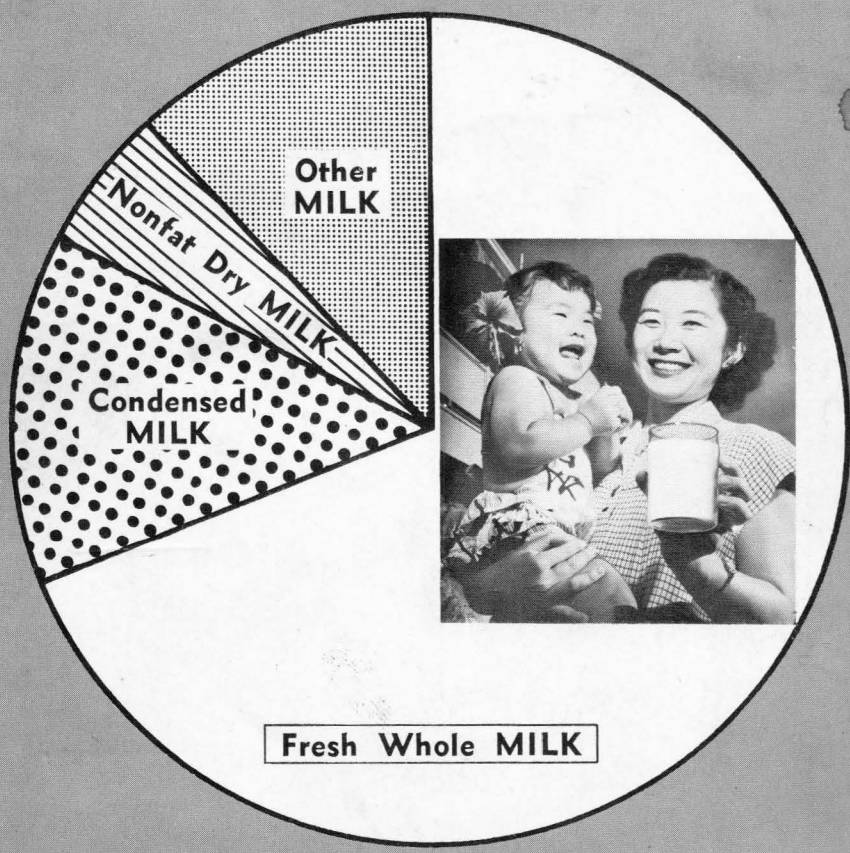


Consumer Demand for MILK in Honolulu and Kailua

Frank S. Scott, Jr., Henry T. S. Lau, and Woodrow Nakashima



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CONTENTS

	PAGE
INTRODUCTION	5
PROCEDURE	5
CONSUMERS AND NONCONSUMERS OF FLUID MILK BY INCOME GROUPS	5
PER CAPITA CONSUMPTION OF MILK	6
COMPARATIVE CONSUMPTION OF FRESH AND PROCESSED MILK PRODUCTS	11
Comparative Per Capita Consumption in Honolulu and Kailua	11
Comparative Consumption with U. S. Mainland	13
Consumption by Income Groups	15
Consumption by Nationality Groups	15
Milk Consumption by Age Groups within Nationality Groups	17
REASONS FOR PREFERRING VARIOUS FORMS OF MILK	21
CONSUMER RESPONSE TO PRICE	22
REASONS FOR DRINKING MILK	23
TIME OF CONSUMPTION OF FLUID MILK	25
RESPONSE TO ADVERTISING AND PROMOTION	26
Television	26
Radio	26
Newspapers	28
Bus Cards	28
Brand	28
TRENDS IN MILK CONSUMPTION	28
STORE VERSUS HOME DELIVERIES	29
By Income Groups	30
By Age Groups	31
By Nationality Groups	31
Reasons for Preferring Store Purchases to Home Deliveries	32
BOTTLES VERSUS PAPER CARTONS	32
PURCHASES BY SIZE OF MILK CONTAINERS	34
SUMMARY AND CONCLUSIONS	36

TABLES

1. Percentage of people drinking milk and daily per capita consumption of fluid milk, by income groups, Honolulu and Kailua, 1958	6
2. Daily per capita consumption of fresh and processed milk in ready-to-use equivalents, by nationality and income groups, Honolulu and Kailua, 1958	8
3. Daily per capita consumption of fresh whole milk, by nationality and income groups, Honolulu and Kailua, 1958	9
4. Percentage distribution of nationality groups within income groups, Honolulu and Kailua, 1958	10
5. Per capita consumption of specified milk products in ready-to-use equivalents, by income groups, Honolulu and Kailua, 1958	12
6. Per capita consumption of specified milk products, by major nationality groups, Honolulu and Kailua, 1958	16
7. Daily per capita consumption of all forms of milk in ready-to-use equivalents, by nationality and age groups, Honolulu, 1958	19

TABLES (Continued)

	PAGE
8. Reasons for preferring specified milk products, Honolulu and Kailua, 1958	20
9. Consumer reaction to specified changes in the price of fresh whole milk, Honolulu and Kailua, 1958	22
10. Reasons for adult consumption of milk, by nationality groups, Honolulu and Kailua, 1958	25
11. Percent of men, women, and children consuming fluid milk at specified mealtimes, by income groups, Honolulu, 1958	26
12. Percentage of consumers who had recalled advertisements of specified milk products by television, radio, newspapers, and bus cards, Honolulu and Kailua, 1958	27
13. Primary reasons why consumers bought more milk in 1958 than in 1957, Honolulu and Kailua	29
14. Percentage of consumers buying milk primarily through grocery stores rather than home deliveries, by income and age groups, Honolulu and Kailua, 1958	30
15. Percentage of consumers buying milk primarily through grocery stores rather than home deliveries, by nationality groups, Honolulu and Kailua, 1958	31
16. Reasons for purchasing milk primarily through grocery stores, by income groups, Honolulu and Kailua, 1958	33
17. Percentage of consumers preferring milk in glass bottles versus paper cartons and reasons for preferences, Honolulu and Kailua, 1958	35

FIGURES

1. Daily per capita consumption of all forms of fluid milk, by income groups, Honolulu and Kailua, 1958	7
2. Daily per capita consumption of specified milk products, Honolulu and Kailua, 1958	11
3. Daily per capita consumption of all forms of milk, by nationality groups, Honolulu, 1958	17
4. Daily per capita consumption of all forms of milk in ready-to-use equivalents, by nationality and age groups, Honolulu, 1958	18
5. Percentage of adult consumers consuming milk primarily because they like it and primarily because of its nutritive value, by nationality groups, Honolulu, 1958 (excluding other reasons. Totals exceed 100 percent because of duplicate answers)	24
6. Percentage of consumers who had recalled advertising of fresh whole milk via media indicated, Honolulu and Kailua, 1958	27
7. Percentage of consumers buying milk primarily through stores and through home delivery, Honolulu, 1958	30

Characteristics of Consumer Demand for Milk in Honolulu and Kailua, Oahu, Hawaii

*Frank S. Scott, Jr.,¹ Henry T. S. Lau,²
and Woodrow Nakashima³*

INTRODUCTION

This publication on characteristics of consumer demand for fluid milk in specified metropolitan areas in Hawaii is primarily concerned with the relationships between milk consumption and income, national origin, and age of the population, and the price of milk. An analysis of the increasingly greater appreciation of milk on the part of formerly low consuming nationality groups in conjunction with a changing income structure is considered essential as a guide to orderly expansion of the dairy industry in Hawaii.

PROCEDURE

The study is based primarily upon personal interviews of 1,150 homemakers in Honolulu and 388 in Kailua, Oahu, Hawaii, during the winter of 1958.⁴ Consumer data is supplemented by a survey of all commercial milk-processing plants in Hawaii plus records of shipments of milk products to Hawaii.

CONSUMERS AND NONCONSUMERS OF FLUID MILK BY INCOME GROUPS

The survey revealed no significant relationship between family income and the percentage of people who consume milk. Whereas milk was consumed at one time or another by 85 percent of the Honolulu families in the low and middle income groups and only 81 percent of those in the high income group, the pattern was almost reversed in Kailua, with only 81 percent in the low

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⁴Households were chosen through random sampling in both cities.

TABLE 1. Percentage of people drinking milk and daily per capita consumption of fluid milk, by income groups, Honolulu and Kailua, 1958

Income group	City	Percentage who drink milk	Daily per capita consumption
		<i>Percent</i>	<i>Pints</i>
Under \$4,000	Honolulu	85	0.76
	Kailua	81	0.80
\$4,000—\$7,999	Honolulu	85	0.73
	Kailua	88	0.94
\$8,000 and over	Honolulu	81	0.88
	Kailua	86	1.07
All income groups	Honolulu	84	0.75
	Kailua	85	0.95

income group, but 88 percent in the middle income group and 86 percent in the high income group being milk consumers (table 1).

Roughly 15 percent of the respondents in both Honolulu and Kailua did not drink milk. The majority of the nonmilk drinkers (61 percent) did not use it because they didn't like the taste. Fourteen percent of the nonusers refrained from drinking milk for actual or assumed health reasons such as allergies. Five percent preferred other beverages, 4 percent considered milk too fattening, and 7 percent thought it was too expensive or could afford it only for the children. The remaining 9 percent of the nonusers either gave superficial reasons or provided no specific explanation.

PER CAPITA CONSUMPTION OF MILK

Daily consumption of all fresh and processed milk in ready-to-use equivalents amounted to 0.75 pint per capita in Honolulu and 0.95 pint per capita, or 27 percent higher, in Kailua (figure 1 and table 1).⁵

Whereas there is apparently no definitive relationship between family income and the tendency to drink milk at all, there does appear to be a relationship between family income and the amount of milk consumed per capita (table 2). This was more evident in

⁵Including fresh whole milk and other forms of fluid milk consumed in restaurants and schools but not milk products used for commercial bakery goods and ice cream substitutes. The survey included military families living in Honolulu and Kailua. Survey data on per capita consumption was adjusted to correspond with sales by local processors and shipments of processed milk products from the U. S. Mainland.

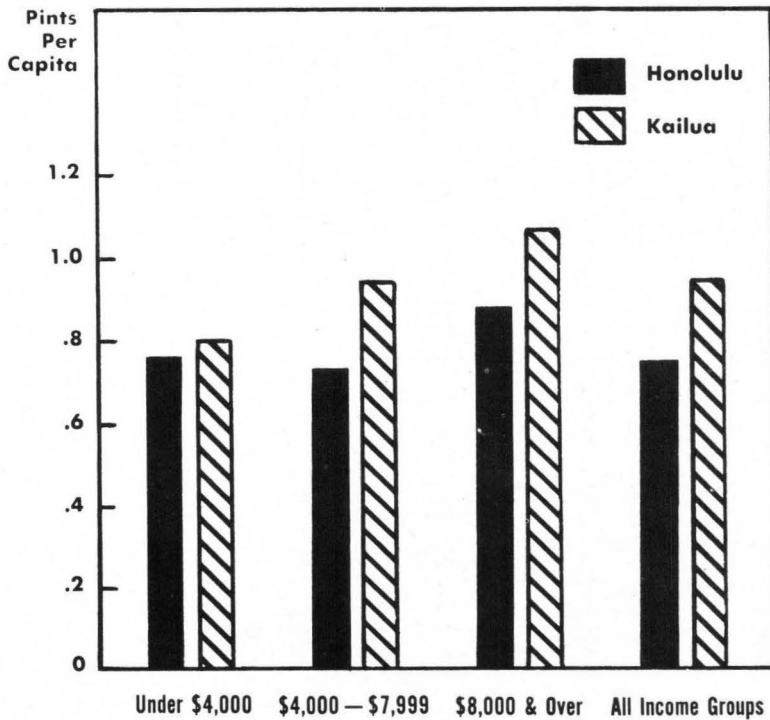


FIGURE 1. Daily per capita consumption of all forms of fluid milk, by income groups, Honolulu and Kailua, 1958.

the Kailua survey where daily per capita consumption was 0.80 pint for low income families, 0.94 pint for middle income families, and 1.07 pints for high income families. The Honolulu survey revealed the highest per capita consumption, 0.88 pint, among high income families but a slightly higher consumption, 0.76 pint, among low income families than among those in the middle income group, whose consumption was only 0.73 pint per capita. The data revealed a direct and consistent relationship between income and per capita consumption of fresh whole milk in both cities (table 3). In Honolulu, the daily per capita consumption ranged from 0.51 pint for the low income group to 0.62 pint for the high income group, and in Kailua the range was from 0.52 pint for the low income group to 0.73 pint for the high income group.

The one exception to a consistent relationship between income and per capita consumption of all forms of milk, 0.76 pint for the low income group and 0.73 pint for the middle income group in Honolulu, was not actually an inconsistency in the relationship between income and per capita consumption but was

TABLE 2. Daily per capita consumption of fresh and processed milk in ready-to-use equivalents, by nationality and income groups, Honolulu and Kailua, 1958

City and income groups	Nationality groups							
	Caucasian	Japanese	Chinese	Part-Hawaiian	Hawaiian	Filipino	Other	All nationality groups
	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>
<i>Honolulu</i>								
Under \$4,000	0.88	0.60	0.68	0.85	0.54	0.63	a	0.76
\$4,000-\$7,999	0.97	0.67	0.68	0.69	0.81	0.69	a	0.73
\$8,000 and over	1.04	0.83	0.70	0.67	a	a	a	0.88
All income groups	0.94	0.66	0.69	0.73	0.59	0.68	a	0.75
<i>Kailua</i>								
Under \$4,000	0.89	a	a	a	a	a	a	0.80
\$4,000-\$7,999	0.99	a	a	a	a	a	a	0.94
\$8,000 and over	1.10	a	a	a	a	a	a	1.07
All income groups	1.02	a	a	a	a	a	a	0.95

^a Sample too small to permit separate classification.

TABLE 3. Daily per capita consumption of fresh whole milk, by nationality and income groups, Honolulu and Kailua, 1958 ^a

City and income groups	Nationality groups							All nationality groups
	Caucasian	Japanese	Chinese	Part-Hawaiian	Hawaiian	Filipino	Other	
	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>
<i>Honolulu</i>								
Under \$4,000	0.56	0.49	0.51	0.58	0.36	0.46	b	0.51
\$4,000-\$7,999	0.63	0.51	0.52	0.49	0.64	0.44	b	0.53
\$8,000 and over	0.67	0.61	0.62	0.61	b	b	b	0.62
All income groups	0.61	0.52	0.45	0.53	0.41	0.47	b	0.55
<i>Kailua</i>								
Under \$4,000	0.59	b	b	b	b	b	b	0.52
\$4,000-\$7,999	0.64	b	b	b	b	b	b	0.62
\$8,000 and over	0.75	b	b	b	b	b	b	0.73
All income groups	0.67	b	b	b	b	b	b	0.63

^a Includes fresh whole milk consumed in schools and restaurants by the families included in the survey.

^b Sample too small to permit separate breakdown.

TABLE 4. Percentage distribution of nationality groups within income groups, Honolulu and Kailua, 1958 ^a

City and income groups	Caucasian		Japanese		Chinese		Part-Hawaiian		Hawaiian		Filipino		Other nationalities		All nationality groups	
	Percent of Caucasian	Percent of all nationalities	Percent of Japanese	Percent of all nationalities	Percent of Chinese	Percent of all nationalities	Percent of Part-Hawaiians	Percent of all nationalities	Percent of Hawaiians	Percent of all nationalities	Percent of Filipinos	Percent of all nationalities	Percent of other nationalities	Percent of all nationalities	Percent of all groups	Percent of all nationalities
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
<i>Honolulu</i>																
Under \$4,000	35	32	25	29	28	9	31	12	44	3	55	7	44	8	32	100
\$4,000-\$7,999	47	24	64	43	53	10	57	13	52	2	45	3	51	5	55	100
\$8,000 and over	18	40	11	31	19	15	12	11	4	1	0	0	5	2	13	100
All income groups	100	29	100	37	100	10	100	12	100	2	100	4	100	6	100	100
<i>Kailua</i>																
Under \$4,000	15	61	18	11	b	b	11	6	b	b	b	b	29	22	17	100
\$4,000-\$7,999	55	62	64	12	b	b	82	13	b	b	b	b	58	13	58	100
\$8,000 and over	30	83	18	8	b	b	7	3	b	b	b	b	13	6	25	100
All income groups	100	67	100	11	b	b	100	10	b	b	b	b	100	12	100	100

^a Based on the sample survey of consumption of milk and milk products in Honolulu and is applicable for that purpose only.

^b Included in other nationalities. Number of records in sample was too small to permit separate classification.

a result of the racial and nationality composition of the income groups (table 4). Except for Hawaiians and Part-Hawaiians, there is a direct relationship between income and per capita consumption for each ethnic group (table 4). The Caucasians, who are the heaviest milk consumers, constituted only 24 percent of the sample population of all nationalities in the middle income group, but 32 percent of the low income group and 40 percent of the high income group (table 4). The Japanese, on the other hand, with a per capita consumption of all forms of milk only 70 percent as high as for the Caucasians, represented 64 percent of the total population in the middle income group but only 25 percent of all people in the low income group and 11 percent of those in the high income group. This particular distribution of the two largest ethnic groups among income groups distorts the true relationship between income and per capita consumption which would otherwise be consistent.

COMPARATIVE CONSUMPTION OF FRESH AND PROCESSED MILK PRODUCTS

Comparative Per Capita Consumption in Honolulu and Kailua

Of the daily per capita consumption of 0.75 pint for all forms of milk in ready-to-use equivalents in Honolulu during 1958, approximately 0.54 pint or 72 percent of the total was in the form of fresh whole milk (figure 2 and table 5).

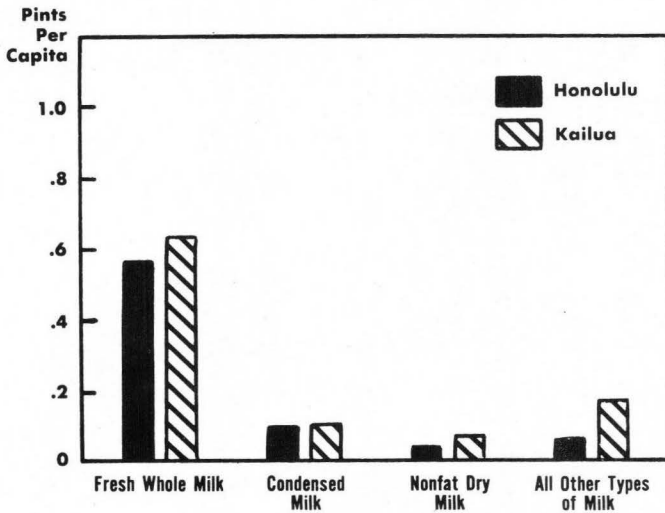


FIGURE 2. Daily per capita consumption of specified milk products, Honolulu and Kailua, 1958.

TABLE 5. Per capita consumption of specified milk products in ready-to-use equivalents, by income groups, Honolulu and Kailua, 1958

City and income group	Consumption period	Number of pints of each product consumed annually and daily ^a									
		Fresh whole milk	Condensed or evaporated milk	Nonfat dry milk	Fresh skim milk	Recombined milk	Chocolate milk	Misc. ^b	Dried whole milk	Butter-milk	All milk products used for drinking
		<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>
<i>Honolulu</i>											
Under \$4,000	Annually	194	38	15	4	11	7	3	2	1	275
	Daily	.54	.10	.04	.01	.03	.02	.008	.005	.003	.76
\$4,000-\$7,999	Annually	195	31	15	7	5	5	6	2	2	268
	Daily	.53	.09	.04	.02	.014	.014	.016	.005	.005	.73
\$8,000 and over	Annually	229	31	17	17	5	3	5	8	3	318
	Daily	.63	.08	.05	.05	.014	.008	.014	.02	.008	.88
All income groups	Annually	197	33	15	7	7	5	5	3	2	274
	Daily	.54	.09	.04	.02	.02	.014	.014	.008	.005	.75
<i>Kailua</i>											
Under \$4,000	Annually	195	43	12	2	10	10	10	10	.3	292
	Daily	.52	.12	.03	.01	.03	.03	.03	.03	^c	.80
\$4,000-\$7,999	Annually	225	36	25	6	16	7	14	11	2	342
	Daily	.62	.10	.07	.02	.04	.02	.03	.03	.01	.94
\$8,000 and over	Annually	266	22	38	23	11	13	4	6	8	391
	Daily	.73	.05	.10	.07	.03	.04	.01	.02	.02	1.07
All income groups	Annually	230	34	26	11	14	10	11	10	2	348
	Daily	.63	.10	.07	.03	.03	.02	.03	.02	.01	.95
United States ^d	Annually	282	33	11	11	-	8	-	2	33	380
	Daily	.77	.09	.03	.03	-	.02	-	.005	.09	1.04

^a All amounts given in diluted, ready-to-use equivalents, including required additions of water.

^b Including frozen milk.

^c Too small to be of significance.

^d From *The Dairy Situation*, USDA Agricultural Marketing Service, November, 1958, p. 28. Data converted to ready-to-use equivalents.

Next in importance, but amounting to only 0.09 pint per capita in ready-to-use form, was condensed or evaporated milk. Non-fat dry milk ranked third with a daily per capita consumption of 0.04 pint.⁶ Consumption of all other forms of milk was small for each individual product, but the combined total amounted to 0.08 pint per capita in fluid milk equivalent or ready-to-use form.

Of the daily per capita consumption of 0.95 pint of ready-to-use milk equivalents in Kailua, 0.63 pint or two-thirds was fresh whole milk. Hence, although the per capita consumption of milk was considerably higher in Kailua, the proportion composed of fresh whole milk was somewhat lower than in Honolulu. Per capita consumption of condensed milk, amounting to 0.10 pint per capita and nonfat dry milk amounting to 0.07 pint per capita in Kailua was slightly higher both in the aggregate and in proportion to the consumption of these products in relation to all milk products in Honolulu. Kailua consumption of all other forms of milk, individually, was low as was true in Honolulu.

Comparative Consumption with U. S. Mainland

Per capita consumption of all forms of milk and milk products utilized as milk for drinking either in the home or in schools and restaurants plus that used for cooking in the home amounted to 303 pints annually (0.75 pint daily) for Honolulu, 348 pints (0.95 pint daily) for Kailua, and 380 pints (1.04 pints daily) for the U. S. Mainland.⁷

Both ethnic differences and price are considered responsible for the somewhat lower total per capita consumption of milk in Hawaii than on the U. S. Mainland as will be pointed out later in this report.

Total per capita disappearance of fresh fluid milk of 0.54 pint in Honolulu and 0.63 pint in Kailua was somewhat less than the national per capita consumption which amounted to 0.77 pint during the same period.⁸ Honolulu and Kailua consumers utilized about the same amount of condensed and evaporated milk per capita as did those on the U. S. Mainland (table 5). Of the total disappearance of fluid whole milk in Honolulu and Kailua, an estimated 14 percent was consumed through school lunch programs.

⁶Purchases for household consumption. This figure does not include commercial utilization for bakery products, ice cream substitutes, reconstituted milk, and in restaurants. Reconstituted milk is included in the survey as a separate item.

⁷Not including milk used commercially for ice cream and bakery products.

⁸Computed from *The Dairy Situation*, USDA Agricultural Marketing Service, November, 1958, p. 28.

Household purchases of fluid whole milk by civilians and military families through stores, home deliveries, and military commissaries amounted to an estimated 0.34 pint daily per capita for Honolulu and 0.40 for Kailua. During the same period, purchases of fluid whole milk on the U. S. Mainland amounted to 0.51 pint per capita or 50 percent higher than for Honolulu and 28 percent higher than for Kailua.

The ratio of total disappearance to household purchases of fluid whole milk on a per capita basis was slightly higher in Honolulu than on the U. S. Mainland, being 1.50 for the Mainland and 1.59 for Honolulu.

Per capita utilization of condensed or evaporated milk was equal in Honolulu, Kailua, and the U. S. Mainland.

Household purchases of dried nonfat milk in ready-to-use equivalents amounted to 15 pints per capita (0.04 pint daily) in Honolulu and 26 in Kailua as compared with 11.2 on the U. S. Mainland during the same period.⁹ Total disappearance for all uses was, of course, considerably higher in all instances. The purpose here is to obtain an indication of the amount used as milk or for cooking in the home.

The annual per capita consumption of dried nonfat milk in Honolulu was about the same as that determined from a consumer panel in Atlanta, Georgia, during October - December, 1958, with 15.0 pints as compared with 16.5 pints for Atlanta in ready-to-use equivalents.¹⁰ The Kailua consumption of 26 pints per capita annually was 58 percent higher than that for Atlanta.

Analysis of inshipments of nonfat dried milk into Hawaii during the past 3 years indicates an upward trend in per capita consumption of this product.

Although the consumption of dried nonfat milk was slightly higher in Honolulu and Kailua than on the U. S. Mainland, the consumption of fresh skim milk was considerably lower. Annual per capita consumption when the study was made amounted to only 2 pints in Kailua, 4 pints in Honolulu, and 11 pints for the U. S. Mainland.

⁹Determined from data published in *Household Purchases of Fluid Milk, Non-Fat Dry Milk, Butter, and Margarine*, U. S. Department of Agriculture, Agricultural Marketing Service, March, 1958.

¹⁰Elrod, J. C., J. C. Purcell, K. E. Ford, and N. M. Penny, *Food Purchases—Atlanta Consumer Panel*, Georgia Agricultural Experiment Station, Mimeo Series N.S. 81, June, 1959.

Buttermilk consumption, which constituted over 8 percent of the total consumption of all forms of milk in ready-to-use equivalents on the U. S. Mainland in 1958, was negligible in Honolulu and Kailua.

Consumption by Income Groups

The pattern of consumption of various forms of milk varied significantly among income groups. In Honolulu, consumption of fresh whole milk ranged from 0.54 pint per capita in the low income group to 0.63 pint per capita in the high income group (figure 2 and table 5). In Kailua, the variation was even greater, ranging from 0.52 pint for the low income group to 0.73 pint for the high income group.

Per capita consumption of canned milk was considerably greater among lower than among higher income families in both Honolulu and Kailua.

Consumption of dried nonfat milk was slightly higher among high income families in Honolulu and considerably higher among high income families in Kailua. This was partially due to the relationship between income and nationality as is pointed out later in the report.

Consumption of fresh skim milk and buttermilk was low among all income groups but comparatively higher among the high income families in both Honolulu and Kailua.

Consumption by Nationality Groups

Milk consumption also varied by nationality groups, with total milk consumption being highest among Caucasians and lowest among pure Hawaiians, ranging in Honolulu from a daily consumption of 0.94 pint for the former to only 0.59 for the latter (figure 3 and table 6). Fresh whole milk consumption was also high among Caucasians in comparison to all other groups. Insofar as nationality groups could be compared, a similar pattern of consumption prevailed in both Honolulu and Kailua (table 6).¹¹

Recombined milk was consumed largely by Caucasians but to some extent by Filipinos, Part-Hawaiians, and Japanese. Consumption of recombined milk among Chinese and pure Hawaiians was negligible.

Consumption of dried whole milk was low among all nationality

¹¹Data on Chinese, Hawaiians, Part-Hawaiians, and Filipinos were included in Kailua totals, but not broken down separately because the proportions of the population were too small to yield adequate samples.

TABLE 6. Per capita consumption of specified milk products, by major nationality groups, Honolulu and Kailua, 1958

City and nationality group	Consumption period	Number of pints of each product consumed annually and daily ^a									
		Fresh whole milk	Condensed or evaporated milk	Nonfat dry milk	Fresh skim milk	Recombined milk	Chocolate milk	Misc. ^b	Dried whole milk	Buttermilk	All milk products used for drinking
		<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>
<i>Honolulu</i>											
Caucasian	Annually	223	35	25	13	18	6	15	4	3	343
	Daily	.61	.09	.07	.04	.05	.016	.04	.01	.008	.94
Part-Hawaiian	Annually	195	48	8	8	.7	5	0	0	1.2	267
	Daily	.53	.13	.02	.02	.002	.014	0	0	.003	.73
Chinese	Annually	196	30	9	3	0	17	0	2	.39	256
	Daily	.45	.13	.02	.005	0	.05	0	.005	c	.69
Japanese	Annually	189	25	12	7	1	4	0	2	.15	241
	Daily	.52	.07	.03	.02	.003	.01	0	.005	c	.66
Filipino	Annually	174	43	2	0	12	8	4	.35	4	248
	Daily	.47	.12	.01	0	.04	.02	.009	c	.009	.68
Hawaiian	Annually	149	44	12	2	0	11	0	0	0	217
	Daily	.41	.12	.03	.004	0	.03	0	0	0	.59
All nationality groups ^a	Annually	197	33	15	8	7	5	5	3	2	274
	Daily	.55	.09	.04	.02	.02	.014	.014	.008	.005	.75
<i>Kailua</i>											
Caucasian	Annually	243	30	30	11	19	12	12	12	4	373
	Daily	.67	.08	.08	.03	.05	.03	.03	.03	.01	1.01
Japanese	Annually	224	31	11	1	0	2	13	7	0	289
	Daily	.61	.09	.03	c	0	.01	.04	.02	0	.80
All nationality groups ^d	Annually	229	34	26	10	14	10	10	10	3	346
	Daily	.62	.09	.07	.03	.04	.03	.03	.03	.01	.95

^a All amounts given in diluted, ready-to-use equivalents including required additions of water.

^b Including frozen milk.

^c Too small to be of significance.

^d Including smaller groups with too few records to permit classification by individual groups.

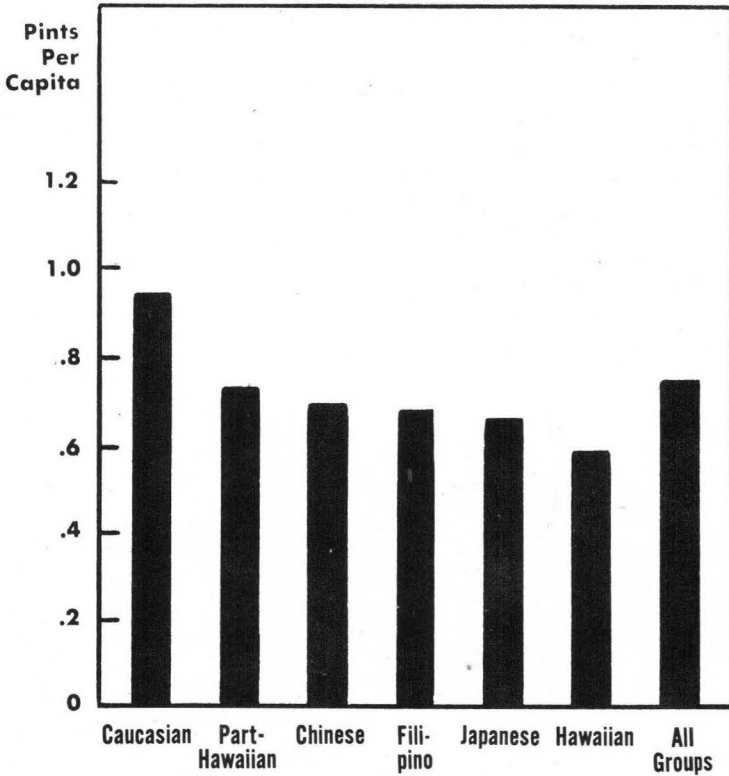


FIGURE 3. Daily per capita consumption of all forms of milk, by nationality groups, Honolulu, 1958.

groups but somewhat higher among Caucasians than among other nationality and racial groups. Whereas all nationality groups used a fair amount of canned milk, the consumption of this product was exceptionally high among Part-Hawaiians and also relatively high among pure Hawaiians and Filipinos. Consumption of dried skim milk was highest among the Caucasians and next highest among the Japanese and Hawaiians although these groups consumed only about half as much per capita as the Caucasians.

Chocolate milk was consumed in moderate amounts by Chinese, Hawaiians, and Caucasians and only to a limited extent among all other groups.

Buttermilk was consumed largely by Caucasians, Part-Hawaiians, and Filipinos.

Milk Consumption by Age Groups within Nationality Groups

Differences in consumption by various age groups within na-

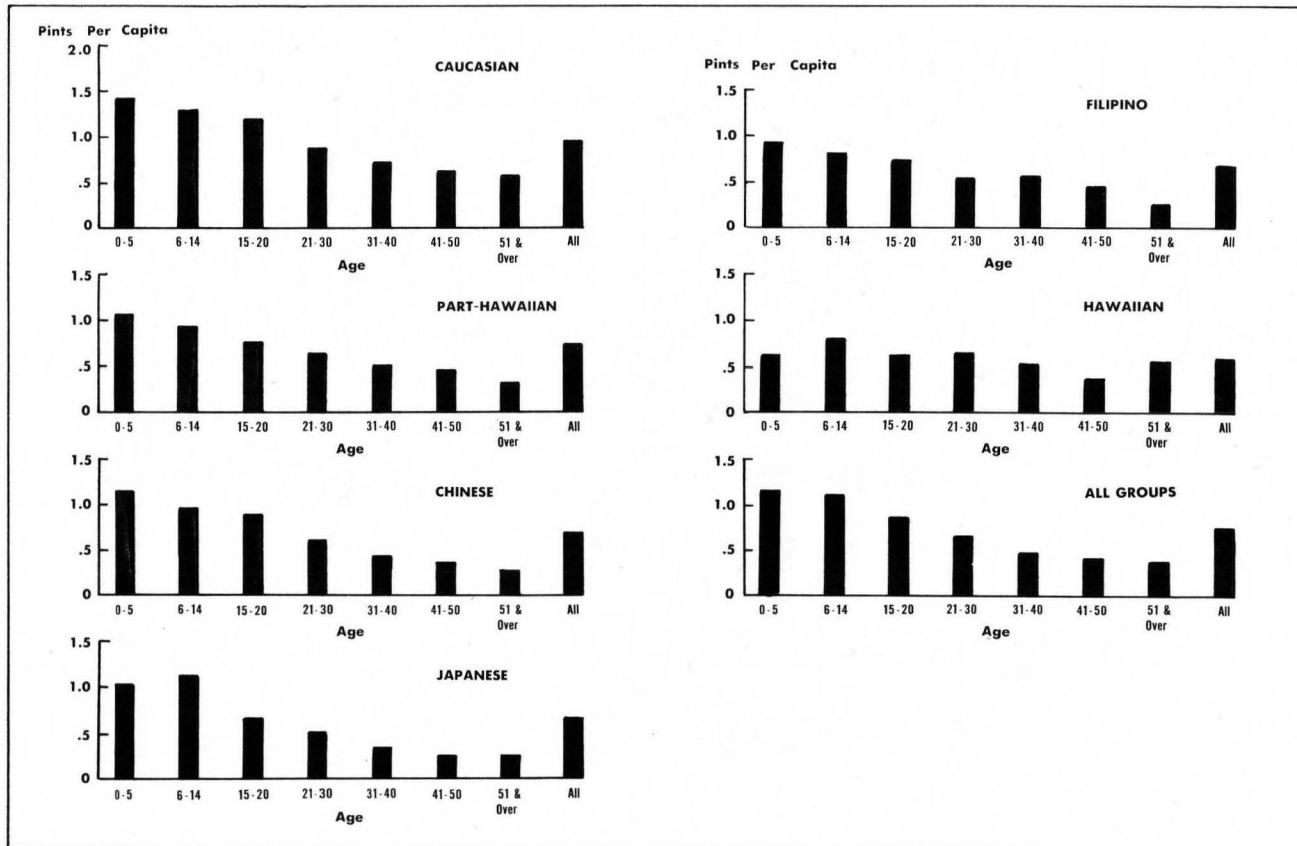


FIGURE 4. Daily per capita consumption of all forms of milk in ready-to-use equivalents, by nationality and age groups, Honolulu, 1958.

TABLE 7. Daily per capita consumption of all forms of milk in ready-to-use equivalents, by nationality and age groups, Honolulu, 1958

Nationality group	Consumption by age groups							All age groups
	0-5 years	6-14 years	15-20 years	21-30 years	31-40 years	41-50 years	51 years and over	
	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>	<i>Pints</i>
Caucasian	1.41	1.29	1.19	0.88	0.71	0.61	0.58	0.94
Part-Hawaiian	1.06	0.92	0.77	0.63	0.50	0.47	0.31	0.73
Chinese	1.13	0.96	0.89	0.60	0.43	0.36	0.28	0.69
Japanese	1.02	1.11	0.65	0.51	0.34	0.25	0.25	0.66
Filipino	0.91	0.80	0.72	0.53	0.57	0.46	0.25	0.68
Hawaiian	0.61	0.79	0.61	0.63	0.52	0.38	0.56	0.59
All nationality groups ^a	1.13	1.09	0.85	0.64	0.48	0.41	0.38	0.75

^a Includes minority groups too small to list separately.

tionality groups were more significant than differences in total consumption among nationality groups.

Per capita consumption of milk by Caucasians exceeded that for all other nationality or racial groups at all age levels (figure 4 and table 7). Per capita consumption by Japanese, Chinese, Part-Hawaiian, and Filipino groups was below that of Caucasians for all age groups but was fairly high through 14 years of age and tended to drop off more sharply in the 15- to 20-year age group and quite markedly after 21 years of age. This is quite understandable inasmuch as most of the children of all nationality groups received milk under the school milk program and this, along with intensive milk promotion on Oahu, has undoubtedly encouraged higher milk consumption in the home by all nationality groups. On the other hand, the older people of Oriental ancestry, in particular, were unaccustomed to drinking milk as a regular part of their diet and consumption was understandably low. The question arises as to whether the present 15- to 20-year age group will continue their relatively high milk consumption when they move into the next age group. The answer would seem to be that the younger generation will consume more milk than the generation they replace, but some return to the food-consuming habits of the older generation would be expected. It would require a detailed survey at a later date in order to provide a reliable indication as to whether or not each of the older age groups is being replaced by a higher milk-consuming population since necessary historical data are not now available. Per capita consumption by pure Hawaiians was low in all age groups as compared with other nationalities but tended to remain at about the same level throughout all age groups within the Hawaiian nationality group.

TABLE 8. Reasons for preferring specified milk products, Honolulu and Kailua, 1958

Product	City	Percentage of consumers preferring specified milk products for reasons indicated ^a												
		Prefer taste	Cheaper	Nutritional value	Prefer for cooking and baking	Non-fattening	More convenient	Retains quality	Prefer for babies	Health reasons	Also used for coffee	Prefer for cereals	Fresher	Other ^b
		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Fresh whole milk	Honolulu	64	0	17	3	0	7	0	0	0	0	0	4	13
	Kailua	63	0	31	4	0	8	0	0	0	0	0	2	14
Dried whole milk	Honolulu	0	19	0	31	0	0	0	0	0	0	0	0	45
	Kailua	0	35	0	35	0	0	15	15	0	0	0	0	57
Nonfat dry milk	Honolulu	14	28	0	24	13	0	0	0	3	0	0	0	33
	Kailua	14	38	0	26	22	0	0	0	10	0	0	0	20
Fresh skim milk	Honolulu	0	0	0	0	17	0	0	0	4	0	0	0	5
	Kailua ^b	-	-	-	-	-	-	-	-	-	-	-	-	-
Condensed or evaporated milk	Honolulu	2	9	0	18	0	2	0	18	0	52	9	0	9
	Kailua	1	18	0	37	0	5	0	20	0	42	6	0	15
Recombined milk	Honolulu	16	53	6	0	0	0	0	0	0	0	0	0	28
	Kailua ^b	-	-	-	-	-	-	-	-	-	-	-	-	-

^a Totals exceeded 100 percent because some respondents indicated more than one reason or were less than 100 percent because some consumers indicated no specific reasons for using the product.

^b Too few reasons in each category to permit individual listing.

Total per capita milk consumption for all nationality groups did not differ as much as would have been expected in light of marked differences among the older age groups, because of the high concentration of population in the lower, high consuming age groups. This would also tend to bring the total per capita consumption by Japanese, Chinese, and Part-Hawaiians closer to that by the Caucasians because of a higher proportion of the former groups in the lower age categories.

The apparent increase in per capita consumption of milk among the younger generations of low milk-consuming parents appears to have an important effect on total milk requirements on Oahu as the younger generations replace the older. For this reason total milk requirements may be expected to expand at a somewhat more rapid rate than would be indicated by the expected increase in population.

REASONS FOR PREFERRING VARIOUS FORMS OF MILK

About two-thirds of the homemakers in both Honolulu and Kailua preferred fresh whole milk to other milk products because of its superior taste. Seventeen percent of the homemakers in Honolulu and 31 percent of those in Kailua preferred fresh whole milk because they thought it was more nutritional, and a small percentage in both cities considered it more convenient and fresher (table 8).

Of the small percentage of consumers who used dried whole milk, 31 percent of the homemakers in Honolulu and 35 percent of those in Kailua did so because they preferred it in cooking and baking, and 19 percent in Honolulu and 35 percent in Kailua used it because it was considered an economical milk product. To some extent it was preferred in Honolulu because of its storage attributes and in Kailua because it was used for babies.

Of the consumers who used condensed or evaporated (canned) milk, 52 percent in Honolulu and 42 percent in Kailua bought it because it could be used quite satisfactorily in coffee as well as for drinking. Eighteen percent in Honolulu and 37 percent in Kailua bought it because it was preferred for cooking and baking, and 9 percent in Honolulu and 18 percent in Kailua because it was considered economical. Also 18 percent in Honolulu and 20 percent in Kailua bought it for feeding babies.

Fifty-three percent of Honolulu homemakers who used recombined milk did so because they considered it cheaper than fresh

whole milk. Sixteen percent liked the taste of recombined milk.

Of the homemakers who bought dried skim milk, 28 percent in Honolulu and 38 percent in Kailua preferred it for economy reasons. Twenty-four percent in Honolulu and 26 percent in Kailua preferred it for cooking and baking, and 13 percent in Honolulu and 22 percent in Kailua because it was considered nonfattening. Fourteen percent in both cities preferred the taste of dried skim milk to some of the other milk products, and 3 percent in Honolulu and 10 percent in Kailua bought it for health reasons.

Fresh skim milk was bought primarily because it was non-fattening, but to some extent for health reasons.

CONSUMER RESPONSE TO PRICE

The price of milk had been raised 1 cent per quart in Honolulu early in 1958 at the beginning of the survey of consumer demand. It is highly significant that 88 percent of the consumers in Honolulu and 81 percent of those in Kailua indicated that they would continue to drink about the same amount of milk in spite of the 1 cent per quart increase (table 9). It is assumed therefore that only 12 percent in Kailua and 19 percent in Honolulu responded or considered responding to the price increase of 1 cent per quart. But 32 percent of the consumers in both Honolulu and Kailua indicated that they would drink more milk if the price were reduced 2 cents per quart. Thirty-nine percent in Honolulu and 45 percent in Kailua indicated that they would drink more milk if the price were lowered 5 cents per quart (table 9).

Fifty-eight percent in Honolulu and 53 percent in Kailua indicated that they were buying as much milk as they wanted and

TABLE 9. Consumer reaction to specified changes in the price of fresh whole milk, Honolulu and Kailua, 1958

Income group and city	Percent of respondents who would consume more milk if price per quart were		Percent of respondents who were drinking as much as they wanted at time of the survey
	2 cents lower	5 cents lower	
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
<i>Under \$4,000</i>			
Honolulu	35	43	64
Kailua	69	74	86
<i>\$4,000 - \$7,999</i>			
Honolulu	33	39	52
Kailua	31	44	49
<i>\$8,000 and over</i>			
Honolulu	21	27	63
Kailua	18	34	44
<i>All income groups</i>			
Honolulu	32	39	58
Kailua	32	45	53

would, therefore, not likely be influenced by a comparatively small change in the price of milk (table 9). An unreasonable change in price would, of course, be expected to have some effect on milk purchases by this group.

There appears to be a definite relationship between family income and reaction to a price change of 2 cents per quart and an even stronger correlation between income and response to a price change of 5 cents per quart. This was of greater significance in Kailua than in Honolulu. In Kailua, 69 percent of the low income group, 31 percent in the middle income group, and only 18 percent in the high income group indicated that they would buy more milk if the price were 2 cents per quart lower. The respective percentages for Honolulu were 35, 33, and 21 percent.

If the price of milk were lowered 5 cents per quart, 74 percent of the low income group, 44 percent of the middle income group, and 34 percent of the high income group in Kailua indicated that they would increase their purchases. In Honolulu, the respective percentages were 43, 39, and 27 percent.

The survey data does not indicate that a 1-cent reduction in the price of milk would have a sufficient effect on consumer purchases to warrant the reduction as a measure to increase sales. The study does indicate that a reduction of 2 cents or more per quart would have a measurable effect on purchases. It is likely, however, that the increase in sales would be less than proportional to the price reduction and such a reduction would not, therefore, be profitable to the dairy industry. For any product which has an inelastic demand where a change in price brings about a proportionately smaller change in quantity sold, gross profits, and usually net profits, are greater at the higher price. The elasticity of demand for milk in Honolulu, although inelastic, is considered to be somewhat more elastic than on the Mainland where within a reasonable price range the price elasticity of demand is only -0.3 (a 10 percent change in price would only result in a 3 percent change in quantity taken).¹² A precise study of elasticity of demand is beyond the scope of this initial report.

REASONS FOR DRINKING MILK

Sixty-three percent of the adults in Kailua and 71 percent of those in Honolulu indicated that they drank milk because they

¹²Rojko, Anthony S., *The Demand and Price Structure for Dairy Products*, Technical Bulletin No. 1168, U.S. Department of Agriculture, 1957, p. 3.

Percentage

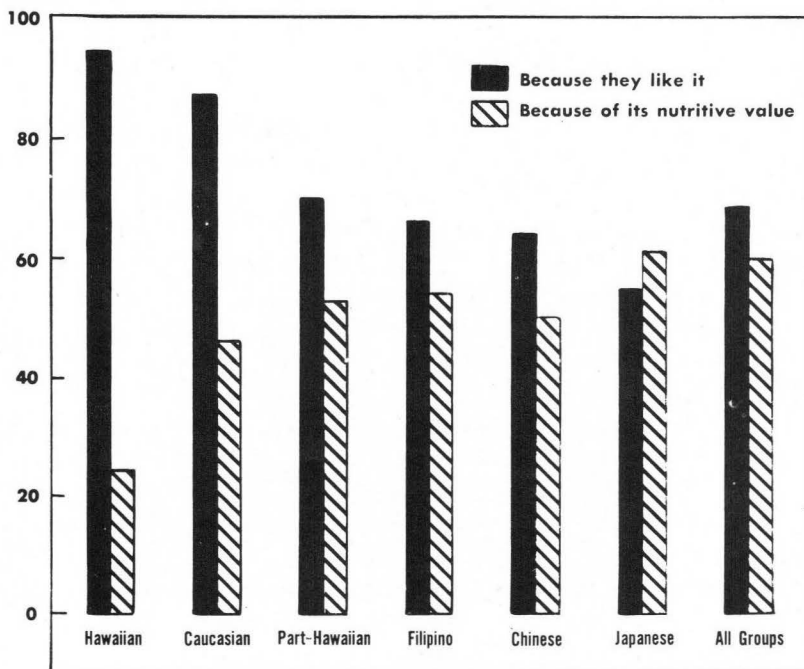


FIGURE 5. Percentage of adult consumers consuming milk primarily because they like it and primarily because of its nutritive value, by nationality groups, Honolulu, 1958 (excluding other reasons. Totals exceed 100 percent because of duplicate answers).

liked it. Only 51 percent in Kailua and 53 percent in Honolulu drank it primarily because of its nutritive value.¹³

The percentage of Honolulu consumers consuming milk because they liked it was approximately 7 percent higher among adults under 40 than among adults of 40 years of age or over.

Adult Caucasians, Hawaiians, and Part-Hawaiians placed far more importance on taste and less on nutrition than did Japanese and Chinese. Whereas in Honolulu 94 percent of the Hawaiians and 87 percent of the Caucasians drank milk for its taste, only 64 percent of the Chinese and 57 percent of the Japanese indicated a liking for the product as a major reason for drinking it (figure 5 and table 10). Conversely, only 24 percent of the Hawaiian and 46 percent of the Caucasian adults, but 50 percent of the Chinese and 61 percent of the Japanese adults indicated nutritive value as the primary reason for drinking milk. With minor exceptions, the same pattern existed in Kailua.

¹³Totals for each city exceed 100 percent because some consumers indicated more than one reason.

TABLE 10. Reasons for adult consumption of milk, by nationality groups, Honolulu and Kailua, 1958

Nationality group	City	Percentage replies for all income groups ^a			
		Because they like it	Because of its nutritive value	Because they want to encourage children to drink milk	Other reasons
		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Caucasian	Honolulu	87	46	2	6
	Kailua	75	38	4	13
Part-Hawaiian	Honolulu	70	53	4	11
	Kailua	55	42	19	19
Chinese	Honolulu	64	50	0	7
	Kailua	54	54	23	15
Japanese	Honolulu	57	61	2	12
	Kailua	55	60	8	6
Hawaiian	Honolulu	94	24	0	6
	Kailua	62	75	25	12
Filipino	Honolulu	66	54	0	9
	Kailua	80	80	0	0
All nationality groups	Honolulu	71	53	0	14
	Kailua	63	51	14	0

^a Percentages exceed 100 percent in some instances because some consumers indicated more than one reason.

It would seem apparent, therefore, that publicizing the nutritional value of milk has had an important influence in increasing consumption among consumers of Chinese and Japanese extraction, many of whose parents had not been accustomed to drinking milk.

TIME OF CONSUMPTION OF FLUID MILK

Eighty-five percent of all Honolulu children drank milk at lunch time, but only 79 percent drank it at dinner time and 76 percent at breakfast time (table 11). Thirty-five percent of the children drank milk between meals. The higher noon-time consumption is undoubtedly influenced by the school lunch program.

Thirty-seven percent of female adults drank milk at lunch time but only 27 percent at dinner time, 17 percent at breakfast time, and 15 percent between meals. Contrary to the pattern for adult females and for children, the percentage of adult males consuming milk at dinner, 27 percent, was greater than at other meals. Twenty-six percent of the adult males consumed milk at lunch time, 16 percent at breakfast time, and 14 percent between meals.

TABLE 11. Percent of men, women, and children consuming fluid milk at specified meal-times, by income groups, Honolulu, 1958

Income group	Age and sex classification	Mealtime			
		Breakfast	Lunch	Dinner	Between meals
		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Under \$4,000	Adult female	19	35	28	14
	Adult male	18	25	27	11
	Children	74	82	74	32
	All	34	45	40	18
\$4,000 - \$7,999	Adult female	15	36	26	15
	Adult male	15	26	25	16
	Children	75	85	80	37
	All	32	46	41	22
\$8,000 and over	Adult female	16	42	31	17
	Adult male	14	32	34	15
	Children	83	94	87	34
	All	34	53	48	21
All income groups	Adult female	17	37	27	15
	Adult male	16	26	27	14
	Children	76	85	79	35
	All	33	47	42	20

RESPONSE TO ADVERTISING AND PROMOTION

Television

According to the survey, advertising of milk and milk products has had good coverage both in Honolulu and in Kailua. Television had the highest coverage of any media in both cities. Sixty-one percent of the consumers in Honolulu and 58 percent of those in Kailua indicated that they had seen milk advertised on television (figure 6 and table 12). Ice cream advertisements on television were viewed by 46 percent of the families in Honolulu and 47 percent in Kailua. For cottage cheese, television advertisements were viewed by 8 percent of the families in Honolulu and 4 percent in Kailua.

Radio

Forty-nine percent of the homemakers in Honolulu and 53 percent of those in Kailua had heard fresh whole milk advertised over the radio. Twenty-three percent in Honolulu and 31 percent in Kailua had heard ice cream advertisements over radio. Recall of radio advertisements of canned milk, powdered milk, and cottage cheese was comparatively low.

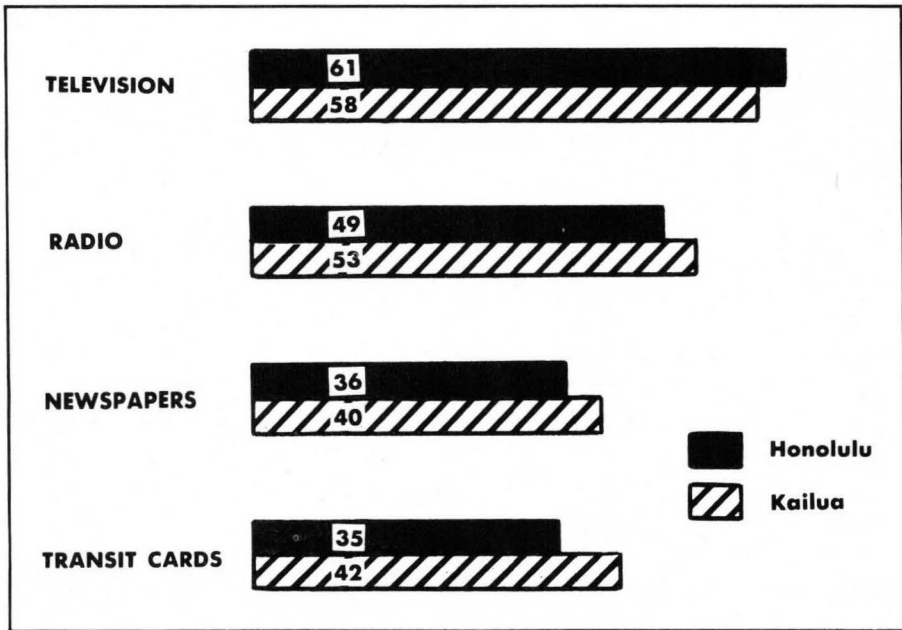


FIGURE 6. Percentage of consumers who had recalled advertising of fresh whole milk via media indicated, Honolulu and Kailua, 1958.

TABLE 12. Percentage of consumers who had recalled advertisements of specified milk products by television, radio, newspapers, and bus cards, Honolulu and Kailua, 1958

Media	City	Percentage recall of advertising for each product					
		Fresh whole milk	Ice cream	Con-densed or evaporat-ed milk	Pow-dered milk	Cottage cheese	Specialty items ^a
		Percent	Percent	Percent	Percent	Percent	Percent
Television	Honolulu	61	46	4	2	8	3
	Kailua	58	47	4	2	4	4
Radio	Honolulu	49	23	7	2	8	1
	Kailua	53	31	4	3	0	1
Newspapers	Honolulu	36	18	23	3	11	3
	Kailua	40	20	20	1	3	13
Transit cards	Honolulu	35	14	4	1	9	2
	Kailua	42	16	5	0	0	0

^a Eggnog, Avoset, etc.

Newspapers

Thirty-six percent of Honolulu homemakers and 40 percent of Kailua homemakers indicated that they had seen fresh whole milk advertisements in the newspapers, but only 18 percent in Honolulu and 20 percent in Kailua recalled having seen ice cream advertised in newspapers.

Whereas canned or condensed milk advertisements had been observed only to a very limited extent on television or radio, they had been noticed in newspapers by 23 percent of the homemakers in Honolulu and 20 percent of those in Kailua.

Bus Cards

Thirty-five percent of the homemakers in Honolulu and 42 percent of those in Kailua indicated that they had seen milk advertised on transit cards. Ice cream advertisements on transit cards were noted by 14 percent of the homemakers in Honolulu and 16 percent of those in Kailua.

Brand

Brand recall on milk advertisements was high for all media both in Honolulu and in Kailua.

In Honolulu, the particular brand of dairy product advertised was recalled by 94 percent of those who saw it on television, 81 percent over radio, 75 percent in newspapers, and 73 percent on transit cards.

In Kailua, the respective percentages were 94 percent for television, 80 percent for radio, 84 percent for newspapers, and 63 percent for transit cards.

TRENDS IN MILK CONSUMPTION

Thirty-seven percent of the families in Honolulu and 49 percent of those in Kailua indicated that they bought more milk during 1958 than during 1957. Thus, any apparent increase in per capita consumption for the entire population was not due to an "across the board" increase on the part of all consumers but to increased consumption on the part of about one-third of Hono-

lulu consumers and about one-half of Kailua consumers. This would tend to make the over-all increase in per capita consumption comparatively small in relation to increased consumption by those who actually did drink more milk.

For anyone interested in projecting increases in milk requirements and attempting to encourage further increases in consumption, it is important to know the reasons for the increased consumption.

The primary reason for drinking more milk per family during 1958 as compared with 1957 was because of an increase in family size. Forty-six percent of the milk consumers in Honolulu and 44 percent of those in Kailua gave increased family size as the reason for drinking more milk (table 13).

Fourteen percent in Honolulu and 33 percent in Kailua increased their milk consumption because of greater requirements for growing children.

TABLE 13. Primary reasons why consumers bought more milk in 1958 than in 1957, Honolulu and Kailua ^a

City	Reasons for increasing milk consumption		
	Increase in family size	To supply growing children	Greater appreciation of milk
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Honolulu	46	14	25
Kailua	44	33	9

^a Minor reasons not included; hence totals for reasons given in this table fall short of 100 percent.

Twenty-five percent in Honolulu and 9 percent in Kailua indicated that they were drinking more milk because they had attained a greater liking for it or decided it would be desirable to drink more milk.

STORE VERSUS HOME DELIVERIES

Forty-two percent of the consumers in Honolulu and 52 percent of those in Kailua indicated that they bought milk primarily through grocery stores rather than through home delivery (table 14).

The proportion favoring store purchases in contrast to home deliveries varied significantly according to income, age, and national origin.

TABLE 14. Percentage of consumers buying milk primarily through grocery stores rather than home deliveries, by income and age groups, Honolulu and Kailua, 1958

Income group	City	Age of homemaker				
		30 years and under	31-40 years	41-50 years	51 years and over	All age groups
		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Under \$4,000	Honolulu	61	44	50	39	51
	Kailua	61	59	43	57	58
\$4,000-\$7,999	Honolulu	52	29	44	31	39
	Kailua	64	52	37	36	54
\$8,000 and over	Honolulu	32	23	31	45	30
	Kailua	38	47	33	64	45
All income groups	Honolulu	55	31	43	37	42
	Kailua	60	51	36	52	52

By Income Groups

Only 30 percent of the Honolulu homemakers in the high income group, but 39 percent of those in the middle income group and 51 percent of those in the low income group bought milk primarily through grocery stores (figure 7 and table 14). In

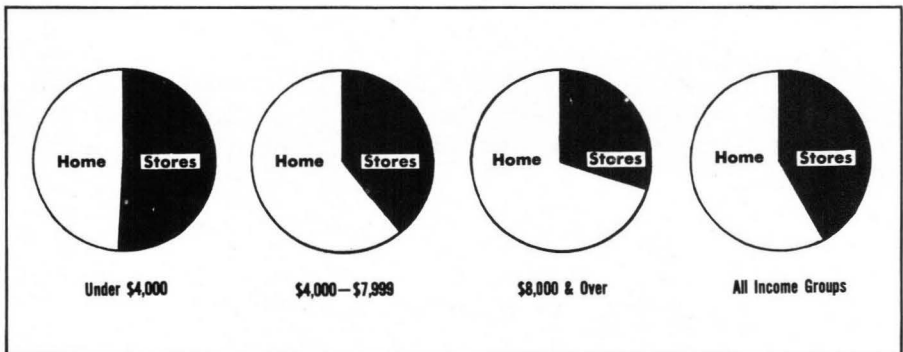


FIGURE 7. Percentage of consumers buying milk primarily through stores and through home delivery, Honolulu, 1958.

Kailua, the percentage buying largely through stores was 45 percent for the high income group, 54 percent for the middle income group, and 58 percent for the low income group.

By Age Groups

Fifty-five percent of the homemakers in Honolulu and 60 percent of those in Kailua of 30 years of age and under bought milk primarily through grocery stores. In Honolulu, only 31 percent of the 31–40 age group but 43 percent of those 41–50 and 37 percent of those 51 and over bought primarily through stores. In Kailua, 51 percent of the 31–40 age group, 36 percent of the 41–50 age group, and 52 percent of the homemakers of 51 and over bought milk primarily through grocery stores.

By Nationality Groups

There were important differences as to the extent of store purchases of milk among various nationality groups. Caucasians tended to favor store purchases whereas only about one-fourth of the Honolulu residents and somewhat over one-third of the Kailua residents of Chinese and Japanese ancestry bought primarily through stores (table 15). With minor exceptions, the importance of store purchases for other nationality groups ranged somewhere in between that of the Caucasians and of the Chinese and Japanese.

TABLE 15. Percentage of consumers buying milk primarily through grocery stores rather than home deliveries, by nationality groups, Honolulu and Kailua, 1958

City	Percent bought through stores by each nationality group						
	Caucasian	Filipino	Part-Hawaiian	Hawaiian	Japanese	Chinese	All nationality groups ^a
Honolulu	<i>Percent</i> 59	<i>Percent</i> 53	<i>Percent</i> 45	<i>Percent</i> 41	<i>Percent</i> 24	<i>Percent</i> 24	<i>Percent</i> 42
Kailua	54	67	51	45	39	35	52

^a Including groups for which samples were too small to permit separate breakdowns.

Reasons for Preferring Store Purchases to Home Deliveries

Thirty-three percent of the consumers in both Honolulu and Kailua who bought fresh whole milk through stores did so because they thought it was cheaper. Actually, at the time of the survey, milk was cheaper than home deliveries in some stores but the same in others. Nevertheless, it is what the consumer thinks that motivates her buying. Twenty-three percent in Honolulu and 28 percent in Kailua bought through stores because they considered it more convenient to pay cash for their milk at the same time they bought other groceries rather than to have to contend with separate billing for home deliveries. Twelve percent in Honolulu and 20 percent in Kailua indicated that they did not buy enough milk to justify home delivery.

Fourteen percent in Honolulu but only 2 percent in Kailua bought milk primarily through stores for the reason that they could buy it only when they needed it and thus avoid the waste of unused home deliveries. Adding this reason to the convenience category, convenience had a slight edge as the primary reason for buying milk through stores in Honolulu and was almost as important as "lower price" in Kailua.

Reasons for buying through stores varied considerably by income groups. Whereas the low and middle income groups which bought through stores did so because they considered the milk lower priced, the major reason given by high income groups was convenience. In Honolulu, 38 percent in the low income group and 32 percent in the middle income group, but only 21 percent in the high income group gave lower price as the primary reason for buying through stores (table 16). In Kailua, the respective percentages were 44 percent for the low income group, 34 percent for the middle income group, and 21 percent for the high income group.

BOTTLES VERSUS PAPER CARTONS

Dairy processors on Oahu are converting almost entirely to paper cartons. The majority of the consumers are in favor of this trend. Nevertheless, 39 percent of the homemakers in Honolulu and 27 percent of those in Kailua indicated that they still prefer

TABLE 16. Reasons for purchasing milk primarily through grocery stores, by income groups, Honolulu and Kailua, 1958

Income group	City	Reasons for buying through stores					
		Cheaper at store	More convenient	Don't use enough to warrant home delivery	No one at home	Buy at store only when needed and thus avoid waste	Other ^a
		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Under \$4,000	Honolulu	38	20	14	2	14	12
	Kailua	44	27	15	5	7	2
\$4,000-\$7,999	Honolulu	32	25	9	4	16	14
	Kailua	34	26	22	5	3	10
\$8,000 and over	Honolulu	21	26	26	2	0	25
	Kailua	21	36	21	10	2	10
All groups	Honolulu	33	23	12	3	14	15
	Kailua	33	28	20	6	2	11

^a Too few answers in any one miscellaneous category to permit classifying.

to buy milk in glass bottles (table 17). There appeared to be a slight inverse relationship between preference for glass bottles and income. In Honolulu, 41 percent of the homemakers in the low income group, but only 35 percent of those in the high income group preferred glass to paper. In Kailua, 31 percent of the homemakers in the low income group and 26 percent of those in the high income group preferred glass bottles.

Preference for paper cartons was slightly higher among the younger homemakers and among Caucasians than among other age and nationality groups.

Of Honolulu consumers who preferred to buy milk in bottles, 37 percent emphasized the freedom from wax. Fifteen percent preferred the bottles because they did not leak and an equal percentage because they seemed more sanitary. Fourteen percent thought the milk tasted better in bottles. In Kailua, 36 percent of the homemakers preferred bottles because of the freedom from wax, 20 percent because they did not leak, 15 percent because they seemed more sanitary, and 9 percent because they thought the milk tasted better in bottles.

Of Honolulu consumers who preferred paper cartons, 74 percent considered them more convenient; 28 percent, safer; and only 6 percent considered them more sanitary. In Kailua, 58 percent considered them more convenient; 30 percent, safer; and 6 percent, more sanitary.

PURCHASES BY SIZE OF MILK CONTAINERS

Sixty-six percent of the homemakers in Honolulu and 74 percent of those in Kailua indicated that they usually preferred to buy milk in half-gallon rather than quart containers.

Preferences for half-gallon in relation to quart containers did not vary appreciably among income groups or nationality groups but did vary significantly in accordance with the age and education of the homemaker. In Honolulu, 72 percent of the homemakers under 30 years of age and 75 percent of those of 31-40, but only 59 percent of those 41-50 and 39 percent of those 51 years and over bought milk primarily in half-gallon containers. In Kailua, the percentage who usually bought milk in the larger containers was 82 percent for homemakers of under 30 and 31-40, 73 percent of those of 41-50, and only 32 percent of those of 51 years of age and over. The extent to which the lower preference of older people

TABLE 17. Percentage of consumers preferring milk in glass bottles versus paper cartons and reasons for preferences, Honolulu and Kailua, 1958

Income group	City	Percentage of consumers preferring glass bottles	Percentage of consumers preferring paper cartons	Reasons for preferring glass bottles ^a					Reasons for preferring paper cartons ^a			
				Wax-free	Leak-proof	Milk tastes better	More sanitary	Miscellaneous ^b	More convenient	Safer	More sanitary	Miscellaneous ^b
		<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Under \$4,000	Honolulu	41	59	32	12	15	17	39	77	27	4	12
	Kailua	31	69	42	14	24	28	20	64	36	14	20
\$4,000-\$7,999	Honolulu	39	61	39	14	16	15	38	69	28	7	20
	Kailua	26	74	31	15	7	10	17	56	31	5	23
\$8,000 and over	Honolulu	35	65	41	30	2	14	36	80	29	6	14
	Kailua	26	74	40	36	0	16	32	57	24	6	20
All groups	Honolulu	39	61	37	15	14	15	38	74	28	6	16
	Kailua	27	73	36	20	9	15	21	58	30	6	21

^a Percentages exceed 100 percent in some instances because some consumers indicated more than one reason.

^b Too few answers in each category to justify classification.

for the larger containers was due to smaller family units, and resistance to changes in container size was not determined.

Among all groups of Honolulu homemakers, 63 percent preferred the half-gallon containers because of the convenience of handling and the smaller amount of space required in the shopping bag and in the refrigerator. Thirty-four percent bought half-gallons because of the lower cost than for two individual quarts. In Kailua, 80 percent emphasized the convenience of the larger containers and 33 percent mentioned the economy factor.¹⁴

Of the consumers who bought milk primarily in quart containers, 36 percent in Honolulu and 15 percent in Kailua considered the half-gallon size too large to consume within a reasonable period of time. Fifteen percent in Honolulu and 27 percent in Kailua preferred the quart size because the half-gallon size was awkward to handle and difficult to pour from. Three percent of the homemakers in Honolulu and 20 percent of those in Kailua bought quarts because their brand was available through stores or home deliveries only in quarts.

SUMMARY AND CONCLUSIONS

Daily per capita consumption of fresh whole milk in metropolitan Honolulu during 1958 amounted to 0.54 pint as compared with 0.77 pint for the U. S. Mainland. However, the people in Honolulu consumed a proportionately greater amount of other forms of milk, and total consumption of all forms was 0.75 pint as compared with 1.04 pints on the Mainland.

The lower consumption in Honolulu was due in large part to the higher price, 31 cents per quart, as compared with an average of 24.5 cents per quart on the U. S. Mainland and to differences in eating habits on the part of the various nationality groups. The per capita consumption of fresh whole milk by Caucasians was 0.61 pint in Honolulu and 0.67 pint in Kailua as compared with the average of 0.77 for the U. S. Mainland. Per capita consumption by other nationality groups in Honolulu, on the other hand, was only 0.53 pint for Part-Hawaiians, 0.52 for Japanese, 0.47 for Filipinos, 0.45 for Chinese, and 0.41 for pure Hawaiians. Per capita consumption tended to be considerably greater among younger than among older family members. However, the decline in milk consumption in relation to age was more extreme among all of

¹⁴Percentages exceed 100 inasmuch as some respondents indicated more than one reason.

the non-Caucasians than among the Caucasians. This would be expected inasmuch as milk consumption by adults has been a custom among Caucasians but not among the older people of Oriental ancestry.

The school lunch program has had an important influence on milk consumption by all groups and there is some indication that milk consumption among the older groups will increase as they are replaced by younger, higher milk-consuming generations. This is an important consideration in estimating the future demand for milk in Hawaii.

Whereas about as many people among the lower income group drink milk as do those in the higher income groups, the amount consumed per capita is slightly higher among families with high incomes than among those with low incomes.

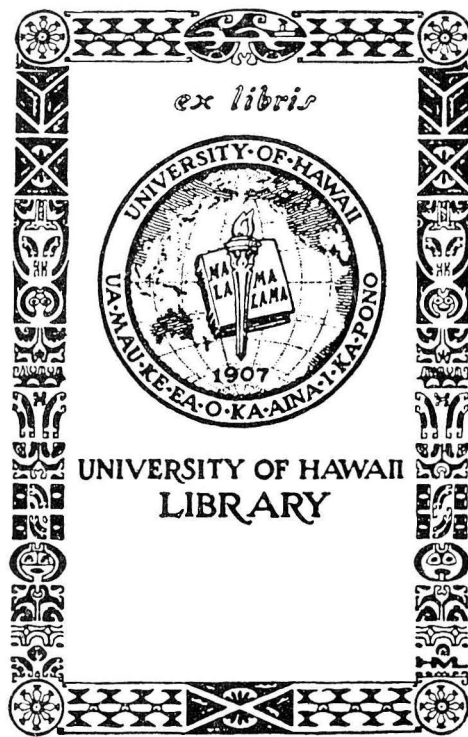
The majority of the milk consumers in both Honolulu and Kailua indicated that they would not likely increase or decrease their consumption of fresh whole milk in response to a change in price of 1 cent per quart, but 39 percent in Honolulu and 45 percent in Kailua indicated that they would drink more if the price were reduced 5 cents per quart. The stated tendency to reduce or increase milk consumption in relation to price changes was considerably greater among low income families than among high income families.

Total milk consumption in Honolulu has been increasing rapidly. This has been due to a large extent to growth in population but also to increased consumption per capita. As to reasons for increasing milk consumption, 46 percent of the homemakers bought more milk because of increases in family size, 14 percent to supply growing children, and 25 percent because of greater appreciation of milk. Advertising of milk and milk products plus school lunch programs appear to have been major factors in instilling greater appreciation of milk and consequently bringing about increases in consumption. About two-thirds of the consumers had seen milk advertised on television and a somewhat lower percentage via other media. Highest milk consumption among children was during lunch time, which reflects the school lunch program.

Forty-two percent of the consumers in Honolulu and 52 percent of those in Kailua preferred to buy milk through grocery stores rather than through home delivery. Grocery store purchases were highest among Caucasians, among lower income families, and in lower age groups.

Sixty-one percent of the homemakers in Honolulu and 73 percent of those in Kailua preferred to buy milk in paper cartons.

Sixty-six percent of the homemakers in Honolulu and 74 percent of those in Kailua generally preferred to buy milk in half-gallons rather than quart containers.



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