TRENDS IN MARKETING FRUITS AND VEGETABLES

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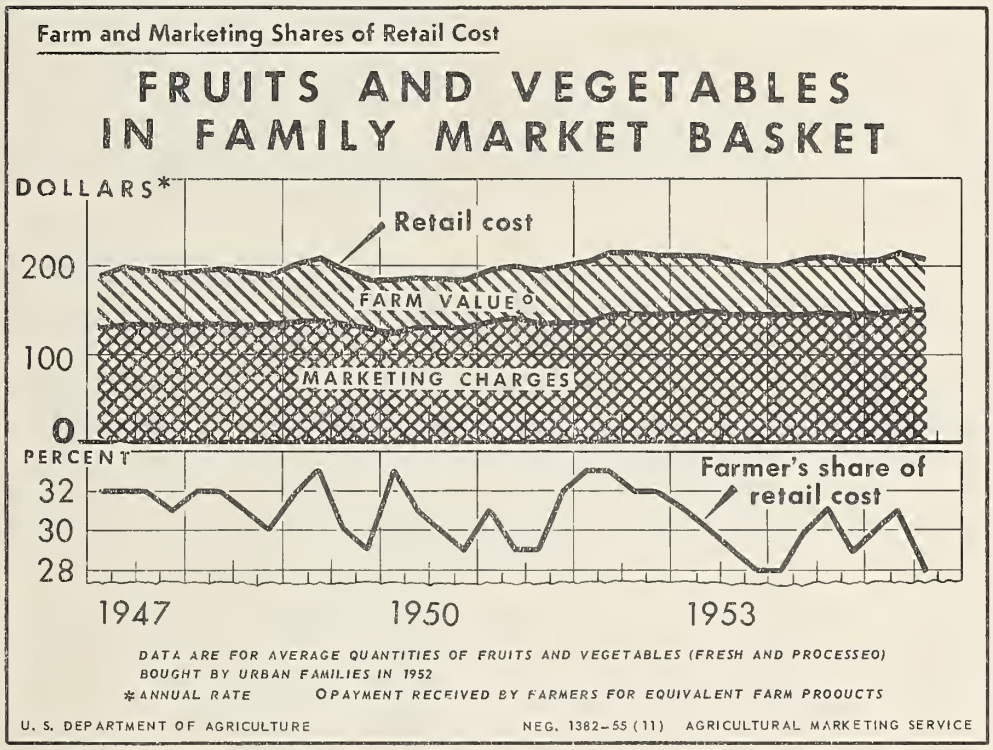

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MARKETING MARGINS FOR FRUITS AND VEGETABLES 1/

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The cost of getting fruits and vegetables from the farm to the consumer has increased in recent years. Much of this increase has arisen because of the added services required to produce better quality food in a more convenient form, as evidenced by the increase in prepackaging and in freezing, which require more handling and processing. The cost of these services also has increased, mainly because of rising wage rates of the labor used in processing, handling, and transportation. However, marketing is becoming more efficient with improved operating methods, better marketing facilities, increased volume, and more rapid turnover.

Margins on Fruits and Vegetables Have Risen

Gross marketing margins for most food items have increased since 1947. It is estimated that in the first 9 months of 1955 the retail cost of all fruits and vegetables (fresh and processed) in the family market basket was about $209 and the farm value was about $62. In the same period of 1947 the retail cost was about $195 and the farm value $63. Thus, the marketing margin increased from $132 in 1947 to $147 in 1955, or 11 percent. (See cover chart.) This compares with an average increase of about 26 percent for all foods in the market basket.

The farmer's share of the dollar consumers spent for fruits and vegetables was 30 percent in the first 9 months of 1955 compared with an average of 32 percent in the same period of 1947. However, the farmer's share for several individual items has increased since 1947, for example, fresh oranges and several canned items.

Marketing Costs Have Risen

Costs of performing marketing functions in the distribution of farm food products have gradually increased. The estimated total cost of performing these services, or the National Marketing Bill, has increased 58 percent since 1947. The major part of this increase has resulted from increased wage rates. About one-fourth of the consumer's food dollar went for payment of wages and salaries in the food-marketing industry in 1954. This excludes the cost of the labor employed by transportation agencies, which is a considerable part of the transportation bill.

Average hourly earnings of employees in the canning and preserving industry increased from 47 cents in 1939 to $1.04 in 1947 and to about $1.41 in 1954. The average for the first 8 months of 1955 was approximately $1.46, a 4 percent increase above 1954 and 33 percent above the 1947-49 average.

Data relating specifically to other phases of fruit and vegetable marketing are not available. Earnings of employees in all food marketing

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1/ This is a revision of an article originally prepared by Rollin O. Dunsdon, Agricultural Economist, Agricultural Marketing Service

enterprises, including those in local assembly, processing, transportation, wholesaling, and retailing, increased from an average of 62 cents an hour in 1939 to $1.14 in 1947 and to $1.75 in the first 8 months of 1955.

Transportation is another important cost in the marketing of all food, accounting for about 6 or 7 percent of the food dollar. For some fresh fruits and vegetables it may amount to 25 percent or more. Charges for transportation of fresh fruits and vegetables have risen sharply since World War II. In 1955 railroad freight rates for these products were 17 percent higher than the average of 1947-49 compared with an increase of 24 percent for all agricultural commodities. Rates on processed foods in 1955 averaged about 20 percent higher than in 1947-49.

Costs of other items used in marketing operations also have risen since the end of World War II. Prices of paperboard rose 27 percent between 1947 and 1955 and prices of metal containers rose 45 percent. Power, light, and fuel increased about 18 percent. Rents and taxes also increased.

Profits (after taxes) rose sharply following World War II and then gradually declined. Since 1951 they have been relatively stable. Ratios of profits to sales generally have been lower than in 1935-39, but ratios of profits to stockholders' equity generally have been larger than in the prewar period. 2/

Profits of the leading canning companies, expressed as a percentage of stockholders' equity, generally have been lower than for most other groups of food-processing companies. In 1954 they averaged 8.0 percent compared with 12.4 percent for leading grain mill products companies and an average of 8.8 percent for all food-processing companies combined. Some of these companies processed frozen fruits and vegetables as well as canned products. Data for the many smaller processing companies and the many companies engaged in assembling and wholesaling fresh fruits and vegetables are not available. Data relating to profits of retailers are available only for the leading chain-store companies. Profits of these companies amounted to 10.9 percent of stockholders' equity in 1954. Their profits expressed as a percentage of sales were 1.0 percent. Profits as a percentage of the sales dollar indicate the share of the consumer's food dollar available to the owners or stockholders as a return on invested capital. They do not give an adequate measure of operating efficiency nor do they give a clue as to equity in the division of the food dollar.

Retail Margins in Pittsburgh

Several marketing studies have shown that retailing accounts for a larger proportion of the marketing margin than wholesaling, transportation, processing, or local assembly. Data relating to retail selling prices, purchase prices, and gross margins (the difference between the retail

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2/ The Marketing and Transportation Situation, No. 119, Oct. 1955.

selling price and the purchase price) for selected fruits and vegetables were obtained from 14 retail grocery stores in Pittsburgh once a week for 5 weeks beginning on October 18, 1954, and ending with November 20, 1954. In the sample were 4 chain stores, each representing a different chain, 4 independently owned stores with gross sales of more than $100,000 each and 6 independently owned stores with gross sales of between $50,000 and $100,000 each. Independent stores doing less than $50,000 gross sales were not represented in the sample. Prices were obtained on the items shown in table 1.

Retail Margins by Class of Commodities

Retail margins expressed as percentages of selling prices were generally larger for fresh fruits and vegetables than for canned and frozen items (table 1). The margin for fresh fruits and vegetables averaged about 30 percent of selling price compared with a little more than 20 percent for canned and frozen items. There was considerable variation among margins for individual fresh items. The largest percentage margin was received on onions, with apples and sweetpotatoes next. Much less variation was found in the margins for individual canned and frozen foods. Perishability, higher labor costs in handling produce, and the fact that cost prices fluctuate considerably on the more perishable items are reasons for the higher margins for fresh products. 3/

Margins by Different Sized Cans

In general, when comparing the margins of the same fruit or vegetable in different sized cans, it was found that in nearly all cases the absolute margin was greater for larger sized cans but the margin as a percentage of selling price was larger on the smaller sized cans.

There is some evidence to suggest that prices may be set so as to receive a fixed absolute markup for each can size. It was found that the margins averaged about the same on each sized can regardless of its content. On most 8-ounce cans, the margin was about 3 cents; on No. 303 (16 ounces) cans it was about 5 cents; and for No. 2-1/2 (29 ounces) cans it was 6 to 6-1/2 cents.

Retail Prices and Margins for Fresh Fruits and Vegetables in Pittsburgh, 1950 and 1954

The retail prices and margins for selected fresh fruits and vegetables in 1954 may be compared with an earlier study in Pittsburgh (July 1950-January 1951) to obtain some indication of trends in these items. 4/

3/ Bitting, H. Wayne, "Produce Department Space Utilization, Gross Margin and Operating Costs in Selected Retail Stores, Charlotte, N. C." U. S. Dept. Agr., Market. Res. Rpt. 30. Washington, D. C., June 1953.

4/ Badger, Henry T., "Retail Margins for Selected Fresh Fruits and Vegetables in Pittsburgh, Pa., July 1950-January 1951." Bur. Agr. Econ., U. S. Dept. Agr., Washington, D. C., Sept. 1953. (Processed)

Table 1.-Retail selling price, cost price, and gross margin for fruits and vegetables in 14 selected stores in Pittsburgh, October 18-November 20, 1954

Item 1/	Unit	Selling price	Cost price 2/	Gross margin	
				Actual	As percentage of selling price
		Cents	Cents	Cents	Percent
Fresh					
Apples	Lb.	12.6	8.3	4.3	34.1
Tomatoes	Lb.	28.2	21.4	6.8	24.1
Head lettuce	Head	22.4	17.7	4.7	21.0
Oranges	Doz.	55.8	39.1	16.7	29.9
Onions	Lb.	8.8	4.8	4.0	45.5
Irish potatoes	Lb.	5.5	4.1	1.4	25.5
Sweetpotatoes	Lb.	11.4	7.9	3.5	30.7
Frozen					
Orange juice	6 oz. can	18.6	15.7	2.9	15.6
Peaches	10 oz. pkg.	27.7	20.4	7.3	26.4
Strawberries	10 oz. pkg.	29.9	23.8	6.1	20.4
Green peas	10 oz. pkg.	19.8	15.7	4.1	20.7
Green beans, cut	10 oz. pkg.	25.6	20.2	5.4	21.1
Lima beans, Fordhook	10 oz. pkg.	28.3	22.5	5.8	20.5
Canned					
Orange juice	46 oz. can	36.0	28.7	7.3	20.3
Peaches, yellow	No. 303 can	24.4	19.4	5.0	20.5
Peaches, yellow	No.2-1/2 can	34.3	28.1	6.2	18.1
Peas	No. 303 can	18.4	15.2	3.2	17.4
Peas	8 oz. can	12.9	9.9	3.0	23.3
Corn, golden 3/	No. 303 can	17.4	13.6	3.8	21.8
Corn, golden 3/	8 oz. can	12.1	9.1	3.0	24.8
Green beans, cut	No. 303 can	20.5	15.4	5.1	24.9
Green beans, cut	8 oz. can	13.9	11.0	2.9	20.9
Lima beans, green	No. 303 can	24.8	19.3	5.5	22.2
Lima beans, green	8 oz. can	16.0	12.0	4.0	25.0
Tomatoes, peeled	No.2-1/2 can	27.8	21.3	6.5	23.4
Tomatoes, peeled	No. 303 can	18.9	14.3	4.6	24.3

1/ Includes all varieties, grades, sizes and/or brands of each item except specialty packs carried by stores in sample.

2/ Adjusted for physical losses from waste and spoilage.

3/ Includes both whole kernel and cream style.

One factor to consider in making this comparison is that retailers' costs have increased during this period because of higher wage rates and more services provided.

Gross margins, or price spreads, in cents per unit were generally larger in 1954 than in 1949-50 but margins as percentages of retail prices were generally smaller (table 2). All prices were higher in 1954. In cents per unit, the retail prices increased more than cost prices, although percentage increases in cost prices were larger.

Table 2.-Retail selling and cost prices and gross margins for certain fresh fruits and vegetables in Pittsburgh, July 1950-January 1951, and October-November 1954 1/

Item	Unit	Selling price		Cost price 2/		Gross margin			
						Actual		As percentage of selling price	
		1950-51	1954	1950-51	1954	1950-51	1954	1950-51	1954
		Cents	Cents	Cents	Cents	Cents	Cents	Percent	Percent
Apples	Pound	10.4	12.6	6.4	8.3	4.0	4.3	38.5	34.1
Tomatoes	Pound	18.3	28.2	11.8	21.4	6.5	6.8	35.5	24.1
Head lettuce	Head	15.9	22.4	11.2	17.7	4.7	4.7	29.6	21.0
Oranges	Dozen	43.0	55.8	30.0	39.1	13.0	16.7	30.2	29.9
Onions	Pound	6.6	8.8	3.5	4.8	3.1	4.0	47.0	45.5
Irish potatoes	Pound	4.4	5.5	3.1	4.1	1.3	1.4	29.5	25.5
Sweetpotatoes	Pound	10.1	11.4	6.4	7.9	3.7	3.5	36.6	30.7

1/ 1950-51 sample included 2 local chain stores and 18 independents all with more than $35,000 gross sales. 1954 sample included 4 chain stores, 4 independents with gross sales of more than $100,000, and 6 independents with gross sales between $50,000 and $100,000.

2/ Cost adjusted for physical losses from waste and spoilage, based upon loss rates found in 1950 study.

Retail Margins for Canned and Frozen Items in 11 Cities, 1949-50, and in Pittsburgh, 1954

Retail gross margins of the canned and frozen items surveyed in Pittsburgh may be compared with the results of a study in 1949-50 in 11 cities of more than 350,000 population.5/ In general, percentage margins on individual items in the 14 Pittsburgh stores during the 5 weeks in October-November 1954 were about 2 percentage points more than in the stores in the 11 cities observed in the earlier study (table 3).

5/ Peters, C. W., "Price Spreads in the Marketing of Canned and Frozen Fruits and Vegetables." The Marketing and Transportation Situation, Aug. 1950, U. S. Dept. Agr., pp. 6-16.

Table 3.-Gross retail margins for canned and frozen fruits and vegetables in 11 large cities, 1949-50, and in Pittsburgh, October-November 1954.

Item	11 cities	Pittsburgh
	1949-50	Oct.-Nov. 1954
	Percent	Percent
Canned		
Cling peaches	18.1	1/ 20.5
Freestone peaches	17.8	
Green beans	20.5	24.9
Sweet corn	21.9	21.8
Green peas	18.4	17.4
Tomatoes	19.3	24.3
Average	19.1	21.8
Frozen		
Peaches	21.5	26.4
Strawberries	18.8	20.4
Baby lima beans	20.3	2/ 20.5
Peas	20.5	20.7
Average	20.3	22.0

1/ Data for both cling and freestone peaches.
2/ Fordhooks rather than baby limas.

RETAIL FOOD STORES HAVE BECOME LARGER

Average sales per retail food store increased from approximately $61,000 in 1948 to $89,000 in 1953 (table 4). Some of this increase resulted from a rise in prices, but much of it reflected an increase in the quantity of goods sold. The increase in dollars of 1948 purchasing power was approximately 34 percent. Average dollar sales for grocery stores, which have about four-fifths of total food sales increased from about $66,000 to nearly $94,000. The volume of goods sold was about one-third larger in 1953 than in 1948.

Table 4.-Number of grocery and other food stores and their volume of sales, 1948 and 1953

Type of store and ownership	Number of stores Dec. 31		Volume of sales Total		Volume of sales Per store	
	1948	1953	1948	1953	1948	1953
	Number	Number	Million dollars	Million dollars	Dollars	Dollars
Grocery stores:						
Chain 1/	22,550	17,432	8,532	12,404	378,359	711,565
Independent	355,389	340,904	16,238	21,219	45,691	62,243
Total	377,939	358,336	24,770	33,623	65,540	93,831
Other food stores	126,500	98,073	6,196	7,154	48,980	72,946
Total	504,439	456,409	30,966	40,777	61,387	89,343

1/ Units of an organization operating 11 or more stores.

Compiled from reports of the Bur. of the Census.

The number of food stores declined 10 percent between 1948 and 1953, continuing a trend that developed before 1948. Between 1939 and 1948, the number also declined 10 percent. The reduction was larger among specialty food stores (bakeries, meat and fish markets, and other stores having limited lines) than among grocery stores. The grocery-store classification includes the supermarkets. In the grocery group, chain stores (units of an organization operating 11 or more stores) decreased more than independents. Many chain organizations have been replacing small stores with fewer large stores.

Fewer stores are needed now that many more families shop by auto. A store can draw customers from a much wider area than formerly. Thus, the automobile has been responsible for a reduction in the number of retail food stores, as the truck has been responsible for a decrease in the number

of establishments assembling farm products. Customers have been attracted to large stores by their wide assortment of foods and other merchandise, by their parking lots, their comfortable and convenient display rooms, their parcel pickups, and other services. A large store can advertise and and do other sales-promotion work that would be too expensive for a small store. Large stores probably have a quicker turnover of stock and larger sales per unit of floor space than do small stores. Perhaps many are able to obtain economies of scale in the use of labor and equipment. 6/

Chain grocery stores had about 37 percent of the total grocery-store sales in 1953, 36 percent in 1952, 34 percent in 1948, and 33 percent in 1939. The 12 largest chain-store companies in the United States, each of which had an annual sales total of more than 100 million dollars in 1952, had about 28 percent of the total grocery-store sales in 1952, and about 26 percent in 1939. The three largest had about one-fifth of the grocery-store sales in both 1952 and 1939. Thus, changes in the distribution of sales between chain and independent stores and among chain-store companies of different size groups have been small. Medium and small chains made a slight increase in their share of the total grocery-store sales at the expense of independent stores.

A further decrease in the number of retail food stores seems probable. There are still many small stores, some of which are operated by chains which have had a policy of merging small stores. The shift of population to suburban areas has drawn away customers from many small stores. Small stores will continue where they serve customers who cannot easily reach a large store or are in areas which cannot support a large store. Often small stores draw customers who wish to buy only a few items because purchases can be made more quickly than in a larger store or can be made when larger stores are closed.

A large proportion of the independent stores now belong to retailer-owned cooperative wholesaling organizations or are affiliated with wholesaler-sponsored voluntary chain organizations. More of the wholesalers are assuming the buying functions of retailers and are helping the retailers through advertising and merchandising aids, store engineering services, accounting aids, and general store supervision. Wholesalers are adding new lines of merchandise, such as frozen foods, nonfood items, and in a few instances meat departments. These changes in wholesaler-retailer relations have been aimed at providing independent retail stores with advantages of integration, specialized management, and sales promotion possessed by chainstore organizations.

6/ For a discussion of the increase in the number and sales of supermarkets, see the December 1951 issue of The Marketing and Transportation Situation.

LIGHTER AND CHEAPER CONTAINERS FOR FRUITS AND VEGETABLES

For packaging many food products, especially fresh fruits and vegetables, large, cumbersome, and expensive wood shipping containers have been replaced by smaller, lighter, and cheaper fiberboard containers. The substantial increase in the cost of the wood components of many types of wood and wood veneer containers since World War II has been one of the chief factors responsible for the shift to fiberboard for bulk packaging of many fruits and vegetables. Other factors accounting in part for this trend are increased labor costs for packing, wrapping, loading, and handling the commodities and increased freight and refrigeration charges. The fiberboard packages used for most commodities are generally smaller and considerably lighter than the wood packages they have replaced. This particular feature of the new containers has made them quite popular with retailers.

Substantial savings have been realized in handling many fruits and vegetables not only in the initial costs of the fiberboard packages as compared with the wood containers but also in the cost of container assembly, packing, closing, and transportation. In the changeover from wood to fiberboard packages for oranges and lemons, for example, individual wrapping and place-packing of the fruit has been eliminated in favor of the volume-fill, jumble pack, producing important savings in packing costs. As the fiberboard packages are lighter and make somewhat more compact loads than the wood containers, some economies have also been achieved in freight and refrigeration costs.

The introduction of fiberboard containers for some commodities, especially lettuce, followed the development of special methods of processing the commodities for shipment. Development of the vacuum-cooling method for removal of field heat from lettuce has made it possible to ship the commodity in dry containers without crushed ice in the packages or over the load. This has made feasible the packaging of the product in fiberboard for shipment. As most of the lettuce shipped from the important lettuce-growing areas in California and Arizona in fiberboard cartons is packed in the field instead of in packing sheds as it is when the wood crates are used, substantial savings in packing costs have been realized. Since the fiberboard cartons lend themselves to handling on pallets and conveyors more effectively than the wood crates, they have proved easier and less expensive to handle and load for shipment.

Data on the comparative quantities of various important perishable commodities currently being packaged in different types of containers are meager. Recent estimates, however, are that approximately 98 percent of the California lemon crop and about 80 percent of the California-Arizona lettuce shipments are now packaged in fiberboard cartons compared with about 10 percent for both commodities 2 years ago. A considerably smaller but constantly increasing proportion of the California and Florida fresh orange shipments is being marketed in fiberboard packages. Practically all the cranberries marketed domestically are now packaged in fiberboard and a considerable quantity of apples is also packaged in various types and sizes of cartons. Experiments are now under way looking toward the development of suitable fiberboard packages for plums and pears. Recent developments in packaging and marketing point to a continuation of the trend away from wood to fiberboard for packaging many of these commodities.