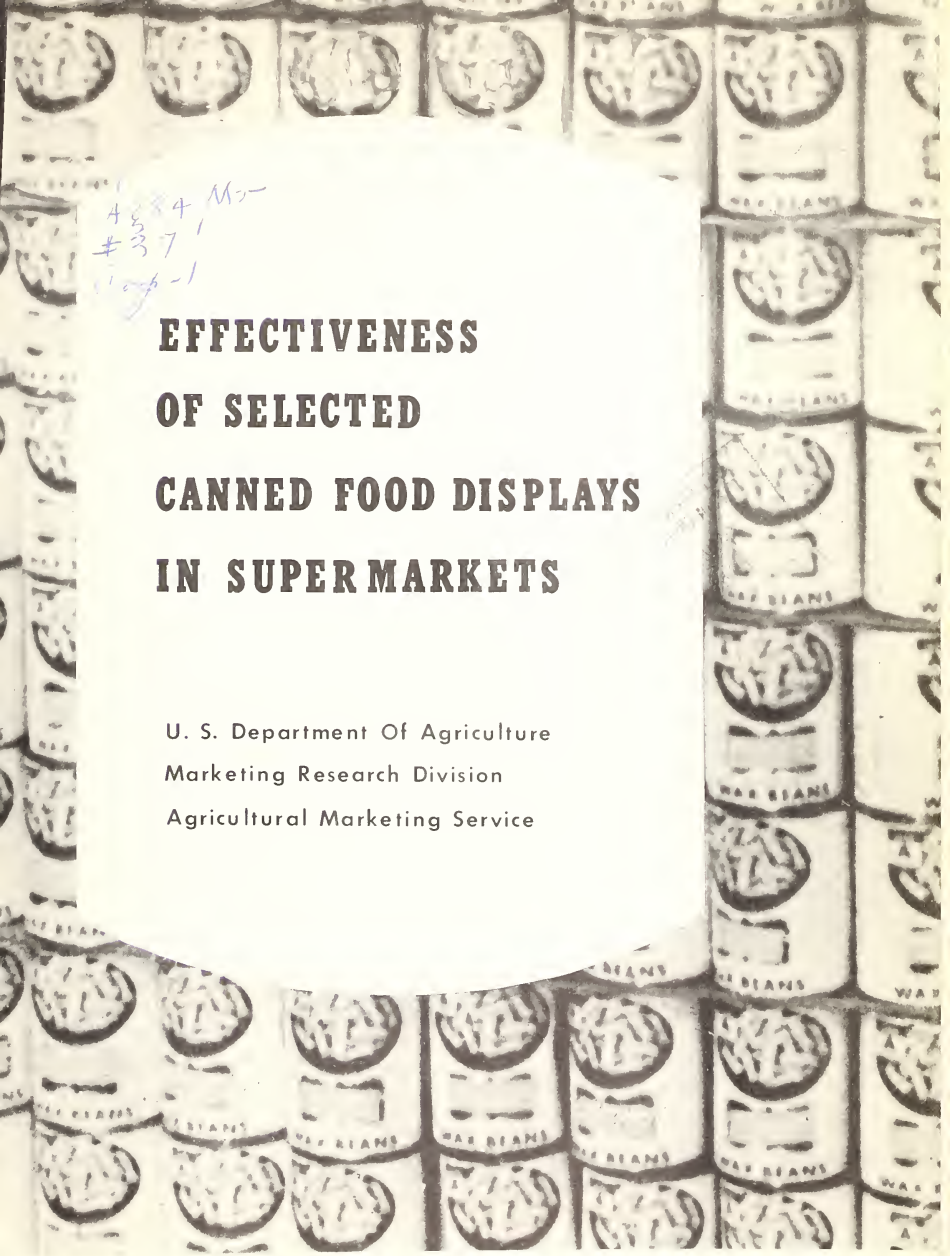
EFFECTIVENESS OF SELECTED CANNED FOOD DISPLAYS IN SUPERMARKETS

U. S. Department Of Agriculture
Marketing Research Division
Agricultural Marketing Service



Marketing Research Report No. 371

PREFACE

This report evaluates sales effectiveness and efficiency of selected retail merchandising techniques for canned fruits and vegetables in retail food stores. The study is a part of a broad program of research aimed at improving efficiency in the marketing of farm products.

The cooperation of the Stop & Shop, Inc., in its retail stores in Boston, Mass., made this research possible. Special appreciation is due Richard F. Spears and Miss Ann Digirolamo of Stop & Shop, Inc. for their day-to-day assistance.

The study on which this report is based was conducted by the Market Development Branch and the Transportation and Facilities Branch, Marketing Research Division, Agricultural Marketing Service, and was under the general direction of George H. Goldsborough. The project director was Hugh M. Smith.

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SUMMARY

Controlled experiments conducted in 12 food supermarkets in Boston, Mass., indicated that total sales of selected canned fruits and vegetables were 2-1/2 to 4 times as great when special end-of-aisle displays were added as when the regular shelf display was used. Also, of three methods of end display--pile-on, formal basket, and jumbled basket--the jumbled basket was the least costly to stock and maintain, and in several instances produced the most sales.

When grapefruit juice and tomato juice in 46-ounce cans were sold from an end display in addition to the regular shelf display, sales were nearly 3 times those of the regular shelf display alone. For beans and peas in 16-ounce cans, sales were almost 2-1/2 times regular shelf sales. For applesauce and fruit cocktail in 16-ounce cans, sales also were 2-1/2 times regular shelf sales. Sales of pineapple juice in 46-ounce cans, and peaches in 30-ounce cans, in end-of-aisle and shelf displays, were about 4 times as great as regular shelf sales alone.

With grapefruit juice and tomato juice in 46-ounce cans, 3 end displays were tested. The formal pile-on display was the least effective in stimulating sales and was the most costly to erect and maintain. The formal basket and the jumbled basket showed no significant difference in sales, but from an economy standpoint the jumbled basket was found to be the least costly of the end displays tested. Sales from the jumbled basket, and the formal basket, together with shelf displays, were each about one-fifth greater than sales from the pile-or and shelf display.

To determine whether similar results would hold with respect to smaller size cans, the test was repeated using beans and peas in 16-ounce cans. None of the 3 end displays differed significantly among themselves in their sales influence. However, cost advantages for the jumbled display were even greater for the small-size cans than for the 46-ounce cans.

The increase in sales of the items tested on end display, primarily private label, did not adversely affect sales of selected substitute items. Substitute items in this instance were mostly other brands and sizes of the same commodity. The only exception was single-strength orange juice, all sizes and brands, as a substitute for grapefruit juice and tomato juice. In total, sales of all test and substitute items when end-of-aisle displays were added to regular shelf displays showed an increase of approximately 25 percent over sales when test items were displayed on shelf only.

End displays used in testing applesauce and fruit cocktail in 16-ounce cans, pineapple juice in 46-ounce cans, and peaches in 30-ounce cans, were the jumbled basket versus a combination of pile-on and jumbled basket, and the formal basket versus a combination of pile-on and formal basket. The results indicated that each of these methods was about equally effective in terms of quantity sold, but again, substantial savings were achieved when the jumbled display was used.

To make these evaluations, each type of display, including shelf only, was rotated from one store to another each 2 weeks for a period of 8 weeks. An equal number of stores used each type of display during each time period. All stores maintained the regular shelf display throughout the study.

PROCEDURE

The special displays appraised in this study were located at the end of the grocery gondola (shelves where cans are stacked). They were selected with the advice of the cooperating retailer as typical types of such displays currently in use and ranged from the informal jumbled display to the formally arranged pile-on display.

Twelve supermarkets of a New England chain operating largely in the Boston metropolitan area were used for testing different methods of merchandising. 1/ The test stores had an annual gross sales volume per store averaging almost $2 million. Because all test stores were under one central management, it was possible to maintain a uniform price for each brand and size of items tested as well as of the substitute items, and to display the same number of brands and sizes of the test commodities throughout the study. 2/

A display location at the end of one of the regular grocery gondolas was designated by the manager of each test store at the beginning of the experiment and the same location was used in all tests throughout the study.

The study was divided into 3 series, each taking four 2-week periods. Two to 4 different methods of display and 2 to 4 commodities were tested in each series. The merchandising methods tested in each of the series were alternated every 2 weeks in each store, using different commodities, thereby avoiding having the same commodities on display for more than a 2-week period. This was done to simulate normal marketing conditions, since retailers seldom carry the same item on special display for more than 2 weeks.

1/ Details of experimental techniques may be obtained upon request.

2/ All test commodities were of a private label brand and of a selected can size except the grapefruit juice; this juice included more than one brand and was primarily private label.

PRIVATE LABEL BRAND as used in this study refers to a selected brand carried exclusively by the stores of the cooperating chain.

SUBSTITUTE COMMODITIES refers to all other sizes of containers and brands of the test commodities on regular display. However, in Series I, orange juice, all brands and container sizes displayed in the stores, was included as a substitute item for grapefruit juice and tomato juice.

In Series I, grapefruit juice, all brands displayed in the test stores of 46-ounce cans, and tomato juice, a private label brand, 46-ounce cans, were used to test the following merchandising methods (fig. 1):

Method A--Shelf.--Regular shelf position only.

Method B--Formal pile-on.--Regular shelf plus a formal pile-on end display equally divided between 2 test commodities.

Method C--Formal basket.--Regular shelf plus a formal end display equally divided between 2 test commodities. The end display was erected on a permanent platform. A row of upright cans was set across the platform on which 4 wire baskets (20" x 28") were placed. The center between the baskets was stacked with cans as filler. 3/

Method D--Jumbled basket.--Regular shelf plus a jumbled (dumped) end display equally divided between 2 test commodities. The end display was erected on a permanent platform. A row of upright cans was set across the platform on which 4 wire baskets (20" x 28") were placed. The center between the baskets was stacked with cans as filler.

In Series II, the same 4 methods were tested, but the commodities used were cut wax beans and large sweet peas, in 303-size cans (approximately 16-ounce), private label brand.

In Series III, the end display methods and the procedure for testing varied from Series I and II. Series III was divided into 2 different experiments. In Series III-A, applesauce and fruit cocktail, each in No. 303 cans, private label brand, were the items used for special end displays (fig. 2). The merchandising methods tested were:

Method A--Jumbled (small baskets).--Regular shelf plus a jumbled basket end display in 12 small wire baskets (14" x 15"). The display space was divided equally between the 2 commodities.

Method B--Combination pile-on and jumbled.--Regular shelf plus a combination pile-on and jumbled basket end display in 8 small wire baskets (14" x 15"). The space was divided equally between the 2 commodities.

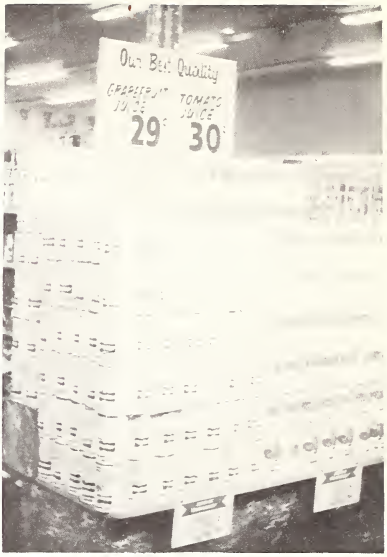
In Series III-B, pineapple juice in 46-ounce cans, private label brand, and sliced yellow cling peaches in No. 2-1/2 cans, private label brand, were the items used for end displays (fig. 3). The 2 merchandising methods tested were:

Method A--Formal (small baskets).--Regular shelf plus a formal basket end display in 12 small wire baskets (14" x 15"). The space was divided equally between the 2 commodities.

3/ In practice, it should not be necessary to use a filler, since the width of the end display can be adjusted to the size of the baskets. Capacities of baskets used are shown in table 15.

BN-8213-X

Method A



BN-8221-X

Method B

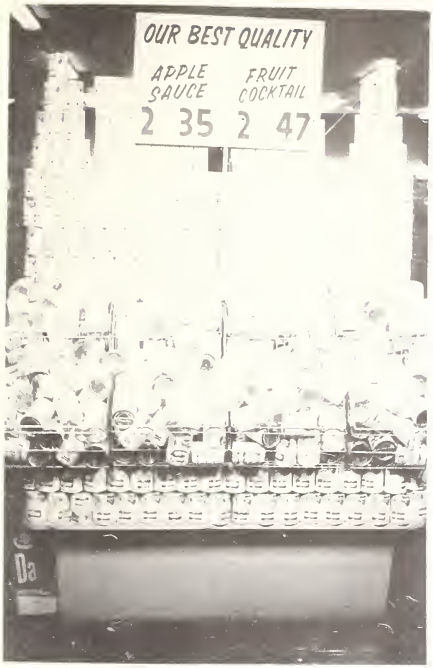
BN-8212-X

Method C

BN-8216-X

Method D

Figure 1.--Displays of grapefruit and tomato juice.



BN-8219-X

Jumbled basket - Method A

BN-8214-X

Pile-on and jumbled basket - Method B

Figure 2.--Displays of applesauce and fruit cocktail (series III-A).

Method B--Combination pile-on and formal.--Regular shelf plus a combination pile-on and formal basket end display equally divided between the 2 test commodities using 8 small wire baskets (14" x 15").

A record of sales was maintained during the 8 test weeks of each experiment for all brands and sizes of commodities tested, and of substitute commodities. During weeks when the test commodity was not on end display (referred to as nontest weeks), sales information was recorded for the test brand and size only.

The time required to build, restock, and remove displays was determined by time studies of the various operations (table 16). During the experiment, displays were kept filled to near maximum capacity. Total direct labor costs for handling each kind of display were computed by multiplying the total direct man-hour requirements by a wage rate of $1.50 per hour.

BN-8211-X

Formal basket - Method A

BN-8215-X

Pile-on and formal basket - Method B

Figure 3.--Displays of pineapple juice and peaches (series III-B).

RESULTS

The primary bases of determining the effectiveness of the different merchandising techniques were total sales and stocking and maintenance costs for each method. The results of the tests were obtained under normal store operating conditions.

Volume of Sales

Grapefruit Juice and Tomato Juice (Series I)

Sales and cost results for grapefruit juice and tomato juice, and for the total sales of these 2 products from the end display, showed changes in the same direction for each of the merchandising methods tested. But the

percentage gain in sales due to end display was greater for tomato juice than for grapefruit juice. 4/

The promotion of grapefruit juice and tomato juice on a single end display, in addition to the regular shelf displays, resulted in a gain in sales of 176 percent over regular shelf sales alone.

The best type of end display for grapefruit juice and tomato juice was the jumbled basket (method D), based on sales and cost factors (fig. 4 and table 9). Sales from this display method totaled 6,418 cans, which was nearly one-fourth greater than from the formal pile-on display (method B, fig. 5).

The jumbled basket (method D) was the least costly display to build and maintain primarily because no special handling was required other than dumping the cans from their original cartons into the baskets on display. For the quantity sold during the test period, direct labor costs for building, maintaining, and taking down the jumbled basket display averaged 53 cents per 100 cans sold.

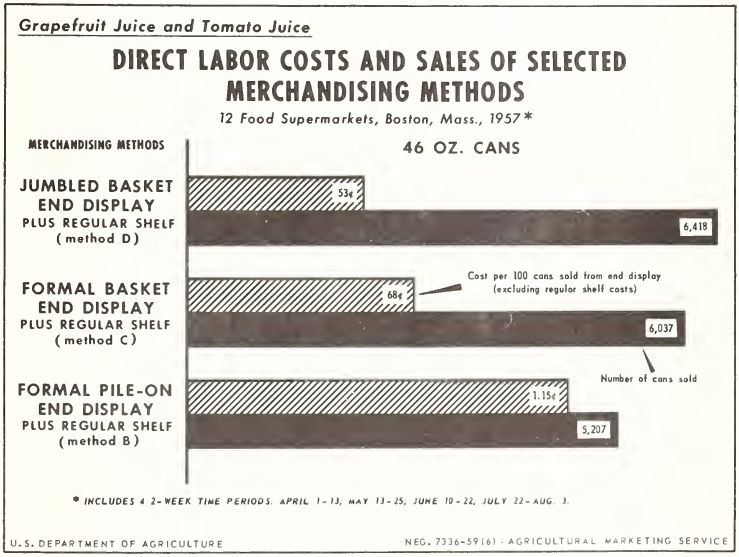


Figure 4

4/ Even though the percentage increase was greater for tomato juice, the level of sales was greater for grapefruit juice. The test brand tomato juice was only a minor portion of the total number of brands available, whereas the test item of grapefruit juice included all brands of the 46-ounce size can sold.

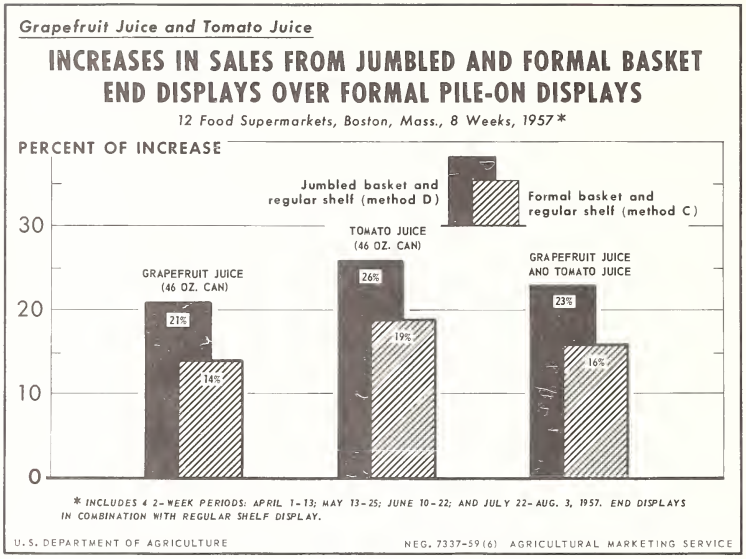


Figure 5

Use of the formal basket (method C) resulted in sales about one-sixth greater than by the use of the formal pile-on. Display costs for the formal basket averaged 68 cents per 100 cans sold, about 15 cents higher than for the jumbled baskets, primarily because of the extra labor required in placing the cans in the baskets formally in rows.

Differences in sales between the jumbled and formal basket display were no greater than would be expected from chance fluctuation.

The formal pile-on (method B), which was the least effective of the 3 end displays in terms of sales, was also the most costly to erect and maintain. Direct labor costs averaged $1.15 per 100 cans sold. This cost was 62 cents higher than for the jumbled baskets and 47 cents higher than for the formal baskets.

Because certain uncontrollable variables and experimental errors are normally present in marketing research, statistical reliability tests were made of the validity of the findings or of the confidence that may be placed in the results, based on the design established for the experiment. 5/

5/ All tests were performed at the 5-percent significance level except where otherwise indicated.

These tests indicated that when regular shelf plus an end display is used rather than regular shelf alone, the differences in sales are significant at the 1-percent level. In other words, the chance is no greater than 1 in 100 that the observed differences are due to chance variations. Among the end displays, the tests showed that the differences in sales between the jumbled basket and the formal pile-on end display were significant at the 3-percent level. The observed differences in sales for the 2 commodities between the formal basket and formal pile-on were significant at the 12- and 16-percent levels. Differences at these levels involve considerable chance variation and the results should be used with a greater caution than when the 1- and 5-percent levels are used.

Sales of 46-ounce cans of grapefruit juice averaged 1-1/2 cans per 100 customers when available from both an end display and regular shelf compared with less than 1 can when no end display was used. Sales of 46-ounce cans of tomato juice averaged 1 can per 100 customers when both regular shelf and end display were used compared with less than one-third can from regular shelf alone.

Of total store sales of these 2 items, when the combination regular shelf and end display were in effect, about three-fourths were made from the end display (table 1).

Table 1.--Relative sales of grapefruit juice (46-ounce cans) and tomato juice (46-ounce cans, private label brand) from shelf and end display in 12 food supermarkets, Boston, Mass., 8 weeks in 1957 1/

Commodity	Shelf display		End display		Shelf and end display	
	Cans	Percent	Cans	Percent	Cans	Percent
Grapefruit juice	2,994	29.4	7,190	70.6	10,184	100.0
Tomato juice	1,654	22.1	5,824	77.9	7,478	100.0
Combined	4,648	26.3	13,014	73.7	17,662	100.0

1/ Data for each store taken in three of four 2-week time periods: April 1-13; May 13-25; June 10-22; and July 22-August 3, in which both regular shelf and an end display were employed at the same time.

Regular shelf sales of grapefruit juice and tomato juice combined decreased an average of about 28 percent when these items were also on end display, although total sales increased (fig. 6 and table 10). When the formal pile-on end display was being tested, regular shelf sales decreased 33 percent. Sales from the special formal pile-on end display, however, more than offset this decrease, resulting in a net gain of 144 percent in total sales of the items. Sales of the test items from the regular shelf decreased about

26 percent while the formal basket display (method C) was being tested. Total sales of grapefruit juice and tomato juice from the formal basket, however, showed a net gain of 183 percent. During the time the jumbled basket display (method D) was used, a decline in sales of 23 percent from regular shelf was noted, but the net gain in total sales of grapefruit juice and tomato juice was 200 percent.

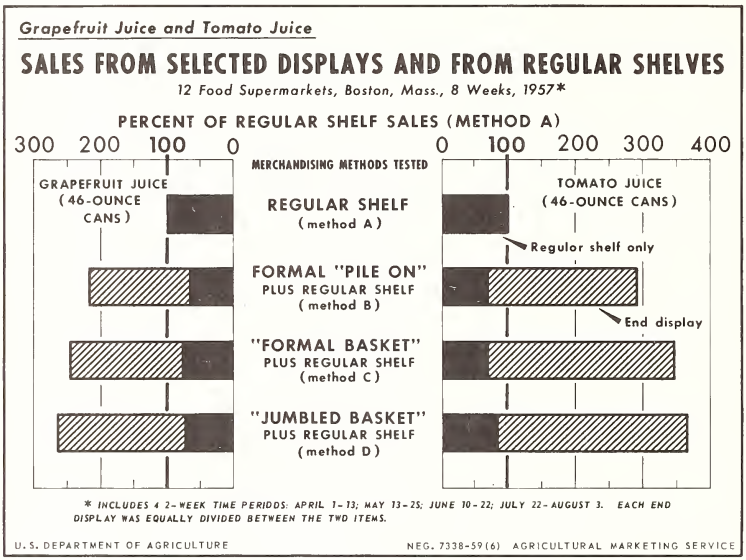


Figure 6

To summarize, the use of the jumbled basket resulted in sales increases of 3 to 1 in favor of the jumbled end display plus shelf over shelf alone. By commodity, this was about 2-1/2 to 1 for grapefruit juice and about 4 to 1 for tomato juice. 6/

Beans and Peas (Series II)

When selected end displays were used in addition to the regular shelf display, total sales of cut wax beans and large sweet peas in No. 303 cans,

6/ Statistical tests indicated that the differences were significant at the 1-percent level. The probability is less than one chance in 100 that these differences are the result of chance variation.

private label brand, increased 137 percent over sales from the regular shelf alone (fig. 7 and table 11). When shoppers had a choice of purchasing from the regular shelf or the end display, about two-thirds of them made their purchases from the end display (table 2).

Table 2.--Relative sales of beans and peas (303 cans, private label brand) from shelf and end display in 12 food supermarkets, Boston, Mass., 8 weeks in 1957 1/

Commodity	Shelf display		End display		Shelf and end display	
	Cans	Percent	Cans	Percent	Cans	Percent
Cut wax beans	7,902	37.6	13,110	62.4	21,012	100.0
Large sweet peas	3,656	22.7	12,468	77.3	16,124	100.0
Combined	11,558	31.1	25,578	68.9	37,136	100.0

1/ Data for each store taken in 3 of the 4 two-week time periods: April 15-27; July 8-20; August 5-17; September 2-14, in which both regular shelf and an end display were employed at the same time.

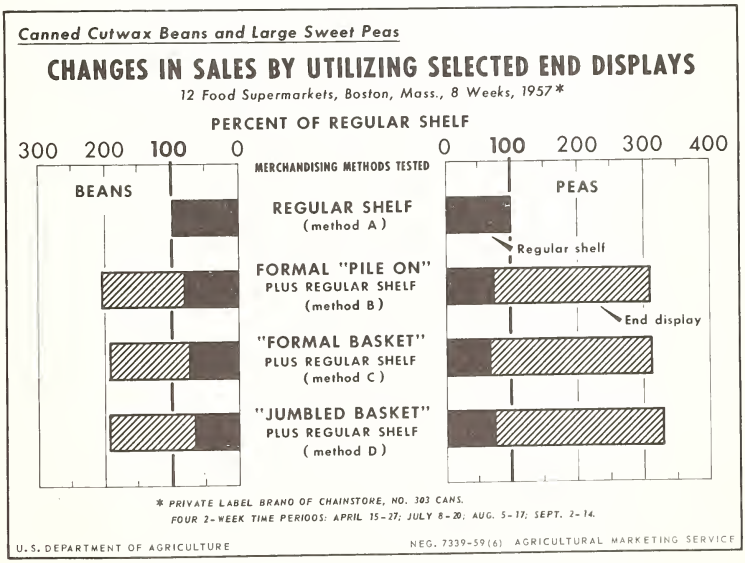


Figure 7

Each of the end displays tested was about equally effective from the standpoint of sales impact. Substantial savings were achieved, however, by use of the jumbled basket display. Costs for building, maintaining, and removing this display averaged 34 cents per 100 cans sold (table 12). Labor costs for the formal basket and the formal pile-on displays were much greater and averaged 51 and 67 cents per 100 cans sold, respectively (fig. 8 and table 12).

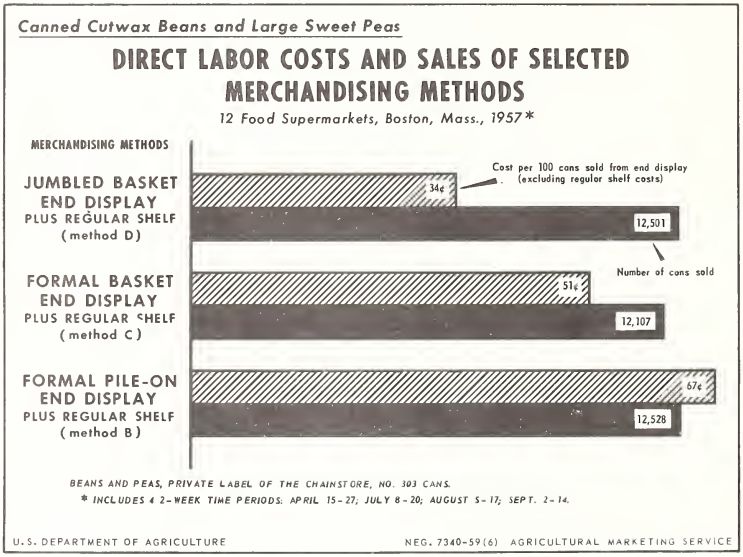


Figure 8

End displays were equally divided between beans and peas, but total sales of beans from end displays plus regular shelf displays almost doubled compared with shelf displays alone, while the sales of peas tripled (table 11). Average direct labor costs for each commodity were similar in magnitude and direction (table 12).

Sales of beans averaged 3 cans per 100 customers when available from both end display and regular shelf. When no end display was utilized, average purchases were 1-1/2 cans per 100 customers.

Sales of peas averaged 2-1/2 cans per 100 customers when an end display was used in addition to regular shelf compared with less than 1 can when no end display was used.

Regular shelf sales of beans and peas decreased about 26 percent during weeks when an end display of these items was in the stores. This difference is significant at the 1-percent level. 7/ The average decrease in regular shelf sales for beans and peas was about the same as for grapefruit juice and tomato juice. Subsequent sales from regular shelf display, when end displays were removed, returned to about the pretest level of shelf sales.

Applesauce and Fruit Cocktail (Series III-A) and Peaches and Pineapple Juice (Series III-B)

Substantial savings resulted when the jumbled basket display was used rather than the combination pile-on and jumbled basket for merchandising applesauce and fruit cocktail in No. 303 cans, private label brand, although the difference in sales between the two methods was not significant (table 3). The average cost of stocking, maintaining, and taking down displays of applesauce and fruit cocktail was 23 cents per 100 cans sold for the jumbled basket compared with 33 cents per 100 cans sold for the combination pile-on and jumbled basket.

Peaches in No. 2-1/2 cans and pineapple juice in 46-ounce cans, both private label brand, were tested using the same merchandising methods except that a formal basket was used instead of the jumbled basket (table 3). Again, no significant difference was observed in sales. The formal basket costs were 55 and 33 cents per 100 cans for pineapple juice and peaches, respectively, compared with 65 and 37 cents when using the pile-on in combination with the formal basket.

End display sales for applesauce and fruit cocktail were approximately 2-1/2 times as great as the regular shelf sales during the 8-week period when both types of display were used at the same time (table 4). End display sales for peaches and pineapple juice were about 5 times as great as regular shelf sales during the 8-week period (table 5).

An extra feature of the applesauce and fruit cocktail experiment and of the peaches and pineapple juice experiment was the repetition of the test at different times as well as in different stores. The additional observations were with an objective of increasing methodological background data as well as of increasing precision in these particular tests. There were no significant sales differences in any of the tests (tables 13 and 14).

Comparison of First and Second Week Sales During Use of End Displays

Repeated end display promotions for test items resulted in little change in sales effectiveness even though the replications occurred within a relatively short time of each other, approximately a month apart.

7/ The amount of decrease in regular shelf sales for each of the 3 different display methods was 21 percent for the pile-on, 28 percent for the formal basket, and 30 percent for the jumbled display. These differences are not statistically significant from each other at the 5-percent significance level.

Table 3.--Comparison of sales and labor costs associated with selected merchandising methods, 6 food supermarkets, Boston, Mass., 1957 1/

Commodity and merchandising method	Total sales	Average weekly sales per store	Average direct labor cost per 100 cans sold: End display only	Average direct labor cost per 100 cans sold: End and shelf display
	16-oz. cans	16-oz. cans	Cents	Cents
Applesauce and fruit cocktail:				
Method A--jumbled basket end display and regular shelf.	14,676	153	22.8	22.8
Method B--jumbled basket and formal pile-on combination: end display and regular shelf	14,442	150	33.2	30.0
Applesauce:				
Method A--jumbled basket end display and regular shelf.	8,348	174	22.0	22.4
Method B--jumbled basket and formal pile-on combination: end display and regular shelf	7,698	160	32.4	29.0
Fruit cocktail:				
Method A--jumbled basket end display and regular shelf.	6,328	132	23.8	23.5
Method B--jumbled basket and formal pile-on combination: end display and regular shelf	6,744	140	34.2	31.3
	30-oz. cans	30-oz. cans	Cents	Cents
Peaches:				
Method A--formal basket end display and regular shelf..	5,414	113	33.2	31.7
Method B--formal basket and formal pile-on combination : end display and regular shelf	5,362	112	36.5	34.4
	46-oz. cans	46-oz. cans	Cents	Cents
Pineapple juice:				
Method A--formal basket end display and regular shelf..	3,163	66	54.7	52.1
Method B--formal basket and formal pile-on combination : end display and regular shelf	3,086	64	64.8	59.9

1/ Includes four 2-week time periods: April 29-May 11; May 27-June 8; June 24-July 6; and August 19-31. Each method was employed in 3 different test stores in each time period.

Table 4.--Relative sales of applesauce and fruit cocktail (303 cans, private label brand) from shelf and end display in 6 food supermarkets, Boston, Mass., 8 weeks, 1957 1/

Commodity	Shelf display		End display		Shelf and end display	
	Cans	Percent	Cans	Percent	Cans	Percent
Applesauce	4,906	30.6	11,140	69.4	16,046	100.0
Fruit cocktail	3,421	26.2	9,651	73.8	13,072	100.0
Combined	8,327	28.6	20,791	71.4	29,118	100.0

1/ Includes four 2-week periods: April 29-May 11; May 27-June 8; June 24-July 6; August 19-31, in which both shelf and end display were employed at the same time.

Table 5.--Relative sales of peaches (No. 2-1/2 cans) and pineapple juice (46-ounce cans), private label brands; shelf and end display in 6 food supermarkets, Boston, Mass., 8 weeks in 1957 1/

Commodity	Shelf display		End display		Shelf and end display	
	Cans	Percent	Cans	Percent	Cans	Percent
Peaches	1,377	12.8	9,399	87.2	10,776	100.0
Pineapple juice	1,455	23.3	4,794	76.7	6,249	100.0
Combined	2,832	16.6	14,193	83.4	17,025	100.0

1/ Includes four 2-week periods: April 29-May 11; May 27-June 8; June 24-July 6; August 19-31, in which both shelf and an end display were employed at the same time.

The largest increase in sales normally occurred during the first week of each of the four 2-week periods. Depending on the commodity, sales from end displays indicated that the effectiveness of such displays decreased from 1 to 22 percent the second week of each 2-week period (table 6).

Table 6.--First and second week sales from end display of selected commodities, 12 food supermarkets, Boston, Mass., 1957 1/

Commodity	First week in each of four 2-week periods	Second week in each of four 2-week periods	Decrease from first week
	Cans	Cans	Percent
Fruit cocktail, No. 303 cans	5,417	4,234	21.8
Beans, cut wax, No. 303 cans	7,315	5,795	20.8
Peas, large sweet, No. 303 cans	6,711	5,757	14.2
Grapefruit juice, 46-oz. cans	3,813	3,377	11.4
Tomato juice, 46-oz. cans	3,042	2,782	8.5
Pineapple juice, 46-oz. cans	2,504	2,290	8.5
Applesauce, No. 303 cans	5,651	5,489	2.9
Peaches, yellow cling, No. 2½ cans	4,728	4,671	1.2

1/ Each commodity was on end display for four 2-week periods within 24 weeks.

Effect on Sales of Substitute Items

Increased sales of test items resulting from the addition of end displays might be expected to exert some influence on total sales of closely related or substitute items. A record of sales was maintained for substitute items during the period that each end display was tested. The size of the display, price, or in-store promotion of substitute items was not controlled. Promotional efforts for substitute items, however, were limited during test weeks and were essentially the same from store to store.

Since the test grapefruit juice and tomato juice were in 46-ounce cans, substitute items considered most likely to be adversely affected by the end displays of the test products were other brands of tomato juice and all brands of orange juice in 46-ounce cans. All brands of grapefruit juice were "test items." As pointed out earlier, sales of these test items increased 176 percent by use of end displays. When sales of both the test and substitute 46-ounce cans are combined, a 66-percent increase over the base period is noted. 8/ This increase is wholly attributable to increased sales of the test item on end display, since there was no significant change in sales of 46-ounce cans of substitute items (table 7). 9/ Nor was there any adverse affect on sales of

8/ Base period represents sales during the period in which only regular shelf was employed for the test items. Base quantity varies with the number of items included.

9/ Although sales of 46-ounce cans of substitute items dropped 1 percent in this test, this may be due entirely to chance fluctuation in sales.

substitute items in other size cans. In total, sales of the test and substitute items in all can sizes showed an overall increase of 26 percent during the weeks the end displays were in effect.

Substitute items considered most closely associated with beans and peas were beans and peas of other brands in the same size (No. 303) cans. Test item sales were increased 137 percent by use of end displays. When sales of both the test and substitute items in No. 303 cans are combined, a 29-percent increase over the base period is noted. There was no significant change in sales of No. 303 cans of substitute items (table 8). 10/

If sales of all other brands of beans and peas in all container sizes are considered, along with the test items, a 20-percent increase in sales is observed over the base period sales. There was no significant change in sales of the substitute items. 11/

Direct Labor Time and Costs

The principal source of difference among the direct labor times required to build and restock the several kinds of displays was the time required to put merchandise on display after it was at the display location. Only 11 seconds per case of 24 No. 303 cans were required to dump the cans in the 20 by 28-inch baskets when building the jumbled display; whereas 55 seconds were required to place the cans formally in the baskets; and 57 seconds were required to place the cans formally on the "pile-on" (fig. 9). When restocking the displays, 18 seconds per case of 24 No. 303 cans were required to dump the cans in the baskets, 42 seconds to place them formally in the baskets, and 45 seconds to place them on the "pile-on."

For 46-ounce cans, 19 seconds per case of 12 were required to dump the cans in the baskets, 24 seconds to place them formally in the baskets, and 41 seconds to place them on the "pile-on" when building displays (fig. 10). About the same results were obtained in restocking the 46-ounce cans.

The time study data for each display method were taken to include all of the time normally associated with the display function. The direct labor times for the display building operation include time to set up the display fixtures, get merchandise from back room storage, open the cases and price-mark the cans, haul the merchandise to the display location, put the merchandise on display, and clean up the empty cases. The direct labor times for the restocking operations include times for all of these activities except the time to set up the display fixture. The direct labor times to remove the displays include times to get empty cartons to hold the merchandise, to box the merchandise in the empty cartons and haul it to back room storage, and remove fixtures not used in the succeeding display.

10/ Although sales of No. 303 cans of substitute items dropped 6 percent in this test, this may be due entirely to chance fluctuations in sales.

11/ Although sales of all substitute items in all sizes of cans dropped 3 percent in this test, this may be due entirely to chance fluctuations in sales.

Table 7.--Influence of end displays for test items on total sales of test items and selected substitute items, 12 food supermarkets, Boston, Mass., 1957 1/

Items	Base period sales 2/	Sales during end display of test items: 3/	Change from base period (plus or minus)
	Cans	Cans	Percent
Test items:			
46-ounce cans:			
Grapefruit juice	1,393	3,395	+144
Tomato juice	743	2,493	+236
Total test items	2,136	5,888	+176
Substitute items:			
46-ounce cans (orange juice and "other" brands of tomato juice)	3,505	3,482	-1
All other can sizes 4/	8,805	8,886	+1
Total substitute items	12,310	12,368	---
Test and substitute items, 46-ounce cans only	5,641	9,370	+66
Test and substitute items, all can sizes	14,446	18,256	+26

1/ "Test items" refer to grapefruit juice all 46-ounce cans and tomato juice, 46-ounce cans, private label brand. "Substitute items" include grapefruit juice, 18-ounce cans; tomato juice and orange juice, all size containers. The data cover four 2-week periods: April 1-13; May 13-25; June 10-22; and July 22-August 3.

2/ Base period represents sales in the period when only regular shelf was used for the test items.

3/ Includes regular shelf and end display sales.

4/ Includes 32-ounce; 26-ounce; 20-ounce; 18-ounce; 14-ounce; and 5-1/2-ounce cans of tomato juice and grapefruit juice; and orange juice, 18-ounce cans. Figures are in 46-ounce can equivalents.

Table 8.--Influence of end displays for test items on total sales of test items and selected substitute items, 12 food supermarkets, Boston, Mass., 1957 1/

Items	Base period sales 2/	Sales during end display of test items: 3/	Change from base period (plus or minus)
	Cans	Cans	Percent
Test items:			
No. 303 cans:			
Beans, cut wax	3,530	7,003	+98
Peas, large sweet	1,688	5,374	+218
Total test items	5,218	12,377	+137
Substitute items:			
No. 303 cans (beans and peas of "other" brands)	16,539	15,603	-6
All other can sizes 4/	10,441	10,672	-2
Total substitute items	26,980	26,275	-3
Test and substitute items No. 303 cans only	21,757	27,980	+29
Test and substitute items all can sizes	32,198	38,652	+20

1/ Test items refer to cut wax beans and large sweet peas, No. 303 cans, private label brand. Substitute items refer to all other brands and container sizes of test items on regular display. The data cover four 2-week periods: April 15-27; July 8-20; August 5-17; September 2-14.

2/ Base period represents sales in the period when only regular shelf was employed for the test items.

3/ Includes regular shelf and end display sales.

4/ Includes peas in 10-1/2-ounce cans, and beans and peas in 8-ounce cans. Figures are in No. 303 can equivalents.

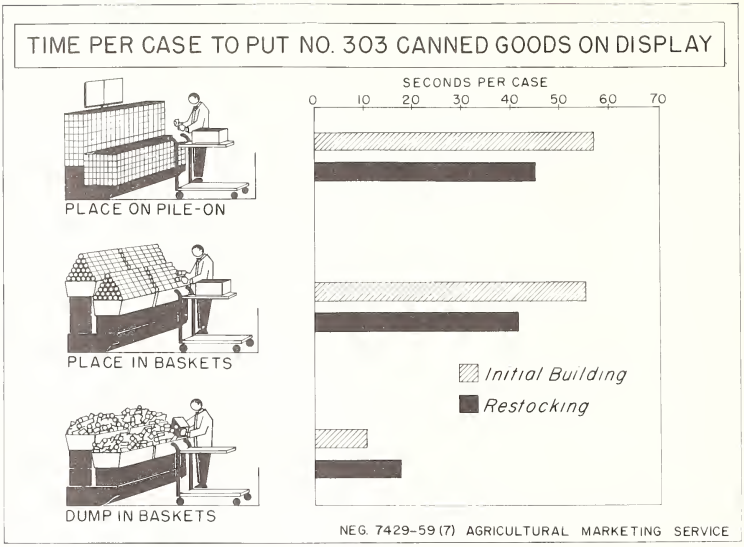


Figure 9

Some of the time requirements are fixed by the type of display but some vary with the quantity of merchandise handled. Table 16 presents the fixed and variable times for each kind of display. By using an example, application of the data in table 16 can be illustrated. Assume for the No. 303 can size using the kind of jumbled basket display that was used for applesauce and fruit cocktail, that for 1 commodity the capacity of the display is 264 cans, that 96 cans can be sold from the display before restocking is required, that sales from the display during the time it is up are 700 cans, and the display is allowed to sell down to the minimum of 264-96 = 168 cans when it is taken down. Then the restocking required would be 700-96 = 604 cans, and the direct labor time required to build, restock, and remove the display would be computed as follows:

Activity	Minutes
Build display	13.494
Restock display 6.975 minutes x 6.04 hundred cans equals	42.129
Remove display:	
Put away stock 3.842 minutes x 1.68 hundred cans	6.455
Take down and put away fixtures	2.311
Total direct labor time	64.389

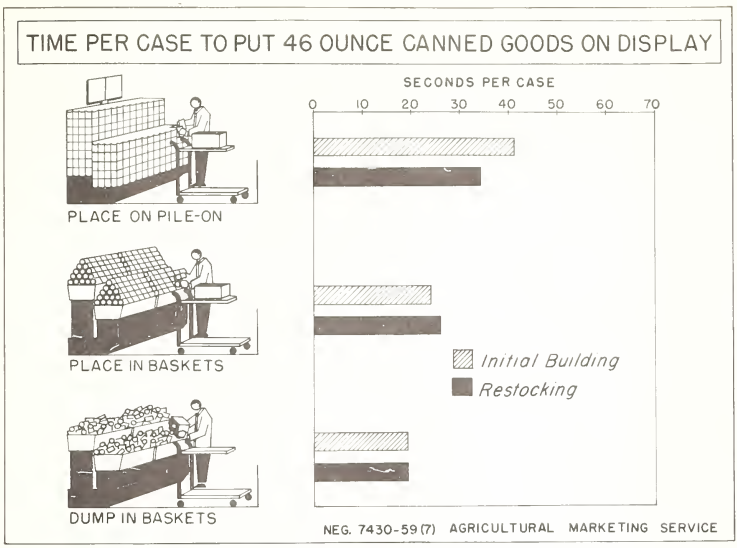

TIME PER CASE TO PUT 46 OUNCE CANNED GOODS ON DISPLAY
SECONDS PER CASE
0
10
20
30
40
50
60
70
PLACE ON PILE-ON
PLACE IN BASKETS
DUMP IN BASKETS
Initial Building
Restocking
NEG. 7430-59(7) AGRICULTURAL MARKETING SERVICE

Figure 10

Table 9.--Comparison of sales volume and labor costs associated with selected merchandising methods, 12 food supermarkets, Boston, Mass., 1957 1/

Commodity and merchandising method	Total sales	Average weekly sales per store	Average direct labor cost per 100 cans sold	
			End display only	End and shelf display
	46-oz. cans	46-oz. cans	Cents	Cents
Grapefruit and tomato juice:				
Method A--shelf (regular shelf position)	2,136	89	---	2/ 41.8
Method B--formal pile-on (formal pile-on end display plus regular shelf)	5,207	217	114.9	55.0
Method C--formal basket (formal basket end display plus regular shelf)	6,037	252	68.2	35.4
Method D--jumbled basket (jumbled basket end display plus regular shelf)	6,418	267	52.5	28.5
Grapefruit juice (all 46-ounce cans):				
Method A--shelf (regular shelf position)	1,393	58	---	2/ 42.2
Method B--formal pile-on (formal pile-on end display plus regular shelf)	3,041	127	99.4	82.2
Method C--formal basket (formal basket end display plus regular shelf)	3,459	144	67.3	59.7
Method D--jumbled basket (jumbled basket end display plus regular shelf)	3,684	153	49.3	46.3
Tomato juice (46-ounce cans, private label brand):				
Method A--shelf (regular shelf position)	743	31	---	2/ 41.0
Method B--formal pile-on (formal pile-on end display plus regular shelf)	2,166	90	135.5	113.3
Method C--formal basket (formal basket end display plus regular shelf)	2,578	108	69.2	63.3
Method D--jumbled basket (jumbled basket end display plus regular shelf)	2,734	114	56.6	54.4

1/ Includes four 2-week time periods: April 1-13; May 13-25; June 10-22; and July 22-August 3; each method being rotated to 3 different stores each 2-week period. A private label brand was used for test purposes.

2/ This cost does not take into consideration the initial cost of erecting the display because it remained fixed in the stores.

Table 10.--Change in sales of grapefruit juice and tomato juice by utilizing selected end displays in addition to regular shelf, 12 food supermarkets, Boston, Mass., 8 weeks, 1957 1/

Commodity and merchandising method	Shelf display			End display		Shelf and end display	
	Sales	Percentage of regular shelf alone (method A)	Decrease due to end display	Sales	Gross increase due to end display 2/	Sales	Net increase due to end display 3/
	Cans	Percent	Percent	Cans	Percent	Cans	Percent
Grapefruit and tomato juice:							
Method A--shelf (regular shelf position)	2,136	---	---	---	---	2,136	---
Method B--formal pile-on (formal pile-on end display plus regular shelf)	1,422	66.6	-33.4	3,785	177.2	5,207	144
Method C--formal basket (formal end display plus regular shelf)	1,584	74.2	-25.8	4,453	208.4	6,037	183
Method D--jumbled basket (jumbled basket end display plus regular shelf)	1,642	76.9	-23.1	4,776	223.6	6,418	200
Grapefruit juice (all 46-oz. cans):							
Method A--shelf (regular shelf position)	1,393	---	---	---	---	1,393	---
Method B--formal pile-on (formal pile-on end display plus regular shelf)	912	65.5	-34.5	2,129	152.8	3,041	118
Method C--formal basket (formal end display plus regular shelf)	1,072	77.0	-23.0	2,387	171.4	3,459	148
Method D--jumbled basket (jumbled basket end display plus regular shelf)	1,010	72.5	-27.5	2,674	192.0	3,684	164
Tomato juice (46-oz., private label brand):							
Method A--shelf (regular shelf position)	743	---	---	---	---	743	---
Method B--formal pile-on (formal pile-on end display plus regular shelf)	510	68.6	-31.4	1,656	222.9	2,166	192
Method C--formal basket (formal end display plus regular shelf)	512	68.9	-31.1	2,066	278.1	2,578	247
Method D--jumbled basket (jumbled basket end display plus regular shelf)	632	85.1	-14.9	2,102	282.9	2,734	265

1/ Includes four 2-week time periods: April 1-13; May 13-25; June 10-22; July 22-August 3.

2/ Gross increase represents the percent of total increase in sales attributable to end display over indicated sales from the regular shelf alone (method A).

3/ Net increase represents the percent of gross increase in sales attributable to special end display, less the decrease in regular shelf sales caused by adding the end display.

Table 11.--Changes in sales of beans and peas, private label brand, by utilizing selected end displays in addition to regular shelf, 12 food supermarkets, Boston, Mass., 8 weeks, 1957 1/

Commodity and merchandising method	Shelf display			End display		Shelf and end display	
	Sales	Percentage of regular shelf alone (method A)	Decrease due to end display	Sales	Gross increase due to end display 2/	Sales	Net increase due to end display 3/
	Cans	Percent	Percent	Cans	Percent	Cans	Percent
Cut wax beans (303 cans) and large sweet peas (303 cans):							
Method A--shelf (regular shelf position)	5,218	---	---	---	---	5,218	---
Method B--formal pile-on (formal pile-on end display plus regular shelf)	4,115	78.9	-21.1	8,413	161.2	12,528	140
Method C--formal basket (formal end display plus regular shelf)	3,779	72.4	-27.6	8,328	159.6	12,107	132
Method D--jumbled basket (jumbled basket end display plus regular shelf)	3,664	70.2	-29.8	8,837	169.4	12,501	140
Cut wax beans (303 cans):							
Method A--shelf (regular shelf position)	3,530	---	---	---	---	3,530	---
Method B--formal pile-on (formal pile-on end display plus regular shelf)	2,879	81.6	-18.4	4,391	124.4	7,270	106
Method C--formal basket (formal end display plus regular shelf)	2,609	73.9	-26.1	4,208	119.2	6,817	93
Method D--jumbled basket (jumbled basket end display plus regular shelf)	2,414	68.4	-31.6	4,511	127.8	6,925	96
Large sweet peas (303 cans):							
Method A--shelf (regular shelf position)	1,688	---	---	---	---	1,688	---
Method B--formal pile-on (formal pile-on end display plus regular shelf)	1,236	73.2	-26.8	4,022	238.3	5,258	214
Method C--formal basket (formal end display plus regular shelf)	1,170	69.3	-30.7	4,120	244.1	5,290	213
Method D--jumbled basket (jumbled basket end display plus regular shelf)	1,250	74.1	-25.9	4,326	256.3	5,576	230

1/ Includes four 2-week time periods: April 15-27; July 8-20; August 5-17; and September 2-14.

2/ Gross increase represents the percent of the total increase in sales from each of the 3 methods which included end display over indicated sales from the regular shelf.

3/ Net increase represents the percent of gross increase in sales due to special end display less the decrease in regular shelf sales caused by adding end display.

Table 12.--Comparison of sales and labor costs associated with selected merchandising methods in 12 food supermarkets, Boston, Mass., 8 weeks, 1957 1/

Commodity and merchandising method	Total Sales	Average weekly sales per store	Average direct labor cost per 100 cans sold	
			End display only	End and shelf display
	Cans	Cans	Cents	Cents
Cut wax beans (303 cans) and large sweet peas (303 cans):				
Method A--shelf (regular shelf position)	5,218	217	---	2/ 33.4
Method B--formal pile-on (formal pile-on end display plus regular shelf)	12,525	522	67.0	52.0
Method C--formal basket (formal end display plus regular shelf)	12,107	504	50.9	42.7
Method D--jumbled basket (jumbled basket end display plus regular shelf)	12,501	521	34.5	30.5
Cut wax beans (303 cans):				
Method A--shelf (regular shelf position)	3,530	147	---	2/ 23.5
Method B--formal pile-on (formal pile-on end display plus regular shelf)	7,270	303	65.3	48.0
Method C--formal basket (formal end display plus regular shelf)	6,817	284	49.3	39.6
Method D--jumbled basket (jumbled basket end display plus regular shelf)	6,925	289	33.2	26.6
Large sweet peas (303 cans):				
Method A--shelf (regular shelf position)	1,688	70	---	2/ 34.1
Method B--formal pile-on (formal pile-on end display plus regular shelf)	5,258	219	69.9	58.1
Method C--formal basket (formal end display plus regular shelf)	5,290	220	52.5	43.3
Method D--jumbled basket (jumbled basket end display plus regular shelf)	5,576	232	35.8	32.0

1/ Includes four 2-week time periods: April 15-27; July 8-20; August 5-17; September 2-14.
2/ This cost does not take into consideration the initial cost of erecting the display because it remains fixed for a long time.

Table 13.--Applesauce and fruit cocktail: Comparison of sales for selected merchandising methods, 6 food supermarkets, Boston, Mass., 8 weeks, 1957 1/

Merchandising method	Applesauce			Fruit cocktail			Applesauce and fruit cocktail
	First test	Second test	Total	First test	Second test	Total	
	Cans	Cans	Cans	Cans	Cans	Cans	Cans
Method A--jumbled basket end display and regular shelf	4,290	4,058	8,348	3,358	2,970	6,328	14,676
Method B--jumbled basket and pile-on combination end display and regular shelf	3,589	4,109	7,698	3,463	3,281	6,744	14,442
Total	7,879	8,167	16,046	6,821	6,251	13,072	29,118

1/ Includes 2 tests, each covering two 2-week periods. The first test, April 29-May 11 and May 27-June 8; the second test, June 24-July 6; and August 19-31. Only No. 303 can size, private lable brand, was used.

Table 14.--Peaches and pineapple juice: Comparison of sales for selected merchandising methods, 6 food supermarkets, Boston, Mass., 8 weeks, 1957 1/

Merchandising method	Peaches, yellow cling, sliced			Pineapple juice		
	First test	Second test	Total	First test	Second test	Total
	Cans	Cans	Cans	Cans	Cans	Cans
Method A--formal basket end display and regular shelf	3,032	2,382	5,414	1,949	1,214	3,163
Method B--formal basket and pile-on combination end display and regular shelf	2,675	2,687	5,362	1,722	1,364	3,086
Total 2/	5,707	5,069	10,776	3,671	2,578	6,249

1/ Includes 2 tests, each covering two 2-week periods. The first test, April 29-May 11 and May 27-June 8; the second test, June 24-July 6; and August 19-31. Pineapple juice, 46-ounce can size, and peaches, No. 2½ cans, (approximately 30 ounces) private lable brand, were used.

2/ Total sales of both commodities on the end display resulted in 307,918 ounces for method A and 302,816 ounces for method B during the entire 8-week period.

Table 15.--Capacities of baskets used for end displays, 12 food supermarkets, by can size, Boston, Mass., 1957

Size of basket by type of end display	46-ounce can	#303 can	#2-1/2 can
	Number	Number	Number
Large baskets (20" x 28")			
Formal display	78	205	---
Jumbled display	51	160	---
Small baskets (14" x 15")			
Formal display	24	---	39
Jumbled display	---	50	---

Table 16.--Variable and fixed direct labor time required to build, restock, and remove displays, and capacity of them, by can size and kind of display 1/

Can size and kind of display 2/	Fixed time per commodity in each of the two commodity displays to--		Variable time per 100 cans handled in--		Capacity of full display per commodity
	Build display	Put away fixtures: to remove display	Restocking display	Boxing and putting away stock	
	Man-minutes	Man-minutes	Man-minutes	Man-minutes	Cans
46-ounce cans:					
Regular shelf position	---	---	17.099	---	---
Grapefruit and tomato juices display:					
Formal pile-on end	44.462	1.580	15.024	5.625	360
Formal basket end	19.156	2.775	13.952	4.942	192
Jumbled basket end	14.448	2.775	12.950	4.942	144
Pineapple juice displays:					
Formal basket end	15.027	2.096	14.200	5.133	144
Formal basket pile-on end	21.289	2.096	14.200	4.842	204
No. 2-1/2 size cans:					
Regular shelf position	---	---	10.126	---	---
Peaches:					
Formal basket end	17.947	2.096	9.004	3.306	240
Formal basket and pile-on end	22.698	2.096	9.004	3.156	288
No. 303 size cans:					
Regular shelf position	---	---	9.675	---	---
Cut wax beans and sweet peas displays:					
Formal pile-on end	59.652	.401	8.825	2.938	936
Formal basket end	38.376	1.440	8.579	2.938	504
Jumbled basket end	25.963	1.440	6.892	2.938	456
Applesauce and fruit cocktail:					
Jumbled basket end	13.494	2.311	6.975	3.842	264
Jumbled basket and pile-on end	23.082	2.311	6.975	3.942	360

1/ Times include a personal and fatigue allowance of 15 percent.

2/ The commodity designation is listed merely to define the kind of display since the formal basket display for grapefruit juice and tomato juice had a different designation than the formal basket display for pineapple juice.

* U.S. GOVERNMENT PRINTING OFFICE: 1959 O - 530443