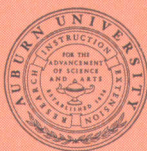


Market Testing of CHILCO and GEORGIA BOY Pasteurized-Refrigerated Peaches



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Market Testing of CHILCO and GEORGIA BOY Pasteurized-Refrigerated Peaches

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THE INTRODUCTION OF NEW FOOD PRODUCTS into the market place has become a distinctive characteristic of the U.S. economy.

Special studies by the National Commission on Food Marketing have indicated that introduction of a new product is a costly and risky venture, yet the rate of innovation is apparently increasing. A recent survey of the largest food manufacturing firms indicated that 30 per cent of items now being processed were introduced after 1959. These new items represent only a small portion of all new products initially proposed. Forty per cent of all proposed new products are estimated to have failed by the end of test marketing in sample stores.¹

A study of the current inventory of the average supermarket showed that production of 17 per cent of the items had been discontinued.² Changes in food products may one day be thought of as casually as changes in apparel fashions.

Consumer demands for food are apparently being influenced by more rapid shifts in tastes and preferences. The processing industry as well as farmers needs to understand more about demand so that land, labor, and capital costs can be used efficiently in producing for fast changing markets.

¹ National Commission on Food Marketing, Technical Study No. 6, June, 1966.

² Supermarket Merchandising, Supermarket Publishing Co., Inc., Bristol, Conn., August, 1960.

Product changes will be either cost increasing or decreasing for an industry. For efficient use of resources, there is a need in many cases for well designed test markets where consumers can vote their preference for the product and its price and transmit this information to producers.

The pasteurized-refrigerated peach is an example of an innovation involving a new cost of technology. Frozen peaches are a fresh-preserved type product, but their processing costs are relatively high compared with the canned product. Pasteurized-refrigerated peaches are also a fresh-preserved type of product. The technology of production, especially storage temperature, favors the pasteurized-refrigerated products over frozen peaches from a cost standpoint. Panel taste tests at the Auburn University Agricultural Experiment Station have shown pasteurized-refrigerated peaches to be preferred to canned and frozen peaches. Pasteurized-refrigerated peaches are new to a consumer whose demand is unknown, but there is assumed to be some cross-relationship of demand with existing peach products.

The pasteurization-refrigeration process used in packing this product was developed by Harris.³ Fresh ripe fruit was washed, peeled, sliced, dipped for 3 minutes in a solution containing 0.05 per cent each of sodium bisulphite and citric acid, steamed for 30 seconds, packed tightly in preheated jars containing 72 Brix syrup at the rate of 2.5 fluid ounces per 16-ounce jar, sealed at 120°F. by steam vacuum method, pasteurized for 3 minutes with jars rolling in steam in the special pasteurizer, cooled, and refrigerated. The center-of-jar temperature reached was approximately 160°F. Presyruped jars also contained small amounts of ascorbic acid, citric acid, and sodium bisulphite. This process was reported to be the key to high quality and long shelf life of the product.

The specific objective of the research on which this report is based was to make and package promising products from peaches and to conduct market acceptance studies on these products. Market acceptance studies included: (1) an in-store experimental pricing study of Chilco refrigerated peaches made and packaged at Auburn University; (2) a survey of consumer preferences for Chilco peaches in cafeterias and restaurants; (3) a survey of homemakers use of the commercial pack of Georgia Boy chilled peaches; and (4) a comparison of instore sales of Georgia Boy chilled peaches with other chilled fruit sales.

³ Harris, Hubert and John G. Kaffeakis. 1966. Packaged Fruit Products by Pasteurization-Refrigeration. Highlights of Agr. Res. Vol. 13, No. 2, Auburn Univ. (Ala.) Agr. Exp. Sta.

METHOD OF STUDY

Approximately 250 cases of pasteurized-refrigerated peaches (12/16-oz. jars) were processed in summer of 1964 for use in market testing. The product was labeled "Chilco," and was processed from the Blake variety. Other varieties studied for use in the pack were Rio-oso Gem, Regular Elberta, Cream Elberta, Red Elberta, Shippers Late Red, Southland, and Redskin Elberta.

Following the Chilco test, results of the market test and further refinements in the technique of pasteurization-refrigeration were used in consulting with a commercial firm interested in participating in further tests of the product. A commercial pack of approximately 13,000 cases (12/22-oz.) was processed in the summer of 1965 from mostly Elberta-type peaches. The pack was subsequently marketed under the label "Georgia Boy" and a small portion of the pack was obtained for a consumer test in Attalla, Alabama. Eighty-three households were chosen at random from the city directory and given a jar for home use. At the end of a week, information on use and acceptability was obtained by questionnaire.

Warehouse records of a regional chain were audited to determine sales of Georgia Boy peaches, and results were compared to experimental results obtained in the Chilco test.

The Chilco Test Design

A systematic collection of facts to test demand for pasteurized-refrigerated peaches was begun in retail stores, restaurants, and cafeterias located in Montgomery and Auburn, Alabama in 1964. Stores ranged in size from 4,000 to 8,000 customers per week; they had gross sales during the weeks of the study of \$15,000 to \$40,000 per week; and, all were designated as supermarkets. Two cafeterias and two restaurants of the large motel-type were used in obtaining comments about use of the peaches.

Data collected in stores were based on an experimental pricing design. Three alternate price levels were used in a Latin square design, which has been used with apparent success in previous pricing studies. In this study, each store type offered the product for sale at three different prices during three time periods. Likewise, the three different prices were offered within any one time period.

Store type was based on weekly gross sales. Store 1 had average weekly gross sales during the test of \$25,000, Store 2 averaged \$32,000 per week, and Store 3 averaged \$36,000 per week.

Prices shown in Table 1 were paid for 16 oz. glass jars of the product. Store inventory and sales were audited weekly by Station personnel to minimize errors in measurement of the controlled variables. A full stock of the product was kept during the period and a minimum of 12 jars were displayed at one time. Maximum display was 72 jars during one of the weeks before test data were collected. Location of the display was determined by the location of chilled citrus products. In two stores, the test product was located in the produce section; in one store its location was the dairy section.

TABLE 1. PRICING DESIGN USED IN CHILCO PEACH STUDY, MONTGOMERY AND AUBURN, ALABAMA, 1964-65

Store size	Test period		
	First 5 weeks	Second 5 weeks	Third 5 weeks
Store 1 (small)	Low price \$.23	High price \$.35	Middle price \$.29
Store 2 (medium)	Middle price \$.29	Low price \$.23	High price \$.35
Store 3 (large)	High price \$.35	Middle price \$.29	Low price \$.23

The product was offered for sale for an 11-week period prior to beginning of the pricing experiment. The introductory period served to establish consumer recognition, to refine data collection procedures, and to define stocking and billing procedures since the product was merchandised from storage at Auburn University.

The product was initially stocked for 5 weeks with no information provided to consumers that this was a new product. Sales per store generally declined after the first 2 weeks. On Thursday of the 6th week, signs hand lettered by store employees were displayed over the product. A 12-by-24-inch sign was displayed over the product announcing a price reduction and a 24-by-48-inch sign appeared in the store window. All stores were stocked with a minimum of 60 jars. Increased sales resulting from the point-of-sale promotion were very significant as shown in Table 2.

The plan of the study was to implement the experimental pricing design after some stability was noted in weekly sales. Stability in sales was judged to exist by the 12th week and first observations in the pricing test were taken at that time.

RESULTS OF TESTS ON CHILCO PEACHES

Several variables affect quantity of product purchased within a given time and place. These variables include product price, prices of substitute products, disposable income, population, tastes and preferences of the population, and size of the market.

TABLE 2: SALES OF 16-OUNCE JARS OF CHILCO PASTEURIZED-REFRIGERATED PEACH SLICES AT VARIOUS PRICES DURING A 12-WEEK INTRODUCTORY PERIOD, AUBURN AND MONTGOMERY, ALABAMA, 1964-1965

Week	Store 1 (small)		Store 2 (medium)		Store 3 (large)	
	Jars	Price per jar	Jars	Price per jar	Jars	Price per jar
	No.	Dol.	No.	Dol.	No.	Dol.
1. Nov. 9-16.....	7	0.35	15	0.39	8	0.35
2. Nov. 16-23.....	8	0.35	9	0.39	5	0.35
3. Nov. 23-30.....	4	0.35	8	0.39	7	0.35
4. Nov. 30-Dec. 7.....	5	0.35	0	0.39	4	0.35
5. Dec. 7-14.....	1	0.35	6	0.39	6	0.35
6. Dec. 14-21.....	72	0.23	49	0.29	20	0.29
7. Dec. 21-28.....	78	0.23	45	0.29	10	0.29
8. Dec. 28-Jan. 4.....	67	0.23	40	0.29	6	0.29
9. Jan. 4-11.....	55	0.23	23	0.29	3	0.29
10. Jan. 11-18.....	41	0.23	26	0.29	5	0.29
11. Jan. 18-25.....	36	0.23	10	0.29	6	0.29
12. Jan. 25-Feb. 1.....	38	0.23	16	0.29	10	0.29

The statistical design of the study made it possible to determine the effect of price and store size on quantity of peaches sold. Sales, prices, time, and store size were evaluated by use of analysis of variance and linear regression. Standardized sales according to purchases per 1,000 store customers were used to hold constant the effect of varying population per store. Value of store sales per 1,000 customers was tested as a substitute variable for disposable income of customers.

Variation in sales not explained by weeks, stores, time period, price, and interaction of price and weeks was considered to be the result of random changes in all other variables affecting sales, Appendix Table. Price was by far the most important variable to affect sales. Variation in sales among stores was next in importance but was not statistically significant.

Practical experience of food retailers and distributors has indicated there are very significant differences among store sizes in sales of a new item. A study using more stores was needed to test the hypothesis that store effects are important. The relatively small mean square for weeks and periods tended to support the assumption that a Latin square of the type used can be appropriate as a design in an experimental pricing experiment.

A question may be raised about the carry-over effects on sales of changing from one price to another. A representative discussion of the lagged effect of a price change has been given by Nerlove.⁴ Direct tests of carry-over effect of prices on sales would

⁴Nerlove, Mark. Distributed Lags and Demand Analysis for Agricultural and Other Commodities, Agriculture Handbook No. 141, Agricultural Marketing Service, United States Department of Agriculture, June, 1958.

be possible only with a larger sampling of prices, stores, time, and diaries representing consumer behavior. Analysis of variance on the peach sales data supports the hypothesis that price effects are independent of time.

Response of Sales to Price of Chilco Peaches

Sales of Chilco peaches differed significantly between any two levels of prices based on use of Duncan's multiple range test. Quantity of 16-oz. jars bought per 1,000 customers per week and selling price were studied further by regression of price on quantity. The following equations to estimate quantity of peach sales in each store and overall were derived.

- Store 1 (Small)*
- 1) $\log Q_1 = 6.09 - 3.75^{**} \log P$ $R = .94$
(.367)
- Store 2 (Medium)*
- 2) $\log Q_2 = 4.47 - 2.77^{**} \log P$ $R = .88$
(.411)
- Store 3 (Large)*
- 3) $\log Q_3 = 2.72 - 1.66 \text{ N.S. } \log P$ $R = .48$
- Aggregate for All Stores*
- 4) $\log Q_A = 4.43 - 2.73^{**} \log P$ $R = .69$
(.437)

** Significantly differs from zero at the .01 probability level. N.S. indicates not significantly different from zero. Numbers in parenthesis are the standard errors associated with each regression coefficient. R is the correlation coefficient.

The response of quantity of peaches bought at various prices based on the equations presented is shown in Table 3.

TABLE 3. ESTIMATED SALES PER 1,000 CUSTOMERS PER WEEK OF CHILCO PEACHES IN THREE STORES IN EXPERIMENTAL PRICING STUDY

Price	Store 1	Store 2	Store 3	Aggregate
	(small)	(medium)	(large)	
	16-oz jars	16-oz jars	16-oz jars	16-oz jars
<i>Dol.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>
0.50.....	0.5	0.6	0.8	0.6
0.48.....	0.6	0.6	0.9	0.7
0.46.....	0.7	0.7	0.9	0.8
0.44.....	0.8	0.8	1.0	0.9
0.42.....	1.0	0.9	1.1	1.0
0.40.....	1.2	1.1	1.2	1.1
0.38.....	1.5	1.2	1.3	1.3
0.36.....	1.8	1.4	1.4	1.5
0.34.....	2.2	1.7	1.5	1.8
0.32.....	2.8	2.0	1.7	2.1
0.30.....	3.5	2.4	1.9	2.5
0.28.....	4.6	2.9	2.1	3.0
0.26.....	6.1	3.6	2.4	3.7
0.24.....	8.2	4.4	2.7	4.6

It is generally accepted among food retailers that gross sales per store increase as level of customer income increases. Average gross store sales per customer was used in the regression analysis as an independent variable to reflect the income level of store customers. The regression coefficient for the income variable was significant in the aggregate case but not significant in regressions for individual stores. Addition of the income variable accounted for only an additional 5 per cent of the variation in sales in the aggregate data and its sign was negative. This meant that average sales decreased as customer income increased. A negative income effect is not necessarily inconsistent with what was expected from a consumer behavior standpoint. Since there were only three stores in the test to represent income level and analysis of variance showed the effect of stores to be insignificant, regression equations containing income as a variable were ignored.

Results of Comment Cards Taken in Cafeterias and Restaurants

Comment cards of the type shown in Figure 1 were left on the tables for one week in two restaurants and two cafeterias that served Chilco pasteurized-refrigerated peaches. Peaches were served as both salads and desserts, and the non-specific question on the comment card was constructed to apply to any form in which peaches were served.

The peaches you have selected are a **new** product from our kitchen. How would you rate it in comparison with a similar peach product that you usually serve?

Better than average_____

Average_____

Below average_____

Comments??_____

Please leave your card at the cash register.

FIG. 1. Comment card used in restaurant and cafeteria test of Chilco pasteurized-refrigerated peaches.

The majority of customers rated pasteurized-refrigerated peaches as above average, Table 4. Thirty-seven written comments characterized the peaches as good. They included statements to the effect that the peaches had a fresh taste, were good

TABLE 4. SUMMARY OF COMMENTS ABOUT CHILCO PEACHES ON 118 PREFERENCE CARDS SUBMITTED BY CONSUMERS IN RESTAURANTS AND CAFETERIES, MONTGOMERY, ALABAMA, 1964-65

How would you rate this product in comparison with a similar peach product that you usually serve?		
	No.	Pct.
Above average.....	52	44
Average.....	27	23
Below average.....	5	4
No comment.....	34	29
Total.....	118	100

or excellent. Other comments varied in range so that further classification of the comments other than good did not appear to be meaningful.

Adverse comments, however, did appear to be more specific. There were 15 adverse comments and all could be further classified as related to unsatisfactory texture. Texture was said to be uneven, hard, green, or unsatisfactory.

RESULTS OF THE SAMPLE OF HOMEMAKERS USING GEORGIA BOY CHILLED PEACHES

Use of the Product

Most homemakers in a random sample drawn from Attalla, Alabama considered Georgia Boy Chilled Peaches to be a dessert item. Only 2 of 83 respondents given a sample jar used them in a salad (with cottage cheese). For dessert, the principal use, 42 per cent of the homemakers served peaches directly from the jar with no additional preparation. Shortcake was the next most frequent use, 34 per cent of the cases. Twelve per cent were served as peaches and cream, and 12 per cent were used in recipes of various kinds. Use as breakfast food was not specifically noted.

Subjective Flavor Rating and Rating Relative to Other Products

Respondents were asked to rate chilled peaches according to their conception of good peach flavor. A 5-point rating scale was used. Seventy-three per cent of respondents rated flavor as very good, 22 per cent as good, 4 per cent as average, and 1 per cent gave no response. When asked to compare chilled peaches with fresh peaches, 28 per cent of respondents thought chilled peaches were better than fresh, while 67 per cent thought chilled and fresh were about the same. Five per cent thought chilled were not as good as fresh. When chilled peaches were compared with

canned, 89 per cent thought chilled were better, and 11 per cent thought chilled and canned were about the same.

Homemakers also appeared to prefer chilled peaches to frozen peaches. Fifty-nine per cent said chilled were better than frozen, 24 per cent thought the products were about the same, 2 per cent through chilled were not as good as frozen, while 15 per cent were undecided.

Homemakers were asked to compare chilled peaches with chilled citrus. This was done because retail store managers contacted thought that chilled citrus products and chilled peaches would compete for space in the store and in use by consumers. A large portion of homemakers, however, were unable to make a use comparison of chilled peaches with chilled orange slices. Eighty-one per cent of the respondents said they lacked information to answer this question. Eleven per cent said that chilled peaches would be preferred to chilled orange slices, 7 per cent said the products would serve a similar purpose, while 1 per cent said that chilled oranges were preferred to chilled peaches.

Similar results were obtained when chilled peaches were compared with grapefruit slices. Seventy-six per cent were unable to make the comparison of peaches with grapefruit. Seventeen per cent preferred chilled peaches to grapefruit slices, and 7 per cent stated no preference between the products.

Income level associated with preference was noted although response was not large enough to show a significant difference. Forty-nine per cent of those who were unable to compare chilled peaches and orange slices had annual incomes of less than \$6,000, while 78 per cent of those who said chilled peaches were preferred to orange slices had incomes greater than \$6,000. A similar pattern was followed in preferences for grapefruit slices.

There was no tendency noted for income to be an important variable in flavor ratings. Those with lower income tended to rate chilled peaches as very good in a similar proportion to those with high incomes.

Income did appear to be important in the way the product was used. Seventy-six per cent of consumers using chilled peaches in shortcakes had incomes over \$6,000, while only 40 per cent of consumers using peaches with no additional preparation had incomes above \$6,000.

Size of family was also investigated as a factor influencing preference but was found to have no significant effect.

RESULTS OF COMMERCIAL SALES OF GEORGIA BOY PEACHES

The level of Georgia Boy Chilled Peach sales was not acceptable to the retail chain in which they were initially marketed. Several reasons may be given. One specification of this chain was that peach slices should have well defined edges and clean, distinctive shapes. The stage of maturity at which southern free-stone peaches will give this appearance also produces a texture in pasteurized-refrigerated peaches that may be unacceptable. As seen in the restaurant-cafeteria test of Chilco peaches, firm, green slices were unacceptable to consumers. Almost one-third of the Georgia Boy pack and all of the initial pack offered to the market consisted of firm slices.

The initial retail price of Georgia Boy peaches was high, especially in relation to experience gained in the Chilco market test. Also, no advertising was offered to stimulate demand at this price. Retail price was set at 59 cents per 22-oz. jar, and sales were not enough in the opinion of most store managers to warrant reordering. Fifty-nine cents represented about 43 cents per 16 ounces of peaches. Expected sales of 16-oz. jars at 43 cents in the Chilco study would have been less than 5 jars per week in a supermarket having 5,000 customers per week.

Store managers contacted during the Chilco study gave the opinion that any chilled product having movement of less than 6 jars per week at average mark-up would be very marginal in acceptance to management. In addition to problems of pricing and inadequate texture, internal problems of the company prohibited sales effort on Georgia Boy peaches for over a year after initial efforts.

The resulting storage of the product for a year provided an estimate of shelf-life property for Georgia Boy peaches. A sample of 50 cases drawn at random from the warehouse at the end of the year showed that 12 per cent of the pack had seal failures. Laboratory analysis revealed that additional technique and sanitation were needed. These goals were accomplished and a more recent commercial pack by a company other than Georgia Boy packers has had only 1 per cent seal failure in the first 9 months of storage.

During the fall of 1966, when the Georgia Boy pack was just over a year old, a decision was made by management to offer the product for sale at a price that would yield, in their opinion, the smallest acceptable profit and give expected sales that would warrant reordering by retailers. The resulting retail price was 39

cents per 22-oz. jar, and the product was offered for sale in a chain which had the majority of its stores in Alabama.

A sales audit of warehouse records for the period December 10, 1966 to March 4, 1967, the approximate season of the Chilco market test, was made on Georgia Boy Chilled Peaches, chilled grapefruit slices, chilled orange sections, chilled citrus salad, and chilled ambrosia (combination of citrus sections with coconut). The audit as reported in Table 5 was made on special request by warehouse personnel from classified files. According to their statement, the audit was for approximately 56 stores having an average number of customers per store of over 3,400 per week. These 56 stores represented about half of the stores served by this particular chain. Chilled peaches or chilled citrus were rarely sold in the remaining half of the stores, which tended to have a customer count of less than 3,400 customers per week.

TABLE 5. WEEKLY ORDERS FOR TWELVE WEEKS OF GEORGIA BOY CHILLED PEACHES AND FLORIDA CITRUS PRODUCTS IN 56 CHAIN STORES IN ALABAMA,¹ DEC., 1966 TO FEB., 1967

Date	Chilled peaches, 12/22-oz. /case	Ambrosia, 12/26-oz. /case	Citrus salad, 12/16-oz. /case	Grapefruit slices, 12/16-oz. /case
	Cases/week	Cases/week	Cases/week	Cases/week
Dec. 10-17, 1966.....	22	36	27	12
Dec. 17-24, 1966.....	38	177	49	23
Dec. 24-31, 1966.....	12	33	11	6
Dec. 31-Jan. 7, 1967.....	2	32	20	9
Jan. 7-14, 1967.....	2	15	10	8
Jan. 14-21, 1967.....	2	24	23	5
Jan. 21-28, 1967.....	219 ³	11	11	4
Jan. 28-Feb. 4, 1967.....	30	4	4	4
Feb. 4-11, 1967.....	33	15	21	4
Feb. 11-18, 1967.....	38	29	32	13
Feb. 18-24, 1967.....	40	18	40	25
Feb. 25-Mar. 4, 1967.....	37	19	28	16
Total cases.....	469	409	272	121
Total, minus largest week	250	232	NA	NA
Av./week sold.....	51.1	37.2	24.7	12.1
Retail price per unit.....	\$.39	\$.65	\$.35	\$.35

¹ Weekly orders of canned peaches during this period averaged 23 cases of 24/303 per case and 84 cases of 24/2½ per case. Georgia Boy peaches were packed summer of 1965.

² Average order per week of chemically prepared chilled peaches during these three weeks was 14.7 cases of 12/26-oz. units.

³ Newspaper advertising at price of 29 cents per unit.

⁴ Out of stock. Orange sections were also out of stock during most of this period, but when in stock for 5 weeks averaged 8.8 cases per week of 12/16-oz. units per case.

Georgia Boy sales were discontinued during 3 weeks of the period in favor of another commercial chilled peach slice pre-

served entirely by chemical methods, principally sodium benzoate. The chemical pack of chilled peaches had been stocked during 1965-1966.

Quality and sales volume of the chemical pack were not equal to those of Georgia Boy peaches in the opinion of warehouse management, and Georgia Boy chilled peaches were reordered. Each of the chilled citrus products was also out of stock at least 1 week during the period, and chilled orange slices, the slowest moving item, were out of stock 7 of the 12 weeks. More Georgia Boy Peaches were sold than any one of the chilled citrus products during the period.

Price of Georgia Boy peaches during the period was 39 cents per 22-ounce jar, except for a special promotion of 29 cents per jar during the week January 21-28, 1967. Average cases ordered per week minus promotional sales was 31.2 cases of 12-22-ounce jars, or, based on 192,031 customers in 56 stores, 2.28 jars per 1,000 customers. By volume this was equivalent to 3.12 of 16-ounce jars per 1,000 customers. The aggregate demand equation from the Chilco study predicted sales of 3.12 jars per 1,000 at 28 cents. The equivalent volume of Georgia Boy, which is 3.12 jars of Chilco, was selling for 27-28 cents per 16 ounces, indicating close conformity with the Chilco study.

Total volume of customers in stores selling Georgia Boy peaches was, although unknown, likely to have been more than 192,000 since this was representative of average customer count. Stores selling Georgia Boy peaches were average and above in store volume. Market sales of Georgia Boy peaches per 1,000 customers per week was somewhat less than Chilco, but still acceptable to store and warehouse managers.

SUMMARY AND CONCLUSIONS

The level of demand for a new product, Chilco pasteurized-refrigerated peaches, was studied by use of an experimental pricing technique that yielded results applicable to the first commercial pack, Georgia Boy.

Analysis of variance of the Chilco test indicated that price was a very significant variable affecting sales. Regression analysis of the data yielded a price elasticity of -2.73 for the aggregate data from three different-sized stores. After an 11-week introductory period, time of applying variable prices was not found to be important in explaining sales. Relationship of sales to income was found to be negative but not significant.

Principal use of Georgia Boy pasteurized-refrigerated peaches was in desserts with no additional preparation or with shortcake.

Principal adverse comment about Chilco peaches was the presence of green or hard-textured slices.

Georgia Boy peaches at 39 cents per 22-oz. jar competed well in volume of sales with other chilled products (citrus) on the market, but were unacceptable to the market at 59 cents per jar.

Chilled peaches prepared with sodium benzoate did not perform as well in one test market as pasteurized-refrigerated peaches.

The effect of hand-lettered signs offering a price reduction at point-of-sale was significant and suggests that a more extensive study of advertising would be useful.

Housewives and restaurant customers found pasteurized-refrigerated peaches to be above average in quality relative to peach products they were accustomed to consuming.

All levels of the market, consumers, restaurant managers, supermarket managers, chain warehouse managers, and processors expressed an interest in continued development of the product. Perhaps the most vital point in continued development is to obtain costs of production so that the product can be retailed at 39 cents or less per 16-ounce jar. Consumer demand at higher prices and in the absence of extensive promotion and advertising will likely result in a volume of sales that will not compete for shelf space in most chain supermarkets.

APPENDIX

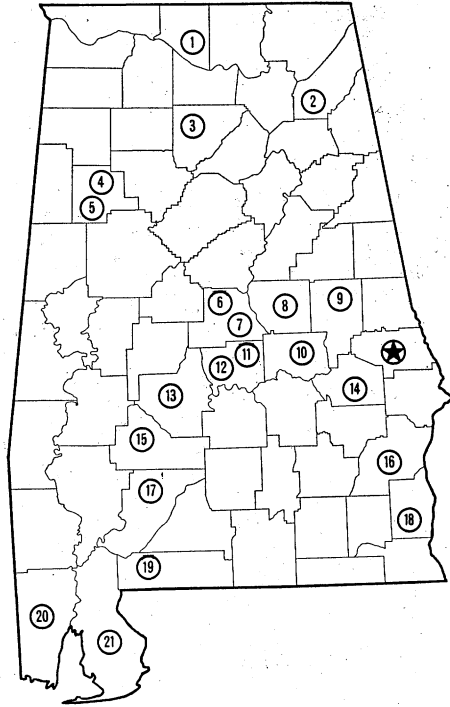
ANALYSIS OF VARIANCE FOR SALES OF CHILCO PASTEURIZED REFRIGERATED PEACHES, AUBURN AND MONTGOMERY, ALABAMA, 1964-65

Source of variation	df	SS	MS	F
Weeks.....	4	2.40566	0.6014	1.00
Stores.....	10	73.05900	7.3059	1.45
Periods.....	10	25.08010	2.5080	1.00
Price.....	2	115.53327	57.7666	11.44**
Price and weeks.....	8	7.53223	0.9415	1.00
Error.....	10	50.51680	5.0517	
Total.....	44	274.13064		
Treatments.....		23 cents	29 cents	35 cents
mean sales/1,000 customers/week of 16 oz. jars at given prices		5.24	3.12	2.41

** Significant at the .01 level.

AGRICULTURAL EXPERIMENT STATION SYSTEM OF ALABAMA'S LAND-GRANT UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, live-stock, forestry, and horticultural producers in each region in Alabama. Every citizen of the State has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



Research Unit Identification

★ Main Agricultural Experiment Station, Auburn

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Thorsby Foundation Seed Stocks Farm, Thorsby.
7. Chilton Area Horticulture Substation, Clanton.
8. Forestry Unit, Coosa County.
9. Piedmont Substation, Camp Hill.
10. Plant Breeding Unit, Tallassee.
11. Forestry Unit, Autauga County.
12. Prattville Experiment Field, Prattville.
13. Black Belt Substation, Marion Junction.
14. Tuskegee Experiment Field, Tuskegee.
15. Lower Coastal Plain Substation, Camden.
16. Forestry Unit, Barbour County.
17. Monroeville Experiment Field, Monroeville.
18. Wiregrass Substation, Headland.
19. Brewton Experiment Field, Brewton.
20. Ornamental Horticulture Field Station, Spring Hill.
21. Gulf Coast Substation, Fairhope.