

Characteristics of Consumer Demand
for
Macadamia Nuts

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ABSTRACT

This bulletin on characteristics of consumer demand for macadamia nuts is designed as a guide to market development for the expanding macadamia nut industry. The report is based largely on a personal interview survey of homemakers in selected areas of Honolulu.

The following summary incorporates the more important findings:

1. Eighty-six percent of Honolulu residents contacted in the consumer survey were aware that macadamia nuts were available for sale in Honolulu. But only 81 percent had ever tasted the nuts and only 64 percent had ever bought any.

The most important factor associated with both extent of awareness and purchases of macadamia nuts was length of residence in Hawaii. This would be expected inasmuch as Hawaii is the only area where macadamia nuts are generally distributed in all types of stores. Extent of awareness also varied directly with size of family income. There was a direct but less emphatic relationship between the extent to which purchases had ever been made and age and education of the homemaker.

Also purchases were highest among the Chinese and lowest among the Filipinos, with other racial and nationality groups falling about midway between the two. However, cross relationship of the various determining factors indicates that differences in purchases by racial and nationality groups are due largely to differences in income and length of residence in Hawaii rather than to differences in taste preferences.

2. The number of purchases of macadamia nuts per buying family was small. Forty-eight percent bought two jars or less during 1957. Only 14 percent bought seven jars or more.

3. Annual purchases of salted macadamia nuts per 1,000 capita averaged 293 pounds during 1957 with important differences by income groups. Purchases amounted to 578 pounds for families with incomes of \$8,000 or over but only 313 pounds for families with incomes of \$4,000 to \$7,999 and 176 pounds for those with incomes of under \$4,000.

4. Fifty-eight percent of the macadamia nuts purchased by Honolulu homemakers during 1957 were bought as gifts.

5. The 7-ounce jar as compared with 3½-ounce and 12-ounce jars was the most popular both for gift purchases and for family consumption.

6. As to seasonality of purchase, 50 percent bought salted macadamia nuts throughout the year and 50 percent only for special occasions such as Thanksgiving or Christmas. The percentage of Hawaii consumers using macadamia nuts regularly exceeds that for mainland consumption of all tree nuts where only one-fourth of the consumers reported use at a constant rate.

7. Eighty-seven percent of Honolulu homemakers indicated a preference for whole or halved as compared with pea-sized pieces of macadamia nuts because of better retention of freshness and less chance for oversalting.

8. Honolulu consumers did not indicate a high degree of brand consciousness for macadamia nuts and bought in terms of the product rather than the brand.

9. Sixty-three percent of the consumers used macadamia nuts as a between meal snack; 31 percent used them while watching television; 31 percent used them with cocktails or other beverages; 13 percent used them for baking or toppings; and 9 percent bought them for gifts only and didn't use any themselves. The use of macadamia nuts with cocktails and for baking or toppings varied directly with income.

10. The majority of Honolulu homemakers preferred macadamia nuts to all other nuts, insofar as taste and texture are concerned. The nearest competitor tastewise was the cashew and the least preferred was the filbert.

11. Nineteen percent of all Honolulu homemakers contacted in the survey found fault with macadamia nuts regarding one or more characteristics. Major complaints were that the nuts were too oily, too fattening, too rich, soggy or rancid or too salty. Some of these conditions can be corrected through better processing and handling.

12. Price was the greatest deterrent to further purchases. Forty-six percent of the respondents considered the price of macadamia nuts too high in relation to prices of other nuts.

13. Forty percent of the homemakers indicated that they would buy more macadamia nuts if they were sold in cans rather than jars. Sixty-seven percent indicated that they would make more purchases if they were available in 15-cent polyethylene bags; and 42 percent indicated they would buy more macadamia nuts if they were more generally available in bulk dispensers.

14. With regard to packaging of nuts, in general, more consumers preferred to buy nuts shelled and unmixed than in any other form. Coincidentally, this is the only form in which macadamia nuts are presently offered for sale.

15. Fifty-nine percent of the sample of Honolulu homemakers had ever bought chocolate-coated macadamia nut candy. Seventy-three percent of those who made purchases bought three boxes or less. Annual purchases amounted to 379 pounds per 1,000 capita. As was true with regard to salted macadamia nuts, extent of awareness and purchases varied directly with length of residence in Hawaii and family income.

16. Sixty percent of the Honolulu homemakers had ever bought macadamia nut ice cream. The extent of purchase varied directly with length of residence in Hawaii, family income, and age and education of the homemaker.

CHARACTERISTICS OF CONSUMER DEMAND FOR MACADAMIA NUTS

*Frank S. Scott, Jr.*¹

INTRODUCTION

This report on characteristics of consumer demand for macadamia nuts is based largely upon personal interviews of homemakers in selected districts in Honolulu.

In response to favorable market acceptance as a specialty item, macadamia nut culture in Hawaii as of May 1958, had expanded to 3,014 acres in plantings, with 1,672 acres in production. Hawaii is the only area in the world with a sizable macadamia nut processing industry based on commercial plantings. A small macadamia industry in Australia, where the tree originated, is supplied largely by wild seedlings. There are small domestic plantings in California.

Whereas Hawaiian-produced macadamia nuts are available in most drug stores, specialty stores, and food stores in Hawaii, mainland distribution has been limited primarily to specialty stores in the New York area and on the Pacific Coast.

The Hawaii macadamia nut industry has progressed to the point where there is need for a more precise determination of comparative advantages in production and an indication of the market potential. In order to provide a guide to the orderly expansion of this industry, it seems almost imperative that a measure be obtained of the market potential under various pricing and promotional programs. Before encouraging sizable additional plantings, it is necessary to know whether macadamia nut production should be limited to a small industry catering primarily to specialty trade or whether there is justification for a substantially larger industry catering to a wider market at competitive prices. This study of characteristics of consumer demand in Hawaii, which is the only area where macadamia nuts are widely distributed, is expected to provide background material for a study of the mainland market potential and as a guide to market development.

PROCEDURE

The personal interview consumer survey on which this study is based was designed to yield adequate samples for comparisons of consumer preferences by income, education, age, and racial groups. It was necessary to supplement random samples of selected districts in order to obtain a sufficient number of records for each of the groups for which preferences were determined. Thus, although the tabulations provide a reliable indication of preferences by the various groups, they do not provide an exact random sample of preferences for macadamia nuts in the city of Honolulu.

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CONSUMER FAMILIARITY WITH MACADAMIA NUTS

Eighty-six percent of Honolulu residents contacted in the household survey indicated that they were aware that macadamia nuts were being sold in Hawaii.

The most important factor behind the extent of awareness was the length of time the respondents had lived in Hawaii. The percentage of people who knew that macadamia nuts were being sold in Honolulu ranged from 46 percent for those who had lived in Hawaii less than 1 year to 92 percent for those who had resided 5 years or longer (table 1 and fig. 1). The combination of income and racial origin also had an important bearing on extent of awareness. Whereas only 76 percent of the families with incomes of under \$4,000 were aware that macadamia nuts were being sold, the percentage was 95 for the middle income group of \$4,000 to \$7,999 and 96 for the high income group of \$8,000 and over. Awareness by racial origin ranged from 71 percent for Filipinos to 100 percent for Chinese. The apparent effect of racial background on awareness of macadamia nuts was due in part to the relationship of certain racial groups with certain income groups and also to the length of residence in Hawaii. Customs and familiarity with Hawaiian living were also interrelated determining factors. The majority of the respondents of Chinese and Japanese ancestry were in the middle income group and had lived in Hawaii 5 years or more. The Caucasians, although fairly well divided among the high, medium, and low income groups, constituted the majority of the respondents who had lived in Hawaii less than 5 years, thus tending to decrease the chances of being familiar with the sale of macadamia nuts.

Age of the homemaker appeared to have some effect on familiarity with macadamia nuts (fig. 1). But this factor as well as those above was associated with other factors. The percentage of familiarity ranged gradually upward from 78 percent for homemakers of 30 years of age or under to 93 percent for those of 41 and over. But the percentage of homemakers having lived in Hawaii less than 5 years was greater among the younger homemakers, thus tending to reduce the chances of familiarity on the part of the younger group.

There was a correlation between education of the homemaker and awareness of macadamia nuts for those who had 1 to 3 years of high school through the college graduate category ranging from 76 percent for the former to 98 percent for the latter (fig. 1). Yet 90 percent of those who had only 8 years or less of formal schooling indicated an awareness. Because of the effect of related factors it is difficult to measure the effect of education in itself on consumer awareness of macadamia nuts.

ORIGIN OF CONSUMER AWARENESS

Approximately one-third of the sample of Honolulu homemakers indicated that they first found out about the availability of macadamia nuts in Hawaii through seeing them on display in grocery stores (table 2 and fig. 2). Eleven percent were told about macadamia nuts by another person, 10 per-

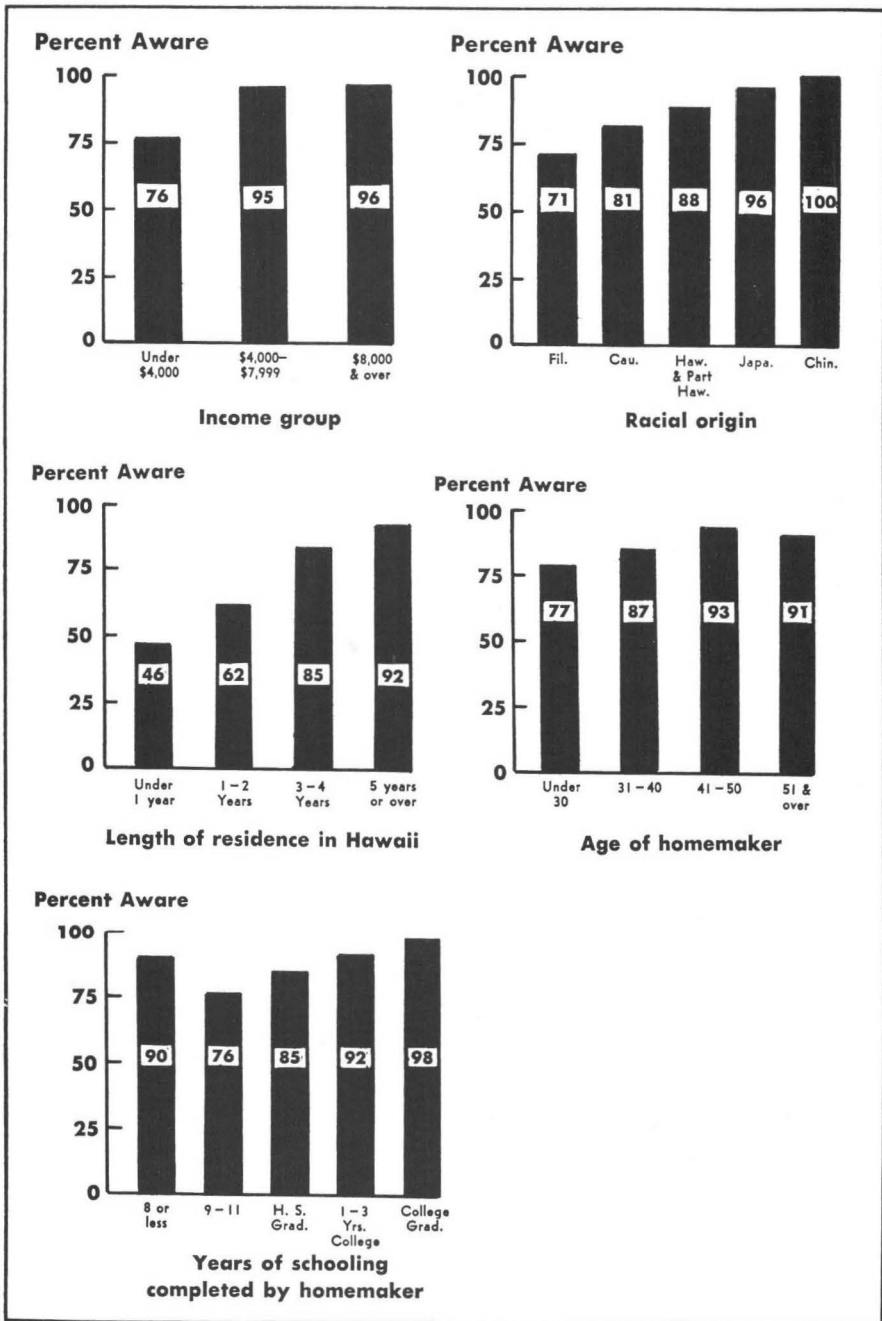


FIGURE 1. Effect of income, racial origin, length of residence in Hawaii, age of homemaker, and education on awareness of availability of macadamia nuts in Honolulu.

TABLE I. Percentage of Honolulu homemakers who were aware of the availability of macadamia nuts, had ever eaten macadamia nuts, and had ever bought macadamia nuts, as of March, 1958

| CATEGORY | RACIAL EXTRACTION | | | | | | YEARS OF SCHOOLING | | | | |
|--|----------------------|----------------------|----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | Fili- pino | Cauca- sian | Hawaiian and Part Hawaiian | Japa- nese | Chi- nese | Others | 8 years or less | 9-11 years | H. S. grad. | 1-3 yrs. college | College grad. |
| | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> | <i>Per- cent</i> |
| Awareness as to availability | 71 | 81 | 88 | 96 | 100 | 88 | 90 | 76 | 85 | 92 | 98 |
| Percent who had ever eaten macadamia nuts | 45 | 80 | 87 | 94 | 98 | 64 | 77 | 72 | 85 | 81 | 93 |
| Percent who had ever bought any macadamia nuts | 45 | 67 | 63 | 65 | 87 | 44 | 56 | 49 | 68 | 72 | 88 |

TABLE 1. *Continued*

| CATEGORY | YEARS IN HAWAII | | | | AGE OF HOMEMAKER | | | | FAMILY INCOME | | | |
|--|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|
| | Less than 1 | 1-2 | 3-4 | 5 or over | 30 or under | 31-40 | 41-50 | 51 and over | Under \$4,000 | \$4,000-\$7,999 | \$8,000 and over | All groups |
| | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> | <i>Per-cent</i> |
| Awareness as to availability | 46 | 62 | 85 | 92 | 77 | 89 | 93 | 91 | 76 | 95 | 96 | 86 |
| Percent who had ever eaten macadamia nuts | 30 | 44 | 75 | 88 | 50 | 88 | 82 | 79 | 68 | 91 | 94 | 81 |
| Percent who had ever bought any macadamia nuts | 28 | 34 | 74 | 70 | 53 ^a | 66 | 74 | 73 | 45 | 78 | 89 | 64 |

^aThe 53 percent who had ever bought could exceed the 50 percent who had ever eaten inasmuch as some homemakers indicated that they bought macadamia nuts only as gifts.

TABLE 2. How consumers first found out that macadamia nuts were available in Honolulu

| INCOME GROUP | PERCENT OF CONSUMERS WHO FIRST FOUND OUT ABOUT AVAILABILITY OF MACADAMIA NUTS THROUGH SOURCES INDICATED: | | | | | | | | | | |
|------------------|--|------------|-------------------------------|-----------------------------------|--------------------|---|--------------------------------------|--------------|--------------|--------------|-------|
| | Saw on display in: | | | Told about them by another person | Received as a gift | Served at a party, on ship, home of another, etc. | Familiar with growing and processing | Always known | Newspaper ad | Can't recall | Other |
| | Grocery store | Drug store | Department or specialty store | | | | | | | | |
| Under \$4,000 | 35 | 7 | 3 | 7 | 7 | 3 | 16 | 4 | 3 | 5 | 10 |
| \$4,000-\$7,999 | 31 | 10 | 2 | 15 | 13 | 5 | 5 | 5 | 1 | 9 | 4 |
| \$8,000 and over | 30 | 11 | 6 | 14 | 12 | 4 | 5 | 6 | 0 | 10 | 2 |
| All groups | 32 | 9 | 3 | 11 | 10 | 4 | 10 | 5 | 2 | 8 | 6 |

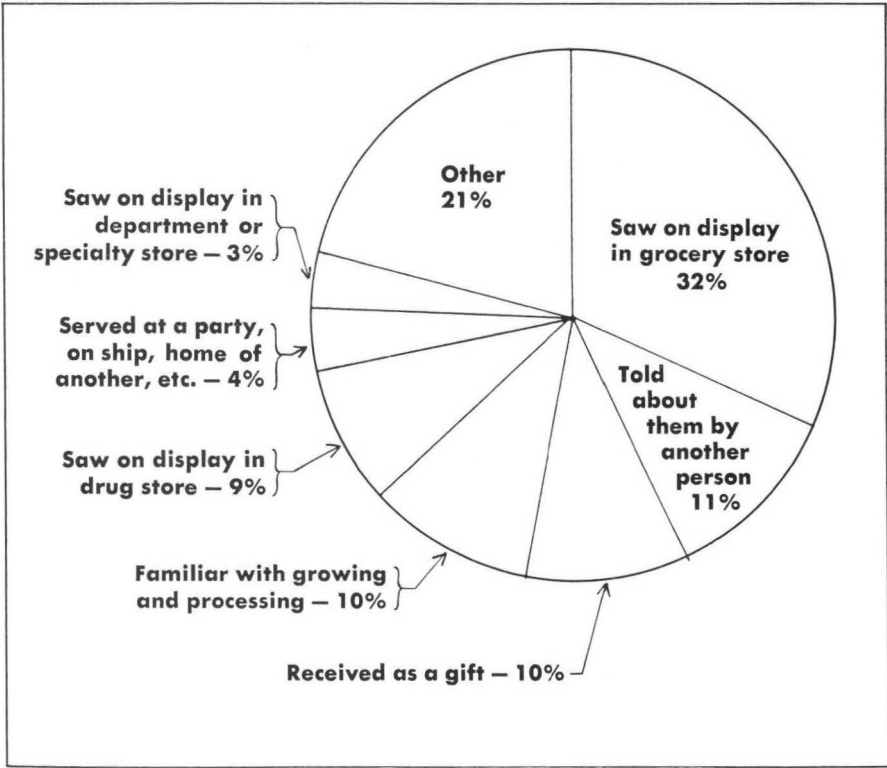


FIGURE 2. Percentage of Honolulu homemakers who first found out about macadamia nuts through indicated sources.

cent received them as a gift, 10 percent were familiar with the growing and processing, and 9 percent first saw them on display in a drug store. All other sources such as seeing the nuts on display in department or specialty stores and newspaper ads were of minor importance. Since the use of newspapers, radio, and television for promoting macadamia nuts was almost negligible, there is no basis for evaluating the impact of these media had they received greater use.

Drug store and specialty store displays attracted a somewhat higher percentage of people in the high income group than in the low income group. But this was offset by a slightly lower observation of grocery store displays as a first means of awareness on the part of the high income group.

These findings are of special significance in planning for development of the mainland market. The high percentage of awareness of grocery store displays and the very low awareness of department or specialty store displays in Honolulu will likely be experienced in mainland market development. Whereas the present sale of Hawaiian macadamia nuts on the Mainland is primarily in specialty stores, consumer awareness, in projecting the data from the Honolulu study, could be increased tenfold through offering

the product in grocery stores. Yet in order to obtain greater movement in the grocery stores, the macadamia nuts would undoubtedly need to be offered at more nearly competitive prices in contrast with the luxury prices now existing in the specialty stores. Both items would be expected to take on a different importance on the Mainland, however, because of the absence of some of the miscellaneous sources indicated by Honolulu homemakers and because, if widely used, such media as television, radio, and newspapers would have greater impact on a market undergoing development than in an established market such as Honolulu.

PURCHASES OF SALTED MACADAMIA NUTS

Percentage of Homemakers Who Had Ever Purchased Macadamia Nuts

Whereas 86 percent of Honolulu homemakers were aware that salted macadamia nuts were available and 81 percent had tasted them at one time or another, only 64 percent indicated that they had ever bought any (table 1).

Years of residence in Hawaii, family income, and schooling had a greater effect on actual purchases than on awareness as to availability (table 1 and fig. 3). Whereas only 28 percent of the homemakers who had lived in Hawaii less than 1 year had purchased macadamia nuts, purchases had been made at one time or another by 34 percent of those who had been in Hawaii 1 or 2 years, by 74 percent who had been in Hawaii 3 or 4 years, and by 70 percent of those who had lived in Hawaii 5 years or longer. The majority of the homemakers in the group who have resided in Hawaii 3 or 4 years are middle income emigrants from the Mainland. The high preference indicated by this group is another indication that mainland consumers may be quite responsive to consumer education programs on macadamia nuts.

Income also had a very important bearing on purchases of macadamia nuts (table 1 and fig. 3). Purchases had been made by only 45 percent of the families with incomes under \$4,000, but by 78 percent of those in the middle income group, and by 89 percent of those with incomes of \$8,000 or over. Inasmuch as macadamia nuts have been sold at prices considerably in excess of those of competing nuts, it is reasonable to assume that the percentage of purchases by the lower income groups might expand considerably if the macadamia nuts were made available at more nearly competitive prices.

Except for those who had 8 years or less of formal schooling, the percentage of homemakers who had purchased macadamia nuts varied directly according to the amount of formal education (table 1 and fig. 3). Fifty-six percent of those with 8 years or less of schooling but only 49 percent of those with 9 to 11 years of schooling indicated that they had ever bought macadamia nuts. Sixty-eight percent of the high school graduates, 72 percent of those who had completed 1 to 3 years of college, and 88 percent of the college graduates had made purchases. In general, the percentage who

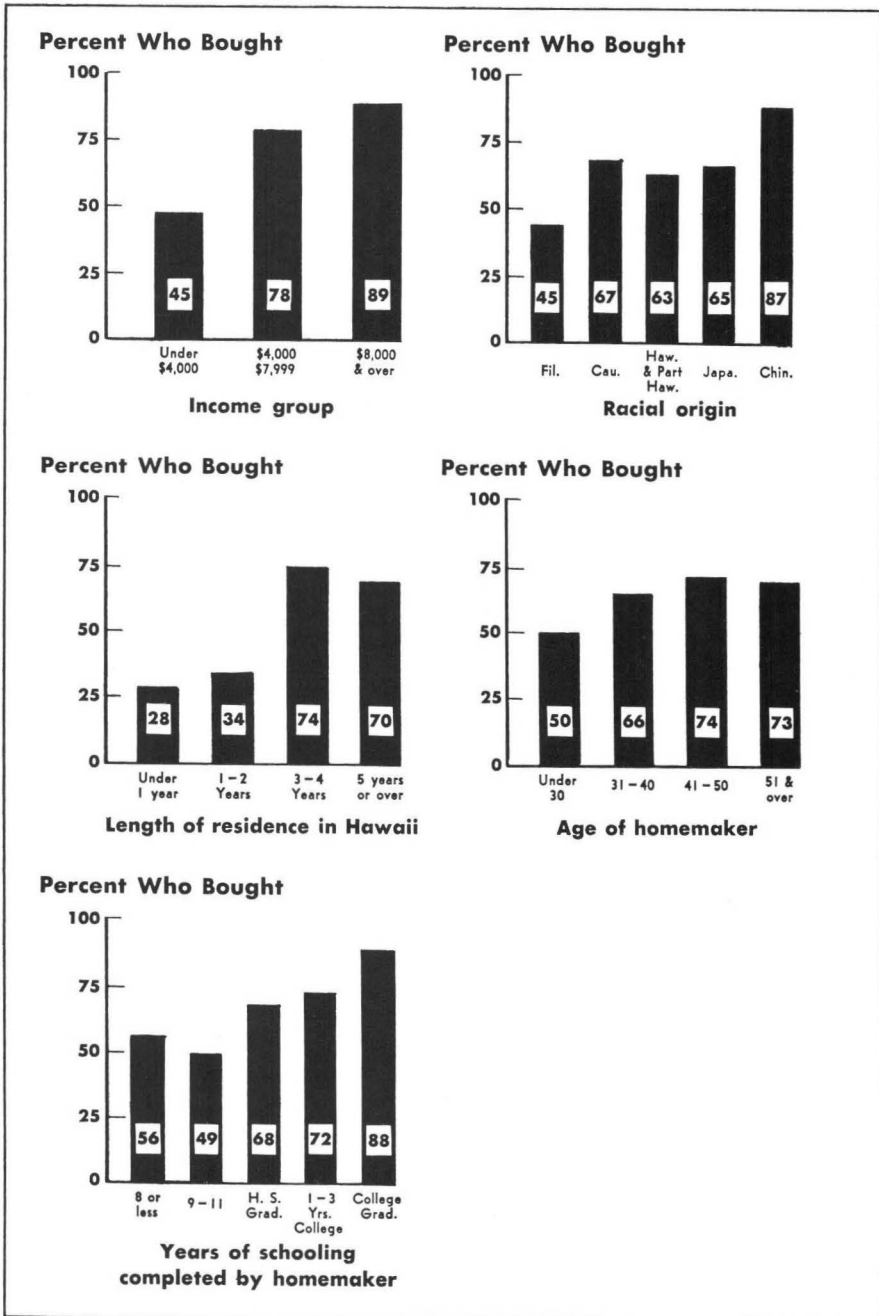


FIGURE 3. Effect of income, racial origin, length of residence in Hawaii, age of homemaker, and education on percentage of Honolulu homemakers who had ever bought salted macadamia nuts.

purchased in relation to the percentage who were aware as to the availability of macadamia nuts tended to increase with education.

Racial extraction seemed to have an effect on purchases, but the effect can be attributed largely to other factors such as income or length of time in Hawaii rather than to the racial group itself (table 1 and fig. 3). Purchases were made by 45 percent of the Filipinos, 63 percent of the Hawaiians and Part Hawaiians, 65 percent of the Japanese, 67 percent of the Caucasians, and 87 percent of the Chinese.

Of the families who were aware as to the availability of macadamia nuts, purchases were made by 63 percent of the Filipinos, 68 percent of the Japanese, 72 percent of the Hawaiians and Part Hawaiians, 83 percent of the Caucasians, and 87 percent of the Chinese.

Age of the homemaker, as would be expected, had a direct bearing on the extent to which purchases of macadamia nuts had ever been made (table 1 and fig. 3). The percentage who had made purchases ranged from 50 percent for homemakers of 30 years of age or under to 74 percent for those of 41 to 50, but 73 percent for those of 51 years of age or over. The only bearing that this age data would seem to have on the study is that familiarity with macadamia nuts might be speeded up through consumer education.

Quantitative Analysis of Purchases

As would be expected, there appears to be a significant correlation between family income and total purchases of macadamia nuts. Consumption per 1,000 capita was 176 pounds for the low income group, 313 pounds for the middle income group, and 578 pounds for the high income group (table 3 and fig. 4). Total purchases per 1,000 capita for all income groups was 293 pounds.²

Fifty-eight percent of the macadamia nuts purchased by Honolulu homemakers during 1957 were bought as gifts. The remaining 42 percent were purchased for family consumption (table 3 and fig. 4). Some homemakers indicated that they did not purchase macadamia nuts because they received them as gifts. For the most part, gift purchases of macadamia nuts cannot be expected to be of importance in the mainland market, where the appropriateness of such purchases would be less.

The importance of gift purchases in relation to purchases for family consumption varied directly with family income; amounting to 48 percent, 58 percent, and 67 percent for the low, medium, and high income groups, respectively.

The 7-ounce jar was by far the most popular, both for gift purchases and for family consumption. For gift purchases, 59 percent of the poundage of macadamia nuts were bought in 7-ounce jars, 31 percent in 12-ounce jars, and only 10 percent in 3½-ounce jars. Of purchases for family consumption,

²Actual disappearance during 1957 based on total sales in the Territory divided by total population amounted to 121 pounds per 1,000 capita. The survey sample, which provided the only means of determining comparative consumption by income and nationality groups, obviously indicated a larger per capita consumption than for the entire territorial population, including the military. This does not invalidate the use of the survey data where the purpose was to obtain reliable comparative rather than absolute data.

TABLE 3. Annual purchases of salted macadamia nuts per 1,000 capita for family consumption and as gifts, by income groups, 1957^a

| INCOME GROUP AND REASON FOR PURCHASE | EQUIVALENT PURCHASES IN POUNDS IN EACH SIZE OF JAR | | | |
|--------------------------------------|--|--------------------------------|--------------------------------|--------------------------------|
| | 3½-ounce jars | 7-ounce jars | 12-ounce jars | Total, all jars |
| | <i>Pounds per 1,000 capita</i> | <i>Pounds per 1,000 capita</i> | <i>Pounds per 1,000 capita</i> | <i>Pounds per 1,000 capita</i> |
| <i>Under \$4,000</i> | | | | |
| Family consumption | 12 | 56 | 23 | 91 |
| Gifts | 7 | 42 | 36 | 85 |
| Family and gifts | 19 | 98 | 59 | 176 |
| <i>\$4,000-\$7,999</i> | | | | |
| Family consumption | 5 | 100 | 26 | 131 |
| Gifts | 5 | 125 | 52 | 182 |
| Family and gifts | 10 | 225 | 78 | 313 |
| <i>\$8,000 and over</i> | | | | |
| Family consumption | 3 | 99 | 91 | 193 |
| Gifts | 73 | 216 | 96 | 385 |
| Family and gifts | 76 | 315 | 187 | 578 |
| <i>All groups</i> | | | | |
| Family consumption | 8 | 79 | 35 | 123 |
| Gifts | 17 | 101 | 52 | 170 |
| Family and gifts | 25 | 180 | 87 | 293 |

^aActual disappearance during 1957 based on total sales in the Territory divided by total population amounted to 121 pounds per 1,000 capita. The survey sample, which provided the only means of determining comparative consumption by income and nationality groups, obviously indicated a larger per capita consumption than for the entire territorial population, including the military. This does not invalidate the use of the survey data where the purpose was to obtain reliable comparative rather than absolute data.

TABLE 4. Consumption per 1,000 capita of salted macadamia nuts in Honolulu and specified competing shelled tree nuts for all purposes on the U. S. Mainland

| | YEAR | POUNDS PER 1,000 CAPITA |
|-----------------------------|------|-------------------------|
| Macadamia nuts ^a | 1957 | 293 |
| Almonds ^b | 1954 | 220 |
| Filberts ^b | 1954 | 80 |
| Pecans ^b | 1954 | 200 |
| Walnuts ^b | 1954 | 370 |

^aAs determined from 1957 survey of Honolulu households.

^bMarketing Tree Nuts—Trends and Prospects, Marketing Research Report No. 39, USDA Agricultural Marketing Service, October, 1956.

the comparative percentages were 64 for the 7-ounce jars, 28 for the 12-ounce jars, and 8 for the 3½-ounce jars. For all purchases, both gift and for family consumption, the percentages were 61 for the 7-ounce jars, 30 for the 12-ounce jars, and 9 for the 3½-ounce jars.

Whereas 68 percent of the purchases of the 3½-ounce jars were bought as gifts, only 59 percent of the 12-ounce jars and 56 percent of the 7-ounce jars were bought for that purpose.

According to the survey data, per capita consumption of macadamia nuts in Hawaii exceeds that of U.S.-produced tree nuts on the Mainland, with the exception of walnuts. As compared with the consumption of salted macadamia nuts at a rate of 293 pounds per 1,000 capita by Honolulu home-

Total pounds purchased

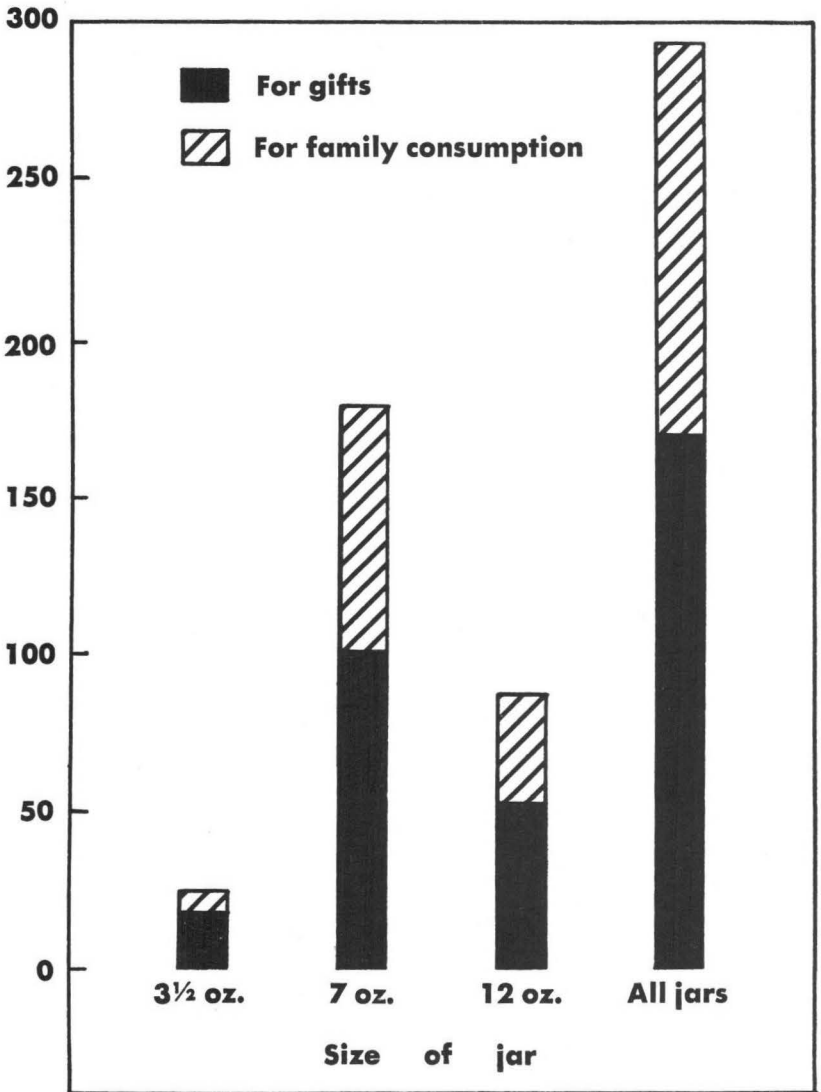


FIGURE 4. Total pounds of salted macadamia nuts purchased per 1,000 capita by purpose and size of jar, Honolulu, 1957.

makers, mainland consumption of U.S.-produced tree nuts for all purposes per 1,000 capita ranged from 80 pounds for filberts to 370 pounds for walnuts³ (table 4). Adding the use of macadamia nuts for candy, the per

³Marketing Tree Nuts—Trends and Prospects, Marketing Research Report No. 39, USDA Agricultural Marketing Service, October, 1956.

capita consumption of macadamia nuts in Honolulu would closely approach that for walnuts on the Mainland. Whereas mainland-produced nuts are almost as readily available in Hawaii as on the Mainland, the Hawaii prices are higher and per capita consumption is assumed to be less, although no accurate measurement has been obtained.

Size of Purchases

Annual purchases of macadamia nuts per buying family were small in absolute quantities but high in relation to other kinds of nuts, individually. Forty-eight percent of the sample of Honolulu homemakers who bought macadamia nuts during 1957 bought two jars or less. Of these, 22 percent bought only one jar and 26 percent only two jars during the entire year (table 5 and fig. 5). Fifteen percent bought three jars; 7 percent, four jars; 14 percent, five jars; 12 percent, six jars; and 14 percent, seven jars or more.

TABLE 5. Percentage of Honolulu homemakers buying specified numbers of each size jar of macadamia nuts for family use and as gifts during 1957

| SIZE OF JAR AND REASON FOR PURCHASE | PERCENT OF PURCHASERS BUYING SPECIFIED NUMBERS OF JARS DURING THE 12-MONTH PERIOD | | | | | | |
|---|--|---------|---------|---------|---------|---------|-------------------|
| | 1 jar | 2 jars | 3 jars | 4 jars | 5 jars | 6 jars | 7 or more jars |
| | Percent | Percent | Percent | Percent | Percent | Percent | Percent |
| <i>3½ oz.</i> | | | | | | | |
| For family | 54 | 8 | 8 | 0 | 4 | 13 | 13 |
| As gifts | 8 | 28 | 20 | 12 | 0 | 20 | 12 |
| Family and gifts | 31 | 19 | 14 | 6 | 2 | 16 | 12 |
| <i>7 oz.</i> | | | | | | | |
| For family | 31 | 33 | 8 | 5 | 5 | 10 | 8 |
| As gifts | 10 | 18 | 28 | 7 | 4 | 11 | 22 |
| Family and gifts | 21 | 25 | 17 | 6 | 5 | 11 | 15 |
| <i>12 oz.</i> | | | | | | | |
| For family | 39 | 26 | 10 | 3 | 0 | 16 | 6 |
| As gifts | 6 | 33 | 6 | 17 | 8 | 8 | 22 |
| Family and gifts | 21 | 31 | 7 | 10 | 4 | 12 | 15 |
| <i>All sizes</i> | | | | | | | |
| For family | 35 | 27 | 9 | 4 | 4 | 12 | 9 |
| As gifts | 10 | 22 | 21 | 10 | 5 | 12 | 20 |
| Family and gifts | 22 | 26 | 15 | 7 | 4 | 12 | 14 |

Purchases for family consumption were considerably smaller than those for gifts. Whereas 35 percent of all homemakers bought only one jar of macadamia nuts annually for family consumption, only 9 percent made the minimum number of purchases in buying the nuts for gifts. To the other extreme, only 9 percent of the homemakers bought seven or more jars for family consumption, but 20 percent bought seven or more jars for gifts.

A somewhat higher percentage of purchases of the 3½-ounce jars than of the medium and large jars was made in lots of only one jar annually, the percentages being 31 percent for the small jars and 21 percent for both the medium-sized jars and the large jars. For family use, 54 percent of the

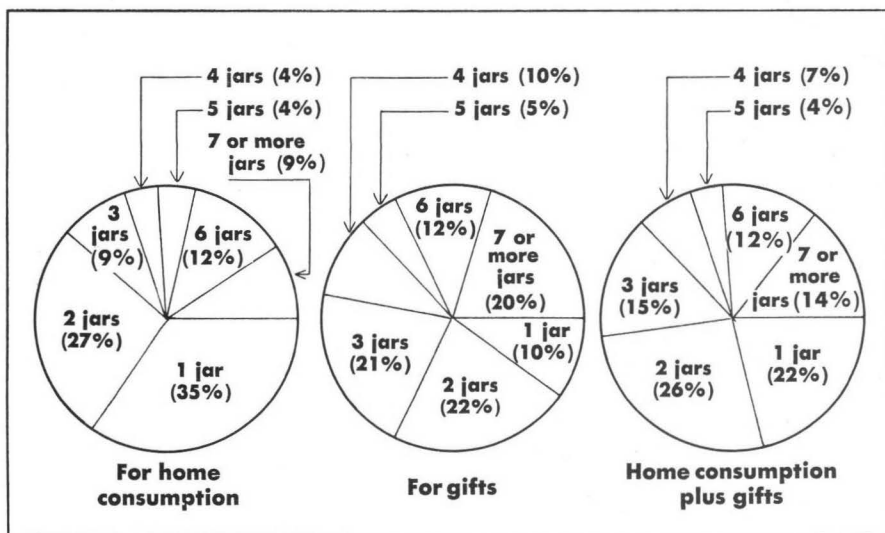


FIGURE 5. Percentage of Honolulu homemakers buying specified numbers of jars of macadamia nuts for home consumption and for gifts during 1957.

families who bought small jars only bought one jar during the entire year. For gift purposes, purchases of the small jars were considerably larger. Twenty percent bought six and 12 percent bought seven or more jars.

There was a direct relationship between income and number of jars purchased annually. The higher income families tended to buy a larger number of jars both for family consumption and for gift purposes.

SEASONALITY OF PURCHASES

Fifty percent of the sample of Honolulu homemakers who purchased salted macadamia nuts indicated that they bought them throughout the year or at no special time. The remaining 50 percent bought them only for special occasions, such as Thanksgiving or Christmas. Purchases throughout the year were highest for the high income group and lowest for the middle income group. The high percentage of purchases for gift purposes in Hawaii undoubtedly had an effect on seasonality of macadamia nut purchases in Honolulu. The survey data was not of a nature that would permit a reliable determination of these relationships.

Mainland purchases of tree nuts are indicated to be more seasonal than purchases of macadamia nuts in Hawaii. A recent survey by the USDA Agricultural Marketing Service indicated that three-fourths of all tree nut purchases were seasonal and only one-fourth at a relatively constant year around rate.⁴ However, two-thirds of the homemakers used peanuts on a year around basis.

⁴*Agricultural Marketing*, USDA Agricultural Marketing Service, December, 1957, pp. 12-13.

TABLE 6. Percentage of Honolulu homemakers who bought whole or halved versus broken or pea-sized macadamia nuts, by income groups, 1957

| INCOME GROUP | PERCENT WHO BOUGHT WHOLE OR HALVED NUTS | PERCENT WHO BOUGHT BROKEN OR PEA-SIZED NUTS |
|------------------------|---|---|
| | <i>Percent</i> | <i>Percent</i> |
| Under \$4,000 | 81 | 19 |
| \$4,000-\$7,999 | 93 | 7 |
| \$8,000 and over | 86 | 14 |
| All groups | 87 | 13 |

PREFERENCES FOR WHOLE VERSUS BROKEN OR PEA-SIZED MACADAMIA NUTS

Eighty-seven percent of the sample of Honolulu homemakers indicated that they preferred to buy whole or halved as compared with broken or pea-sized macadamia nuts (table 6). Preferences for whole nuts were highest among the middle group and lowest among the low income group.

The major reasons given for preferences for the whole nuts among all income groups were that they tasted better and secondly, that they looked better.

Reasons given for preferring the broken nuts were that they went further and were handy for baking. Actually, the broken nuts are considerably lower in price than the whole nuts. This was undoubtedly a factor in guiding purchases of the broken nuts, although not mentioned by a significant number of homemakers. Many purchases of broken nuts were made on impulse and no particular reason was given for buying them in relation to whole nuts. Another factor deserving of mention is that the broken nuts seem to be somewhat more subject to staleness or rancidity because of the proportionately greater surface exposure. Also, there seems to be a tendency to oversalt the broken nuts. This is undoubtedly another condition associated with the larger surface exposure in relation to the size of the nut.

BRAND PREFERENCES

Honolulu consumers have not developed a high degree of brand consciousness insofar as purchases of macadamia nuts are concerned. Of the homemakers who answered the question as to what brand of macadamia nuts they preferred, only 18 percent indicated a specific preference, 22 percent considered all brands equally good, and the remaining 60 percent didn't know what brand they preferred. It is quite apparent that purchasers of macadamia nuts think in terms of the product rather than the brand. Price and display, as will be mentioned later, are greater purchase-motivating factors than the implications in a brand name. It would seem, therefore, that industry-wide, nonbrand advertising would have a reasonably non-biased effect in increasing the market for all brands.

CONSUMER USES OF SALTED MACADAMIA NUTS

Sixty-three percent of the sample of Honolulu families used macadamia nuts as a between meal snack for no particular occasion (table 7 and fig. 6). Thirty percent ate the nuts while watching television and an equal per-

TABLE 7. Percentage of Honolulu homemakers using macadamia nuts for specified purposes, by income groups, 1957

| INCOME GROUP | AS A BETWEEN MEAL SNACK | WHILE WATCHING TELEVISION | WITH COCKTAILS OR OTHER BEVERAGES | FOR BAKING OR TOPPINGS | GIFTS ONLY ^a | OTHER ^b |
|-----------------------|-------------------------|---------------------------|-----------------------------------|------------------------|-------------------------|--------------------|
| | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Under \$4,000 | 72 | 39 | 14 | 9 | 7 | 2 |
| \$4,000-\$7,999 | 60 | 31 | 28 | 14 | 12 | 1 |
| \$8,000 and over.... | 57 | 13 | 57 | 18 | 7 | 3 |
| All groups | 63 ^c | 30 | 30 | 13 | 9 | 2 |

^aIn instances where respondents bought macadamia nuts for gifts, but did not consume any themselves. Actually a far larger percentage bought macadamia nuts both for gifts and home use.

^bIncluding hors d'oeuvres and picnics.

^cTotal percentages for all purposes exceed 100 percent because some respondents indicated more than one use.

Percent

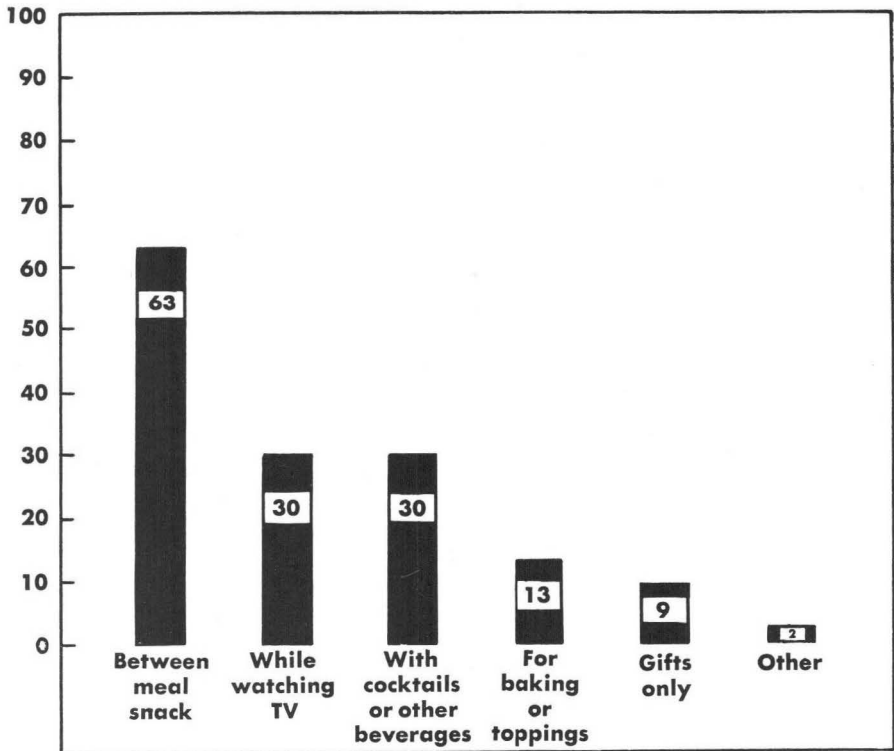


FIGURE 6. Percentage of Honolulu homemakers using macadamia nuts for specified purposes.

centage served them with cocktails or other refreshments. Thirteen percent used them for baking or toppings. Nine percent bought the nuts as gifts only, and didn't consume any themselves.

Income had an important bearing on how the nuts were used. Whereas 39 percent of the families in the low income group and 31 percent in the middle income group ate them while watching television, only 13 percent of the high income families used them for that purpose. Fifty-seven percent of the high income families, but only 28 percent of the middle income families, and 14 percent of the low income families served macadamia nuts with cocktails or other beverages. There also was a direct relationship between the use of macadamia nuts for baking or toppings and size of income.

PREFERENCES FOR MACADAMIA NUTS IN RELATION TO COMPETING NUTS

The majority of the sample of Honolulu families who were familiar with salted macadamia nuts preferred them to all other nuts, with the nearest competitor being the cashew nut (table 8 and fig. 7). Sixty-two percent of the homemakers liked macadamia nuts better than cashews; 25 percent liked them about the same; and 13 percent preferred the cashews. The percentage of Honolulu homemakers who preferred macadamia nuts in relation to other nuts was 67 percent in relation to peanuts; 73 percent in relation to almonds; 75 percent in relation to walnuts; 79 percent in relation to both brazil nuts and pecans; and 89 percent in relation to filberts.

TABLE 8. Percentage of Honolulu consumers who liked macadamia nuts better than, about the same as, or not as well as specified other nuts, 1957

| INCOME GROUP AND PREFERENCE CATEGORY | CASHEWS | PEANUTS | ALMONDS | WALNUTS | BRAZIL NUTS | PECANS | FILBERTS |
|--------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| <i>Under \$4,000</i> | | | | | | | |
| Better than | 63 | 66 | 70 | 72 | 76 | 83 | 87 |
| About the same as | 25 | 21 | 17 | 19 | 15 | 12 | 9 |
| Not as well as... | 12 | 13 | 13 | 9 | 9 | 5 | 4 |
| <i>\$4,000 to \$7,999</i> | | | | | | | |
| Better than | 65 | 64 | 79 | 79 | 83 | 82 | 92 |
| About the same as | 23 | 21 | 13 | 13 | 11 | 12 | 6 |
| Not as well as... | 12 | 15 | 8 | 8 | 6 | 6 | 2 |
| <i>\$8,000 and over</i> | | | | | | | |
| Better than | 53 | 78 | 66 | 72 | 80 | 67 | 88 |
| About the same as | 31 | 9 | 19 | 16 | 12 | 22 | 8 |
| Not as well as... | 16 | 13 | 15 | 12 | 8 | 11 | 4 |
| <i>All income groups</i> | | | | | | | |
| Better than | 62 | 67 | 73 | 75 | 79 | 79 | 89 |
| About the same as | 25 | 19 | 16 | 16 | 13 | 14 | 8 |
| Not as well as... | 13 | 14 | 11 | 9 | 8 | 7 | 3 |

Percent

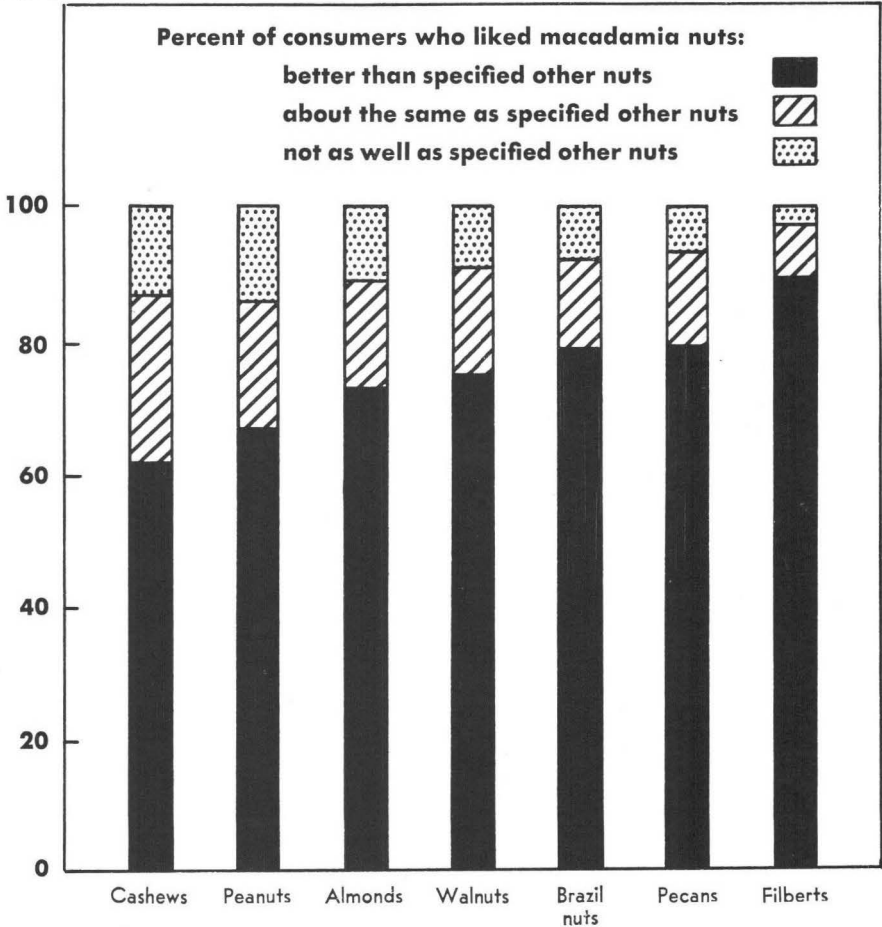


FIGURE 7. Percentage of Honolulu consumers who liked macadamia nuts better than, about the same as, or not as well as specified other nuts.

In spite of the indicated preferences for taste, texture, size, and other characteristics of the macadamia nut, it must be realized that the luxury price of macadamia nuts has an important effect on the relationship between taste preferences and actual buying practices. Consumers are apt to buy peanuts because of the much lower price, even though macadamia nuts would be preferred if the prices were competitive. The strong taste preference for macadamia nuts is, however, an important finding for contemplating probable sales at competitive prices in a developed mainland market.

FACTORS TENDING TO LIMIT THE SALE OF MACADAMIA NUTS

Objectionable Qualities of Macadamia Nuts

Nineteen percent of the homemakers expressed specific objections to certain characteristics of macadamia nuts. Four percent considered the macadamia nuts too oily; 2 percent considered them too rich; 5 percent, too fattening; 2 percent, too soggy or rancid; and 1 percent, too salty. Five percent stated that the members of their families, especially children, had an allergy to macadamia nuts or had difficulty digesting them. Two percent gave a variety of miscellaneous reasons, such as texture, size, etc.

Since as many as 5 percent of the homemakers indicated that their families were allergic to macadamia nuts or had difficulty digesting them, these problems would seem deserving of further study by home economists or others. Whereas macadamia nuts might cause these conditions, they may well have resulted from other causes and have been coincidentally attributed to macadamia nuts.

Four percent of the homemakers who were familiar with macadamia nuts stated that they didn't care for nuts of any kind.

There is no doubt but what the poor quality of some macadamia nut packs is having an adverse effect on market development. The need for greater quality control should be given serious consideration by the packers. For a product of this nature, even a very small pack of poor quality can do much harm to the industry.

Reasons for Not Buying More Macadamia Nuts

Forty percent of Honolulu homemakers who had bought macadamia nuts stated that they did not buy more because the price was too high. Of the 40 percent, 3½ percent, most of whom were in the lowest income group, stated that they actually could not afford to buy macadamia nuts. Eleven percent limited their purchases because of various undesirable qualities listed in the preceding section. Five percent received them as gifts or from their own trees and had no occasion to buy, and 7 percent bought them for special occasions only.

For more specific information as to the importance of price, consumers were asked whether they considered the price of macadamia nuts to be reasonable or too high in relation to the prices of other nuts. Forty-six percent thought the prices of macadamia nuts were too high, 21 percent thought they were reasonable, and 33 percent didn't know (table 9).

There was an inverse relationship between family income and the extent to which homemakers thought the price of macadamias was too high in relation to prices of other nuts. Whereas only 30 percent of homemakers in the lowest income group considered the price too high, the percentages were 55 for middle income families and 64 for high income families. This is undoubtedly due to the fact that the homemakers in the higher income groups buy more macadamia nuts and are therefore more conscious of the price in relation to prices of other nuts. This is partially borne out by the fact that 47 percent of the homemakers in the low income group but only

TABLE 9. Percentage of Honolulu homemakers who thought the prices of macadamia nuts were reasonable or too high in relation to prices of competing nuts, as of March, 1958

| INCOME GROUP | REASONABLE | TOO HIGH | DON'T KNOW |
|-------------------------|----------------|----------------|----------------|
| | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Under \$4,000 | 23 | 30 | 47 |
| \$4,000-\$7,999 | 21 | 55 | 24 |
| \$8,000 and over | 18 | 64 | 18 |
| All income groups | 21 | 46 | 33 |

18 percent of those in the high income group who had ever bought macadamia nuts didn't know whether or not the price was reasonable in relation to prices of other nuts.

Consumer opinions on price become somewhat more realistic when related to actual prices. The average retail price of macadamia nuts in Honolulu supermarkets during February, 1958 was equivalent to \$2.88 per pound. This was closely competitive with the prices of pecans, which averaged \$2.72 per pound but exactly three times the price of peanuts (table 10). The price of almonds was 67 percent as high; walnuts, 56 percent as high; and both cashews and filberts, only 50 percent as high as the average price of macadamia nuts. On the U. S. Mainland, the price of macadamia nuts is even less competitive with prices of other nuts, ranging from \$3 to \$4 per pound and with prices of most competing nuts ranging somewhat below the prices in Hawaii.

TABLE 10. Retail prices of salted macadamia nuts in jars and related canned nuts in Honolulu supermarkets, February, 1958

| NUT | PRICE PER POUND | PERCENT OF PRICE OF MACADAMIA NUTS |
|-----------------|--------------------------|------------------------------------|
| | <i>Dollars per pound</i> | <i>Percent</i> |
| Macadamia | 2.88 | 100 |
| Pecan | 2.72 | 94 |
| Almond | 1.92 | 67 |
| Walnut | 1.60 | 56 |
| Cashews | 1.44 | 50 |
| Filbert | 1.44 | 50 |
| Peanuts | .96 | 33 |

The sales retarding effects of nut prices are not only true for macadamia nuts but also for all tree nuts on the Mainland. In the previously mentioned Agricultural Marketing Service survey, almost 60 percent of the purchasers were of the opinion that one or more kinds of tree nuts were too expensive.⁵ But fewer than 20 percent considered peanuts too expensive.

There is good indication that sales of macadamia nuts could be greatly expanded if offered at more nearly competitive prices and supported with consumer education. At this stage in the development of the industry, potential purchases exceed the supply available even at luxury prices. This

⁵*Ibid.*

situation will change rapidly as the industry expands and it becomes necessary to reduce prices in order to broaden market outlets. The key to the desired amount of expansion will depend both upon elasticity of demand and the price-cost structure of the industry under various levels of product output.

PACKAGING

Inasmuch as macadamia nuts, except in nut dispensers, are sold in jars whereas competing salted nuts are sold in cans, it might well be assumed that this would have some effect on comparative purchases. This assumption was supported in the consumer survey as 40 percent of the homemakers who had bought macadamia nuts indicated that they would buy more if they were sold in cans rather than jars (table 11). By income groups, the percentages ranged from 34 percent for the low income group to 47 percent for the high income group. Reasons given were that the cans were safer and easier to ship. Also, some consumers indicated that the competitive position of macadamia nuts would be improved if they were sold in the same type of container as other nuts.

TABLE 11. Percentage of Honolulu homemakers who would expect to buy more macadamia nuts if they were generally available in 15-cent bags, cans, and bulk nut dispensers, as of March, 1958

| INCOME GROUP | PERCENT OF HOMEMAKERS WHO WOULD BUY MORE MACADAMIA NUTS IF PACKED IN: | | |
|------------------------|--|----------------|--------------------|
| | 15-cent polyethylene bags | Cans | Bulk dispensers |
| | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Under \$4,000 | 73 | 34 | 45 |
| \$4,000-\$7,999 | 66 | 41 | 42 |
| \$8,000 and over | 53 | 47 | 34 |
| All groups | 67 | 40 | 42 |

Sixty-seven percent of the homemakers who had ever bought macadamia nuts indicated that they would buy more if they were available in 15-cent polyethylene bags, providing that enough nuts were included to make the purchase worthwhile. In such containers they mentioned that they would be more apt to make spontaneous purchases for the children or for an occasional snack. The idea of a small container appealed more to the low income families. Whereas 73 percent of the homemakers in the low income group indicated that they would buy macadamia nuts more often if they were available in 15-cent polyethylene bags, the comparative figure was only 53 percent for the high income group. This is consistent with the fact that homemakers with higher incomes tend to use more macadamia nuts and can afford the larger containers. The fact that consumers indicated a willingness to purchase macadamia nuts more often if in smaller containers gives no assurance that the total quantity purchased would be greater. Frequency of purchase would

have to be considerably greater in order to offset the limitations of the smaller unit.

Forty-two percent of the sample of consumers indicated that they would be apt to buy more macadamias if they were generally available in bulk nut dispensers. Here again income seemed to be an influencing factor. Forty-five percent of the low income homemakers but only 34 percent of those in the high income bracket indicated that they would buy more of the nuts if they were more readily available in bulk.

PREFERENCES ACCORDING TO PROCESSING AND PREPARATION

With regard to preferences for nuts in general, more consumers preferred to buy nuts shelled and unmixed than in any other form. Thirty-six percent preferred this type of product (table 12 and fig. 8). Thirty percent preferred mixed packages of unshelled nuts; 17 percent, mixed packages of shelled nuts; and 17 percent, one kind unshelled.

TABLE 12. Percentage of Honolulu consumers preferring specified methods of processing and packaging of nuts, by income groups, as of March, 1958

| INCOME GROUP | PERCENTAGE OF CONSUMERS WHO PREFER: | | | |
|-----------------------|-------------------------------------|------------------------------|---------------------|-------------------|
| | Mixed packages, unshelled nuts | Mixed packages, shelled nuts | One kind, unshelled | One kind, shelled |
| | Percent | Percent | Percent | Percent |
| Under \$4,000 | 34 | 17 | 20 | 29 |
| \$4,000-\$7,999 | 27 | 17 | 18 | 38 |
| \$8,000 and up | 22 | 19 | 10 | 49 |
| All income groups.... | 30 | 17 | 17 | 36 |

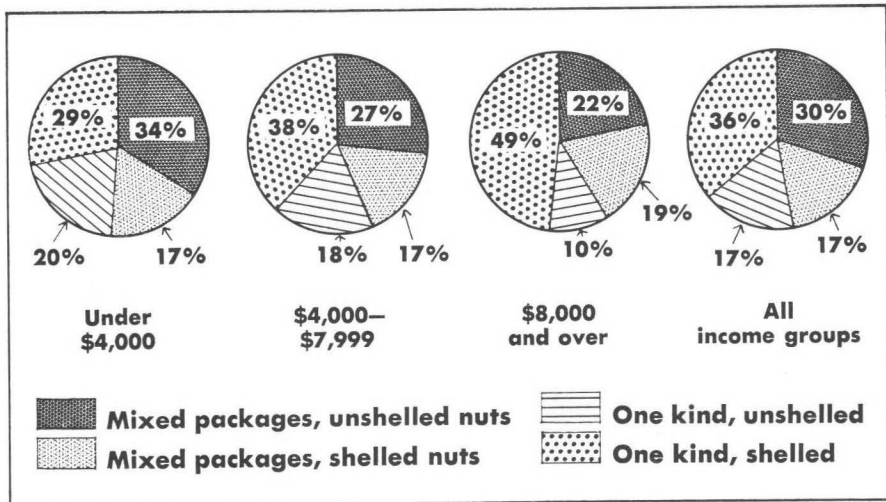


FIGURE 8. Percentage of Honolulu consumers preferring specified methods of processing and packaging of nuts, by income groups.

In contrast with the average of all income groups, homemakers with high incomes showed a strong preference for unmixed, shelled nuts. The low income group preferred mixed packages of unshelled nuts. This ties in to quite an extent with seasonality of purchases. A larger percentage of low income than high income consumers tended to buy nuts only during holiday seasons when mixed unshelled nuts are in vogue. High income consumers, who are more frequent purchasers, prefer a handy, ready-to-use product.

The fact that macadamia nuts are sold only in the shelled form undoubtedly has a limiting effect on sales, especially among the low income group. Fortunately, demand for shelled versus unshelled nuts appears to be increasing.

PURCHASES OF CHOCOLATE-COATED MACADAMIA NUT CANDY

Percentage of Homemakers Who Had Ever Purchased

Fifty-nine percent of the Honolulu homemakers contacted in the sample survey indicated that they had ever bought chocolate-coated macadamia nut candy (table 13 and fig. 9), whereas a mainland study by the USDA Agricultural Marketing Service indicated that about 75 percent of the consumers had bought candy containing nuts of one kind or another.⁶ Whether or not the homemakers had ever made purchases depended to a large extent on length of residence in Hawaii, as was true with regard to salted macadamia nuts. Sixty-seven percent of those who had been in Hawaii 5 years or longer had made purchases. But only 45 percent of the 2 to 4 year residents, 26 percent of the 1 to 2 year residents, and 20 percent of those who had lived in Hawaii less than 1 year had ever made purchases of macadamia nut candy.

Income was also an important influencing factor. Whereas 59 percent of all homemakers contacted had at one time or another made purchases of macadamia nut candy, the figures were 75 percent for the high income group, 66 percent for the middle income group, and only 49 percent for the low income group.

Except insofar as associated with other factors, nationality or race, and education had little apparent effect on whether consumers had ever pur-

TABLE 13. Percentage of Honolulu homemakers who had ever purchased chocolate-coated macadamia nut candy, by income groups and length of residence in Hawaii, as of March, 1958

| INCOME GROUP | PERCENT OF HOME-MAKERS WHO HAD EVER BOUGHT | NUMBER OF YEARS IN HAWAII | PERCENT OF HOME-MAKERS WHO HAD EVER BOUGHT |
|-------------------------|--|---------------------------|--|
| | <i>Percent</i> | | <i>Percent</i> |
| Under \$4,000 | 49 | Less than 1 | 20 |
| \$4,000-\$7,999 | 66 | 1 to 2 | 26 |
| \$8,000 and over | 75 | 3 to 4 | 45 |
| All income groups | 59 | 5 or over | 67 |

⁶*Ibid.*

Percent

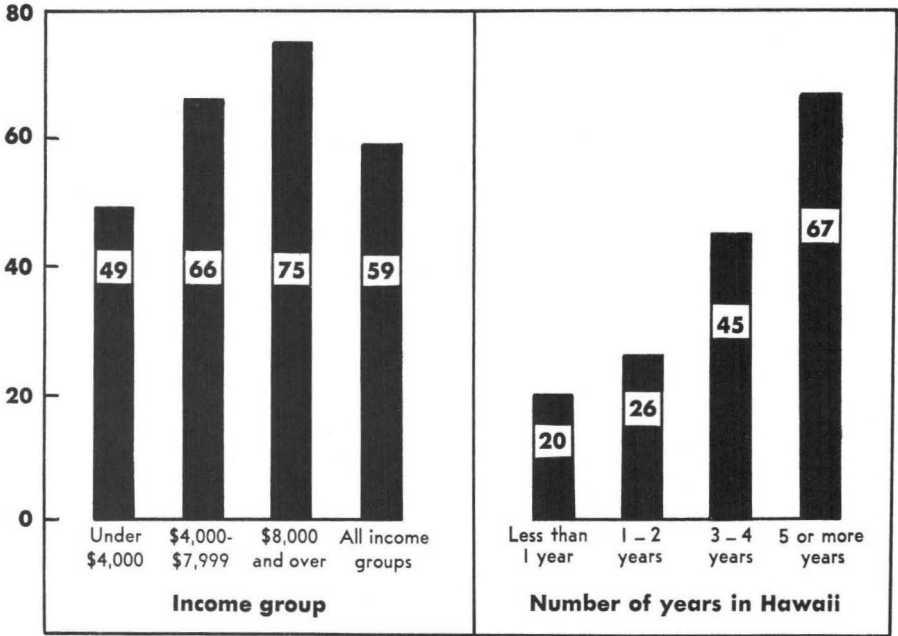


FIGURE 9. Percentage of Honolulu homemakers who had ever bought chocolate-coated macadamia nut candy, by income groups and length of residence in Hawaii.

chased chocolate-coated macadamia nut candy. There was, however, a direct relationship between age of housewife and extent of purchase, as was true in the case of salted macadamia nuts.

Quantitative Analysis of Purchases

As determined from the survey, Honolulu consumers purchased 379 pounds of chocolate-coated macadamia nut candy per 1,000 capita, or somewhat over one-third of a pound per person (table 14 and fig. 10). Of these purchases, 52 percent were bought for gifts and the remaining 48 percent for family consumption. Sixty-four percent of the macadamia nut candy by weight was bought in single layer boxes, primarily in the 11-ounce size, and 36 percent in double layer boxes, primarily in the 22-ounce size.

Purchases of chocolate-coated macadamia nut candy per 1,000 capita varied directly with income, ranging from 259 pounds for the low income group and 460 pounds for the middle income group to 557 pounds for the high income group. The greater number of purchases of single layer as compared with double layer boxes of candy was consistent for all income groups.

Consumers in the high income group used 60 percent of all purchases for gifts, whereas in the low income group only 39 percent of the candy was bought for gift purposes. The percentage bought as gifts was 55 percent by consumers in the middle income group.

TABLE 14. Annual purchases of chocolate-coated macadamia nut candy per 1,000 capita for family consumption and as gifts, by income groups, Honolulu, 1957

| INCOME GROUP AND REASON FOR PURCHASE | EQUIVALENT PURCHASES IN POUNDS | | |
|--------------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | Single layer boxes | Double layer boxes | Total |
| | <i>Pounds per 1,000 capita</i> | <i>Pounds per 1,000 capita</i> | <i>Pounds per 1,000 capita</i> |
| <i>Under \$4,000</i> | | | |
| Family consumption | 94 | 65 | 159 |
| Gifts | 56 | 44 | 100 |
| Family and gifts | 150 | 109 | 259 |
| <i>\$4,000-\$7,999</i> | | | |
| Family consumption | 157 | 46 | 203 |
| Gifts | 160 | 97 | 257 |
| Family and gifts | 317 | 143 | 460 |
| <i>\$8,000 and over</i> | | | |
| Family consumption | 138 | 84 | 222 |
| Gifts | 209 | 126 | 335 |
| Family and gifts | 347 | 210 | 557 |
| <i>All groups</i> | | | |
| Family consumption | 124 | 59 | 183 |
| Gifts | 119 | 77 | 196 |
| Family and gifts | 243 | 136 | 379 |

Size of Purchases

Seventy-three percent of the consumers who bought chocolate-coated macadamia nut candy during 1957 bought three boxes or less (table 15 and fig. 11). Thirty-seven percent bought only one box. Twenty-three percent bought two boxes and 13 percent, three boxes. This was about equally true for purchases of both single layer and double layer boxes.

The number of boxes bought by each purchaser was greater for gift purposes than for family consumption. For gifts, 49 percent of all purchasers bought three or more boxes. But for family consumption only 30 percent bought three or more boxes and 50 percent bought only one box. A somewhat higher percentage of single layer boxes than double layer boxes were bought for gifts.

**Pounds per
1,000 capita**

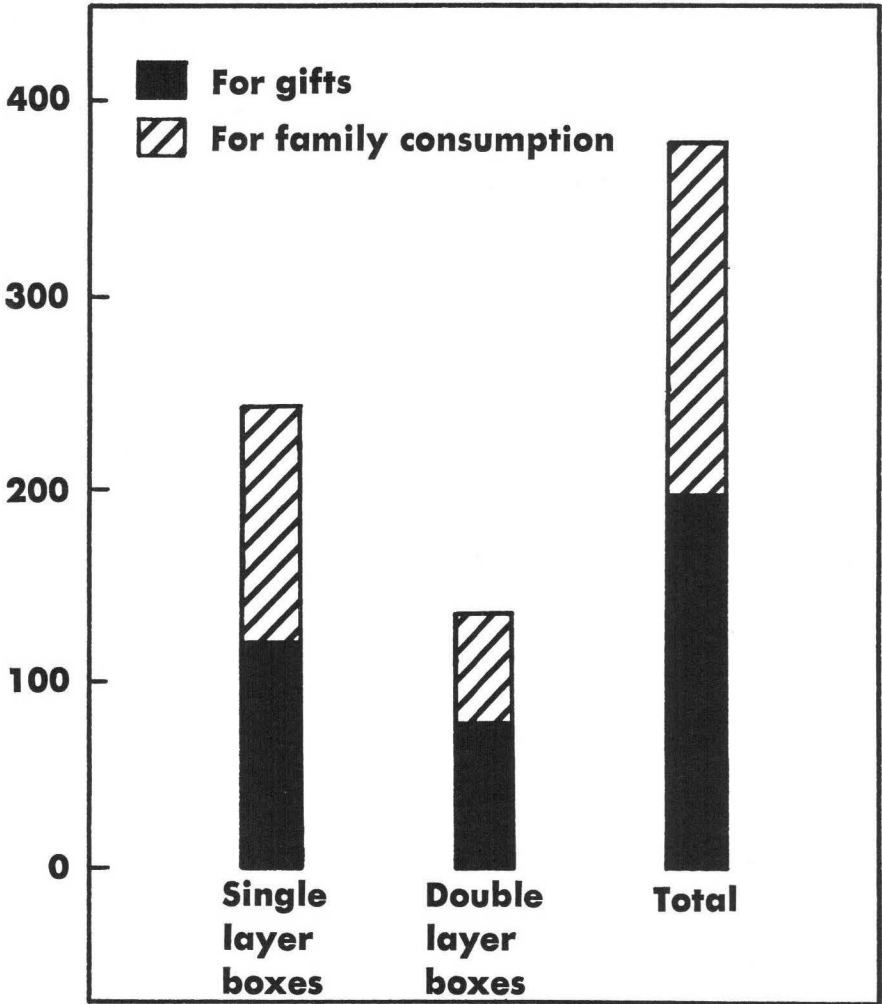


FIGURE 10. Total pounds of chocolate-coated macadamia nut candy purchased per 1,000 capita, single layer and double layer boxes, Honolulu, 1957.

TABLE 15. Percentage of Honolulu homemakers buying specified numbers of single layer and double layer boxes of chocolate-coated macadamia nut candy during 1957

| TYPE OF BOX AND REASON FOR PURCHASE | PERCENT OF PURCHASERS BUYING SPECIFIED NUMBERS OF BOXES DURING A 12-MONTH PERIOD | | | | | | |
|-------------------------------------|--|---------|---------|---------|---------|---------|---------|
| | 1 box | 2 boxes | 3 boxes | 4 boxes | 5 boxes | 6 boxes | 7 boxes |
| <i>Single layer</i> | | | | | | | |
| For family | 48 | 22 | 12 | 5 | 2 | 5 | 6 |
| As gifts | 23 | 21 | 18 | 12 | 5 | 12 | 9 |
| Family and gifts | 38 | 22 | 14 | 8 | 3 | 8 | 7 |
| <i>Double layer</i> | | | | | | | |
| For family | 52 | 14 | 11 | 4 | 4 | 4 | 11 |
| As gifts | 27 | 38 | 7 | 17 | 0 | 10 | 1 |
| Family and gifts | 37 | 28 | 9 | 12 | 1 | 7 | 6 |
| <i>All sizes</i> | | | | | | | |
| For family | 50 | 20 | 12 | 5 | 2 | 4 | 7 |
| As gifts | 24 | 27 | 15 | 13 | 3 | 11 | 7 |
| Family and gifts | 37 | 23 | 13 | 9 | 3 | 8 | 7 |

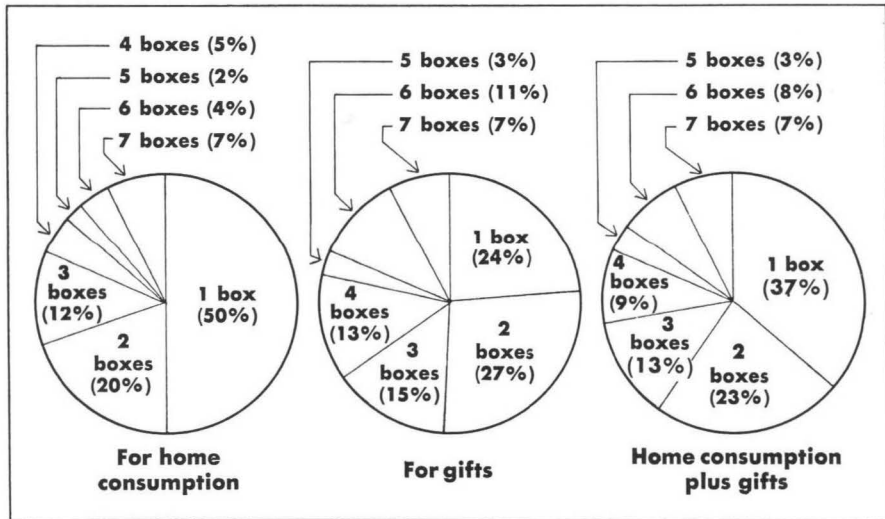


FIGURE 11. Percentage of Honolulu homemakers buying specified numbers of boxes of chocolate-coated macadamia nut candy for home consumption and for gifts during 1957.

PREFERENCES FOR MACADAMIA NUT ICE CREAM

Percentage of Homemakers Who Had Ever Purchased

Sixty percent of the Honolulu homemakers contacted in the survey indicated that they had ever bought macadamia nut ice cream (table 16 and fig. 12). There was a direct relationship between the percentage of homemakers who had purchased and length of residence in Hawaii and income and education of the homemaker. The percentage who had purchased ranged from 37 percent for homemakers who had been in Hawaii less than 1 year to 63 percent for those who had been in residence 5 years or longer. As to the effects of income, the percentage of purchasers ranged from 46 percent of the homemakers in the low income group to 81 percent of those in the high

TABLE 16. Percentage of Honolulu homemakers who had ever purchased macadamia nut ice cream as related to length of time in Hawaii, family income, education of homemaker, and racial background of homemaker, as of March, 1958

| GROUP | PERCENT WHO HAD BOUGHT |
|---------------------------------------|---------------------------|
| <i>Income group</i> | |
| Under \$4,000 | 46 |
| \$4,000-\$7,999 | 69 |
| \$8,000 and over | 81 |
| All groups | 60 |
| <i>Years in Hawaii</i> | |
| Less than 1 | 37 |
| 1-2 | 54 |
| 2-4 | 61 |
| 5 and over | 63 |
| <i>Racial background of homemaker</i> | |
| Japanese | 54 |
| Chinese | 65 |
| Caucasian | 63 |
| Hawaiian and Part Hawaiian | 65 |
| Filipino | 50 |
| <i>Education of homemaker</i> | |
| Less than 8 years | 46 |
| 9-11 years | 55 |
| High school graduate | 65 |
| College, 1-3 years | 67 |
| College graduate | 73 |

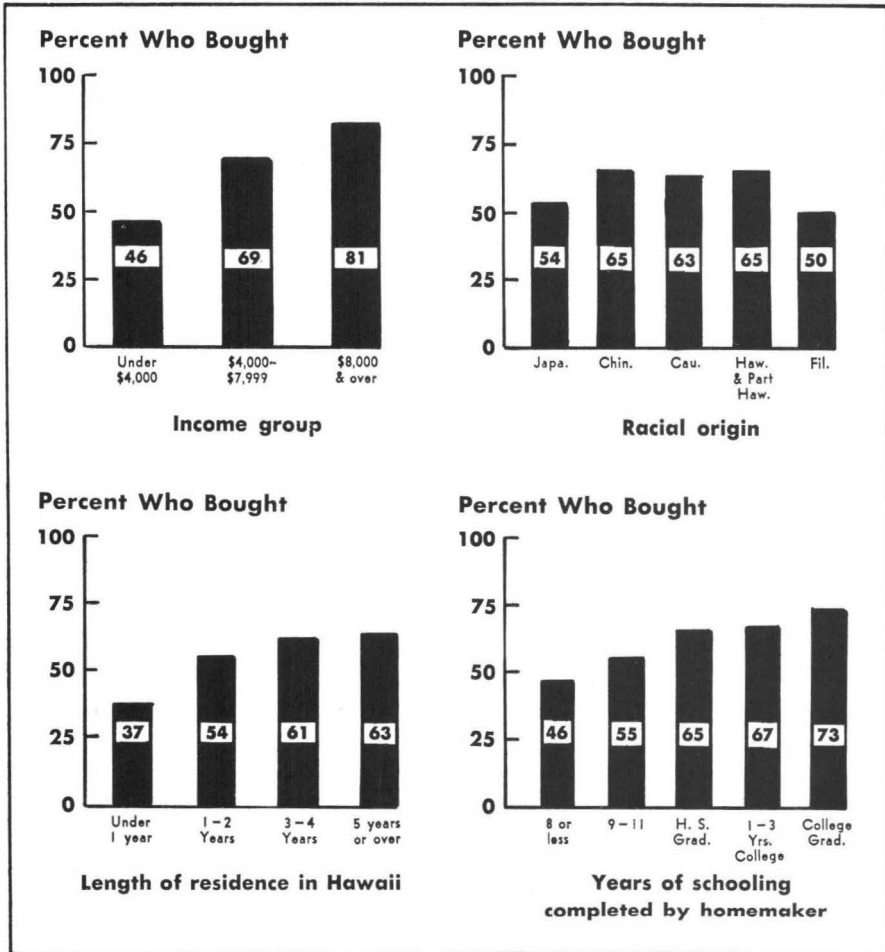


FIGURE 12. Percentage of Honolulu homemakers who had ever purchased macadamia nut ice cream as related to length of residence in Hawaii, family income, education of homemaker, and racial background of homemaker.

income group. Also, whereas macadamia nut ice cream had been purchased by only 46 percent with 8 years or less of schooling, purchases had been made at one time or another by 73 percent of the college graduates.

There were minor differences in the percentage of purchases by homemakers of different racial origins, purchases having tended to be greater by the Chinese, Hawaiians and Part Hawaiians, and Caucasians, and lowest by the Filipinos.

As was true for other macadamia nut products, there was a direct relationship between age of the homemaker and the extent to which purchases had ever been made.

Taste Preferences

According to the consumer survey, macadamia nut ice cream has not been as well accepted as either salted macadamia nuts or chocolate-coated macadamia nut candy. Fifty-four percent of the homemakers indicated that their families liked macadamia nut ice cream exceptionally well (table 17 and fig. 13). But 30 percent liked it only fairly well; 11 percent, slightly; and 5 percent didn't like it at all.

Consumers in the high income group showed a considerably stronger preference for macadamia nut ice cream than did those in the middle and low income groups. Sixty-four percent of those in the high income group but only 51 percent of those in the middle and low income groups indicated that they liked the product exceptionally well.

TABLE 17. Percentage of Honolulu families who liked macadamia nut ice cream exceptionally well, fairly well, slightly, or not at all, by income groups

| INCOME GROUP | PERCENTAGE OF HOMEMAKERS WHO LIKED THE PRODUCT: | | | |
|------------------------|---|----------------|----------------|----------------|
| | Exceptionally well | Fairly well | Slightly | Not at all |
| | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Under \$4,000 | 51 | 32 | 12 | 5 |
| \$4,000-\$7,999 | 51 | 31 | 11 | 7 |
| \$8,000 and over | 64 | 26 | 9 | 1 |
| All income groups... | 54 | 30 | 11 | 5 |

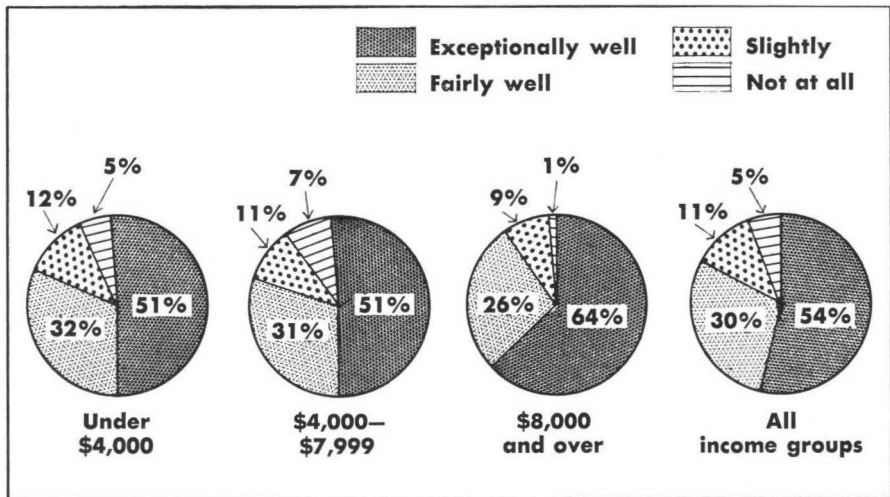


FIGURE 13. Percentage of Honolulu families who liked macadamia nut ice cream exceptionally well, fairly well, slightly, or not at all, by income groups.

CONCLUSIONS

The foregoing analysis of characteristics of consumer demand for macadamia nuts provides a basis for further development of the Honolulu market where the survey was conducted and a guide to measurement of the market potential in the now largely undeveloped mainland market. Being the only large metropolitan area where macadamia nuts are generally available in all types of stores, Honolulu is the most logical market for an initial survey of this nature. Important differences of characteristics of demand in Honolulu as compared with the potential mainland market are of major significance in contemplating probable mainland sales.

The 86 percent awareness and the 64 percent who had ever made purchases on the part of Honolulu consumers constitute a situation which has developed over a period of years in an environment where macadamia nuts are produced and processed. Considering this factor alone, considerable time and a proportionately higher cost of market development would be required to bring mainland per capita purchases up to the Honolulu level. Actually, other factors would in all probability prohibit a mainland level of per capita sales as high as that in Honolulu. Foremost among these is the fact that 58 percent of all Honolulu purchases were bought as gifts, a large percentage of which were sent to the Mainland or given to mainland visitors. This outlet would be expected to be relatively small percentagewise outside of the primary area of production.

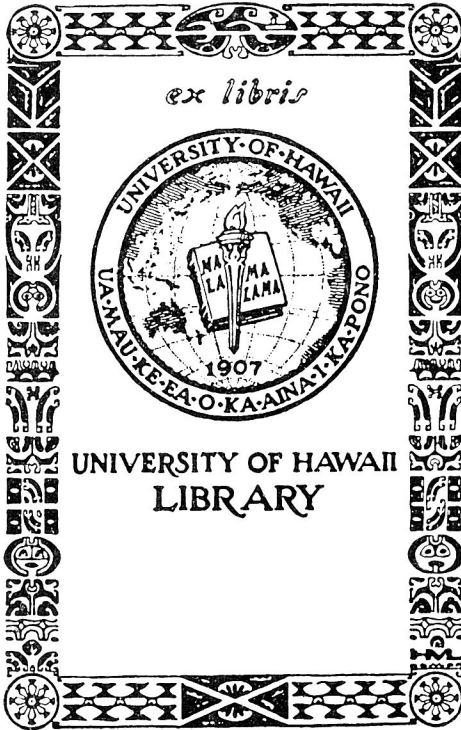
Whereas the high preference for the taste and texture of macadamia nuts in relation to other nuts indicated in Hawaii might well be approximated in mainland markets after greater familiarity, significant price differences would be expected to have an important offsetting effect on purchases. Forty-six percent of the sample of Honolulu homemakers considered local prices of macadamia nuts too high in relation to prices of other nuts. This is in a market where competing nuts are priced lower than macadamia nuts but are higher priced than the same nuts on the Mainland. Hence the percentage of consumers considering the price of macadamia nuts too high in relation to other nuts would be expected to be appreciably higher on the Mainland than in Honolulu.

Even in Honolulu, macadamia nuts are considered a luxury item. This has a deterring effect on purchases by high income families and places the item out of reach of a large segment of low income families.

A reliable indication as to whether the industry would be better off selling a small quantity at luxury prices or a large quantity at competitive prices requires an analysis of the sales potential at various prices in mainland markets with general distribution either commercially or for test purposes and the consequent determination of elasticity of demand plus a study of the cost-price structure of the industry at various levels of production and processing.

Although the consumption of all nuts is becoming less seasonal, most available data point to the fact that markets for nuts have not been adequately exploited. As nuts, in general, are further promoted for common uses and promoted for new uses, the market for macadamia nuts will likewise broaden.

Suffice it to say prior to more detailed research, that there is little doubt but what the macadamia nut could make an important place for itself in the three-quarters of a billion pound mainland nut market if the price can be made sufficiently competitive.



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