

Consumer-Market Study of "CHILCO" JAM and JELLY



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Consumer-Market Study of "CHILCO" JAM *and* JELLY¹

Report on Acceptance of Improved Products Made from Alabama Blackberries

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COMMERCIAL PRODUCTION of blackberries in certain areas of Alabama has gained in importance in recent years. About 700 acres in Chilton County were in blackberry production in 1954. This is an increase of 50 per cent in 5 years. Other Alabama areas produce blackberries but primarily for local markets.

Production in Chilton County in 1954 exceeded 2½ million pounds, most of which was marketed through the Chilton County Fruit and Truck Growers' Association, a farmer's cooperative. In 1956, more than 2 million pounds of the county's berry crop were handled by the association, or about two-thirds of the 3-million-pound crop.³

The Chilton County area has been developed as a commercial blackberry-producing center largely since 1945. Principally, the trailing type blackberry of the Youngberry strain is grown. Boysenberries are also grown, but to a lesser degree. The trailing type blackberries are much larger and are of higher acidity than most of the erect type blackberries. The trade name Dixie Giant

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² Acknowledgment is due the late E. K. Kirkwood for his assistance in collecting field data. The analysis of data and presentation of results were the responsibility of the authors of this report.

³ The 1955 crop was almost a total loss because of a late March freeze.

has been used for a number of years by the Chilton County Fruit and Truck Grower's Association in marketing blackberries.

Chilton County blackberries have been used for several years in the processing trade. They are particularly well adapted to freezing or for preparation into juice or puree. Because of these uses the berries have been in demand by preservers, freezing plants, wineries, and pie bakers in many sections of the United States.

Today, the preserving industry is the greatest market outlet for Alabama berries. Directly and indirectly, preservers purchase more than 50 per cent of the berries produced in Chilton County.

Other outlets for Dixie Giant blackberries included truckers, roadside markets, and household consumers. These latter outlets combined take only a small portion of the berries grown and have no appreciable effect upon the volume of berries moved.

Because of the rapid increase of production in recent years, some concern has been expressed by growers and others with regard to the impact of production on price. A primary objective of the study reported here was to explore alternative outlets for an expanded production. Also, it was expected that a review of present marketing procedures would suggest means for increasing market acceptance of the Alabama blackberry and thus increase demand.

Specific objectives of the study were:

1. To evaluate the effectiveness of present marketing procedures.
2. To measure consumer preferences for an improved jam and jelly made from Alabama blackberries.
3. To determine the sales potential of the improved jam and jelly in comparison with established comparable brands.

METHOD *of* STUDY

Emphasis in this study was given to objectives 2 and 3. The initial step was to survey agencies, processors, government inspectors, and others who had bought or otherwise handled berries during 1953 and 1954. A statement based on this survey was prepared for use in discussing with directors and farmer members of the Chilton County Fruit and Truck Growers' Association ways and means of improving marketing methods of Chilton County blackberries. The essential points of this statement are summarized in the Appendix on page 11.

It was thought that the preserving industry offered excellent

opportunities for expanding the market for cultivated blackberries. The Alabama blackberry has been used for a number of years by processors for making jam and jelly but principally in blends with the erect type berry. However, research by the Department of Horticulture, Agricultural Experiment Station of the Alabama Polytechnic Institute, has not only shown that the blackberry is highly suited to jam and jelly preparation but resulted in improved methods of preparing jam and jelly.

The improved process involves concentration by freezing to eliminate unnecessary boiling. Thus a higher percentage of the aromatic fruit flavors is retained.⁴

To determine if consumers would accept the experimental jam and jelly in competition with those usually purchased, a consumer acceptance survey was conducted in Montgomery, Alabama, during November and December of 1954. The sample (214 households) was drawn to be representative of the city of Montgomery.⁵ Each member of the household 16 years of age and over was asked to participate in the study. In all, 424 respondents offered opinions.

Households were visited three times. Each household received regular sized glasses of jam and jelly, half receiving jam and half receiving jelly the first visit.⁶ The procedure was reversed the second visit. Households were requested to use the products for a period of about a week. One glass each of the improved experimental jam or jelly and a leading commercial brand were left on the first and second visits with evaluation forms to be filled in by each participant. All means of identification were removed and the glasses were labeled A and B. Evaluation forms were

⁴ The freeze concentration process is so named because the dilute icy portion of the fruit is removed by pressing out the soluble concentrates at a temperature of approximately 29.5°F. The dilute portion is boiled to remove excess water and then blended with the concentrated portion for making the finished product. Pectin, sugar, and acid are added to the combined concentrate and heated to 190°F. for the purpose of dissolving the materials. This process eliminates the open-kettle or vacuum boiling, thereby saving a greater amount of the aromatic fruit flavors. The product is then canned and labeled. Hubert Harris, Associate Horticulturist of the API Agricultural Experiment Station, developed the process and will supply full particulars upon request.

⁵ The survey sample was furnished by Glen Burrows, Statistical Consultant, Statistical Clearance Office, AMS-USDA, Washington, D.C. The sample included street addresses of 250 households drawn from the Polk City Directory of Montgomery.

⁶ The improved experimental jam and jelly was prepared in the Experiment Station's processing laboratory at Auburn, Alabama, from berries supplied by the Chilton County Fruit and Truck Growers' Association. The commercial jam and jelly was purchased.



“Chilco” jam and jelly, made from Alabama blackberries by an improved process, were rated in a consumer-market study conducted in Montgomery, Alabama.

collected during the second and final visits. During one of the visits, a schedule on household characteristics was filled in by the enumerator.

Beginning February 15, 1955, the experimental products were handled for 7 months by 6 selected retail food stores in Montgomery (three chain stores and three smaller independent stores) to obtain an actual measure of buying preferences. Experimental jelly was sold in 12-ounce containers only and jam was sold in both 12- and 16-ounce sizes. There was no promotion in introducing the experimental products. The experimental jam and jelly were labeled, given a brand name,⁷ and shelved in competition with commercial brands. After a 2 weeks period of sale, limited promotion was begun. The promotion, however, was confined to a period of only 2 weeks that included both newspaper and television media.

CONSUMER PREFERENCES *for* EXPERIMENTAL PRODUCTS

Product Liked Best

Respondents were decidedly in favor of the experimental products over the commercial jam and jelly, Table 1. More than 50 per cent of all respondents preferred the experimental products with preferences for jelly somewhat stronger than for jam. Sam-

⁷ The brand name chosen for the experimental jam and jelly was “Chilco,” a word formed from “Chilton” and “County.”

TABLE 1. REPLIES TO QUESTION: "WHICH SAMPLE DID YOU LIKE BEST?"

Liked best	Percentage of replies	
	Jelly	Jam
	<i>Per cent</i>	<i>Per cent</i>
Experimental product	56	50
Commercial product	37	40
No difference	7	10
TOTAL	100	100

ples of the commercial brand were preferred by less than 40 per cent of the respondents.

Product Having Best Flavor

In response to a question as to which sample had the best flavor, 56 per cent liked the experimental jelly best, 38 per cent preferred the commercial product, and 6 per cent said they could detect no difference between the two. Response to the experimental jam was not as favorable as to the jelly, although 50 per cent of the respondents expressed a preference for the experimental jam, Table 2. Apparently flavor plays an important part in determining the quality of jam and jelly made from blackberries, since the response as to the product liked best and the one having best flavor were almost the same.

TABLE 2. REPLIES TO QUESTION: "WHICH SAMPLE HAS THE BEST FLAVOR?"

Best flavor	Percentage of replies	
	Jelly	Jam
	<i>Per cent</i>	<i>Per cent</i>
Experimental product	56	50
Commercial product	38	40
No difference	6	10
TOTAL	100	100

Product Having Best Texture

In response to a question as to which sample had the best tex-

TABLE 3. REPLIES TO QUESTION: "WHICH SAMPLE HAS THE BEST TEXTURE?"

Best texture	Percentage of replies	
	Jelly	Jam
	<i>Per cent</i>	<i>Per cent</i>
Experimental product	55	51
Commercial product	30	32
No difference	15	17
TOTAL	100	100

ture, 55 per cent liked the experimental jelly, 30 per cent the commercial jelly, and 15 per cent said there was no difference. Respondents also favored the experimental jam over the commercial jam, Table 3.

Product Having Best Appearance

The experimental products were preferred to the commercial products when rated on the basis of appearance, Table 4. However, for both texture and appearance, the percentage of respondents indicating no differences was considerably larger than was true for flavor. The percentage of replies in favor of the experimental product was not greatly affected, however.

TABLE 4. REPLIES TO QUESTION: "WHICH SAMPLE HAS THE BEST APPEARANCE?"

Best appearance	Percentage of replies	
	Jelly	Jam
	<i>Per cent</i>	<i>Per cent</i>
Experimental product	53	47
Commercial product	28	31
No difference	19	22
TOTAL	100	100

Intensity of Preferences

Respondents were asked to indicate the intensity of preferences for the product preferred, Table 5.

Preferences for the experimental jam were somewhat stronger in relation to the commercial product than was evident for the jelly. About three-fourths of the respondents who preferred the experimental jam said they liked it either "much better" or "very much better," as compared with slightly more than three-fifths of those who preferred the commercial jam. The degree of preference was not importantly different for the jelly products.

TABLE 5. INTENSITY OF PREFERENCES FOR PRODUCTS PREFERRED

Product	Degree of preference for product liked best		
	Very much better	Much better	Only slightly better
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Jelly			
Experimental product	40	42	18
Commercial product	30	48	22
Jam			
Experimental product	28	45	27
Commercial product	26	37	37

Respondents' Reactions to Quality of Products

Quality factors on which respondents were requested to appraise the products were sweetness, flavor, mildness, and texture. On all quality factors, the experimental products, both jelly and jam, scored extremely well and noticeably higher than did the commercial products, Appendix Tables 1 and 2. Relative to the commercial products, the experimental jelly scored better on sweetness than did the experimental jam. The jam scored better on texture, however, than did the experimental jelly.

Socio-Economic Factors and Product Preferences

For the most part, segments of the sample were too small to make other than general observations in attempting to relate product preferences to socio-economic factors. It did appear that among the extremely low-income groups there were no important differences in products preferred in contrast to results reported earlier for all respondents. Respondents in these households probably were a much less discerning group.

There were no important differences among age groups and educational levels from the over-all pattern. The 16- to 25-year age group appeared to have somewhat stronger preferences for the experimental jelly. In general, however, preferences among respondents grouped for age, race, sex, income, educational level, and occupational status followed the results obtained for all respondents.

CONSUMER ACCEPTANCE *in* RETAIL STORES

Results of testing the experimental jam and jelly in stores are reported in Table 6. To obtain an actual measure of buying preferences, the experimental products were compared with a leading commercial brand in each of six retail stores. In most instances, other brands were also carried. The products were introduced into stores without promotion and were shelved in regular jam and jelly sections. Jelly was offered in 12-ounce sizes only, while jam was sold in both 12- and 16-ounce sizes. After a 2-week sale period, the experimental jam and jelly was featured on a local television "homemaker's" daytime show for a week and was advertised, including a feature story on the weekly business page of a Montgomery newspaper.

During the first period of sale, experimental jam and jelly sales were less than half those of the leading commercial brand with

TABLE 6. MONTHLY SALES OF EXPERIMENTAL JAM AND JELLY COMPARED WITH A LEADING COMMERCIAL BRAND OF JAM AND JELLY IN SIX RETAIL FOOD STORES, MONTGOMERY, ALABAMA, FEBRUARY 15 THROUGH SEPTEMBER 15, 1955¹

Month	Jam sold			Jelly sold		
	Total units sold	Percentage of total		Total units sold	Percentage of total	
		Experi-mental	Commer-cial		Experi-mental	Commer-cial
	<i>Number</i>	<i>Per cent</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Per cent</i>
1	427	37	63	464	29	71
2	663	77	23	724	75	25
3	392	62	38	459	59	41
4	245	47	53	352	55	45
5	231	51	49	276	50	50
6	229	58	42	236	48	52
7	189	43	57	308	55	45
ENTIRE PERIOD	2,376	57	43	2,819	55	45

¹ Comparison made for 12-ounce size only.

which they were compared. Sales were good, however, especially since there was no introductory promotion. Effects of the limited promotion given the experimental products were seen during the second month. For both jelly and jam, sales of the experimental products increased remarkably and during the second month were three times as great as brand with which they were compared. Undoubtedly, this promotion induced purchasers to replace usual brands with the experimental products but, more important, it appeared to have induced consumers to increase their total purchases above those normally purchased. The effect of this promotion probably lasted for several months, but continued satisfactory sales of the experimental products was evidence that consumers accepted them.

During the third month, sales of the experimental products were about 50 per cent greater than the comparable brand. For the remainder of the period, sales comparisons were not greatly different in the 12-ounce size. Sales of experimental products were highly satisfactory, however. It is noted that sales of experimental jam in the 16-ounce size were not included in the comparisons reported in Table 6. Not all stores in the test carried commercial brands in the larger size, hence comparisons were not possible. But, of the total amount of experimental jam sold during the study, 42 per cent was in the 16-ounce size.

While the quantity data reported in Table 6 do not reveal total sales of jam and jelly in the cooperating stores, they do show sea-

sonality of purchases. As is ordinarily expected, there is a noticeable decline in jam and jelly purchases with warmer weather.

SUMMARY

Because of increased production of improved blackberries in recent years, the need for developing additional market outlets was thought to be great to avoid possible unsatisfactory prices that might accompany increased marketings. Improved methods of preparing jam and jelly that retain a higher percentage of aromatic fruit flavors that are often lost by ordinary boiling methods were developed by the API Agricultural Experiment Station.

To determine if consumers would accept blackberry jam and jelly made by this improved process as superior to those usually purchased, a consumer acceptance survey was conducted among households in Montgomery, Alabama, in late 1954. Based on favorable results from this acceptance test, experimental products were labeled, placed in a selected number of Montgomery stores, and sold in competition with other jam and jelly products for a period of 7 months during 1955.

In the acceptance test conducted among households, respondents favored both the experimental jelly and jam over the leading commercial brands with which they were compared. And, both the experimental products outsold the leading commercial brands used in the comparison.

APPENDIX

Summary of Report, "Problems in Marketing Chilton County Dixie Giant Blackberries"

The initial step in the study was to contact as many firms as possible that had bought blackberries from the association during the previous marketing season. These included brokers, pie bakers, and preservers in Chicago, freezing plants in Tennessee, and local processors. In addition, state and federal government inspectors were consulted. A statement based on the facts and opinions secured from these sources was prepared for use in discussing with farmer members and directors of the Chilton County Fruit and Truck Growers' Association ways and means of improving marketing methods of Chilton County blackberries. The essential points suggested for consideration by producers of the association, as summarized from the statement, are:

1. A careful spray or dust program should be undertaken for the control of thrips, other pests, and diseases.

2. A greater effort should be made to harvest berries at a uniform stage of maturity.

3. A system of sorting or grading for sale to different users should be considered.

4. Using past production records, the association should carefully estimate well in advance of the harvest season the probable production; also, from pre-season estimates of probable customers, determine the amounts of berries that probably can be sold.

5. A standard price to customers should be established in advance of the marketing season based on pre-season estimates.

6. To lessen the impact of pricing difficulties due to high production and to help maintain the established price, it is suggested that producers assent to a two-price system for their crop. That is, with a large crop, a lower price than that based on the standard price of berries to customers might be necessary for a portion of the production to pay for storage until this additional portion could be moved.

7. On the basis of past experience, it appears advisable that the association use a single sales agent, at least for the present, for comparable or competitive users. Examples of such users are the pie bakers in Chicago.

8. The association should maintain uniform selling procedures for the most common methods or the usual manner in which they handle blackberries.

9. In the very near future, the association should investigate the feasibility of financing and constructing adequate holding or processing facilities.

10. The association should recognize that within the next few years it may face the necessity of more rigid compliance with Food and Drug Administration labeling regulations with its choice of a trade name.

Some of these points might prove to be unworkable and some are more urgently needed than others. They are included in this report for the possible consideration of other local marketing groups that may have similar marketing problems.

APPENDIX TABLE 1. RESPONDENTS' DESCRIPTIONS OF EXPERIMENTAL AND COMMERCIAL JELLY PRODUCTS

Description	Product	
	Experimental	Commercial
	<i>Per cent</i>	<i>Per cent</i>
Sweetness		
Just the right sweetness	74	53
Not sweet enough	17	22
Too sweet	9	25
Flavor		
Has natural fresh flavor	68	59
Has artificial flavor	32	41
Mildness		
Just the right mildness	70	55
Too strong or sharp	23	27
Too mild	7	18
Texture		
Just the right firmness	77	63
Too soft	20	9
Too firm	3	28

APPENDIX TABLE 2. RESPONDENTS' DESCRIPTIONS OF EXPERIMENTAL AND COMMERCIAL JAM PRODUCTS

Description	Product	
	Experimental	Commercial
	<i>Per cent</i>	<i>Per cent</i>
Sweetness		
Just the right sweetness	70	62
Not sweet enough	15	18
Too sweet	15	20
Flavor		
Has natural fresh flavor	68	63
Has artificial flavor	32	37
Mildness		
Just the right mildness	70	62
Too strong or sharp	22	24
Too mild	8	14
Texture		
Just the right firmness	83	69
Too soft	7	15
Too firm	10	16

APPENDIX TABLE 3. DISTRIBUTION OF SAMPLE¹ BY SEX AND AGE OF ALL RESPONDENTS

Sex and age ²	Percentage of respondents
	<i>Per cent</i>
Sex of respondents	
Male	42
Female	58
TOTAL	100
Age of respondents	
16 to 21	10
22 to 36	37
37 to 51	27
52 and over	25
Not reported	1
TOTAL	100

¹ This distribution reports on those respondents sampling jelly. A distribution of those sampling jam shows similar results.

² Respondents under 16 years of age were not included in the sample.

APPENDIX TABLE 4. DISTRIBUTION OF SAMPLE BY MARITAL STATUS OF HEAD OF HOUSEHOLD

Marital status	Percentage of households
	<i>Per cent</i>
Single	2
Married	77
Widowed	19
Other	2
TOTAL	100

APPENDIX TABLE 5. DISTRIBUTION OF SAMPLE BY RACIAL STATUS OF HOUSEHOLD

Racial status	Percentage of households
	<i>Per cent</i>
White	69
Negro	31
TOTAL	100

APPENDIX TABLE 6. DISTRIBUTION OF SAMPLE BY OCCUPATIONAL STATUS OF HEAD OF HOUSEHOLD

Occupational status	Percentage of households
	<i>Per cent</i>
Professional and managerial	19
Proprietors and owners	6
Clerical and sales	14
Service	21
Skilled and semi-skilled	17
Unskilled	9
Housewives	4
Retired	5
Not employed	5
TOTAL	100

APPENDIX TABLE 7. DISTRIBUTION OF SAMPLE BY GRADE COMPLETED IN SCHOOL
BY HEAD OF HOUSEHOLD

Educational status	Percentage of households
	<i>Per cent</i>
Less than grade school	19
Completed grade school	18
Less than high school	20
Completed high school	20
Less than college	12
Completed college	11
TOTAL	100

APPENDIX TABLE 8. DISTRIBUTION OF SAMPLE BY FAMILY INCOME GROUPS

Income group	Percentage of households
	<i>Per cent</i>
\$1,000 or less	12
1,001 to 2,000	21
2,001 to 3,000	21
3,001 to 5,000	33
\$5,000 or more	13
TOTAL	100

APPENDIX TABLE 9. DISTRIBUTION OF SAMPLE BY AMOUNT OF MONTHLY FOOD
PURCHASES

Monthly food purchases	Percentage of households
	<i>Per cent</i>
\$25 or less	5
26 to 50	26
51 to 75	25
\$75 or more	44
TOTAL	100

APPENDIX TABLE 10. DISTRIBUTION OF SAMPLE BY NUMBER OF CHILDREN UNDER
16 LIVING AT HOME

Number of children	Percentage of households
	<i>Per cent</i>
None	38
One	21
Two	22
Three	11
Four	3
Five or more	5
TOTAL	100

