hire trucking increases as the size of the shipper's volume increases.

The volume of apples hauled by the 38 for-hire motor carriers interviewed was more than $2\frac{1}{2}$ million bushels. This approximates 45 percent of the nearly 6 million bushels reported by the 78 shippers as having been hauled in for-hire trucks.

Of the 38 truckers, 22 operate as exempt haulers--that is, they possess no operating authority from the I.C.C.--13 operate as common carriers regulated by I.C.C., and 3 as contract carriers regulated by I.C.C. The operating authorities possessed by the regulated carriers are necessary for hauling nonexempt commodities. When these carriers haul apples--an exempt commodity--they are not subject to rate regulation by the I.C.C. The status of the regulated carriers in this regard is thus the same as the exempt carriers. All of the carriers interviewed operate, at least to some extent, in interstate commerce.

Nearly $1\frac{1}{2}$ million bushels, 56 percent of the total volume hauled by the 38 for-hire carriers interviewed, were trucked by exempt haulers; approximately 847,000 bushels, or 32 percent, by common carriers regulated by I.C.C., and the remaining 324,000 bushels, 12 percent, by contract carriers regulated by I.C C. Although 2 of the common and 2 of the contract carriers are among the largest apple haulers in the area, the majority of the regulated carriers consider the apple traffic to be of secondary importance to their operation.

TRUCK ORGANIZATION AND OPERATION

Nearly all of the truckers interviewed operate as sole proprietorships. Three of the carriers are incorporated, 1 operates as a partnership, and the remaining 34 are sole proprietorships.

12/ Two different sources were used to determine the volume of apple business handled by trucks. Information was derived from shippers concerning the truck movement by shippers' trucks, buyers' trucks, and for-hire trucks. Then, by type of carrier--that is, common, contract and exempt--information was obtained from motor carriers.

Table 8.--Shipments of apples by truck, by ownership of truck, and by classification of shipper.

| Classification of shipper [1] | Private trucks | | | | | | For-hire trucks | | Total | |
| | Shippers' | | Buyers' | | Total | | | | | |
	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent	Quantity Bushels	Percentage Percent
Small	23,094	39	11,088	19	34,182	58	25,152	42	59,334	100
Medium	189,571	36	98,252	18	287,823	54	244,240	46	532,063	100
Large	753,417	38	105,345	5	858,762	43	1,120,135	57	2/1,978,897	100
Very large	1,219,891	18	1,029,001	15	2,248,892	33	4,569,429	67	2/6,818,321	100
Total	2,185,973	23	1,243,686	13	3,429,659	36	5,958,956	64	9,388,615	100

1/ Classification: Small 1,000 - 11,999 bushels; medium 12,000 - 49,999 bushels; large 50,000 - 149,999 bushels; very large 150,000 bushels and over.

2/ Total truck shipments in the large and very large shipper classification do not agree with the totals for these same shipper categories in table 5 because of the presence of a very large shipper who ships from 3 of the 4 producing States in the Appalachian belt. When his shipments are broken down by States, as shown in table 5, this shipper falls in the large category class. In table 8, on the basis of his total truck shipments, he is classified as a very large shipper.

Two of the three incorporated concerns are common carriers regulated by I.C.C., whereas the remaining firm is an exempt hauler. The firm organized as a partnership is also an exempt hauler. The 34 individually operated firms consist of 11 common carriers, 3 contract carriers, and 20 exempt haulers. There is no apparent connection between type of organization and type of truck carrier.

Equipment

During the 1952-53 season, 228 pieces of equipment were operated by the 38 carriers. Tractor and semitrailer combinations totaled 193, whereas the remaining 35 pieces consisted of straight or single-unit trucks. However, not all of this equipment was used primarily for hauling apples. As previously stated, most of the regulated carriers haul apples as a supplement to their regular trucking operations.

Those carriers that derived their greatest revenue from apples operated only 61 trucks and tractor-trailer combinations. The average number of truck and tractor-trailers operated by the primary apple haulers was approximately 4 units, whereas an average of 6 trucks and tractor-trailer combinations was operated by all carriers. The largest trucker in the group of primary apple haulers employed 3 straight or single-unit trucks and 10 tractor-trailer combinations. Three carriers in the entire group operated as many as 15 tractor-truck and semitrailer combinations.

Most of the tractor-trailer combinations hauling apples consist of the tractor-semitrailer combination with tandem axle on semitrailer, as shown in figure 3.
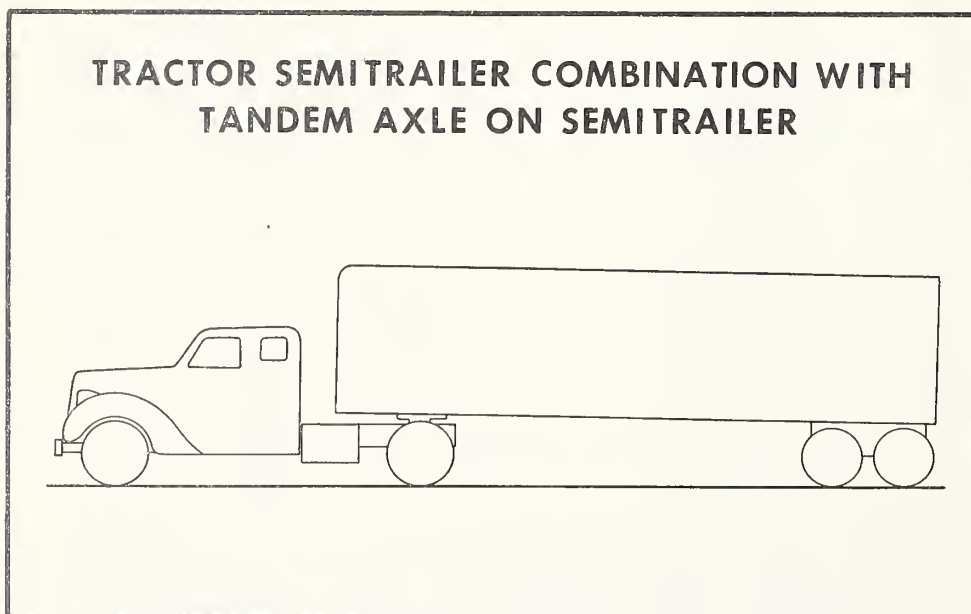

TRACTOR SEMITRAILER COMBINATION WITH
TANDEM AXLE ON SEMITRAILER

Figure 3

Weight Allowances

Straight or single-unit trucks carried an average load of approximately 275 bushels, whereas the tractor-trailer combinations averaged approximately 530 bushels. The range in this latter group was from 450 to 700 bushels.

The amount hauled is limited by State laws. The maximum gross weight allowances for a four-axle tractor-semitrailer combination (fig. 3) in the component States of the Appalachian area are shown in table 9.

Table 9.--Maximum gross weight allowance for a 4-axle tractor-semitrailer combination, by States, Appalachian area, July 1, 1953.

State	:	Maximum gross weight 1/	:	State	:	Maximum gross weight 1/
	:	Pounds				Pounds
Pennsylvania	:	45,000		West Virginia		59,000
Maryland	:	65,000		Virginia		2/ 50,000

1/ Assume 45-foot maximum length.
2/ Applies on designated highways only; on other highways the gross weight is 35,000 pounds.

A 30,000-pound payload, approximately 600 bushels, is the maximum that can be hauled by truckers in the State of Virginia under the present 50,000-pound limit. The unladen weight of a 4-axle tractor-semitrailer combination is approximately 20,000 pounds. When heavier equipment is used, the payload must be reduced accordingly. For example, some "reefer trucks," that is, trucks with mechanically refrigerated units, which haul apples as a back-haul, have only a 20,000-pound payload because the equipment weighs as much as 30,000 pounds. 13/

As shown in table 9, the payload which may be carried in Pennsylvania is even less. As a result, some truckers have found it necessary to operate a shuttle service within Pennsylvania to the border. Other truckers have refused to pick up loads in the State for long-haul movement because of this lower maximum weight allowance.

Within the marketing area for Appalachian apples (32 States in the eastern section of the country), the maximum gross weight allowances on 4-axle tractor-semitrailer combinations range from 42,000 pounds to 65,000. 14/ Kentucky has the lowest maximum and Maryland the highest.

_____

13/ This type of equipment is used extensively in the northbound Florida citrus and produce trade. It is not necessary to maintain apples at the temperatures required for these other products, but this type of equipment is used in apple traffic only for back-haul purposes.
14/ A rather recent study found that, although there has been considerable liberalization of State maximum weight limits since 1941, there is still a great deal of variation among the several States. See Purcell, Margaret R., Interstate Barriers to Truck Transportation, U. S. Bur. Agr. Econ., December 1950.

CHIEF ADVANTAGES IN SHIPPING APPLES BY MOTORTRUCK

During the last 15 years, two major factors, economy and convenience, have brought about a substantial increase in the volume of apple traffic hauled by trucks in the Appalachian area. Because of lower rates, faster service, less handling, or other reasons related to efficiency in marketing, trucks have reached a dominant position in the apple traffic of the area. This position has not been attained through an increase in apple production in the area, but rather through a decrease in shipments by rail. 15/

For example, the cumulative increase in the rail rate on apples for the entire country from 1945-52 has been estimated at 53 percent. 16/ On the other hand, representative rail rates shown in table 10 indicate that in many instances the percentage increase in the Appalachian area is substantially above the national average.

Table 10.--Freight rates on fresh apples by selected origin and destination, 1945 and 1953.

Origin	Market	Rail rate per 100 pounds		
		1945	1953	Percentage increase from 1945 to 1953
		Cents	Cents	Percent
Winchester, Va.	Boston, Mass.	43	86	100
Martinsburg, W. Va.	Cleveland, Ohio	35	70	100
Winchester, Va.	New York City	32	62	94
Winchester, Va.	St. Louis, Mo.	53	103	94
Hancock, Md.	Atlanta, Ga.	50	95	90
Winchester, Va.	Atlanta, Ga.	47	71	1/ 51
Winchester, Va.	New Orleans, La.	62	94	1/ 52
Staunton, Va.	Atlanta, Ga.	44	67	1/ 52

1/ Rates reduced in 1950 to meet truck competition.

A 22-percent reduction in rail rates in 1950 on apples hauled into the South from Virginia and certain West Virginia origins was helpful in keeping the postwar increase on these particular hauls near the national average. On other hauls not benefiting from the reduction, the increases in rates are nearly double the national average. In addition, the rates in table 10 cover hauls ranging from 300 to 1,100 miles in length. Shorter hauls would show even greater percentage increases.

15/ A comparison of rail shipments with total fresh sales indicates the railroads hauled approximately 41 percent of the apple volume in the 4-State area in 1939, but only 10 percent in 1952.

16/ Reese, Robert B., Revised Rail Freight Rate Index Number Series, The Marketing and Transportation Situation, U. S. Bur. Agr. Econ., July-September, 1953.

Besides the increases in rates, rail service to some of the communities has been curtailed during the last 15 years. These factors have encouraged shippers to depend still more heavily on truck transportation for marketing their products.

An evaluation of the major advantages in shipping apples by truck, as stated by the shippers interviewed in the survey, is presented in this section of the study.

Summary of the Significant Advantages in Shipping by Truck

Seventy-seven of the shippers mentioned one or more advantages in handling apples by motortruck. Two shippers gave as many as 6 advantages, whereas approximately 80 percent of the shippers stated three or more. Only one shipper failed to list any advantages, and he shipped more than 75 percent of his 1952 crop by truck.

Better and faster service and lower rates were mentioned by shippers as the principal advantages to be obtained from truck transportation (table 11). More than 80 percent of the shippers listed service as the chief advantage, whereas nearly 60 percent listed rate as the chief advantage.

In order of importance, less handling and flexibility in size of shipment were the next two advantages listed by the shippers. Each of these was considered an important advantage by 35 percent of the shippers. The large number of first place rankings, as shown in table 11, indicates, however, that the former advantage is relatively more important than the latter.

Less loss and damage was mentioned by almost one-third of the shippers. Although only one considered it to be the most important advantage of truck transportation, 22 of the 25 shippers ranked it 2d, 3d, or 4th in order of importance.

The last 3 major advantages of truck operation mentioned consisted of stopoff service for partial unloading or to complete loading, profit from the shipper's own trucking operations, and prompter payment of claims. From 10 to 24 percent of the shippers gave one or more of these advantages. In addition, other advantages such as quick billing, control over shipments, and ability to serve more small markets were mentioned by five shippers.

Table 11.--Shippers' listing of the most important advantages to be obtained from truck transportation, by order of importance.

Advantage	Shippers stating advantage in order of importance							Shippers replying as percentage of total
	1st	2d	3d	4th	5th	6th	Total	shippers
	No.	No.	No.	No.	No.	No.	No.	Percent
Better and faster service............:	38	17	6	3	1	0	65	83
Lower rates...........:	7	20	15	1	1	0	44	56
Less handling........:	13	9	4	1	0	0	27	35
Flexibility in size of shipment........:	7	8	9	1	2	0	27	35
Less loss and damage.:	1	7	10	5	1	1	25	32
Flexible stopoff service............:	3	9	2	5	0	0	19	24
Profit from trucking operations.........:	2	2	2	3	2	0	11	14
Prompter payment of claims..........:	0	0	3	4	1	0	8	10
Other................:	0	0	0	0	0	0	5	6

Better and Faster Service

Of the 8 major advantages in shipping apples by truck, better and faster service received the greatest attention. Approximately 60 percent of the shippers who considered service to be an advantage, ranked it first. One of the basic reasons for this attitude is shown in table 12 where a comparison is made of shipping times by rail and truck from Winchester, Va., to several selected destinations. Where more than one rail route is available, the table shows the scheduled time for the fastest route. For trucks, average shipping time is shown.

Although Winchester, Va., is the leading shipping point for the Appalachian apple belt, it is served only by the branch lines of two railroads. [17] As a result, from 7 to $27\frac{1}{2}$ hours is generally required to move cars from Winchester in a wayfreight train to the main-line terminal, where the cars are subsequently placed in a through train. However, on some hauls into the Midwest, as much as 52 hours is required for cars to move from Winchester through the main-line terminal. The substantially greater time required for these movements is due to the necessity of moving the cars through two intermediate terminals before placing them in a through train. The actual running time from Winchester to the nearest main-line connections at Hagerstown, Md.,

[17] Some shippers have expressed satisfaction with the rail service now provided at Lynchburg and Roanoke, both of which are southern Virginia main-line terminals located in the apple belt. The former city is served by 3 railroads, whereas the latter is served by 2 railroads. But main-line connections are scarce in the Appalachian apple belt; most communities there have only branch-line connections.

Table 12.--Distance and approximate shipping time from Winchester, Va., to selected destinations. 1/

Origin and destination	Distance		Rail: Scheduled shipping time, fastest route 2/	Truck: Average shipping time 3/
	Railway	Highway		
Winchester, Va. to	Miles	Miles	Hours	Hours
Atlanta, Ga.	655	626	39	22
Baltimore, Md.	122	97	16	3
Birmingham, Ala.	738	713	44	25
Boston, Mass.	524	497	44	20
Charleston, W. Va.	326	301	58	14
Charlotte, N. C.	395	366	36	11
Chattanooga, Tenn.	595	563	49	18
Chicago, Ill.	691	626	76	24
Cincinnati, Ohio	484	428	51	18
Cleveland, Ohio	368	303	62	12
Columbia, S. C.	504	459	42	16
Detroit, Mich.	528	461	81	16
Indianapolis, Ind.	574	507	76	18
Jacksonville, Fla.	781	762	45	27
Knoxville, Tenn.	484	449	40	15
Memphis, Tenn.	908	866	67	32
Miami, Fla	1,147	1,114	62	38
New Orleans, La.	1,092	1,078	60	40
New York, N. Y.	297	291	4/ 28	9
Norfolk, Va.	302	237	33	8
Philadelphia, Pa.	215	196	22	7
Pittsburgh, Pa.	237	178	45	7
Providence, R. I.	497	461	42	18
Raleigh, N. C.	331	277	38	8
Richmond, Va.	213	138	20	5
St. Louis, Mo.	815	747	89	27
Tampa, Fla.	969	943	62	35
Washington, D. C.	85	73	13	2

1/ Excludes loading and unloading time.
2/ Scheduled arrival times. Information received from Traffic Departments, The Baltimore & Ohio Railroad, Pennsylvania Railroad, Norfolk and Western Railway, Southern Railway, Atlantic Coastline Railroad, and Richmond, Fredericksburg and Potomac Railroad.
3/ Average transit time of 11 motor carriers in the Winchester, Va., area.
4/ Constitutes constructive placement at Jersey City, N. J.

Brunswick, Md., and Harrisburg, Pa., and at Manassas, Va., via Strasburg Junction, Va., does not exceed 5 hours. The balance of the previously mentioned time of 7 to 27½ hours (or 52 hours to certain midwestern points) represents layover at the terminal awaiting a through train. On hauls to southern markets the rail service through Manassas via Strasburg Junction, Brunswick, and Potomac Yards (near Alexandria, Va.), and Hagerstown, Md., were all computed.

On short hauls the layover time assumes serious proportions. Very often it exceeds the over-the-road time. For example, more than half of the rail transit time to Philadelphia and Pittsburgh, as shown in table 12, is accounted for by the layover at an intermediate terminal.

Even on relatively long hauls the operations required at each of several terminals greatly reduce the average rate of movement, despite the fast train speed between these terminals. To illustrate, a rail shipment of apples moving from Winchester to New Orleans via Potomac Yards requires approximately 60 hours, averaging 18 miles per hour. Of this total, 23 hours are used to move the car approximately 90 miles--less than 4 m.p.h.-- from Winchester through the Brunswick and Potomac Yards. In the remaining 37 hours the car travels approximately 1,108 miles, averaging approximately 30 m.p.h. This fast service on the greater portion of the journey is thus largely counter-balanced by the exceedingly slow movement in the initial stage.

The ratio of rail to truck transit times ranges from a high of 6½ to 1 on a haul of less than 100 miles (Winchester to Washington, D. C.) to a low of 1½ to 1 on the New Orleans haul, approximately 1,100 miles. The median ratio is approximately 3 to 1.

In 13 of the 28 destinations shown in table 12, the scheduled arrival times for rail shipments occur after noon. Although these cars are then available for receivers' inspection, they are ordinarily too late for that day's market. There are undoubtedly instances where this same situation occurs in truck shipments, but, because of greater flexibility of operations, shippers can more closely schedule their truck shipments to specific daily markets.

The problem illustrated here is one which is inherent in railroad operation. The movement of numerous commodities to countless destinations necessitates the making up and breaking up of trains at various terminals. As indicated previously, this is a time-consuming process. The smaller unit of operation, as well as size of organization, especially with agricultural haulers, makes it possible for motortrucks to offer a more frequent service and to move loads to markets without delay.

An additional aspect of this service problem mentioned by shippers is the delay in placement of rail cars. It is reported that cars have been spotted 24 to 48 hours after the promised date. This excessive delay does

not seem to be associated with a seasonal car shortage. 18/ Even when
there is no delay beyond the regularly scheduled spotting date, shippers
report that the local freight service at many points has been curtailed
to such an extent that several days delay is often encountered between
the time the car is ordered and its placement on the shipper's siding.

On the other hand, trucks are generally available for loading within
a few hours. For example, instances were cited where truckers were called
as late as 4 p.m. for hauls to Richmond and Philadelphia for market the
next morning. Other instances were given of buyers in Georgia and Alabama
placing orders on Wednesday for delivery at the market on Friday morning.
Shipments by rail would be out of the question in either of these instances.

One of the benefits that shippers derive from the fast delivery ser-
vice offered by trucks is that it tends to minimize the effects of unstable
market conditions. Daily market quotations on perishable commodities such
as apples may fluctuate rather widely. During the early part of the season,
apples selling for $5.50 on Tuesday may decline to $4.25 or even less by
Friday. The flexibility and speed of truck transportation might make pos-
sible the delivery of several shipments to this market before the price
reached its low level. The present rail service in the Appalachian area
prevents shippers from making adjustments to such rapidly changing market
conditions.

The importance of transportation service to shippers in this area is
further confirmed in replies to the following question asked during the
survey: "Would you be more willing to use the railroads if they improved
transportation services rather than lowered their freight rates?" Approx-
imately three-fourths of the 72 shippers who replied answered in the
affirmative. 19/ Eight shippers qualified their answer by stating that
it depends partly upon the buyer. It was the general reaction of shippers
that the increased use of rail transportation would apply only on the
longer hauls, that is, over 300 miles. It was not anticipated that the
railroads could or would even attempt to compete with trucks on short hauls.

Lower Rates

Rates ranked second in importance to service as a major advantage in
shipping by truck. More than half of the shippers interviewed considered
rate a major incentive for shifting from rail to truck. Although, as
mentioned previously, the Appalachian area is centrally located in rela-
tion to the large markets of the East, a rather substantial portion of
its apples are hauled to markets ranging in distance from 500 to 1,400
miles from the principal shipping points. Thus transportation costs are
significant in the total costs of many shippers.

18/ One large packer who had shipped from 75 to 100 rail cars during the
1952-53 season stated he was using trucks almost exclusively this year
(1953-54), because of the failure of a railroad to meet its switching
schedule in spotting empty cars.
19/ These shippers handled more than 6 million bushels of apples in the
1952-53 season.

A comparison of rail and truck rates from major points of origin to selected destinations are shown in tables 13-18. The truck rates were obtained from shippers, truck brokers, and haulers at the time of the survey. Both rail and truck rates are for full carlots or truckloads and are based upon for-hire transportation. In most cases the truck rates are not published, but represent bargaining by each shipper and each carrier. Because apples are exempt, as was previously pointed out, the Interstate Commerce Commission does not exercise regulation of rates or operating authority for truckers hauling this commodity. However, within the same shipping areas, the rates quoted, with a few exceptions, were surprisingly uniform. Variations were seldom more than 5 cents a bushel. Refrigeration and cartage costs are not included in the rail rates, nor do the truck rates, in most cases, reflect refrigeration costs. 20/ It is not anticipated that the inclusion of these extra costs would greatly affect the rate pattern, although in specific instances, it would increase the differential between rail and truck rates.

Truck rates on apples tend to vary somewhat from year to year, depending upon the volume of the traffic and the availability of trucks. There is also some variation in the rates during the shipping season, especially on the apple movement into the southeastern States. For example, during the first 6 weeks to 2 months of the season, roughly, September and October, truck rates into the Southeast are relatively high. For the remainder of the shipping season--an additional 5 to 6 months--the rates drop to a substantially lower level. The decline in some instances may be as great as 50 percent. On the other hand, truck rates on hauls to other markets fluctuate considerably less than this during the season.

The substantial decline in the rates to Florida is caused primarily by fluctuations in the Florida citrus and produce traffic. Generally, the heavy truck movement of Florida citrus to the larger northern markets, followed closely by vegetables, begins about October 15 or November 1. As a result, a large number of truckers became available for back-haul traffic into the South. 21/ Because of proximity to the main North-South routes,

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20/ Refrigeration for apples is used only during the first and last part of the shipping season, a maximum period of perhaps 3 months of the 8- to 9-month period. Even then it is used primarily for hauls into the South. Although the refrigeration costs on apples shipped by truck may be included in the line haul rate, the usual practice is to make a separate charge of either 5 cents a bushel or the cost of the ice. On a full truckload of 600 bushels these costs approximate $30. In contrast, refrigeration costs by rail from Winchester, Va., to Miami, Fla., are $72.74 per carlot. (Rule 258--initial icing by carrier, re-iced once in transit.)

21/ In 1952, almost half of the fruit and vegetable shipments from Florida were made by truck. This amount is probably somewhat conservative because the truck data are not complete. U. S. Department of Agriculture, Bureau of Agricultural Economics, cooperating with Production and Marketing Administration, Carlot Shipments of Fruits and Vegetables in Florida during 1952.

Table 13.—Rail and truck rates for fresh apples shipped from
Chambersburg, Pa., to specified markets, November
and December 1953

Origin and market	Rate per 100 pounds		
	Rail	Truck 1/	Rail over truck
	Cents	Cents	Cents
Chambersburg, Pa., to -			
Atlanta, Ga.	93	76	17
Baltimore, Md.	41	27	14
Birmingham, Ala.	103	91	12
Charlotte, N. C.	75	73	2
Chicago, Ill.	97	91	6
Cincinnati, Ohio	83	84	-1
Cleveland, Ohio	71	67	4
Columbia, S. C.	83	67	16
Columbus, Ohio	76	74	2
Detroit, Mich.	80	83	-3
Indianapolis, Ind.	89	85	4
Jacksonville, Fla.	95	81	14
Knoxville, Tenn.	83	87	-4
Miami, Fla.	121	95	26
Mobile, Ala.	110	115	-5
New York, N. Y.	59	55	4
Philadelphia, Pa.	49	37	12
Pittsburgh, Pa.	60	48	12
Raleigh, N. C.	67	59	8
Richmond, Va.	55	54	1
St. Louis, Mo.	107	118	-11
Tampa, Fla.	116	90	26
Washington, D. C.	41	31	10

1/ A weighted average rate including adjustments for seasonal
variation.

Table 14.--Rail and truck rates for fresh apples shipped from
Martinsburg, W. Va., to specified markets, November
and December 1953

Origin and market	Rate per 100 pounds		
	Rail	Truck 1/	Rail over truck
	Cents	Cents	Cents
Martinsburg, W. Va., to -:			
Altoona, Pa.	48	45	3
Atlanta, Ga.	71	59	12
Baltimore, Md.	41	28	13
Boston, Mass.	80	86	-6
Birmingham, Ala.	80	69	11
Charlotte, N. C.	53	50	3
Chicago, Ill.	92	87	5
Cincinnati, Ohio	77	74	3
Cleveland, Ohio	70	64	6
Columbia, S. C.	66	55	11
Columbus, Ohio	71	66	5
Dallas, Tex.	170	181	-11
Des Moines, Iowa	129	135	-6
Greenville, S. C.	66	53	13
Jacksonville, Fla.	76	67	9
Miami, Fla.	100	85	15
New York, N. Y.	60	55	5
Norfolk, Va.	62	46	16
Philadelphia, Pa.	53	44	9
Pittsburgh, Pa.	55	47	8
Providence, R. I.	78	82	-4
Richmond, Va.	53	44	9
Raleigh, N. C.	44	43	1
Scranton, Pa.	55	42	13
Tampa, Fla.	95	76	19
Washington, D. C.	38	29	9

1/ A weighted average rate including adjustments for seasonal
variation.

Table 15.—Rail and truck rates for fresh apples shipped from Hancock, Md., to specified markets, November and December 1953

Origin and market	Rate per 100 pounds		
	Rail	Truck 1/	Rail over truck
	Cents	Cents	Cents
Hancock, Md., to -			
Atlanta, Ga.	95	87	8
Baltimore, Md.	46	28	18
Chicago, Ill.	92	87	5
Cleveland, Ohio	67	70	-3
Jacksonville, Fla.	100	91	9
Knoxville, Tenn.	72	77	-5
Miami, Fla.	122	109	13
New York, N. Y.	62	55	7
Philadelphia, Pa.	53	40	13
Pittsburgh, Pa.	53	45	8
Richmond, Va.	55	40	15
Tampa, Fla.	117	98	19
Washington, D. C.	41	25	16
Wheeling, W. Va.	60	40	20

Paw Paw and Romney Area, W. Va. 2/

Paw Paw and Romney Area, W. Va., to -			
Atlanta, Ga.	95	81	14
Baltimore, Md.	48	38	10
Birmingham, Ala.	101	94	7
Boston, Mass.	86	95	-9
Charlotte, N. C.	75	70	5
Chicago, Ill.	92	97	-5
Cincinnati, Ohio	77	81	-4
Cleveland, Ohio	66	62	4
Columbia, S. C.	87	75	12
Columbus, Ohio	71	74	-3
Dallas, Tex.	170	185	-15
Jacksonville, Fla.	100	88	12
Miami, Fla.	122	103	19
New York, N. Y.	67	65	2
Norfolk, Va.	67	53	14
Philadelphia, Pa.	60	55	5
Pittsburgh, Pa.	51	42	9
Providence, R. I.	86	90	-4
Richmond, Va.	60	46	14
Roanoke, Va.	60	48	12
Tampa, Fla.	117	99	18
Washington, D. C.	46	35	11
Wheeling, Ohio	55	52	3
Youngstown, Ohio	59	70	-11

1/ A weighted average rate including adjustments for seasonal variation.
2/ Rail rates from Paw Paw, W. Va., only.

Table 16.—Rail and truck rates for fresh apples shipped from
Winchester, Va., to specified markets, November and
December 1953

Origin and market	Rate per 100 pounds		
	Rail	Truck 1/	Rail over truck
	Cents	Cents	Cents
Winchester, Va., to –			
Altoona, Pa.	51	42	9
Atlanta, Ga.	71	57	14
Baltimore, Md.	46	25	21
Birmingham, Ala.	76	69	7
Boston, Mass.	86	90	-4
Chicago, Ill.	92	84	8
Charlotte, N. C.	51	50	1
Chattanooga, Tenn.	67	66	1
Cincinnati, Ohio	77	75	2
Charleston, W. Va.	70	66	4
Cleveland, Ohio	71	66	5
Columbia, S. C.	62	53	9
Columbus, Ohio	71	70	1
Dallas, Tex.	170	175	-5
Des Moines, Iowa	129	135	-6
Detroit, Mich.	77	90	-13
Dubuque, Iowa	107	116	-9
Houston, Tex.	173	181	-8
Indianapolis, Ind.	86	79	7
Jackson, Miss.	90	90	0
Jacksonville, Fla.	76	66	10
Knoxville, Tenn.	62	61	1
Memphis, Tenn.	84	90	-6
Miami, Fla.	100	83	17
Nashville, Tenn.	75	66	9
New Orleans, La.	94	102	-8
New York, N.Y.	62	58	4
Norfolk, Va.	66	48	18
Philadelphia, Pa.	55	45	10
Pittsburgh, Pa.	59	47	12
Providence, R. I.	80	85	-5
Raleigh, N. C.	36	34	2
Richmond, Va.	55	37	18
St. Louis, Mo.	109	123	-14
Tampa, Fla.	94	75	19
Washington, D. C.	39	24	15

1/ A weighted average rate including adjustments for seasonal
variation.

Table 17.—Rail and truck rates for fresh apples shipped from
Charlottesville, Va., to specified markets, November
and December 1953

Origin and market	Rate per 100 pounds		
	Rail	Truck 1/	Rail over truck
	Cents	Cents	Cents
Charlottesville, Va., to-:			
Atlanta, Ga.	66	60	6
Baltimore, Md.	49	40	9
Birmingham, Ala.	71	76	-5
Boston, Mass.	87	87	0
Charlotte, N. C.	38	42	-4
Chattanooga, Tenn.	63	65	-2
Chicago, Ill.	92	95	-3
Cincinnati, Ohio	76	74	2
Columbia, S. C.	56	53	3
Dallas, Tex.	164	171	-7
Houston, Tex.	166	177	-11
Jacksonville, Fla.	71	65	6
Knoxville, Tenn.	58	54	4
Louisville, Ky.	86	81	5
Miami, Fla.	98	77	21
Nashville, Tenn.	71	65	6
New Orleans, La.	91	95	-4
New York, N. Y.	70	68	2
Philadelphia, Pa.	60	53	7
Pittsburgh, Pa.	71	55	16
Providence, R. I.	86	82	4
Raleigh, N. C.	32	35	-3
Tampa, Fla.	90	74	16
Thomasville, Ga.	75	72	3
Washington, D. C.	43	35	8

1/ A weighted average rate including adjustments for seasonal
variation.

Table 18.--Rail and truck rates for fresh apples shipped from Roanoke, Va.,
to specified markets, November and December 1953

Origin and market	Rate per 100 pounds		
	Rail	Truck 1/	Rail over truck
	Cents	Cents	Cents
Roanoke, Va., to –			
Atlanta, Ga.	62	55	7
Baltimore, Md.	60	50	10
Birmingham, Ala.	66	62	4
Boston, Mass.	97	100	-3
Charlotte, N. C.	41	40	1
Chicago, Ill.	92	97	-5
Cincinnati, Ohio	76	72	4
Columbia, S. C.	52	47	5
Dallas, Tex.	161	160	1
Jacksonville, Fla.	68	63	5
Knoxville, Tenn.	51	57	-6
Louisville, Ky.	86	80	6
Miami, Fla.	96	79	17
Nashville, Tenn.	67	69	-2
New York, N. Y.	77	72	5
Norfolk, Va.	59	48	11
Philadelphia, Pa.	72	67	5
Pittsburgh, Pa.	76	64	12
Raleigh, N. C.	39	35	4
Richmond, Va.	51	44	7
Tampa, Fla.	86	75	11
Washington, D. C.	55	48	7

1/ A weighted average rate including adjustments for seasonal
variation.

the Appalachian apple traffic is especially desired by these truckers.
Additional factors which make this traffic desirable are: (1) Apples
are a clean commodity to haul; (2) they maintain their condition fairly
well in transit, that is, they are not as perishable as some other fruits
and vegetables; and (3) they tend to load heavily. A full truckload of
600 bushels of apples weighs approximately 30,000 pounds. Thus, either
by personal solicitation or through truck brokers, Florida citrus and
vegetable haulers participate heavily in the movement of Appalachian ap-
ples into the Southeastern States. For example, nearly half of the motor
carriers interviewed stated they hauled citrus or general produce from
Florida.

The level of truck rates on Appalachian apples into the Southeast is
largely governed by the rates established on this back-haul traffic. The
rates for hauling apples into that area are lower than the rates on Appal-
achian apples moving to other areas not only because of the large supply
of trucks available for shipments moving into the Southeast, but also be-
cause of the level of rates charged by these trucks in their northbound
movement of Florida citrus and vegetables. This northbound movement is
the initial haul of the trucker and hence bears a higher rate than the
southward movement of Appalachian apples. From the standpoint of the
truckers of Florida citrus and vegetables, any traffic that can be taken
on the return haul will reduce the overall expense, provided that it
brings in more revenue than the slight cost difference between carrying
a return load and deadheading back. 22/

Recognition has been given the seasonal variation in the rates.
Both a high and a low truck rate were obtained from shippers and motor
carriers for each destination. The high rate, which was charged during
the early part of the shipping season, was given a 25 percent weight
factor, since it remained in effect only about 2 months of the 8- or 9-
month shipping season. The low truck rate received a 75 percent weight
factor, as it prevailed during 6 or 7 months of the shipping season.
Despite this weighting, the truck rates into such large southeastern
markets as Atlanta, Ga., Columbia, S. C., Jacksonville, Tampa, and Miami,
Fla., are usually below the rail rates.

Although the Florida movement greatly affects the level of truck
rates for Appalachian apples marketed in the Southeast (North and South
Carolina, Georgia, and Florida), truck rates to other markets are also

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22/ Some of the truckers interviewed indicated they were having great
difficulty this season, 1953-54, in obtaining back-haul traffic after a
northbound haul of citrus fruit or vegetables. As a result, they often
made the long run to Florida empty. These conditions were generally at-
tributed to the short apple crop in the Appalachian area, and to a lessen-
ing of the opportunity for trip leasing. This latter factor was thought
to reflect some decline in general freight traffic.

affected by the opportunity for a back-haul. Initial haulers of apples--
truckers whose headquarters are in the Appalachian area--are often able
to obtain a haul for at least part of the return trip, either through
trip-leasing of nonagricultural commodities, or by bringing back an ex-
empt commodity. Sometimes truckers find it necessary to purchase an agri-
cultural product in order to have a payload for the return trip. In other
cases, they have to wait for as long as a week at the market before obtain-
ing a return load. In still other cases they go back empty. As a result
of the uncertainty attached to this traffic, the truck rates on hauls of
apples into the Northeast and the Midwest do not experience the seasonal
decline described earlier as applying to hauls into the Southeast.

Truck rates on apples hauled into Tennessee, Mississippi, Louisiana,
and Texas also tend to be higher than on similar hauls into the Southeast
because of the uncertainty of a back-haul. Topography and the low maxi-
mum gross weight allowances in Pennsylvania and Kentucky, previously
mentioned, also have some influence on the truck rates to markets other
than those in the Southeastern States. These facts are borne out by
the lower differentials between rail and truck rates on hauls to the
following markets: Boston, Mass., Providence, R. I., Cleveland, Ohio,
Detroit, Mich., Chicago, Ill., Nashville and Memphis, Tenn., New Orleans,
La., Dallas and Houston, Tex. On some of these hauls the rail rates are
actually lower than the truck rates.

In contrast to this pattern of narrower rate differentials on long-
haul movements that are not affected by the Florida traffic is the pattern
·revealed by the rates on relatively short hauls. In many instances the
truck rates to the nearby markets are substantially lower than the rail
rates. This is particularly true of the rates to such cities as Baltimore,
Md., Philadelphia, Pa., Washington, D. C., and Richmond and Norfolk, Va.
The primary reason for this widening rate differential lies in the differ-
ence in the cost structures of the two types of carriers. The rates on
short-haul traffic, as well as other traffic, must bear two types of costs,
terminal and line-haul or conveyance cost. However, because terminal oper-
ations for rail carriers are on a much larger scale and are more complex
and more costly than for motorcarriers, short-haul rail rates must carry
a greater proportion of such costs. Because of these differences in termi-
nal costs, rail rates tend to be higher than truck rates on short hauls.
The vulnerability of this short-haul traffic to private transportation may
also partially account for the low truck rates. As pointed out previously,
more than one-third of the total volume of apples reported in the survey
were moved to market by private trucks.

The previous discussion has stressed the fact that rates are an impor-
tant consideration in influencing the shippers' choice of carriers. Lower
transportation rates, if they cover the costs of service, are beneficial
to shippers, carriers, and the consuming public. 23/ The large number of

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23/ By making possible an expansion in market area, shippers realize a
greater return. Increased expenditures are made for transportation, thus
benefiting carriers; and consumers, in many cases, benefit through reduc-
tion in prices brought about by increased market competition.

instances in which truck rates on apples are lower than rail rates stresses the need for some adjustment in rail rates, if the railroads expect to increase, or even to maintain, the present level of traffic. Some indication of the extent of the adjustment needed was given by shippers in reply to the following question asked during the survey: "Would you increase your use of rail transportation for apple shipments, if (a) rail rates were at the same level as truck rates, (b) rail rates were 10 percent lower than truck rates, or (c) rail rates were 25 percent lower than truck rates?" As noted above, a 22-percent reduction in rates on rail shipments of apples from Virginia and certain West Virginia origins to southern destinations was put into effect in 1950.

Of the 72 shippers who answered part (a), one-third stated they would increase their use of rail transportation, although 5 of this group qualified their answer by saying it would depend partly upon the buyer. The remaining two-thirds stated that they would not increase their use of rail transportation even if the rail rates were at the same level as truck rates.

However, under part (b), 45 of 73 shippers stated they would increase their use of rail transportation if the rates were 10 percent lower than truck rates. Seven of the 45 qualified their answer by the statement that it would depend partly upon the buyer.

Finally, 70 of the 75 shippers replying to part (c) indicated they would increase their use of rail transportation if rail rates were 25 percent lower than truck rates, but again, seven of these shippers stated that it would depend partly upon the buyer. 24/

24/ The total volume of apples shipped in the 1952-53 season by those shippers who gave affirmative answers to the above questions was as follows:

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        Part a - Rail rates same level as truck rates
           Unqualified "Yes"            2,370,102 bushels
           Partly depends on buyer      1,409,000 bushels
              Total                     3,779,102 bushels

        Part b - Rail rates 10 percent lower than truck rates
           Unqualified "Yes"            4,256,179 bushels
           Partly depends on buyer      1,800,350 bushels
              Total                     6,056,529 bushels

        Part c - Rail rates 25 percent lower than truck rates
           Unqualified "Yes"            7,598,715 bushels
           Partly depends on buyer      1,800,350 bushels
              Total                     9,399,065 bushels
```

Less Handling

The convenience of being able to load directly from the orchard into a vehicle destined for market is of great value to many shippers. Estimates ranging from 5 to 8 cents a bushel were given by shippers as the extra cost in hauling apples to a rail siding for loading. In the cases cited the rail sidings were relatively close to the orchards. The costs would be larger as the local trucking distance increased. 25/

Frequently it is also possible, through truck shipments, to eliminate an extra handling at the receiving end. Receivers not located on rail sidings are required to truck the apples from railroad team tracks. The door-to-door service given by trucks does away with this extra handling and expense.

The advantage of less handling, when shipping by truck, is one well recognized by shippers. Of the 27 shippers who named this as an advantage, approximately half considered it the most important advantage of truck operation, while the other half ranked it second or third. Only 1 shipper ranked it fourth.

Flexibility in Size of Shipments

Trucks usually operate with a load capacity substantially less than that of the average rail car. However, as previously pointed out, some truckers haul as many as 650 bushels (a railroad carload), where such a load does not violate State maximum gross weight laws. Whether the truck is large or small, trucking is easily adaptable to small shipments of separate buyers. This flexibility in size of shipment, especially in the apple traffic, is of considerable importance to shippers. 26/ An illustration of this flexibility is indicated by the following excerpts from the records of several of the motor carriers interviewed.

25/ This advantage does not apply to apples which are placed in local cold storage plants and then reloaded out later in the season. Peak cold storage holdings for 3 of the 4 States during the 1952-53 season were as follows:

Pennsylvania	932,000 bushels
West Virginia	648,000 bushels
Virginia	2,286,000 bushels

Data are not available for Maryland.
Source: U. S. Production and Marketing Administration, Marketing Appalachian Apples, 1952-53 season.

26/ Instances were cited where shippers during the early part of the season were able to realize a greater return by sending out small lots of 200 to 250 bushels to several markets. It was generally believed that full truck lots or rail carlots of 600 to 650 bushels would weaken the market substantially.

Size of shipment	Destination
473 boxes	New York
596 bushel baskets	Pennsylvania
200 boxes	Pennsylvania
500 boxes	Pennsylvania
500 bushel baskets	Maryland
143 bushel baskets	Washington, D. C.
196 crates	West Virginia
230 crates	Virginia
400 bushel baskets	North Carolina
420 boxes and 21 barrels	South Carolina
225 boxes	South Carolina
500 bushel baskets	Florida
559 bushel baskets	Florida

The fact that shippers are able to send out shipments of varying size, most of which are considerably smaller than a full rail carlot, enables them to meet more fully the needs of their customers. Many buyers do not have the storage space to handle over 200 to 300 bushels every other day or so. Even where the storage space is available, they still prefer a hand-to-mouth type of buying in which small lots are purchased frequently. In this manner, less money is tied up in inventories, and, in addition, the merchandise is fresher. Truck transportation with its flexibility and speed is well adapted to this type of operation.

Less Loss and Damage

Nearly one-third of the shippers stated they had experienced less loss and damage in shipping apples by truck than by rail. 27/ The fast transit time of motor carriers undoubtedly helps to reduce damage claims arising from deterioration of fruit, whereas the longer transit time by rail tends to increase the shipping hazards. Because of this factor of speed, truck shipments of apples may require less refrigeration than rail shipments under circumstances otherwise similar; or in other words, if unrefrigerated shipments of apples are made by rail and by truck between the same points at the same time, the truck shipment will be less susceptible to damage from heat. In addition, the elimination of extra handling has undoubtedly served to keep at a minimum the loss and damage of truck shipments through bruising of the fruit.

Although fast transportation and elimination of extra handling are important advantages of truck operation, the smaller loss and damage record of motor carriers cannot be traced to these two facts alone. Some shippers contend that truckers handle the fruit more carefully en route, whereas with rail shipments, recoopering is often necessary at the terminal market. Additional causes of damage cited by shippers were: Temperature failures because of improper refrigeration or ventilation, defective or unfit equipment, and excessive delay.

27/ In contrast, 8 percent of the shippers stated they had had greater loss and damage with truck shipments (see page 41).

The need for taking steps to reduce loss and damage is obvious. Such claims are a source of irritation and expense to shippers; sales may be lost and claims may drag on for many months before settlement. Shippers still suffer a financial loss, even if claims are settled quickly and the loss and damage completely covered. Since they are an operating expense of the railroads, the higher loss and damage claims are reflected in higher freight rates.

Flexible Stopoff Service

Nearly a fourth of the shippers indicated that the ability to have shipments delivered to two or more consignees was an important advantage of truck transportation. This service includes stoppage in transit to finish loading or partially unload and split deliveries.

Deliveries are often made to as many as three consignees in the same city or in different cities which may or may not be along the same general route. Generally, no extra charge is made for this service. The substantial flexibility in this service as well as the noncharge feature is due to the exemption status, as previously pointed out, of truckers of apples. Motor carriers, both common and contract, who possess either an operating certificate or permit are able to give the same service on exempt commodities as those carriers who possess no operating authority, provided they do not haul mixed loads of apples and nonexempt commodities.

On the other hand, the stopoff service on apple traffic provided by the rail carriers is subject to regulation by the Interstate Commerce Commission. 28/ These carriers generally make an additional charge for this service. In addition, they are subject to restrictions in its application. For example, a charge of $13.70, over and above the regular rail rate, is made on a carload of apples originating at Winchester, Va., and destined for Jacksonville, Fla., with a stopoff to partially unload at Columbia, S. C. This charge is applied generally throughout southern territory (roughly, the area east of the Mississippi River and south of the Ohio and Potomac rivers). A maximum of 3 stopoffs is permitted within this territory and a charge of $13.70 is made for each stopoff.

On rail shipments of apples from Winchester, Va., to Boston, Mass., or Chicago, Ill., with stopoffs to partially unload at Providence, R. I., and Pittsburgh, Pa., a charge of $14.25 is made for each stopoff. Only one stopoff is permitted in the rate territories in which these latter cities are located. A further restriction on this service by rail is that the above charges apply only where the stopoff stations are intermediate between points of origin and final destination. Where the stopping of cars is permitted at points not directly intermediate between the originating point and the final destination, an additional charge is made. The charge for this back-haul or out-of-line haul is ordinarily made on a mileage basis.

28/ Stopoff service offered by interstate common and contract motor carriers on nonexempt commodities also comes under the jurisdiction of the Interstate Commerce Commission.

Stopoff service for rail shipments results in an added cost to the shipper or one or more of the receivers, either through extra bracing or labor in leveling off a load once a portion of the shipment has been removed from the car. 29/

On the other hand, when a motor carrier makes split deliveries, the trucker assumes the responsibility of making the balance of his load secure after the removal of each consignment.

Profit from Trucking Operations

As previously mentioned, approximately 23 percent of the truck shipments of the 1952 apple crop were hauled by the shippers' own trucks. Although 53 shippers indicated that they shipped some portion of their 1952 crop in their own vehicles, only 14 stated that profit from trucking operations was one of the advantages in shipping by truck. For most of the growers, truck operation is incidental to their primary occupation of caring for an orchard. Many orchards possess a truck that is used for hauling supplies and equipment. During the harvesting season, the truck is used in hauling apples to processors and fresh markets within a relatively small radius of the grower.

Profit from trucking operations was discussed by the growers in general terms rather than in a strict cost-accounting sense. For example, two growers stated they were able to make a profit from trucking their own apples because they could use the drivers in the orchards during the off-shipping season. Other shippers mentioned the importance of the back-haul in the success of their trucking operations.

Some indication of the extent of this profit was given by one shipper who stated he was able to undersell his competitors 25 to 50 cents a bushel by doing his own hauling. It is not known, however, whether this particular shipper had fully considered all of his truck costs. 30/

The 14 shippers who stated they made a profit from their trucking operations hauled up to 100 percent of their 1952 crop. One grower-shipper, for example, operates three tractor-truck and semitrailer combinations and hauls as far as New Orleans. Generally, however, the shippers operate only 1 or 2 straight or single-unit trucks and limit their hauls to less than 300 miles.

29/ The railroads recommend that if a car contains shipments for more than one consignee each of the shipments be braced separately. This recommendation was made because of the failure of the first receiver to level off the load after he had removed his consignment from the center of the car. This practice usually resulted in substantial damage to the merchandise through shifting during the remainder of the journey.

30/ When shippers mentioned their profits from trucking operations as an advantage of using truck transportation, the question arose as to what alternative means of transportation they had in mind. It was clear that they thought of the railroads, although some of them thought of for-hire trucks as still another alternative to shipper-operated trucks.

Prompter Payment of Claims

Ten percent of the shippers stated that motor carriers settled claims arising from loss or damage to cargo more quickly than did the railroads. There appears to be little excuse for claim settlements being delayed for long. At the same time, the difference in the operational nature of the two types of carriers favors faster claim settlement for motor carriers. As stated earlier, the majority of the truckers in the Appalachian area operate as individual proprietorships. Therefore, such carriers often can make an on-the-spot settlement for any loss or damage that may have occurred.

On the other hand, it would not be feasible for an organization as large and complex as a railroad to grant claim settlement authority to the personnel operating freight trains. Thus, when loss or damage occurs on a rail shipment, inspection reports are filed by the carriers' representatives, and standard claim forms are filed by the shipper and the consignee. It is then the duty of the railroads' claim departments to determine the justification for the claim and the extent of the actual loss. If claims arise through unreasonable delay of the shipment in transit, considerable time may be required to ascertain the precise amount of loss. Similarly, claims resulting from improper refrigeration or ventilation require the compilation of a performance record for the particular equipment involved.

It should also be noted that precautionary steps must be taken by the railroads to insure against the payment of unjust or illegal claims. Under the Elkins Act, railroads are subject to heavy penalties for the granting to shippers of rebates or concessions, such as the payment of illegal claims. The receivers of the rebates or concessions are also guilty of violating the law.

Although it is apparent that the organizational structure of the railroads precludes claim settlement procedures as flexible as that of many truck operators, nevertheless, there is room for improvement in this field. But even the quick settlement of claims is a poor substitute for the delivery of commodities in good condition, either by railroad or by motortruck.

Other Advantages

Three additional advantages mentioned by a few shippers included prompt return of containers, control over shipments, and ability to serve a larger number of small markets.

The advantage of having shipping containers returned promptly was mentioned by a shipper who sold more than 90 percent of his 1952 crop to processors. This type of short-haul movement, involving the return of the field crates by the same truck on which they were loaded, is outside the feasible operation of rail carriers.

Control of shipments was mentioned by two shippers as an advantage of truck transportation. 31/ The instances cited by these shippers involved the failure of receivers to take delivery. The shippers mentioned that they had averted substantial losses by having the truckers make delivery to other buyers with whom the shippers had communicated upon being notified of the original consignee's refusal to accept delivery. If the shipments had moved by railroad, notification would also have been given to the shippers. But, because truck shipments are under close control by the drivers, remedial action can be taken by the shippers somewhat more speedily than in rail shipments.

Finally, the ability to serve more small markets was mentioned by two shippers. This advantage needs little elaboration since it is inherent in motor carrier operation. Providing service to many small communities that do not have rail connections is a distinct feature of the trucking industry.

31/ Two other shippers expressed an opposite viewpoint. They stated that a disadvantage of truck shipments is that there is no means of keeping track of them. See page 43.

MAJOR DISADVANTAGES IN SHIPPING APPLES BY MOTORTRUCK

Although there are many advantages in using trucks for fresh apple shipments there are also some disadvantages. Seven different objections to truck hauling were voiced by approximately one-third of the shippers surveyed (table 19). However, not over two objections were made by any one shipper. Approximately two-thirds of the shippers stated there were no disadvantages in shipping apples by truck.

Table 19.--Shippers stating chief disadvantages in moving apples by motortruck

Disadvantages	Shippers	
	Stating disadvantage	Replying as percentage of total shippers surveyed
	Number	Percent
Less reliable	11	14
More loss and damage	6	8
Inadequate service on exports	4	5
Lack of uniform rates	4	5
Other disadvantages	5	6

Less Reliable

The principal disadvantage stated by shippers in trucking fresh apples was the unreliability of some truck operators. This objection was reported by 11 shippers. The expression "wet-nursing the truckers" was used in describing this fault of a few truck operators. More detail work and closer supervision of truck shipments were included in the shippers' definition of "wet-nursing."

An example of the unreliability complained of was that cited by a shipper who engaged an itinerant trucker for a haul to a midwestern city. The trucker had gone a relatively short distance from the shipping point when he was arrested and fined for an overload violation. Proceeding to the next town, the trucker unloaded all of the apples, rather than merely the portion exceeding the weight limit, and shipped them railway express collect to the consignee. The shipper, who was required to reimburse the consignee the difference between the truck rate and the substantially higher express rate, has been unable to collect from the motor carrier.

Even more serious are the three cases of theft that were reported by shippers to have occurred during the last 5 to 10 years. In these particular instances unscrupulous truckers hired out to haul the apples to distant markets. The shipments were never delivered to the consignees, but reportedly were sold in other cities. The shippers suffered the full monetary loss.

These isolated instances are not cited for the purpose of permitting inferences to be drawn concerning the character of truck operators in the Appalachian area. The fact that fully two-thirds of the shippers stated that there were no disadvantages in shipping by truck precludes any such inferences being drawn. Rather, the purpose is to point out to shippers that these events have occurred in the past and may occasionally occur in the future unless preventive measures are taken.

The recurrence of the above type of losses may be prevented by dealing with truck operators who are known through past experience to be trustworthy and who carry cargo insurance 32/ or dealing with responsible truck brokers. Some truck brokers will not engage a trucker unless he carries adequate cargo insurance. 33/

More Loss and Damage

Although 25 percent of the shippers stated that loss and damage on truck shipments of apples were less than on rail shipments, 8 percent of the shippers stated the reverse.

Aside from the previously cited cases where entire shipments were lost through theft, this particular disadvantage is concerned with loss and damage to fruit through bruising and poor refrigeration or ventilation, or both. The practice of loading as many as six layers of bushel baskets in a truck is claimed by some shippers to be the primary cause of bruising. 34/ Sufficient research has not been done to determine the accuracy of these opinions.

A few shippers stated that the refrigeration of rail shipments was superior to that of truck shipments because temperatures were more evenly controlled. In some cases, truckers had evidently waited too long before re-icing, and this delay had caused damage to the fruit.

Inadequate Service on Exports

More than half a million bushels of fresh apples were exported from the custom districts of New York, Maryland, Virginia, Florida, and New Orleans in 1952. A large percentage of these apples was grown in

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32/ One shipper reported that he carried his own blanket cargo insurance policy to cover possible losses when engaging itinerant truckers. However, this additional expense is not practicable for most shippers.

33/ Interstate common and contract carriers are required by the Interstate Commerce Commission to carry $1,000 of cargo insurance. The Commission has no authority, however, to require haulers of an exempt commodity to carry such insurance.

34/ The general practice is to load only 3 to 4 layers in a rail car. The heavier loss and damage conceded by most shippers to occur in rail shipments evidently stems from shifting of the load.

the Appalachian area. This export market outlet is of some interest to the area, especially to the large shippers.

About one-seventh of the shippers in the survey reported that some portion of their 1952 crop was exported. In some cases shippers sold the apples directly to the foreign buyer. In other cases the sales were handled by a broker at the port of export. A substantial portion of the apples exported from the Appalachian area is probably sold by this latter method, that is, through brokers at the port cities.

Shippers mentioned that they had exported apples during the 1952 season to the following countries, which are listed in order of number of times mentioned: Cuba, Canada, Panama, Brazil, Venezuela, Great Britain, and Western Germany.

Although 14 percent of the shippers in the survey exported some portion of their 1952 crop, 5 percent stated that truck service on exports was inadequate. 35/ For example, shippers mentioned that oftentimes shipments arriving at port cities had to remain in rail cars as long as a week awaiting a vessel. Since rail cars are refrigerated, re-icing is all that is necessary to keep the fruit in good condition. The necessity of a quick turn-around time for trucks precludes this storage operation.

Shippers also pointed out that they found the railroads especially advantageous for export shipments to Cuba. Through use of the car ferry service operating between the port of Palm Beach, Fla., and Havana, Cuba, apples may be loaded into a rail car at the shipper's siding and unloaded from the same rail car by the importer in Cuba. This service eliminates extra handling and is claimed by shippers to be relatively inexpensive.

Lack of Uniform Rates

The lack of uniform or definite truck rates was mentioned as a disadvantage as it sometimes prevented entry to a market by a particular shipper. Shipments to highly competitive markets tend to be made on a relatively narrow margin of profit. Because truck rates on exempt commodities are not standardized, one shipper may, through superior bargaining power, be able to obtain lower rates than another shipper. The resulting savings on transportation costs may be sufficient to enable the favored shipper to undercut the delivered price of his competitor and thus obtain the business for himself.

Although this disadvantage is important to the four shippers who mentioned it, the great majority of shippers have found the truck rates sufficiently stable to permit them to carry on their business activities satisfactorily.

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35/ In contrast to the above-mentioned viewpoints, one shipper found truck service for export shipments superior to that of rail where it was necessary to make delivery of several small shipments to more than one steamship pier at the port of export.

Other Disadvantages

The remaining disadvantages of truck shipment of apples may be lumped together, as only five of the surveyed shippers mentioned any of these. The points worth describing are the absence of warehousing at the market and the lack of any way of keeping track of shipments while in transit.

The inability to use trucks for storage of apples at destination was mentioned by two shippers. Although receivers would be more affected by this disadvantage than shippers, both shippers who mentioned it sell a sub-stantial quantity of apples on a consignment basis. As a result, they are interested in the transportation factors affecting terminal market oper-ations, as well as those at the shipping point.

For example, if the market happens to be dull at the time the rail car arrives, the consignee may decide to hold the apples in the car a day or so in anticipation of the market's strengthening. This procedure would not be possible for truck shipments since ordinarily they must be unloaded immediately. 36/ Oftentimes this results in the forced sale of apples which might have been held over for a few days.

The inability to know the whereabouts of a truck shipment while in transit was indicated by two shippers as a disadvantage. Under the car re-porting service offered by some of the railroads, shippers and consignees are notified whenever a shipment is delayed in transit. They are notified when the shipment resumes its journey and of the newly scheduled arrival time.

In the event of mechanical breakdowns or other factors causing delay, truckers often call the shipper and report the difficulty. However, because of the relatively short in-transit time for most truck shipments, there is perhaps less need for the more complete reporting service offered by the railroads.

36/ This disadvantage to the receiver of a truck shipment is moder-ated in at least 2 localities. Truckers have reported that buyers in the Pittsburgh, Pa., and Cleveland, Ohio, produce markets will unload the trucks only as the apples are sold. This may involve several hours delay.

Although the increase in rail shipments of apples from Virginia is impressive, the destination of these shipments must be known in order to determine whether the increase was a result of a reduction in rates. In table 21 rail carlot unloads of apples from Virginia are shown for several markets. The first four markets are among those which received the 1950 rail rate reductions on shipments from Virginia. The second group of markets, on the other hand, did not receive these reductions. As a result, from 1949 to 1952, whereas the first group registered an increase of 159 percent in rail unloads of apples from Virginia, the second group of cities showed no significant change.

Table 21.—Rail unloads of fresh apples from Virginia at selected markets 1949-52

Markets	1949	1950	1951	1952	1952 percentage change from 1949
	Carlots	Carlots	Carlots	Carlots	Percent
Southern 1/					
Atlanta, Ga.	53	89	114	93	75
Memphis, Tenn.	26	30	39	71	173
Nashville, Tenn.	31	56	113	111	258
New Orleans, La.	17	12	32	54	218
Total	127	187	298	329	159
Other 2/					
Boston, Mass.	20	19	22	21	5
Chicago, Ill.	4	10	12	4	3/ -
Cincinnati, Ohio	27	23	33	23	-15
Cleveland, Ohio	7	4	1	1	3/ -
New York, N. Y.	1	4	1	17	3/ -
Philadelphia, Pa.	9	9	14	0	3/ -
St. Louis, Mo.	2	4	6	1	3/ -
Total	70	73	89	67	-4

1/ Received 1950 rail rate reductions on shipments from Virginia.
2/ Did not receive 1950 rail rate reductions on shipments from Virginia.
3/ Because the carlot figures were small, the percentage change was not significant.

Consequently, the extension of the 1950 reductions to other production localities within the Appalachian area, and to additional markets served by the apple belt, might be advisable. On the contrary, however, two of the railroads which made the reduction in 1950 have recently proposed that their rates on hauling apples into the South be increased by approximately 25 percent.

This study has indicated that a reduction in rail rates would result in an increase in traffic. The majority of the shippers in the survey said they would be willing to increase their use of rail transportation if the rates were reduced. A similar reaction was expressed by shippers regarding improvements in rail service. A situation favorable to the expansion of

this traffic is that nearly three-fifths of the shippers interviewed are at present using the railroads even though for only a small portion of their total business.

The failure on the part of the railroads to improve their services or to lower freight rates can lead eventually to the virtual disappearance of the Appalachian area's apple traffic from the railroads.