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FRESH GRAPEFRUIT PACKAGED AND LABELED INDIAN RIVER--A SALES TEST

PREFACE

This report presents the results of research undertaken to measure the effect of packaging and labeling on the retail sales of grapefruit. It is one of a number of studies conducted by the Economic Research Service at the retail level to evaluate and improve merchandising practices for agricultural products. The study was specifically designed to inform growers and merchandisers of the effects of packaging and the use of the Indian River label on the retail movement of fresh grapefruit.

The research was conducted in cooperation and with the support of the Florida Citrus Commission. The Grand Union Company, East Paterson, N.J., cooperated by providing the sample stores in which the data were collected. Test grapefruit were packaged by Seald-Sweet Packers, Inc., in its South Kearny, N.J., plant.

Appreciation is extended to the many persons contributing to the conduct of this test, with special recognition to B. W. Winters and Donald Fittizzi, of the Grand Union Company, and Jerome R. Kanavy of Seald-Sweet Packers. Dr. William E. Black, Director, Economic Research, Florida Citrus Commission, helped plan the research and arranged cooperation of the retail trade and the suppliers of the test fruit.

The research was under the general direction of Robert E. Frye of the Market Development Branch, Marketing Economics Division, Economic Research Service, U.S. Department of Agriculture.

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SUMMARY

Fresh grapefruit packaged in consumer-sized units produced substantially higher sales than grapefruit displayed loose in tests conducted in supermarkets in the Paterson, N.J., area during the spring of 1964.

Sales response to grapefruit (96-size) displayed loose was compared with response to displays of the same fruit in: (1) polyethylene bags imprinted with an Indian River label; (2) unlabeled polyethylene bags; and (3) unlabeled polyethylene bags displayed in combination with loose test grapefruit.

Sales were highest from displays offering test grapefruit in polyethylene bags imprinted with the Indian River label. Consumer purchases from these displays were 63 percent greater than from displays offering loose (unpackaged) fruit. Displays of fruit in unlabeled bags were not as effective as the labeled bags but retail movement was still 28 percent greater than from displays of loose fruit.

Sales were 38 percent higher when consumers were offered both bagged (unlabeled) and loose fruit in a combination display than when only loose fruit were available. This finding confirms the established merchandising principle that increased variety is generally a sales stimulant.

Sales of nontest grapefruit, which were displayed loose in all instances, showed little variation during the tests and were apparently unaffected by the manner in which the test grapefruit were offered. Movement of fresh oranges was unaffected by variation in merchandising techniques for test grapefruit.

FRESH GRAPEFRUIT PACKAGED AND LABELED INDIAN RIVER--
A SALES TEST

By
Sidney E. Brown, Agricultural Economist
and
Eugene C. Pape, Jr., Marketing Specialist
U.S. Department of Agriculture
Economic Research Service
Marketing Economics Division

INTRODUCTION

Grapefruit producers are particularly dependent upon the fresh market as an outlet for their product. Over half of U.S. grapefruit production moves into consumption in fresh form. Since the processed market has not enjoyed the growth that product innovation has brought to oranges and certain other agricultural commodities, it is vital that opportunities to strengthen and expand the fresh market for grapefruit be fully explored.

Grapefruit growers and shippers seek information that will enable them to secure a better competitive position for their product in the fresh market. One determination needed is the contribution, if any, that packaging makes to sales. Some members of the citrus trade look upon packaging as a means of strengthening the position of this relatively bulky commodity as it competes with a growing number of conveniently handled products. Some producers, shippers, and retailers now provide the consumer with packaged grapefruit and the trend is toward even more packaging. An estimated 40 percent of all fresh grapefruit will go into the retail store in prepackaged form in 1964. Yet, there has been no substantial research which would indicate that packaging contributes materially to total grapefruit movement at retail.

Whether packaging helps expand the demand for fresh grapefruit will become a more important question for the citrus grower as freeze-damaged trees recover and new plantings come into production. In determining whether he should encourage packaging of fresh fruit, the grower needs to know how packaging affects sales, and if there is any advantage in having the package bear a grower label. These questions are particularly relevant to growers in the Indian River area of Florida, where grapefruit is traditionally shipped in bulk. However, the sales advantages, if any, of packaging are important to other grapefruit shippers in Florida and in the Southwest in formulating their policies.

Consequently, this research was undertaken to determine the effect that availability of packaged grapefruit in retail food stores has on total sales of fresh grapefruit. A second objective was to evaluate placing the production area identification on the bag as a sales stimulant. The test involved specific

sales comparisons of fresh grapefruit when displayed loose with sales from displays offering the same type grapefruit in: (1) polyethylene bags imprinted with an Indian River label; (2) unlabeled polyethylene bags; and (3) unlabeled polyethylene bags displayed in combination with loose test grapefruit.

PROCEDURE

The sales effectiveness of the three variations (hereafter referred to as treatments) in packaging of fresh grapefruit were evaluated on the basis of sales from the control treatment in which only loose grapefruit were offered. Sales were measured weekly by the standard audit method: beginning inventory plus receipts, plus or minus transfers, less ending inventory. Spoilage was disregarded since the loose and packaged test grapefruit displays were changed periodically during the test and the fruit was in the bag a relatively short time. In addition, the loose and packaged fruit were from the same lots of fruit.

In like manner, other grapefruit and orange sales were audited weekly to determine whether increases in sales of packaged grapefruit were at the expense of the nontest grapefruit and orange sales.

Grapefruit used for this test were 96-size pink. All test grapefruit whether displayed loose or in packages were individually stamped "Florigold--Indian River." The polyethylene film bags held 6 fruit and were priced at 59 cents. Test grapefruit displayed loose were offered at the same price--6 for 59 cents.

The labeled bag identified the brand of the fruit, "Florigold, Seald-Sweet," in gold letters on a blue background (3 1/2 x 5 1/2 inches) and the origin of the fruit, "Indian River," in black letters set in a background of gold grid (1 1/2 x 4 1/2 inches). In addition, the bag count was given, the packer was identified, and the type of fruit was specified as "Pink Seedless Grapefruit."

The unlabeled bag of fruit contained an insert which identified the packer, "Seald-Sweet," and gave the count per bag.

Channel markers behind each test display identified the fruit as pink seedless and gave the price of the fruit as 6 for 59 cents.

Under controls set up for the study, store management agreed to restrict test grapefruit displays to a constant size and the same location within the store throughout the test. No special promotional effort was exerted in favor of the test grapefruit. Oranges and nontest grapefruit were merchandised in a normal manner with the one exception that all nontest grapefruit were displayed loose. The manner in which fresh citrus (test grapefruit, and other grapefruit and oranges) was displayed, the size of display, and price were recorded weekly on Thursday or Friday for each store. The uniformity of displays among stores was aided by the company policy of prescribing from week-to-week the relative location of produce items.

The test was conducted in the spring of 1964 in a sample of 16 retail food stores located in and around Paterson, N.J. Test stores were from a single organization and represented medium-to-large supermarkets. Stores were in both intown areas of lower income and in suburban shopping centers to assure representation of a cross section of store clientele according to income and location.

Treatments were rotated each week during the 4-week study among test stores according to an experimental design (table 1). This arrangement served to equalize the store and time influences on sales by insuring that each treatment would appear only once in each store and an equal number of times each week.

RESULTS

Test grapefruit sales were greatest when the test fruit were displayed in bags bearing the Indian River label (table 2); there was a 63-percent increase over sales from the loose display. When fruit in plain bags and loose fruit were displayed together, sales were 38 percent greater than from the loose (control) display. ^{1/} Use of the plain bag alone resulted in 28 percent more sales than the control display of loose fruit. The sales increases associated with the plain bag, the plain bag and loose together, or the Indian River bags were statistically significant. Differences were sufficiently large that their acceptance as real sales increases attributable to packaging had a 99 in 100 chance of being correct.

Grapefruit sales in the Indian River bag were also significantly greater than the sales of the grapefruit in unlabeled bags. The probability of this being a real difference was 95 in 100.

Sales of other grapefruit, which were all larger sizes than 96 and displayed loose, showed no measurable change regardless of how the test fruit were displayed. Stated in another way, other grapefruit sales varied no more than would be expected as a result of chance. This constant level of nontest grapefruit sales indicates that additional poundage observed for packaged grapefruit was a net increase to grapefruit volume rather than bagged grapefruit sales simply replacing loose sales. In like manner, orange sales did not differ significantly among packaging treatments, confirming that the added grapefruit sales were not at the expense of orange sales either.

The number of customers, total dollar sales of stores, and total dollar sales of produce departments were essentially the same for the 16 observations (4 stores each week for 4 weeks) that made up each treatment (table 3). The uniformity of these indices of store and department volumes illustrates the effectiveness of the experimental design (table 1) in equalizing the influence of the nontest variables associated with stores and weeks.

^{1/} Comparable display area was maintained for the treatments involving either bags or loose fruit separately. Some produce managers extended the allotted display area when bagged and loose fruit were combined. However, sales comparisons presented are after covariance adjustment for the additional space the combined display received.

Table 1.--Experimental design used to test effects of packaging on fresh grapefruit sales,
Paterson, N.J., March 9 - April 5, 1964

Period	Sample store numbers															
	Replication I				Replication II				Replication III				Replication IV			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
March 9-15	B	A	D	C	B	C	D	A	B	D	A	C	B	A	D	C
March 16-22	C	D	B	A	C	D	A	B	C	A	D	B	C	D	A	B
March 23-29	D	C	A	B	D	A	B	C	D	C	B	A	D	C	B	A
March 30-April 5	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D

Treatments: A. Test grapefruit displayed packaged under Indian River identification and no test fruit loose.
B. Test grapefruit displayed packaged in a plain bag and no test fruit loose.
C. Test grapefruit displayed packaged in a plain bag and also displayed loose.
D. Test grapefruit displayed loose only.

Table 2.--Sales per 100 customers of fresh grapefruit and oranges in 16 retail food stores, Paterson, N.J., March 9 - April 5, 1964

Manner of displaying test grapefruit	Test grapefruit	Nontest grapefruit	Total grapefruit	Total oranges
	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>
(A) Indian River bag	1/ 12.4	8.5	20.9	32.9
(B) Plain bag	1/ 9.7	8.0	17.7	30.1
(C) Combination of loose and plain bag	1/ 10.5	8.4	18.9	31.1
(D) Loose	7.6	7.9	15.5	30.9

1/ Significantly greater than sales from the loose displays at the 99-percent level of probability.

Table 3.--Number of customers visiting test stores, volume of produce sales, and all store sales, during tests of packaging of grapefruit, as a percentage of the volume of business prevailing when grapefruit were displayed loose, Paterson, N.J., March 9-April 5, 1964

Manner of displaying test grapefruit	Customer count	Total produce dollar sales	Total store dollar sales
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
(A) Indian River bag	98.7	98.2	100.3
(B) Plain bag	98.4	96.4	100.1
(C) Combination	98.6	100.2	99.6
(D) Loose	100.0	100.0	100.0

Official Business

IMPLICATIONS

In applying these research findings, two limitations should be considered. First, the test involved packaging grapefruit of one size only. Even when the test fruit were displayed only in bags, the shopper could select single grapefruit of a larger size. The other consideration involves the brand name tested. Indian River is a well-established growing area and apparently consumers have a favorable image of it. Caution must be used in extending these results to anticipate similar sales gains from the identification of fruit from other growing areas.

Findings here definitely indicate a sales advantage from packaging small-size grapefruit. Results support the sales advantage from packaging that was indicated, but not confirmed by statistical tests, in a previous study. ^{2/} Furthermore, it appears that there are additional sales to be gained when the bag clearly identifies Indian River.

Determination of who in the marketing process--grower, shipper, wholesaler, or retailer--could most economically perform the packaging service was beyond the scope of this test.

^{2/} Havas, N., Henderson, P.L., Parsons, C.S., and Shaffer, P. Displaying Fruit in Various Types of Packages and in Bulk. AMS-391, Aug. 1960, pp. 10-11.

