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Fresh and Processed Potato Consumption In Milwaukee, Wisconsin

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Summary and Conclusions

POTATO consumption in Milwaukee averages higher than in the U.S. generally. About $8\frac{1}{2}$ pounds fresh, .82 ounces frozen, .05 ounces (dry weight) dehydrated, and .43 ounces of canned potatoes are used per household per week. Few people dislike or do not eat potatoes for dietary reasons. About 50 percent of the households use 75 percent of the fresh potatoes. The difference in consumption is primarily due to the frequency with which potatoes are served, not to the size of servings. The average serving of fresh potatoes per person is 7.93 ounces. Fresh potatoes are served at 74 percent of the dinner meals and 6 percent of the lunches. Mashing and boiling are the most common methods of preparation. Some varieties are more frequently baked, boiled, or mashed than other varieties. Few people regularly use processed potatoes.

Per capita potato consumption will continue to decline but at a slower rate than during the postwar World War II period. The trends in our economy indicate more people will live longer, and there will probably be a greater share living alone. People living alone eat less potatoes. In addition, a larger share of the population will be born in larger cities, over 50,000. Housewives born in a city environment serve their families less potatoes. Finally, there will be a relatively smaller share of the population made up of immigrant families. These families eat more potatoes than typical self-styled American families. The occupation of the husband has some influence on potato consumption, but the housewife's cultural and ethnical background has more influence. Income, size of family, housewife's employment, ages, and education do not seem to affect potato consumption except that younger women and households with higher income tend to use more processed products.

The impact of processed potatoes on the fresh market in Milwaukee varies with the different products. Based on the measure household characteristics, those households using frozen French fries eat more fresh potatoes than those that do not use them. Therefore, the frozen French fry represents additional potato marketings. On the same basis of analysis, matching similar household characteristics, those households using frozen patties and dehydrated granules eat less fresh, but in most cases eat more total potatoes than those households not using these products. The net effect is some increase in total consumption. Finally, in most cases frozen hash browns and canned potato users consume less total potatoes than non-users. The probable overall net effect of processed potatoes is some increase in total potato consumption.

The Idaho potato processing industry means additional markets for Idaho potatoes and does not reduce Idaho fresh sales. Housewives buying russet-type potatoes bake them more frequently than housewives buying other varieties. No processed potato adequately substitutes for baked potato in Milwaukee. In addition, in most cases the Idaho processed products are competing more directly with the fresh varieties that are used primarily in mashed and fried forms. Therefore, since individuals who purchase Idaho Russets have a strong preference for baked potatoes, and processed potatoes are used primarily as substitutes for mashed and fried potatoes, the Idaho processing industry provides an increased market for Idaho potatoes.

Fresh and Processed Potato Consumption In Milwaukee, Wisconsin

SCOTT A. WALKER¹

Introduction

ANNUAL potato consumption has dropped from 125 pounds to 101 pounds per capita since World War II. Idaho total potato sales have increased from 13 to 21 pounds per person and frozen and dehydrated potatoes have increased from about $\frac{1}{2}$ pound to 4 pounds per person. In addition, the potato processing industry has expanded as a market outlet from about 15 to about 40 percent of the total Idaho crop during the postwar period. These trends are of important interest to the potato industry in general, and to Idaho in particular, and formulate the setting for this report.

The potato industry in general is concerned with its loss of markets, and needs to know the characteristics of those households that use relatively large quantities of potatoes as contrasted to those that use little or no potatoes. This information could help predict future levels of potato consumption. In addition, the industry needs to know the impact of processed potatoes on total potato consumption. Will it increase or decrease total consumption?

Idaho's potato industry has different problems. The increased sales of fresh potatoes may be due to product preference or comparative production cost advantages. Regardless of the reasons, the Idaho packers have been able to sell an increasing quantity of potatoes. However, the growth of the processing industry in Idaho has caused concern about the future of the Idaho fresh market. Will the Idaho processed potato industry increase or decrease the fresh market for Idaho potatoes? The processed Idaho potato could increase the total market for Idaho potatoes if the convenience it affords enhances the use of potatoes generally, or if Idaho fresh potatoes are prepared primarily in ways in which there are no processed substitutes. On the other hand, if the use of processed potatoes reduces the total consumption of potatoes, or if some processed forms compete directly with the Idaho fresh potatoes, the potato processing industry may reduce the potential fresh market.

Milwaukee Surveyed

A random selection of housewives in the Milwaukee metropolitan area was surveyed during October, 1957, to determine the consumption patterns of both fresh and processed potatoes. Milwaukee has a slightly higher than average consumption of fresh potatoes. This was 110 pounds per person per year. It was the first test market for frozen

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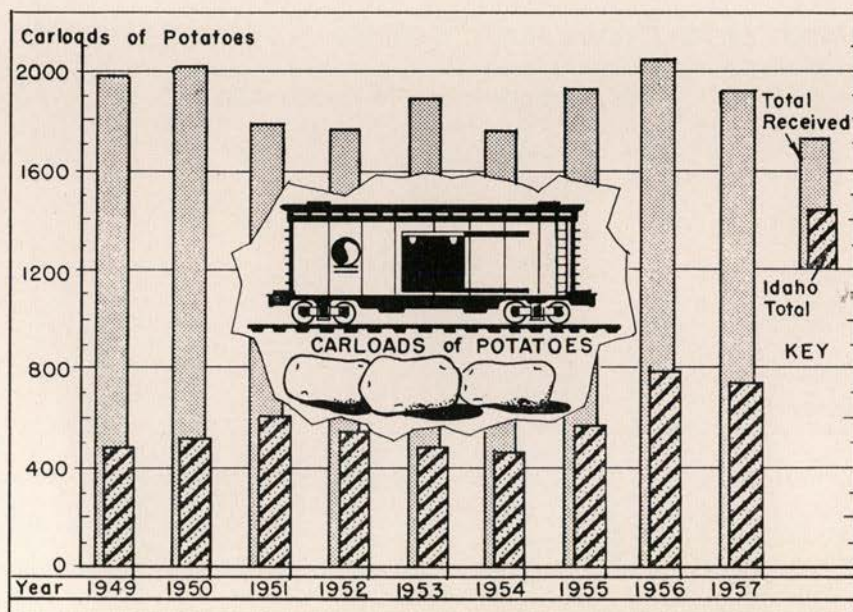


Figure 1.—Total carloads of potatoes received at Milwaukee, Wis., compared with total carloads of potatoes received from Idaho.

French fries in 1948; it has been a stable potato market, yet a growing outlet for Idaho potatoes, Figure 1.

The Sample

Four hundred sixty-three household schedules were obtained from a random sample.² Seventy-two clusters had two completions and 319 had but one schedule per cluster. Significant difference tests were made of the first and second schedules in the clusters where two schedules had been obtained, on such factors as size of family, nationality, occupation of husband, etc. In 18 household characteristics, there were no significant differences. In seven, there were significant differences between the first and second households, but only one of these was found to be relevant to the analysis. That was the fresh potato consumption per consuming unit.³ The average annual consumption was 11 pounds

²See Appendix for discussion on sampling procedure.

³A consuming unit is defined in terms of the average adult male's average potato helping per meal when potatoes are served. All other members of the household are measured, by the housewife's estimation, in relation to the amount of potatoes the husband eats. She was also asked to estimate the quantity of potatoes her husband ate in relation to other men, as observed at family dinners, church dinners, etc. The total adult male equivalent units for the family were multiplied by 20, the meals per week. The total adult meal units eaten out per week were subtracted from the total adult unit meals per week. This resulted in the total adult unit meals for the household corrected for the meals eaten away from home. This number divided into the number of ounces of potatoes used per week resulted in the average ounces of potato per adult unit per meal per week. As the number of meals at which potatoes were served in the home increased, the ounces per adult meal per week also increased. The greater the number of persons who didn't eat potatoes, the smaller the number of adult male units we find in the household. The adult male unit per meal per week is primarily a measure of the frequencies with which potatoes were served. Larger than average helpings per meal reflected a greater number of adult units. Henceforth, this average adult male consumption per meal per week will be referred to as the "consuming unit." In the tables presented the data have been corrected to an annual consumption in pounds.

greater per consuming unit in the second household interviewed. Since there was no great difference between households within clusters, the second schedule in the 72 duplicated ones was eliminated and only 391 schedules were used. The procedure left the sample properly weighted for estimates of the parameters in the universe.⁴

Potato Consumption in Milwaukee

Four different estimates of the total potatoes consumed by the sample households per week were made, Table 1. Three estimates were made from the questionnaire, one from general marketing information. The market information outside the questionnaire was obtained from the (1) Crop Reporting Service, AMS, (2) sales organizations, and (3) processors supplying the market. The trade estimated that 60 percent of the fresh potatoes received in Milwaukee and about 80 percent of the frozen and dehydrated products were used in the metropolitan area.⁵ The canned volume was estimated directly by manufacturers and other marketing agencies.

Table 1.—Ounces of potato served per week in 391 sample households by four different estimates, by type of potato products.

Type of product	Ounces served per week by different estimates			
	General market information	General serving habits	From previous day's meals ¹	From previous two day's meals ¹
	(ounces)	(ounces)	(ounces)	(ounces)
Fresh.....	58,932	45,752	53,357	47,544
		(48,726) ²	(57,038) ²	(50,634) ²
Frozen.....	1,763 ³	239	322	382
Dehydrated.....	101	6	21	10
Canned.....	176	123	168	280

¹Expanded to a week's consumption.

²About 6 percent of the adult unit meals were eaten away from home. The household use is corrected for the meals eaten out to compare with the general market information, which includes restaurant and school lunches.

³One large national chain and one national distribution company did not supply marketing information. Their volumes were estimated from the questionnaires. Of the 1,763 ounces of frozen products, these companies sold 756 and 548 ounces respectively.

The one-day meal recall appears to have the best comparison with the outside market information. Housewives' estimates of their families' eating habits tended to underestimate the total consumption.

The general market estimate of fresh potato sales was higher than the survey estimates because institutional consumption, such as in hospitals and college dormitories, were not included in the survey.

The wide discrepancy in dehydrated products is explained by the recent introduction of a new brand in the market. A part of the sales were due to the stocking of supplies in stores, which made sales greater than consumption.

⁴See Appendix for further discussion.

⁵These adjustments were necessary because Milwaukee is a district distribution point for a wide area, including parts of Minnesota and Iowa.

The most serious discrepancy is in frozen potato products. Several reasons may account for errors.

1. The housewives may overstate the more popular brands. If they had purchased some other brand of frozen products and named either of the products of the companies that did not supply market sales, the sales would be double counted, once for the brand actually purchased in the sales' record, and once for the brand named in the survey. Since over 50 percent of the sales were included, this error should not account for all of the discrepancy.
2. While it has been assumed that all institutions used institutional packaged products, stores with lunch counters and small restaurants may use consumer packaged frozen products.
3. The housewife may purchase frozen potato products more spontaneously than other potato products and, therefore, may have failed to recall unplanned purchases.

Fresh Potato Consumption

The annual fresh potato consumption averaged higher in Milwaukee, 110 pounds per person, than the U.S. average, 95 pounds per person. The 28,520 person meals in the 391 households surveyed resulted in 21,772 adult male consuming unit meals per week. The average person, regardless of sex or age, represented about 76 percent of an adult male consuming unit. The average serving of potatoes per adult male consuming unit was 2.22 ounces.⁶ This quantity, 2.22 ounces, times the meals per week (20), times the number of weeks per year (52), times 76.34 percent $\frac{21772}{(28520)}$, divided by the ounces per pound (16), equals the average per person consumption of fresh potatoes (110 pounds) per year.

Information from the trade and available monthly information indicates the fresh potato consumption does not vary greatly during the year.⁷ Therefore, it is assumed that October is a representative month for 1957.

Most People Eat Potatoes—Only 4 percent of the 1,426 people in the 391 households analyzed in Milwaukee dislike potatoes. Five percent did not eat some potato dishes because of dietary reasons. Since many of these ate some potato dishes and the percentage is relatively low, it seems that dietary restrictions and dislikes would not greatly reduce average potato consumption.

Who Eats the Most Potatoes—About 50 percent of the households eat 75 percent of the fresh potatoes in Milwaukee, Table 2. The lowest 21 percent of the households account for but 6 percent of the total consumption. This is a general condition, probably true for most food items. People tend to concentrate their food intake on certain basic items.

⁶See footnote, page 3, for definition of "consuming unit."

⁷The shipments from some areas and into some markets do vary seasonally; but, if one includes local production for local consumption, it does not appear that there is much seasonal variation in potato consumption. In Spokane, Washington, it was estimated to be 3 percent.

Table 2.—Number and percent of households and amount and percent of potatoes served by average ounces served per meal per unit.

Average ounces per meal per unit	Households		Potatoes served per household	
	Number	Percent of total	Percent of total	Pounds per year
	number	percent	percent	pounds
.0-1.0.....	83	21	6	104
1.0-2.0.....	94	24	16	263
2.0-3.0 ¹	85	22	25	429
3.0-4.0.....	66	17	21	474
4.0-5.0.....	27	7	13	718
5.0-6.0.....	16	4	9	853
6.0-7.0.....	10	2	5	665
7.0-8.0.....	8	1	4	823
8.0 and over.....	2	1	1	681
TOTAL—AVERAGE.....	391			380

¹The 50 percent of the households eating more than 2.22 ounces per meal per adult male (mean) eat 74 percent of the total potatoes consumed. The standard error of the mean is .09912.

Those families living in single dwelling units eat the most potatoes because they have larger families and because more meals are eaten in the home, but they do not eat the most on a consuming unit basis, Table 3.⁸ The smaller families and the high frequency of eating away from home account for the relatively light potato consumption of the apartment households.⁹

Table 3.—The pounds per year per consuming unit¹ and per household by type of dwelling.

Type of dwelling	Adult male meal consuming unit		Households	
	Number	Pounds per year	Number	Pounds per year
Apartment.....	810	159	21	306
Duplex.....	4,133	144	79	378
Single dwelling unit.....	12,920	148	242	395
Non-response.....	2,711	125	49	345
TOTAL—AVERAGE.....	20,574	144 ²	391	380

¹See Footnote, page 3, for definition of adult male consuming units.

²The standard error of the mean, as computed from ounces per meal per consuming unit, is .09912. The significant differences between means by the Duncan Multiple range test is .24 and .26 at the 5 percent level for two and three means respectively, Duncan, David B., Multiple Range and Multiple F Tests, Biometrics, 11:1-42, 1955.

One of the major differences in potato consumption habits is related to the number of members in the household, Table 4. People who live alone do not eat as many potatoes as individuals in larger families.

Potato consumption varied by the occupation of the husband, Table 5. There are 39 pairs of classification that vary significantly from one another. The white collar group averaged about the same as the population average, 144 pounds per year per unit. Further analysis is made by dividing the occupational groups into three. The group

⁸The original data were processed and analyzed on the basis of per meal per adult male consuming unit. For easy reading these data have been corrected to "pounds per year" per adult male consuming unit.

⁹The difference between the 21,772 consuming units and the 20,574 units, Table 3, is due to the meals eaten away from home.

Table 4.—Average potato consumption per unit, by number of members in household.

Number in household	Number of households	Pounds of fresh potatoes per adult male consuming unit per year
		(pounds)
1	13	43
2	105	166
3	79	149
4	84	146
5	57	129
6	37	145
7	11	162
8	3	70
9	1	337
10	11	215
TOTAL—AVERAGE	391	144

Table 5.—Average potato consumption per unit by selected occupational groups.

Occupational group	Number of households	Pounds per unit per year
		(pounds)
Executive.....	7	116
Professional.....	29	130
Skilled.....	115	135
White collar.....	46	144
Retired.....	40	148
Laborer.....	95	151
Salesman.....	29	152
Owns business.....	15	162
Teacher-minister.....	4	181
Other.....	3	280
N.R.....	8	122
TOTAL—AVERAGE.....	391	144

divisions were based on the major breaks in the consumption pattern and the number of observations. Group I included those who own their business, teachers-ministers, and other occupations; Group II included the white collared, retired, common laborer, and salesmen; Group III included executives, the professions, and skilled workers. The first group did not have enough observations for further analysis. The teacher-minister group was high due to one minister included in the sample. A part of his salary was paid in produce supplied by his parishioners in a suburban community. He was well supplied with potatoes and should not be considered as representative.

Outside-the-home activities may affect the quantity of potatoes served in the household, but there was not a consistent relationship, Table 6.

In spite of the high masculine preference for potatoes over other vegetables, reported by several writers, the environmental and ethnic influences of the housewife seem to predominate in influencing the current family eating habits.¹⁰ Two major influences on housewives

¹⁰Moore, Harriet Bruce, "The Meaning of Food," American Journal of Clinical Nutrition. 5:77-82, January 1957. Bryan, Marion S. and Lowenberg, Miriam E., "The Father's Influence on Young Children's Food Preference," The American Dietetic Association Journal, 31:30-35, January 1958.

Table 6.—Average consumption per unit by the number of meals in which housewives' outside activities interfere with meal preparation.

Number of meals per week interfered with	Pounds per unit per year
	(pounds)
none	144
1	131
2	194
3	176
4	263
5	187
6	131
7	31
10	174
12	228
13	31

were found to be more relevant than influences on the husbands in fresh potato consumption. One was the size of community in which pre-adolescence was spent. Table 7. Even though the sizes chosen were arbitrary, the differences in pattern were clear. There was no pattern with respect to the husband's childhood community; but a clear distinction in present potato consumption was apparent with respect to the size of community from which the wife came. Housewives originally from cities of 50,000 and over served their families significantly less potatoes per unit than all other classifications, 157 pounds compared to 137 per year per unit.¹¹

The second evidence of the predominance of the housewife's influence over the male's food preference is the relationship of present consumption levels to the nationality of the parents of the husband and wife, Appendix Table 1. There were more significantly different pairs of comparison by the Duncan Multiple range test in the analysis of the nationality of the housewife's mother than in any other comparison. There were 26 significantly different pairs when analyzing the nationality of the wife's mother. With the wife's father and husband's mother, there were 23 pairs. With sorts on the husband's father, there were but 18 significantly different pairs in the mean consumption by nationality. Therefore, the most significant results in the subsequent analysis would be expected through sorts on the nationality of the housewife's mother.

The influence on the housewife of the size of community in which she was raised and the nationality of her mother explains some of the differences in potato consumption per unit in Milwaukee.¹²

If the husband selected the groceries, the potato consumption averaged higher per unit (167 pounds per year) than when the wife selected them (142 pounds per year). However, the husband selected

¹¹The standard error of the mean is .088 when computed on an ounces per meal per unit basis.

¹²Eptring, E. S., "Food Habits and Preferences, A Study of Iowa People in Two Age Groups," Iowa Agricultural Experiment Station Research Bulletin 376, December 1950. This bulletin indicated that the Scandinavian women are more apt to carry over food habits and attitudes into their families than the women from the nationalities of the British Isles and Central and Western Europe. On the other hand, Muse indicates that the diets of Vermont farm families are highly related to the food desires of the husband. The wife cooks for her husband; if he won't eat certain foods, then, the children won't eat them either; and since no one will eat the food the husband dislikes, the wife discontinues preparing it. This condition may continue, but probably more so in the rural areas than in the urban areas. Muse, Marianne, "Are Husbands to Blame?" Vermont Farm and Home Science, Vol. 17, 14, June 1955.

the groceries in only 38 cases out of the 391 households studied and this factor could not be further analyzed.

The age of the housewife was unrelated to the quantity of fresh potatoes eaten except in women over 69. There was some decrease in the older age group. The relationship to the husband's age was not conclusive, but it appeared that there was some reduction of consumption in the 30-40 year group with both 20-30 and 40-50 groups eating somewhat more than average.

The educational level of the husband had no influence. The less educated housewives had an inconsistent pattern of consumption, some very high and some very low.

There was no relationship of potato consumption to income or grocery expenditures per week.

The variation in the quantity eaten per consuming unit was due primarily to the frequency with which potatoes were served in the household. When the left-overs were subtracted, the average serving per person was 7.93 ounces. In 95 percent of the meals the average serving was between 7.53 and 8.33 ounces per person, Table 7. There was some difference among the varieties. Bliss Triumphs were served in larger quantities and the Minnesota Pontiac and Wisconsin Burbank in significantly smaller quantities than the Idaho Russet. Price may account for the higher consumption of Bliss Triumphs because their price was 2 to 4 cents lower per pound than the McClures and Idaho Russets.

Table 7.—Ounces of potatoes served per person when potatoes are served by different potato varieties.

Varieties	Number of dinner meals served	Ounces served per person
	(number)	(ounces)
Minnesota Pontiac.....	43	6.86
Wisconsin Russets.....	196	7.86
Wisconsin "German".....	101	7.99
Idaho Russets.....	298	8.29
Wisconsin Whites.....	293	8.32
Colorado Red McClures.....	76	8.63
Wisconsin Bliss Triumphs.....	75	9.36
Other and don't know.....	174	....
TOTAL—AVERAGE.....	1,165	7.93

Fresh potatoes were served at 74 percent of the dinner meals, 6 percent of the lunch meals and less than 1 percent of the breakfasts. On the average, fresh potatoes were served at 27 percent of the meals.

There were some varietal differences among the potatoes and the methods served, Table 8. Idaho Russets were served in all forms; however, there is about a four out of five chance that Idaho Russets were baked more frequently than the average of all varieties. Significant differences occurred with the Wisconsin Whites; they were mashed more frequently and baked less than the average. The Wisconsin Russets also were baked more frequently than the average. The most

Table 8.—The method of serving potatoes, by number of meals, average ounces per person and variety of potatoes.

	Method of preparation								All other and D.K.	Totals average
	Mashed	Boiled	Baked	Fried	French fried	Scalloped	Salad	Creamed		
Minnesota Pontiac										
Number of meals.....	6	20*	4	8	2	.....	2	.....	1	43
Average oz. per person.....	8.60	6.47	5.75	7.25	3.00	.....	5.00	.....	.....	6.86
Wisconsin Russets										
Number of meals.....	51	56	45†	21	7	3	6	2	5	196
Average oz. per person.....	7.16	7.67	7.98	8.28	1.33	16.33	8.67	5.00	.....	7.87
Wisconsin German										
Number of meals.....	39	29	9	8	3	2	3	1	5	101
Average oz. per person.....	7.31	7.17	7.33	9.50	20.00	6.00	11.00	20.00	8.60	7.99
Idaho Russets										
Number of meals.....	88	88	52	32	11	9	1	6	11	298
Average oz. per person.....	8.78	7.99	8.16	9.24	6.73	9.00	9.00	6.83	.....	8.29
Wisconsin Whites ¹										
Number of meals.....	114†	84	24	34	6†	5	6	6	14	293
Average oz. per person.....	8.86	8.45	7.63	8.50	12.40	6.83	9.50	9.00	.....	8.32
Colorado McClures										
Number of meals.....	29	19	11	10	1	2	1	1	2	76
Average oz. per person.....	8.52	7.78	7.36	10.10	8.00	8.00	11.00	10.00	.....	8.63
Wisconsin Bliss Triumph										
Number of meals.....	22	26	9	10	5	1	.....	.....	2	75
Average oz. per person.....	9.90	8.80	6.56	15.7	8.60	8.00	.....	.....	.....	9.36
Other—Don't know										
Number of meals.....	28†	42	20	26	30†	6	6	1	15	174
Average oz. per person.....	7.35	6.14	4.80	6.15	.....	8.50	5.40	24.00	.....	5.73
Total										
Number of meals.....	340	335	170	142	62	26	22	16	51	1164
Average oz. per person.....	7.53	7.60	7.43	8.99	8.41	9.05	5.99	8.08	.....	7.93

¹Includes Wisconsin Whites and Germans.

*Significant different from the average by the chi-square test.

†Highly significant different from the average by the chi-square test.

common methods of serving potatoes were, in order: mashed, boiled, baked and fried. Other methods account for about 15 percent of the servings.

There was some tendency for the housewife to use larger amounts of non-russet varieties when boiling and mashing potatoes, but when potatoes were baked, those using the Russet potatoes tended to use more per person.

Table 9.—Number and percentages of individuals not eating specific potato dishes, by various methods of serving.

Method of serving	Individuals not liking specific dishes	
	Number	Percent
Fried.....	18	1.3
Mashed.....	4	.3
Baked.....	3	.2
Boiled.....	8	.6
Scalloped.....	28	2.0
Creamed.....	12	.9
Salad.....	16	1.1
French Fries.....	1	.1
TOTAL.....	89	6.3

Only 6.3 percent of the individuals disliked some potato dishes. Scalloped is the most frequently disliked method of serving potatoes, Table 9. Few individuals dislike French fries, mashed, or baked potatoes.

Most housewives think of potatoes as starchy food because their major substitutes for potatoes are macaroni, rice, and noodles, Table 10. However, 14 percent substituted other vegetables for potatoes.

Table 10.—Number and percentage of responses to "foods served as substitutes for potatoes," by types of foods.

Foods served instead of potatoes	Individual responses	
	Total	Percentage
Macaroni.....	180	30
Rice.....	145	23
Noodles.....	115	18
Other vegetables.....	89	14
Beans.....	51	8
Bread.....	46	7
TOTAL.....	628	100

Processed Potato Consumption

Curiosity may cause the housewife to use processed potato products in the first instance, but her continued use depends primarily on convenience. Twenty-nine percent who had used processed potatoes had some on hand at the time of the interview. Of those still using processed potatoes, 38 percent said they were using processed products at about the same rate as when they started. Sixteen percent were using less, and 9 percent were using more than when they first started to purchase them regularly. Thirty-seven percent of those who had tried processed potato products were not using any type at the time interviewed.

In Milwaukee, 31 percent of the households had not used any processed potato products. When the housewife was over 45 or when the income was less the \$90 per week, significantly fewer housewives had used processed potatoes. There was no significant difference by income group or age of housewife between the housewives who had used the product during the past three months and those who had not repurchased during that period. Therefore, the failure to repurchase during the previous three months was not due to income or age of the housewife.

In those households where the various products were used during the previous three months, the average consumption per household and per consuming unit varied by processed products, Table 11. Canned potatoes were used the most and dehydrated granules used the least per family and per unit. The per unit consumption among the frozen products was about the same, but the quantity of frozen French fries per household was higher than of patties or hash browns. Those using the latter frozen products have smaller families or eat out more frequently. The number of adult meals served in the home per family

Table 11.—The average number of unit meals served in the home, the average three month consumption per household, and the average consumption per unit by various processed products.

Processed potato products	Number of consuming units per household	Average consumption of processed potato products	
		Ounces per household (3 months)	Pounds per year per unit
	(units)	(ounces)	(pounds)
Frozen French fries.....	2.6	65.56	6.69
Frozen patties.....	1.8	38.57	5.89
Frozen hash browns.....	1.4	30.00	6.01
Dehydrated granules.....	1.7	8.45	1.38
Canned.....	2.6	113.40	11.6

averaged about the same for those families serving canned and frozen French fries, Table 11.

Processed products were not served at any of the 1,446 breakfast meals that the 391 housewives recalled. At four of the 1,446 lunches frozen products were served. The major share of the processed products were used at the 1,446 dinner meals recalled by the housewives.

Canned potatoes were served at 12 of the dinners and the servings averaged 5 ounces per person. Dehydrated granules were served at six meals and averaged 1.83 ounces (dry) per person. Frozen products were served at 29, or about 2 percent of the dinner meals and the average consumption per person was 2.89 ounces.

About 12 percent of the processed potato products were served to guests and at other special meals.

Frozen French Fries—About 51 percent of the 202 households that had tried frozen French fries repurchased them at some time, but only 81, or 21 percent of all households surveyed (391) had purchased any during the previous three months, Appendix Table 3.

The greatest share of the first purchases was made in 1955, eight years after the product was first introduced. Up to 1956, more than an average number of housewives repurchased the products. In 1956 and

Table 12.—The number and frequency of different housewife responses to "what liked" and "what disliked" by different processed potato products.

Product	Response to "what liked"									Response to "what disliked"								
	Total response	Speed	Convenience	Texture	Storage	Appearance	Taste	Everything	Nothing	Total response	Preparation	Flavor	Texture	Cost	Quality	Taste	Everything	Nothing
number	percent								number	percent								
Frozen French Fries.....	173	14	54	2	0	1	18	3	7	147	15	20	14	4	2	16	1	29
Frozen patties.....	27	7	37	0	0	0	37	7	11	27	11	19	7	7	4	7	4	22
Frozen hash browns.....	17	12	29	0	0	6	35	6	12	17	16	17	0	11	0	11	0	0
Dehydrated granules.....	69	12	49	3	1	0	10	0	25	71	1	27	7	6	3	34	8	13
Canned.....	106	52	3	3	3	4	12	3	14	89	2	24	8	3	1	27	1	34

1957 a less than average repurchase rate is apparent.¹³ Thirty-four housewives had frozen French fries on hand at the time interviewed.

Fifty-three percent of the stated objections to frozen French fries were related to taste and quality factors, Table 12. Fifteen percent objected to the preparation method. Cost was mentioned only 4 percent of the time.

Speed and convenience was mentioned 68 percent of the time as the characteristic housewives liked about frozen French fried potatoes. Taste and quality advantages were mentioned in 20 percent of the responses.

Frozen Patties—Thirty-nine percent of the housewives who had tried frozen patties repurchased them; all but one had bought some during the previous three months, Appendix Table 3. However, only 38 of the 391 households studied had used frozen patties. Five housewives had frozen patties on hand at the time interviewed.

Thirty-seven percent of the objections to frozen patties were related to taste and quality factors; 7 percent mentioned the cost, Table 12. Eleven percent didn't like the home preparation method.

Taste and quality advantages were given in 37 percent of the favorable responses; in 44 percent speed and convenience were mentioned.

There were not enough people using frozen patties to establish an acceptance pattern over time.

Frozen Hash Browns—Only 19 of the housewives surveyed had used hash browns.¹⁴ Of these 39 percent had repurchased them, Appendix Table 3. Four housewives had purchased some during the previous three months. Twenty-eight percent didn't like the taste or flavor; 11 percent objected to cost; 16 percent didn't like the preparation method.

On the other hand, 35 percent of those answering favorably toward frozen hash browns liked the taste. Forty-one percent liked the speed and convenience. One housewife had frozen hash browns on hand at the time interviewed.

Dehydrated Granules—Ninety housewives in the sample had used dehydrated granules; 24 had repurchased them. Only 12 housewives had purchased any during the previous three-month period. The housewives who first tried the granules in 1957 had a higher repurchase rate than those who first tried them in previous years, Appendix Table 3.

Seventy-one percent of the dislike responses were related to quality and taste factors. Six percent objected to the cost; only 1 percent didn't like the preparation methods.

Sixty-one percent of the favorable responses were related to convenience. Thirteen percent liked the texture and taste. One percent commented favorably on the storage requirement.

¹³The final estimate cannot be made on 1957 because it included but 10 months.

¹⁴A new brand had just been introduced, but the sample did not include anyone who had used it.

There was some tendency for the older housewives with small families to use dehydrated granules more frequently. Five housewives had dehydrated granules on hand at the time interviewed.

Canned—One hundred forty-two housewives had tried canned potatoes, the second most popular product. Thirty-nine percent had repurchased them. Forty-five had repurchased canned potatoes during the previous three months. During the past three years, there appears to be some reduction in the repurchase rate. This is the period in which the greatest share of the housewives first tried the product.

Sixty percent of the "dislike" responses were related to quality factors; 3 percent objected to the cost. Only 2 percent disliked the preparation methods.

Sixty percent of the "like" responses were related to the convenience; 19 percent liked the quality, texture, and appearance. Three percent mentioned storage.

Thirty-seven housewives had canned potatoes on hand at the time interviewed.

Summary—It seems to take eight or nine years after the processed potato products are introduced before the maximum number of housewives try them, Appendix Table 3. Older housewives and families with low incomes tend not to use new processed food items.

The major problem of all the processed potato products is related to quality. Dehydrated granules are especially victimized. The low shelf turnover may partially account for the poor quality acceptance. However, based on the description given by housewives, it seems that the major quality problem is the reconstitution of the product. The preparation tolerances are too narrow for the average housewife. The numerous interferences during the preparation of meals frequently results in the housewife's mixing the granules in such a way as to reduce the quality below acceptable levels.

Interrelationship Between Processed And Fresh Potato Consumption

The broad sorting of consumer characteristics was based upon the fresh potato consumption patterns. Such broad groupings frequently cover up more information than they reveal. However, several observations are apparent. First, households in which there was but one member ate substantially less fresh potatoes per unit than other households. Second, not enough negroes were surveyed to make a separate analysis. Third, there was an inconsistent pattern among the older and less educated housewives. Therefore, these four groups were sorted out of the 391 schedules previously analyzed because observations in some sub-group may be unduly influenced by the frequency or magnitude of these four group responses. This has the disadvantage of reducing the sample to 350 households for the inter-action analysis.

The inter-action of fresh to processed potato consumption has been studied on the basis of the husband's occupation, the size of the community in which the housewife lived during her pre-adolescent child-

hood, and the nationality of the housewife's mother, Appendix Tables 4, 5, 6, and 7. These groupings show consistency throughout the analysis with the exception of occupational Group I, which included salesmen, teachers, ministers, and others. This particular stratification was either unwise or else the sample was not large enough to make three occupational groupings.

Within occupational Group II (retired, small businessmen, laborers, and white collared workers) and in Group III (professional, executive, and skilled workers), there is a consistent pattern with respect to the pre-adolescent community of the housewife. In all cases where there are over five individual household responses, average consumption per unit is less when the housewives come from towns larger than 50,000, than when they are from smaller communities. This characteristic also generally held over all nationality groups. Even in individual cases where only one or two households were included in a sub-set, the average of the two community groups over all nationalities shows this consistent pattern.

In only two groups, the German and American, are there enough observations to analyze the nationality relationships by community or occupation.

The predominance of German people in Milwaukee accounts for the higher than average potato consumption. Non-Germans ate less fresh potatoes and frozen French fries, but ate more of other types of processed potatoes in most cases.

Generally, frozen French fries did not reduce fresh potato consumption in Milwaukee. Within each occupation and community group, disregarding nationalities, the total consumption of potatoes in families using frozen French fries was greater than in those not using them.¹⁵

Frozen patties and dehydrated granules were not used frequently and the results are not conclusive. In three out of four cases, disregarding occupation Group I, the total potato consumption was higher in those families using these products.

In all cases, the families using hash browns and/or canned potatoes had lower total potato consumption than those who had never used processed potatoes.

The net effect of frozen French fries is some increase in total potato consumption. With frozen patties and dehydrated granules there is probably a slight increase. Frozen hash brown and canned potatoes probably decrease total consumption.

With regard to the Idaho potato industry, however, the granules, patties, and hash browns do not compete with the Idaho fresh market, because the most common variety used for mashed and fried potatoes in Milwaukee is Wisconsin Whites. The canned potato appears to have the most competitive influence of all processed potatoes on the Idaho fresh market.

¹⁵There are not enough observations in occupational Group I to make any analysis, especially since one family, the minister's ate so many potatoes.

Appendix

Sampling Procedure

A cluster was defined as one side of the street one block long. The cluster sampled was selected at random by gridding Milwaukee County so that each grid was one block square. The intersection was determined by random selection of the vertical and horizontal grid numbers. If the intersection was a four way one, the sample cluster was selected at random from eight numbers; if it were a three-way intersection, the cluster was selected from six numbers, etc.

The households in the cluster were then counted by the interviewers. Random numbers were drawn previously for the various possible number of households per cluster. The interviewer then interviewed the household based on the number of households in the cluster. For example, if there were 15 households, she always interviewed the eighth; if there were five she always interviewed the second, etc.

Call backs were made up to six times. If contact had not been made by that time, the interviewer flipped a coin to choose the household on the other side. A coin was also used when the household was vacant or the housewife refused to cooperate. In Milwaukee, call backs would not have been necessary to estimate fresh potato consumption because the mean consumption per unit on the "first call" was the same as the final estimation.

Twenty-six percent of the streets did not have households on them. Two percent of the originally selected clusters had no streets, even though the latest city map indicated streets. Therefore, 543 clusters were sampled to obtain the 391 schedules analyzed. This sample represented a .2788 percent sample of metropolitan Milwaukee.

As a check on the validity of the sample, the population of Milwaukee County was estimated by multiplying the average household size (3.64 members) times the average number of households (9.39 households) per cluster times the number of clusters. A .35 percent correction was also made for empty households. The population was estimated at 1,276,000; but this is a biased ration estimator.¹⁶

An unbiased estimate is made by adding the products of the sample household size times the number of households in the sample cluster times the inverse of the size of the sample. This resulted in a 1,228,000 population.¹⁷ The Milwaukee Journal's estimate of population in March, 1957 (seven months before this survey) was 1,100,000. The 1950 census estimate was 956,948. These estimates are within the sampling error. The main difference between the census and this sampling is the average size of household, 3.36 and 3.64.

¹⁶In this problem the bias is especially dangerous because the number per household is inversely related to the number of households per block; the more households per block, the smaller the average size of the family.

¹⁷Average population per cluster = 32.64 persons; $s^2 = 1419$; $s = 1.90$; C.L. = 1,228,000 \pm 143,500. x 05

Variety and Quantity Data

The interviewers carried a representative sample of all potato varieties and sizes available in the market in a tote bag. The housewife was asked to select the variety and size of potatoes purchased and/or used in the home by meals and methods prepared during the previous week. Verification was made by seeing the container in which she purchased the potatoes and by a potato products availability survey of the store where she bought the potatoes.

Appendix Table 1.—The number of households and pounds of potatoes served per consuming unit per year, by the size of community in which the father and mother lived during their pre-adolescence.

The average pounds of potatoes per consuming unit										
Size of wife's pre-adolescence Community	Husband's pre-adolescence community								Total Number of households	Average Pounds per unit
	Rural		50-5,000		5,000-50,000		50,000 and over			
	Number of households	Pounds per unit	Number of households	Pounds per unit	Number of households	Pounds per unit	Number of households	Pounds per unit		
	population	number	pounds	number	pounds	number	pounds	number			pounds
Rural	41	159	6	94	6	243	14	153	67	157
50-5,000	10	159	25	151	5	193	18	152	58	156
5,000-50,000	8	153	5	192	21	144	19	163	53	157
50,000 and over	3	129	16	88	12	191	136	138	167	137
No response	21	...	4	...	0	...	21	...	46	...
TOTAL—AVERAGE	83	151	56	130	44	159	208	142	391	144

Appendix Table 2.—Average fresh potato consumption per consuming unit.

Nationality ¹	Nationality of husband				Nationality of housewife			
	Father		Mother		Father		Mother	
	Number of households	Pounds per unit	Number of households	Pounds per unit	Number of households	Pounds per unit	Number of households	Pounds per unit
American.....	49	127	50	127	57	124	56	123
German.....	152	144	156	138	138	154	133	144
Norwegian.....	15	176	16	181	12	107	13	133
Swedish.....	9	122	7	149	10	129	8	175
Polish.....	51	131	50	125	45	126	48	125
French.....	13	153	7	167	14	151	11	155
English.....	22	136	22	172	16	174	19	155
Italian.....	9	148	11	181	5	198	4	177
Irish.....	20	164	16	161	15	158	17	213
Other.....	39	...	41	...	38	...	37	...
No response.....	12	...	15	...	41	...	45	...
TOTAL—AVERAGE.....	391	144	391	144	391	144	391	144

¹The housewife was questioned about the nationality of the grandparents. If a distinct nationality or ethnic group was not readily given, the grandparent was considered American.

Appendix Table 3.—The number of housewives who used various processed potato products, the number who purchased them in 1957, the percent who had repurchased them, the total number who had repurchased during the previous three months, by years when first purchased.

Year first purchased	Housewives who purchased processed products														
	Frozen French fries			Patties			Hash browns			Dehydrated mashed			Canned		
	First pur.	Pur. in 1957	Pent. repur.	First pur.	Pur. in 1957	Pent. repur.	First pur.	Pur. in 1957	Pent. repur.	First pur.	Pur. in 1957	Pent. repur.	First pur.	Pur. in 1957	Pent. repur.
Year	No.	No.	pent.	No.	No.	pent.	No.	No.	pent.	No.	No.	pent.	No.	No.	pent.
1948	6	4	66	...	...	...	...	...	...	...	...	...	3	1	33
1949	2	2	100	...	...	...	...	...	...	...	...	...	4	2	50
1950	8	6	75	...	...	...	...	...	...	...	...	...	5	4	80
1951	5	4	80	...	...	...	...	...	...	33	7	21	1	1	100
1952	13	7	54	1	1	100	...	...	...	...	...	...	11	6	55
1953	18	14	78	1	0	0	...	...	...	...	...	...	8	4	50
1954	33	15	45	3	2	67	2	1	50	...	...	...	11	7	64
1955	44	26	59	9	3	33	5	2	40	...	...	...	27	13	48
1956	32	11	34	9	3	33	4	2	50	28	7	25	24	10	42
1957 ¹	22	9	41	12	6	50	5	2	40	15	8	53	17	4	24
No response	19	6	32	3	0	0	3	0	0	14	2	14	31	3	10
TOTAL	202	104	38	38	15	39	19	7	37	90	24	27	142	55	39
Repurchased during previous three months		(81)			(14)			(4)			(12)			(45)	

¹First ten months.

Appendix Table 4.—Per unit consumption of fresh potatoes and frozen French fries by six characteristics of consumers, classified by (1) occupation of husband, (2) size of housewife's pre-adolescent community, and (3) nationality of housewife's mother, and classified within these three characteristics by (1) households that have used frozen French fries in the past three months, (2) households that have used them at some time, but not in the last three months, and (3) households that have never used processed potatoes.

Pounds of fresh potatoes and frozen French fries used per unit per year													
Nationality	Group ²	Occupational group I				Occupational group II				Occupational group III			
		Community 1 ³		Community 2 ⁴		Community 1		Community 2		Community 1		Community 2	
		Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed
American	1					200 (3)	4.22 (3)	73 (4)	2.15 (4)	72 (1)	1.14 (1)	94 (4)	4.88 (4)
	2	241 (2) ¹		46 (1)		231 (2)		101 (6)		109 (2)		49 (4)	
	3	240 (1)		260 (1)		176 (1)		130 (1)		141 (3)		76 (3)	
German	1	103 (2)	9.32 (2)	166 (1)		108 (9)		153 (5)	3.62 (5)	190 (10)	2.83 (10)	86 (9)	10.6 (9)
	2	85 (1)			3.29 (1)	145 (10)		110 (6)		220 (4)		127 (10)	
	3	202 (3)		105 (2)		203 (16)		118 (16)		203 (5)		200 (3)	
Norwegian	1									137 (1)	3.03 (1)	130 (1)	20.2 (1)
	2					104 (1)		39 (1)		91 (1)		6 (1)	
	3					130 (2)							
Swedish	1									135 (2)	5.35 (2)	46 (1)	
	2					26 (2)							
	3					162 (1)		214 (1)					
Polish	1							116 (3)	8.00 (3)	221 (1)	5.44 (1)	92 (3)	1.16 (3)
	2					170 (3)		133 (6)		122 (1)		310 (4)	
	3	78 (1)				104 (2)		124 (1)				79 (5)	
French	1							507 (1)	30.3 (1)			168 (2)	10.9 (2)
	2					208 (2)		189 (1)		32 (1)		41 (2)	
	3							134 (1)					
English	1							182 (1)	3.4 (1)			143 (3)	7.9 (3)
	2					65 (2)		244 (2)		85 (1)		338 (1)	
	3					85 (1)				132 (1)		182 (1)	
Italian	1							338 (1)	1.5 (1)			318 (1)	10.9 (1)
	2							344 (1)					
	3												
Irish	1					208 (1)	1.20 (1)			39 (1)	2.73 (1)	58 (1)	19.7 (1)
	2					134 (4)						254 (2)	
	3							240 (1)					
AVERAGE	1	103 (2)		186 (2)	2.40 (2)	140 (16)	4.17 (16)	150 (16)	3.9 (16)	166 (17)	3.22 (17)	123 (24)	8.9 (21)
	2	180 (3)		22 (2)		146 (32)		131 (26)		157 (15)		126 (24)	
	3	229 (6)		131 (4)		171 (28)		152 (22)		168 (13)		123 (14)	

¹() Number of households.

²Group 1 equals households that have used products in last three months.

Group 2 equals households that have used products, but not in the previous three months.

Group 3 equals households that have never used products.

³Community 1 includes rural and small towns up to 50,000 population.

⁴Community 2 includes cities over 50,000 population.

Appendix Table 5.—Per unit consumption of fresh potatoes and processed frozen patties by six characteristics of consumers, classified by (1) occupation of husband, (2) size of housewife's pre-adolescent community, and (3) nationality of housewife's mother, and classified within these three characteristics by (1) households that have used processed frozen patties in the past three months, (2) households that have used them at some time, but not in the last three months, and (3) households that have never used processed potatoes.

Pounds of fresh potatoes and frozen patties used per unit per year													
		Occupational group I				Occupational group II				Occupational group III			
		Housewife's pre-adolescence community				Housewife's pre-adolescence community				Housewife's pre-adolescence community			
		Community 1 ³		Community 2 ⁴		Community 1		Community 2		Community 1		Community 2	
Nationality	Group ²	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed
American	1	71.5 (1) ¹						33 (1)	4.55 (1)	26 (1)	1.3 (1)		
	2											101 (2)	
	3	240 (1)		260 (1)		176 (1)		208 (1)		141 (3)		76 (3)	
German	1							286 (1)	4.2 (1)			80 (2)	3.8 (2)
	2					110 (1)				188 (1)		114 (2)	
	3	202 (3)		105 (1)		203 (16)		118 (16)		203 (5)		200 (3)	
Norwegian	1												
	2												
	3					130 (2)							
Swedish	1					33 (1)	8.6 (1)						
	2												
	3					162 (1)		214 (1)					
Polish	1							266 (1)	9.1 (1)			176 (1)	6.6 (1)
	2							205 (2)				79 (5)	
	3	78 (1)				104 (2)		124 (1)				630 (1)	8.2 (1)
French	1											41 (2)	
	2							169 (1)					
	3									85 (1)	2.6 (1)		
English	1												
	2							182 (1)					
	3					84 (1)				150 (1)		182 (1)	
Italian	1												
	2							345 (1)					
	3												
Irish	1												
	2					71.5 (1)						95 (1)	
	3												
AVERAGE	1	71.5 (1)		215 (1)		218 (1)	.13 (1)	187 (3)	5.4 (3)	102 (3)	5.3 (2)	146 (4)	4.08
	2	71.5 (1)		131 (4)		110 (4)		255 (5)		188 (1)		95 (8)	
	3	229 (6)				171 (28)		152 (22)		168 (13)		123 (14)	

¹(1) Number of households.

²Group 1 equals households that have used products in last three months.

Group 2 equals households that have used products, but not in the previous three months.

Group 3 equals households that have never used products.

³Community 1 includes rural and small towns up to 50,000 population.

⁴Community 2 includes cities over 50,000 population.

Appendix Table 6.—Per unit consumption of fresh potatoes and processed frozen hash browns by six characteristics of consumers, classified by (1) occupation of husband, (2) size of housewife's pre-adolescent community, and (3) nationality of housewife's mother, and classified within these three characteristics by (1) households that have used processed frozen hash browns in the past three months, (2) households that have used them at some time, but not in the last three months, and (3) households that have never used processed potatoes.

Pounds of fresh potatoes and frozen hash browns used per unit per year													
Nationality	Group ²	Occupational group I				Occupational group II				Occupational group III			
		Housewife's pre-adolescence community				Housewife's pre-adolescence community				Housewife's pre-adolescence community			
		Community 1 ³		Community 2 ⁴		Community 1		Community 2		Community 1		Community 2	
		Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed
American	1							32 (1)	1.5 (1)			0 (1)	10.4 (1)
	2	72 (1) ¹						52 (1)				162 (2)	
	3	240 (1)		260 (1)		176 (1)		208 (1)		141 (3)		76 (3)	
German	1					72 (1)	4.04 (1)						
	2					110 (1)						116 (4)	
	3	202 (3)		105 (2)		203 (16)		118 (16)		203 (5)		200 (3)	
Norwegian	1												
	2												
	3					130 (2)							
Swedish	1					32 (1)	8.08 (1)						
	2												
	3					162 (1)		214 (1)					
Polish	1												
	2												
	3	78 (1)				104 (2)		124 (1)		221 (1)		79 (5)	
French	1												
	2							169 (1)					
	3												
English	1							182 (1)				182 (1)	
	2												
	3					70 (1)				150 (1)		182 (1)	
Italian	1												
	2												
	3												
Irish	1												
	2												
	3												
AVERAGES	1					46 (2)	6.5 (2)	32 (1)	1.5 (1)			0 (1)	10.4 (1)
	2	72 (1)				155 (2)		114 (3)				127 (6)	
	3	229 (6)		131 (4)		171 (28)		152 (22)		221 (1)		123 (14)	
										168 (13)			

¹() Number of households.

²Group 1 equals households that have used products in last three months.

Group 2 equals households that have used products, but not in the previous three months.

Group 3 equals households that have never used products.

³Community 1 includes rural and small towns up to 50,000 population.

⁴Community 2 includes cities over 50,000 population.

Appendix Table 7.—Per unit consumption of fresh potatoes and processed canned potatoes by six characteristics of consumers, classified by (1) occupation of husband, (2) size of housewife's pre-adolescent community, and (3) nationality of housewife's mother, and classified within these three characteristics by (1) households that have used processed canned potatoes in the past three months, (2) households that have used them at some time, but not in the last three months, and (3) households that have never used processed potatoes.

Pounds of fresh potatoes and canned potatoes used per unit per year													
Nationality	Group ²	Occupational group I				Occupational group II				Occupational group III			
		Housewife's pre-adolescence community				Housewife's pre-adolescence community				Housewife's pre-adolescence community			
		Community 1 ³		Community 2 ⁴		Community 1		Community 2		Community 1		Community 2	
		Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed
American	1	42 (3) ¹	9.3 (3)	74 (4)	.7 (4)			30 (2)	8.8 (2)	72 (1)	.93 (1)		
	2	488 (1)		95 (5)		32 (1)		121 (5)		390 (1)		46 (1)	
	3	141 (3)		76 (3)		176 (1)		208 (1)		240 (1)		260 (1)	
German	1	138 (2)	2.4 (2)	84 (2)	26.5 (2)	58 (1)	16.1 (1)	101 (4)	4.4 (4)	98 (1)	10.1 (1)		
	2	237 (4)		176 (8)		203 (12)		265 (7)		416 (1)			
	3	203 (5)		200 (3)		203 (16)		118 (16)		202 (3)		105 (2)	
Norwegian	1			65 (1)	50.5 (1)								
	2			169 (1)									
	3					130 (2)							
Swedish	1												
	2			46 (1)		13 (1)							
	3					162 (1)		214 (1)					
Polish	1			133 (2)	8.5 (2)			165 (3)	21.2 (3)				
	2	197 (3)		103 (5)		98 (1)		223 (6)					
	3			79 (5)		104 (2)		124 (1)		78 (1)			
French	1			86 (2)	5.1 (2)	182 (1)	10.4 (1)	507 (1)					
	2	377 (1)		180 (2)		162 (1)		188 (1)		72 (1)			
	3							169 (1)					
English	1	143 (1)	11.9 (1)			176 (2)	2.9 (2)	182 (1)	1.01 (1)				
	2					65 (1)		182 (1)					
	3	150 (1)		182 (1)		84 (1)							
Italian	1												
	2			318 (1)									
	3												
Irish	1												
	2	39 (1)				239 (2)		140 (3)					
	3							240 (1)					
AVERAGE	1	143 (7)	11.9 (7)	86 (12)	10.5 (12)	149 (6)	10.5 (6)	114 (13)	8.3 (13)	80 (2)	6.1 (2)		
	2	198 (14)		134 (25)		145 (24)		202 (20)		209 (3)		175 (2)	
	3	168 (13)		123 (14)		171 (28)		152 (22)		229 (6)		131 (4)	

¹(1) Number of households.

²Group 1 equals households that have used products in last three months.

Group 2 equals households that have used products, but not in the previous three months.

Group 3 equals households that have never used products.

³Community 1 includes rural and small towns up to 50,000 population.

⁴Community 2 includes cities over 50,000 population.

Appendix Table 8.—Per unit consumption of fresh potatoes and processed dehydrated mashed potatoes by six characteristics of consumers, classified by (1) occupation of husband, (2) size of housewife's pre-adolescent community, and (3) nationality of housewife's mother, and classified within these three characteristics by (1) households that have used processed dehydrated mashed potatoes in the past three months, (2) households that have used them at some time, but not in the last three months, and (3) households that have never used processed potatoes.

		Pounds of fresh potatoes and frozen dehydrated mashed used per unit per year											
Nationality	Group ²	Occupational group I				Occupational group II				Occupational group III			
		Housewife's pre-adolescence community				Housewife's pre-adolescence community				Housewife's pre-adolescence community			
		Community 1 ³		Community 2 ⁴		Community 1		Community 2		Community 1		Community 2	
		Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed	Fresh	Processed
American	1					26 (1)	4.3 (1)	72 (1)	.5 (1)				
	2	208 (1) ¹		54 (1)		82 (3)		131 (3)		241 (2)			
	3	176 (1)		208 (1)		141 (1)		76 (3)		240 (1)		260 (1)	
German	1			286 (1)	.05 (1)	124 (2)	1.7 (2)						
	2	127 (6)		192 (6)		362 (2)		125 (7)					
	3	203 (16)		118 (16)		203 (5)		200 (3)		202 (3)		105 (2)	
Norwegian	1												
	2	58 (1)				136 (1)		135 (2)					
	3	130 (2)											
Swedish	1							46 (1)					
	2	13 (1)											
	3	162 (1)		214 (1)									
Polish	1												
	2			201 (4)		703 (2)		112 (3)					
	3	104 (2)		124 (1)				79 (5)		78 (1)			
French	1							240 (1)					
	2	135 (2)											
	3			169 (1)				86 (2)					
English	1							247 (7)					
	2	188 (1)		182 (1)		84 (1)		185 (2)					
	3	84 (1)				150 (1)		182 (1)					
Italian	1												
	2			344 (1)									
	3												
Irish	1												
	2							422 (1)					
	3			240 (1)									
AVERAGES	1	202 (1)	3.9 (2)	185 (2)	.4 (2)	85 (3)	1.2 (3)	183 (4)	1.6 (4)				
	2	113 (18)		176 (17)		243 (10)		120 (24)		241 (2)			
	3	171 (28)		152 (22)		168 (13)		123 (14)		229 (6)		131 (40)	

¹(1) Number of households.

²Group 1 equals households that have used products in last three months.

Group 2 equals households that have used products, but not in the previous three months.

Group 3 equals households that have never used products.

³Community 1 includes rural and small towns up to 50,000 population.

⁴Community 2 includes cities over 50,000 population.

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